



UNIVERSITAT DE
BARCELONA

Grounding, Subjectification and Deixis: Modal Constructions in Catalan Sign Language and Their Interaction with Other Semantic Domains

Maria Josep Jarque

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and Their Interaction with Other Semantic Domains**

Maria Josep Jarque

Ph. Dissertation

Universitat de Barcelona

Barcelona, January 2019



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and Their Interaction With Other Semantic Domains**

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Tesi doctoral

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Línia de recerca: 7 Habilitació i adquisició del llenguatge, la comunicació augmentativa i
l'escriptura en persones amb necessitats educatives especials

Barcelona, gener 2019

Per al Clan Jark

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Acknowledgments - Agraïments

La tesi que teniu a les vostres mans ha fet un llarg viatge, físic, cognitiu i emocional. Es va gestar a les planúries i a l'ombra de les Sandías de New Mexico (USA), va néixer a Barcelona, la base de dades va prendre forma a Istanbul i va fer una bona estirada a Londres. A Trieste i en diverses estades, van prendre forma l'anàlisi i la redacció dels capítols, que van madurar al Matarranya i van tancar-se a Barcelona. En totes aquestes anades i tornades, l'he compartit i he estat acompanyada de persones que m'han ajudat a avançar i d'altres a aturar-me, o fins i tot m'han fet deixar-la de banda durant mesos o anys, per reprendre-la amb idees, teories i energies renovades. A totes elles, moltes gràcies!

És un treball que parteix i posa la mirada en l'horitzó educatiu perquè va ser en la meua experiència escolar de primària (l'EGB del moment) on va néixer la passió pel llenguatge, les llengües i la seva anàlisi. Amb els meus primers mestres *de llengua* Jesús Santiago i el Josep Casal vaig gaudir fent arbres sintàctics d'encavalcaments de subordinades (sic!) i analitzant la morfologia de les paraules. I ja a la secundària (el BUP i el COU), vaig aplicar-me amb la suposada lògica del llatí amb la Trinitat Castellví i amb una "pre-anàlisi" generativa de les construccions sintàctiques amb la Teresa Martínez.

Aquesta intuïció de passió per la taxonomia (com em diu algú mooolt proper!) i les funcions lingüístiques es va confirmar a la llicenciatura. Recordo amb molta vivesa com vibrava a les classes de *Lexicologia Catalana* i de *Lingüística Aplicada* de la M. Teresa Cabré i Castellví, de *Morfologia Catalana* de la Rosa Lloret, la *Gramàtica Generativa* de la Joana Rosselló i la *Sintaxi Catalana* del desaparegut Joan Solà. La Teresa Cabré em va oferir la meua primera beca a l'Institut d'Estudis Catalans en el projecte d'actualització del Diccionari de la llengua catalana i em va animar a fer recerca. Les seves classes a la Universitat van ser sempre un model de passió i rigorositat, sempre proporcionant exemples lingüístics connectats amb la realitat. També va saber inspirar als seus alumnes

la necessitar de transferir el coneixement sobre les llengües a la societat i incidir en ella. Moltes gràcies, Teresa.

La Rosa Lloret i la Joana Rosselló van significar l'enfrontament amb la complexitat dels constructes teòrics dels models lingüístics. Del Joan Solà, vaig aprendre a qüestionar i contrastar les dades amb el que s'havia dit sobre elles.

Posteriorment, el desig de fer recerca sobre adquisició del llenguatge em va portar a l'antic Departament de Psicologia Evolutiva i de l'Educació de UB. Amb la Maria-José del Río vaig descobrir que un altre concepte del llenguatge i del seu aprenentatge és possible, vinculat a la funció, als processos interactius i em va confirmar les meves sospites respecte a les propostes innatistes. Amb l'Ana Teberosky, vaig descobrir com els aprenents construeixen la competència textual i em va encomanar la passió per l'ensenyament de la lectura i l'escriptura. De l'Eduard Martí vaig aprendre què era el desenvolupament i l'aprenentatge.

Les classes de la Carme Triadó sobre adquisició del llenguatge en el nen sord van ser clau. Sempre li agrairé que ens fes llegir *Seeing voices* ('Veig una veu') del neuròleg americà Oliver Sacks. Més enllà de l'apassionant narració sobre la revolució sorda a la Gallaudet University, les seves llargues notes a peu de pàgina em van fer entreveure la complexitat de les llengües de signes no només des d'una perspectiva lingüística i psicolingüística, sinó també identitària i cultural. Un descobriment impactant!

Va ser aleshores, quan la M. Pilar Fernández-Viader, una de les directores de la tesi, em va proposar de llançar-me a aquesta aventura, quan l'àrea de l'estudi de la llengua de signes catalana (LSC) era un espai verge i no existia cap estudi lingüístic. L'única publicació era el *Diccionario de signos manuales* dut a terme pel conegut audiòleg Jordi Perelló i el recentment desaparegut Juan Frigola, el primer professor d'LSC. També era un moment teòric complex per una dominància pràcticament absoluta de les propostes formalistes i bona part de la recerca sobre les llengües de signes estava orientada fonamentalment a demostrar que eren llengües genuïnes o a contribuir a la perspectiva generativista, determinant el seu caràcter innat o confirmant algun aspecte d'aquesta teoria.

Amb la M. Pilar Fernández i el Josep M. Segimon vam iniciar la primera descripció de l'adquisició d'elements fonètics de l'LSC, les configuracions de la mà. Durant aquesta investigació, ens vam adonar que era impossible examinar el procés d'adquisició de LSC sense prèviament realitzar investigacions sobre la varietat de llengua adulta. A més, la meua competència en LSC era massa limitada per analitzar les interaccions entre nens i adults. Per aquestes raons, vaig refer el rumb cap a la descripció de la gramàtica i del discurs de l'LSC a pas lent, tot aprenent l'LSC i endinsant-me en la comunitat sorda signant catalana. Pilar, moltes gràcies per tot.

Van ser uns anys d'intensa participació en el moviment associatiu sord, d'aprenentatge i d'elaboració de recursos sobre l'LSC. Primer, en la Comissió de Materials de la FESOCA (Federació de Sords de Catalunya) i, més endavant, en la creació de l'associació ILLESCAT (Centre d'Estudis de la Llengua de Signes Catalana) i de la posterior Fundació ILLESCAT. Moltes gràcies als meus companys sordsignants per tots els moments compartits i tots els aprenentatges que vam fer: Josep Boronat, Imma Codorniu, Santiago Frigola, Carlos García, M. Engracia Palomo, Encarna Serrano i Josep M. Segimon.

En especial, l'Imma Codorniu va ser la meua primera professora d'LSC i, posteriorment, amiga entranyable i companya de recerca. El Josep M. Segimon ha estat el meu millor assessor sord i suport en la recollida de dades per a la tesi. Moltes gràcies, Pepet, per la teua generositat, clarividència i compromís amb l'LSC. Sempre has estat disponible per oferir-me ajuda o resoldre dubtes. Una de les millors motivacions que he tingut per tancar la tesi ha estat la teua promesa de regalar-me una pintura teua. Hi tinc la paret destinada i l'he mantinguda buida aquests anys!

Paral·lelament, vaig anar endinsant-me en noves propostes teòriques lingüístiques de la mà d'un grup d'estudiants de doctorat i professors. La discussió sobre les lectures en ciència cognitiva i lingüística cognitiva a les reunions dels WECS (*Wednesday Evening Cognitive Science Society*) van ser definitives. Moltes gràcies a tots ells: Mar Garachana, Joseph Hilferty, Eva Juarros, Esther Pascual, Teresa Vallès i Òscar Vilarroya, entre d'altres.

El desig de saber més i millorar la meva formació acadèmica em va portar a fer un *Master of Arts in Linguistics* a la University of New Mexico (Estats Units). Allà vaig endinsar-me a fons en la Lingüística Cognitiva i la Teoria de la Gramaticalització, tant amb relació a les llengües parlades com a les llengües de signes! Vaig estudiar amb Sherman Wilcox, Joan Bybee, Phyllis Wilcox, Jill Morford, Melissa Axelrod o Vera John-Steiner, coneguts autors, el treball dels quals ha estat fonamental per a l'elaboració d'aquesta tesi. Sherman Wilcox m'ha acompanyat des d'aleshores, esdevenint un model de lingüista oïdor que s'aproxima a les llengües de signes considerant-les en la seva complexitat i amb un fort compromís científic. Amb la Phyllis Wilcox vam compartir la metàfora i la metonímia conceptual en un pidging comunicatiu digne d'estudi. Moltes gràcies als dos per acollir-me!

A la University of New Mexico vaig treballar conjuntament en un projecte de recerca amb Jim McFarlane, Elisa Maroney, Karen Naughton i Barbara Shaffer, reflexionant i aprofundint sobre la metodologia d'investigació i la implicació de treballar amb una minoria lingüística i cultural. Vaig aprendre llengua de signes americana en cursos universitaris amb Bonnie J. Rudy i, per tant, vaig tenir accés a una comprensió més profunda de les seves descripcions i estudis lingüístics. El treball i les discussions amb Sherman Wilcox i Barbara Shaffer vinculats a la modalitat van constituir la base d'aquesta tesi doctoral. Mai us podré expressar del tot el meu agraïment!

L'assistència al *Linguistic Institute* a la *University of California* a Santa Barbara em va oferir l'oportunitat d'assistir a les classes de Elizabeth Bates, Scott DeLancey, John DuBois, Paul Hopper, Suzanne Kemmer, Ronald Langacker, Charles Li, Marianne Mithun, Eve Sweetzer, Sandra Thompson, Elisabeth Closs Traugott, entre d'altres, completant així la meva formació i enriquiment.

En tota aquesta estada americana també van ser fonamentals els meus companys de màster, especialment Simoni Benicio Valadares, Catie Berkenfield, Li-Hsiang Chang, Mayra Cortés-Torres, Jose E. Hernández, Kery Holley, Jim MacFarlane, Dan Parvaz, Christopher Shank, Natalya Stukova, Denise i Jay S. Williams.

Posteriorment, vaig fer una estada de quatre mesos a la *City University London*, on vaig ser acollida pel Gary Morgan i la Bencie Woll. Allà vaig tenir l'oportunitat de conèixer la

Brenda Schick i aprofundir en la Teoria de la Ment i la cognició social, i relacionar-la, així, amb la modalitat gramatical i l'evidencialitat. Thank you very much!

Altres lingüistes de les llengües de signes amb qui he tingut l'oportunitat de coincidir en congressos i projectes, amb quin compartim la mirada sobre les llengües de signes i que han contribuït amb els seus treballs al desenvolupament d'aquesta tesi són G. Barberà (Universitat Pompeu Fabra), M. Carmen Cabeza (Universidade de Vigo), Ana F. Fernández (Universidade de Vigo), Terry Janzen (University of Manitoba, Canadà), Lorraine Leeson (The University of Dublin), Rocío Martínez (CONICET, Buenos Aires), María Massone (CONICET, Buenos Aires), Esperanza Morales (Universidade A Coruña), Josep Quer (Universitat Pompeu Fabra), Carolina Plaza-Pust (Goethe-Universitaet Frankfurt am Main), la desapareguda Elena Pizzuto (CNR, Roma) i Erin Wilkinson (University of New Mexico, USA). Esperanza, moltes gràcies pels projectes compartits i per la teva mirada sempre crítica i àmplia cap als fenòmens lingüístics i socials.

També vull fer una menció especial a les persones que formaven part quan jo hi era del grup APRELS (Desenvolupament, ensenyament i aprenentatge de persones sordes i usuàries de llengües de signes) de la Facultat de Formació del Professorat de la Universitat de Barcelona, coordinat per la M. Pilar Fernández: Mariana Fuentes, Montse Moreno, Macarena Pérez, Esther Pertusa, Claudia Portilla, Imad Samadi i Sílvia Valdespino. Una forta abraçada va per a l'Esther Pertusa, companya de formacions i d'escriptura.

Tampoc no voldria deixar d'esmentar els companys del Cicle Formatiu de Grau Superior en Interpretació de la Llengua de Signes de l'INS Consell de Cent, amb qui vam compartir moltes hores de feina, il·lusions i neguits sobre com formar intèrprets d'LSC: Manuel Arizaga, Vanessa Beroy, Gemma Carreño, Imma Codorniu, Esther de los Santos, Esther Gálvez, Carlos García, Karen González, Noelia Hernández, Lúdia Lozano, M. Engracia Palomo, Núria Reig, Josep M. Segimon, Mari Serrano, Encarna Serrano i Juan Valenzuela.

Al llarg d'aquests anys, la docència ha estat una activitat fonamental vinculada a la tesi. Les classes i les formacions impartides han estat espais on comunicar, compartir i construir coneixement. Moltes gràcies als estudiants del cicle, dels graus de Psicologia i Mestre i dels postgraus d'Especialista en Llengua de signes i Comunitat Sorda per les

seves preguntes estimulants, els seus dubtes i les seves reflexions sobre les llengües de signes, la comunitat sorda signant i la sordesa. Alguns d'ells han estat posteriorment companys de feina, de projectes i de llargues converses. En especial, no puc deixar d'esmentar a Toni Cabanillas, Marian González, M. Josep Jové, Kristian Lara, Eva Marín, Pablo Navarro, Sara Palmer, Yolanda Pérez, Sílvia Sánchez i Alícia Sort.

Un altre moment important de formació i avenç de la tesi va ser l'estada a Groningen (Països Baixos) amb l'Esther Pascual, on vaig conèixer altres lingüistes experts en *Fictive interaction*: en especial, Alan Cienky, Aline Dornelas, Sergeiy Sandler, Stef Spronck i Mingjian (Wesley) Xiang. Esther, moltes gràcies per la fabulosa acollida i tota la feina feta plegades durant aquests anys.

Dec molt a *l'Àrea de Lingua*, format per l'Ana Teberosky, la Núria Ribera i la Júlia Coromina. La construcció dialògica del coneixement al voltant del projecte *Linguagem 0-5* ha estat una de les millors experiències acadèmiques. Ana, moltes gràcies per la teva mirada complexa i intel·ligent sobre les llengües, el seu ensenyament i la recerca.

La tesi també es nodreix dels avenços i les discussions dins del Grup de recerca GRADIA (Gramàtica i Diacronia) de la Universitat de Barcelona, coordinat per la Mar Garachana: Esther Artigas, M.Pilar Ballesteros, Laura Cabré, Bert Cornillie, Álvaro Octavio de Toledo y Huerta, Axel Hernández, Dorien Nieuwenhuijsen i Malte Rosemeyer. Moltes gràcies a tots per compartir la passió per la construcció de la gramàtica i a la Mar Garachana, especialment, per ser una valuosa directora en l'etapa final d'aquesta tesi.

Els últims anys, m'han acompanyat molt d'aprop els membres del grup de recerca CLOD (Comunicació, Llengua Oral i Diversitat) de la Secció de Desenvolupament i Psicologia de l'Educació, coordinat per la Marta Gràcia: Laura Amado, Daniela Betancourt, Sonia Jarque, Núria Vinyoles, Carles Riba, Gemma Santolaria i Fàtima Vega, així com alumnes de grau i les investigadores visitants, entre elles, la Camila Domeniconi i la Cristina Lacerda. Una abraçada molt forta a totes elles i al Carles, com acostumem a dir. Marta, moltes gràcies per tots els projectes compartits i per incloure les llengües de signes, els seus usuaris i ensenyants en l'EVALOE-SSD. Cristina, gràcies per tot el que hem construït juntes.

Els meus agraïments s'adrecen també per al professorat de la Secció de Psicologia Evolutiva i de l'Educació de la Facultat de Psicologia, especialment als companys de l'assignatura de *Trastorns del Desenvolupament*: Ana Luisa Adam, Lúdia Caballero, Maria Carbó, Marc Coronas, Fina Ferrer, Mercè García-Milà, M. Ángeles Ortega, Esther Pertusa, Fàtima Vega i Rosa Vilaseca. També, a les companyes de l'assignatura *Intervenció en les Dificultats de Comunicació, Lectura i Escripura*: Marta Gràcia, Núria Vinyoles i Ana Luisa Adam pels moments compartits.

A més, he tingut la sort de tenir les millors companyes de despatx, amb qui he compartit el món acadèmic i la vida. En especial, la Mónica Aldana, la Fina Ferrer, la Sandra Gilabert, l'Angélica Sepúlveda i l'Ana Martorell. Moltes gràcies!

A la Comissió de Doctorat de la Secció: la Marta Gràcia, la Teresa Mauri i l'Anna Engel, moltes gràcies pel suport proporcionat. També voldria adreçar un esment especial a l'Olga Canals, per tot el seu suport sempre i, especialment, en l'última fase tant burocràtica d'aquest procés. Al tutor de la tesi l'Emili Soro, moltes gràcies pel teu acompanyament, no només respecte de la tesi, que tant ha ajudat a tancar-la, com al llarg dels anys compartint la docència de *Trastorns del Desenvolupament*.

A la Marta Bosch-Baliarda, companya de recerca i escriptura, i amiga, moltes gràcies per la teva complicitat. Algun dia assolirem el somni compartit de poder treballar formalment juntes, i no en trobades ocasionals. També una forta abraçada d'agraïment a la Judit Farrerons per totes les xerrades improvisades sobre les llengües de signes, les activitats compartides i el projecte d'interpretació de cançons i poesia, en companyia de la Marta Serra. Vam ser un equip fenomenal. El Paco Ibáñez encara es deu recordar de nosaltres!

Els principals beneficiaris d'aquesta tesi són els infants sords signants i els seus educadors. De la seva educació i creixement personal depèn l'existència de la comunitat sorda signant: l'LSC és una llengua minoritària minoritzada i en perill d'extinció. Als docents vinculats a l'educació dels aprenents sords i especialment a les logopedes del CREDA Pere Barnils i del CREDA Jordi Perelló. Vull expressar el meu agraïment als membres del Grup de treball del Currículum de l'LSC – Maria Asta, Pepita Cedillo, Fernando Galceran i Menchu González— i del Grup de treball dels Comportaments Lingüístics en LSC – Pepita Cedillo, Gemma Gavilán, Natalia Lagunas, Carles Llombart i

Marta Vinardell. També voldria fer un esment especial per a la Mercè Rexach, l'Esther Molins i la Mari Serrano.

Un agraïment a les persones sordes que tan generosament han compartit amb mi la seva llengua, tant en els projectes en què hem coincidit com pels seus textos signats publicats. Vull adreçar una forta abraçada a la Mar Cedillo, la Pepita Cedillo i la M. Tiscar. Moltes gràcies de cor per la vostra generositat i confiança. Vull agrair, també, a les persones sordes signants que m'han permès emprar la seva imatge per il·lustrar algunes construccions: Delfina Aliaga, Albert Casellas, Imma Codorniu, Santiago Frigola, Berta Frigola, Josep M. Segimon i Marina Martínez.

Vull adreçar un record especial a l'Àngels, Marta, Núria, el Juanjo, el Lluís, Lluísmi, la Rosa i l'Oriol que em van acompanyar quan vaig decidir fer recerca sobre l'LSC. En l'etapa americana, sempre vaig tenir l'escalf del companys de viatge l'Eider i l'Ismael, així com la resta dels becaris de La Caixa, d'aquella fornada. Altres companys de vida importants: Rosa, Nieves, Antonio i Olga. A les meves bruixes i bruixot: la Cristina, l'Eva, la Montse, l'Olga i el Cesc, moltes gràcies per tenir cura de la meva salut. Moltes gràcies també a la xarxa de mames i papes de l'escola, per la seva generositat, el seu suport i per acollir i cuidar les meves filles en els moments en què jo havia de posar-me a escriure, en especial, la Pilar, la Mercè, el Luca i Fran. Als amics i amigues que han estat acompanyant sense posar pressió: el Miquel, la Carme i la resta de la triple M: l'Àngels i la Marta. A la Marta mai podré agrair-li prou la seva amistat, estimació i suport incondicional. Quan siguem grans grans, recuperarem l'olla.

Finalment, moltíssimes gràcies a la meva tribu, el Clan Jark, per ser-hi sempre, pel seu suport incondicional, amorós i logístic. Als meus pares, el Josep i la M^a Carmen, i els meus germans, Montse & Miquel, Mar & Roger, Francesc & Raquel i Carme & Aitor. El Roger Quevedo per les seves magnífiques il·lustracions que han contribuït a arrencar somriures enmig de la lectura. La Carme també va col·laborar en la seva logística en diversos moments. Als nebots, Queralt, Martí, Ona, Farners i Ari, només els demano perdó per no haver passat tot el temps amb ells que hagués volgut. Per a les meves filles, Dúnia i Nàdia, que m'han distret, allunyat de la tesi i alhora l'han feta possible. Ara tindrem temps de tatxar les llargues llistes d'activitats pendents. A Mario, company de

somnis, projectes i reptes amb majúscula, totes les paraules que t'adreci no poden fer justícia per reconèixer el teu suport, generositat i estimació. Seguirem viatjant!

Barcelona, octubre del 2018

Abstract

This dissertation is framed in the overlap of two disciplines: educational linguistics and theoretical linguistics. We will focus on signed languages, the visual-gestural linguistic systems of the communities of Deaf people. The dissertation stems from the need to conduct research on Catalan Sign Language (LSC), an understudied language used by the deaf and deaf-and-blind signing community in Catalonia. Furthering this research will undoubtedly benefit education of deaf signer learners, since LSC constitutes a language of instruction guaranteeing accessibility and it is pivotal for the identity construction.

The study investigates the linguistic expression of modality in Catalan Sign Language (LSC), a topic without previous research. It assumes a broad notion of modality including volitive values, and the traditionally labelled deontic/root and epistemic functions. Moreover, it deals with other semantic/functional domains, particularly, negation, evidentiality, and aspect in order to identify their interaction.

The research adopts a cognitive-functional perspective on language (Barcelona, 2002; Bybee, 2010; Geeraerts, 2006; Janzen, 2012; Lakoff & Johnson, 1991; Shaffer, 2004; Talmy, 1988; Wilcox, 2004). The analysis is conducted according to the principles of Cognitive Grammar (Langacker, 1987, 2001, 2009, 2013 *inter alia*). It assumes, also, the principles of (Diachronic) Construction Grammar theory (Garachana, 2015; Hooper & Traugott, 1993, 2003; Traugott & Dasher, 2002; Traugott & Dasher, 2002; Traugott & Trousdale, 2013).

As for the method, the study adopts a qualitative perspective. The source of the data is a small-scale corpus, which includes three semi-structured interviews to deaf signers, specifically designed for the study of modality, and a set of naturalistic texts of different typology from different media in the Catalan Sign Language community (mainly, news media on the internet, personal webs and story tales).

The results show that the semantic domain of modality is expressed with constructions of different specificity (micro-, meso- and macro-constructions) with the insertion of substantive elements of different category (free markers, mental state predicates, adjective predicates, and discourse markers). The study takes into account conceptual semantics and syntactic distribution, both in information structure constructions and

argumental syntactic constructions. As for negation, it focusses on the negation of modal resources and on modal negators. Regarding evidentiality, the study describes evidential constructions in LSC. We argue that modality and evidentiality constitute different categories in LSC.

In addition, our research is concerned with two issues of the interface gesture-language. First, it evaluates the two-route hypothesis, according to which grams in signed languages develop from gesture via lexical elements and non-manual gestures become non-manual grammatical elements bypassing the lexical stage (Janzen & Shaffer, 2002; Wilcox, 2002, 2010). Subsequently, we posit a third developmental path, where manual gestural elements enter the language as discourse markers/gestures that acquire a grammatical function and are, therefore, a product of pragmaticalization.

Concerning the grounding function, we argue that the full-fledged modals carry out a grounding function and constitute grounding predications, since they are highly grammaticalized, the conceptual import is related to the epistemic notion of reality and the ground is subjectively construed.

The study concludes that modality constitutes a grammatical category in LSC. It contributes to on-going debates in three different areas enriching them with data and analysis of languages expressed in the gestural-visual modality: (i) the conceptualization and formal expression of modality, negation, evidentiality and aspect; (ii) the nature of a grammatical category; and (iii), controversial issues of language change studies, such as the lexicalization-grammaticalization and grammaticalization-pragmaticalization interface, the relation between grammaticalization, constructionalization and (inter)subjectification and the status of pragmaticalization.

Resum

Aquesta tesi s'inscriu en la intersecció de dues disciplines: la lingüística educativa i la lingüística teòrica. Aborda l'estudi de les llengües de signes, els sistemes lingüístics de les comunitats de persones sordes i sordcegues signants. La tesi parteix de la necessitat de dur a terme recerca sobre la llengua de signes catalana (o LSC), una llengua poc investigada emprada per la comunitat sorda i sordcega signant a Catalunya. Avançar en la recerca indubtablement beneficiarà l'educació dels aprenents sords signants, atès que l'LSC constitueix una llengua d'instrucció que garanteix l'accessibilitat i és pilar per a la construcció de la identitat.

L'estudi analitza l'expressió lingüística de la modalitat en l'LSC, un tema no investigat prèviament. Assumeix una concepció àmplia d'aquest espai semàntic que inclou els valors volitius, així com els tradicionalment denominats deòntics/radicals i les funcions epistèmiques. A més a més, comprèn l'anàlisi d'altres dominis semàntics/funcionals com són la negació, l'evidencialitat i l'aspecte, amb la finalitat d'observar la seva interacció amb la modalitat.

La recerca adopta una perspectiva cognitiva-funcional sobre el llenguatge (Barcelona, 2002; Bybee, 2010; Geeraerts, 2006; Janzen, 2012; Lakoff & Johnson, 1991; Shaffer, 2004; Talmy, 1988; Wilcox, 2004). L'anàlisi es duu a terme seguint els principis de la Gramàtica Cognitiva (Langacker, 1987, 2001, 2009, 2013 inter alia). Assumeix, també, els principis de la Gramàtica de Construccions (Diacrònica) (Hooper & Traugott, 1993, 2003; Traugott & Dasher, 2002; Traugott & Trousdale, 2013).

Pel que fa al mètode, l'estudi adopta una perspectiva qualitativa. La font de dades és un corpus a petita escala, que inclou entrevistes semi-estructurades a signants sords, dissenyades específicament per a l'estudi de la modalitat, així com un conjunt de texts naturalistes de diferent tipologia provinents de diversos mitjans de la comunitat signant (principalment, notícies de portals d'internet, webs personals i contes).

Els resultats indiquen que el domini semàntic de la modalitat s'expressa amb construccions de diversos nivells d'especificitat (micro-, meso- i macro-construccions) amb la inserció d'elements substantius de diferent categoria (marcadors lliures, predicats d'estat mental, predicats adjectius, etc.). L'anàlisi comprèn la semàntica conceptual i la distribució sintàctica, tant amb relació a construccions d'estructura informativa com de

sintàctica argumental. Pel que fa a la negació, inclou tant la negació de recursos modals com els negadors modals. Quant a l'evidencialitat, l'estudi descriu construccions evidencials en LSC. Argumentem que la modalitat i l'evidencialitat constitueixen categories diferenciades en l'LSC.

A més, la nostra recerca aborda dues qüestions relacionades amb la interfície gest-llengua. En primer lloc, avalua la hipòtesi de les dues vies, segons la qual els morfemes gramaticals lliures en les llengües de signes es desenvolupen a partir de gestos manuals que entren en la llengua com a elements lèxics mentre que els gestos no manuals esdevenen elements gramaticals no manuals sense transitar una etapa lèxica (Janzen & Shaffer, 2002; Wilcox, 2002, 2010). Posteriorment, defensem una tercera via de desenvolupament, en la qual els elements gestuals manuals s'incorporen a la llengua com a marcadors discursius/gestos i, posteriorment, adquireixen una funció gramatical i, per tant, són producte de la pragmaticalització.

Pel que fa a la funció d'ancoratge, argumentem que alguns elements modals de l'LSC porten a terme la funció d'ancoratge i que alguns d'ells constitueixen predicacions d'ancoratge, atès el seu un alt grau de gramaticalització, el seu import conceptual està relacionat amb la nocions epistèmiques vinculades a la identificació del context i el context de la interacció és interpretat de manera implícita.

L'estudi conclou que la modalitat constitueix una categoria gramatical en l'LSC. D'altra banda, contribueix a la discussió lingüística actual en tres àrees diferents, enriquint-los amb dades i anàlisi des de la perspectiva de les llengües expressades en la modalitat gesto-visual: (i) la conceptualització i l'expressió formal de la modalitat, la negació, l'evidència i l'aspecte; (ii) la naturalesa d'una categoria gramatical; i (iii) qüestions controvertides vinculades a l'estudi del canvi lingüístic, com la interfície lexicalització-grammaticalització i gramaticalització-pragmaticalització, així com la relació entre gramaticalització, constructionalització i la (inter)subjectivitat i la pragmaticalització.

Abbreviations

General abbreviations and acronyms

Abbreviation/Acronyms	Meaning
AAC	augmentative and alternative communication
ASD	Autism Spectrum Disorder
Aud	auditory
Cat.	Catalan
End	endophoric
Eng.	English
Exp	experiential
Fig.	Figure
Folk	folklore
Fr.	French
GenInf	generic inference
Hin.	Hindi
Int.	interviewer
It.	Italian
Lit.	literally
Quo	quotative
Rep	reportative
Resp.	respondent (interviewed)
RQ	research question
Rus.	Russian
SL	sign language
SLI	specific language impairment
SoAs	State of Affairs
Sp.	Spanish
SpecInf	specific inference
SpL	spoken language
Tact	tactile
TAME	tense-aspect-modality-evidentiality
ToM	Theory of mind
Turk.	Turkish
Vis	visual

Signed languages names and their acronyms

List of sign language names	Acronym
Adamorobe Sign Language	AdaSL
Al-Sayyid Bedouin Sign Language	ABSL
American Sign Language	ASL
Argentinean Sign Language (<i>lengua de señas argentina</i>)	LSA
Australian Sign Language	Auslan
Austrian Sign Language (<i>Österreichische Gebärdensprache</i>)	ÖGS
Brazilian Sign Language	LIBRAS
British Sign Language	BSL
Catalan Sign Language (<i>llengua de signes catalana</i>)	LSC
Chinese Sign Language	CSL
Danish Sign Language	DSL
Egyptian Sign Language (<i>Lughat al-Ishaara al-Masriya</i>)	LIM
Finnish Sign Language	FSL
Flemish Sign Language (<i>Vlaamse Gebarentaal</i>)	VGT
French Belgian Sign Language (<i>Langue des signes de Belgique francophone</i>)	LSFB
German Sign Language (<i>Deutsche Gebärdensprache</i>)	DGS
Greek Sign Language	GSL
Hong Kong Sign Language	HKSL
Indo-Pakistani Sign Language	IPSL
Irish Sign Language	IrSL
Israeli Sign Language	ISL
Italian Sign Language (<i>lingua dei segni italiana</i>)	LIS
Japanese Sign Language (<i>Nihon Syuwa</i>)	NS
Jordanian Sign Language (<i>Lughat al-Ishaara al-Urdunia</i>)	LIU
Kata Kolok Sign Language	Kata Kolok
Kuwaiti Sign Language	KSL
Lebanese Sign Language (<i>Lughat al-Ishaara al-Lubnania</i>)	LIL
Lybian Sign Language	LSL
Mexican Sign Language (<i>Lengua de señas mexicana</i>)	LSM
New Zealand Sign Language	NZSL
Nicaraguan Sign Language (<i>Idioma de señas nicaragüense</i>)	ISL
Norwegian Sign Language	NSL

List of sign language names	Acronym
Palestinian Sign Language	PSL
Quebec Sign Language (<i>Langue des Signes Québécoise</i>)	LSQ
Russian Sign Language	RSL
Sign Language of the Netherlands (<i>Nederlandse Gebarentaal</i>)	NGT
South African Sign Language	SASL
Spanish Sign Language (<i>Lengua de Señas Española</i>)	LSE
Swedish Sign Language	SSL
Taiwanese Sign Language	TSL
Turkish Sign Language (<i>Türk İşaret Dili</i>)	TİD
Ugandan Sign Language	UGN / USL
Venezuelan Sign Language (<i>Lengua de Señas Venezolana</i>)	LSV

Signed languages acronyms and their names

Acronyms	List of sign language names
AdaSL	Adamorobe Sign Language
ASL	American Sign Language
Auslan	Australian Sign Language
BSL	British Sign Language
CSL	Chinese Sign Language
DGS	German Sign Language (<i>Deutsche Gebärdensprache</i>)
DSL	Danish Sign Language
FSL	Finnish Sign Language
GSL	Greek Sign Language
HKSL	Hong Kong Sign Language
Kata Kolok	Kata Kolok Sign Language
KSL	Kuwaiti Sign Language
IPSL	Indo-Pakistani Sign Language
IrSL	Irish Sign Language
ISL	Israeli Sign Language
ISN	Nicaraguan Sign Language (<i>Idioma de señas nicaragüense</i>)
LIBRAS	Brazilian Sign Language
LIL	Lebanese Sign Language (<i>Lughat al-Ishaara al-Lubnania</i>)
LIM	Egyptian Sign Language (<i>Lughat al-Ishaara al-Masriya</i>)
LIS	Italian Sign Language (<i>lingua dei segni italiana</i>)
LIU	Jordanian Sign Language (<i>Lughat al-Ishaara al-Urdunia</i>)
LSA	Argentinean Sign Language (<i>Lengua de señas argentina</i>)
LSC	Catalan Sign Language (<i>llengua de signes catalana</i>)
LSE	Spanish Sign Language (<i>lengua de signos /de señas española</i>)
LSFB	French Belgian Sign Language (<i>Langue des signes de Belgique francophone</i>)
LSL	Lybian Sign Language
LSM	Mexican Sign Language (<i>lengua de señas mexicana</i>)
LSQ	Quebec Sign Language (<i>Langue des Signes Québécoise</i>)
LSV	Venezuelan Sign Language (<i>Lengua de Señas Venezolana</i>)
NGT	Sign Language of the Netherlands (<i>Nederlandse Gebarentaal</i>)
NS	Japanese Sign Language (<i>Nihon Syuwa</i>)
NSL	Norwegian Sign Language
NZSL	New Zealand Sign Language
ÖGS	Austrian Sign Language (<i>Österreichische Gebärdensprache</i>)
PSL	Palestinian Sign Language
RSL	Russian Sign Language
SASL	South African Sign Language
SSL	Swedish Sign Language
TİD	Turkish Sign Language (<i>Türk İşaret Dili</i>)

Acronyms	List of sign language names
TSL	Taiwanese Sign Language
UGN/USL	Ugandan Sign Language
VGT	Flemish Sign Language (<i>Vlaamse Gebarentaal</i>)

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Thesis outline

This dissertation has been developed within the field of the educational linguistics research and, specifically, of the linguistic research on signed languages, the visual-gestural linguistic systems of the communities of Deaf signing people of all over of the world. The study adopts a cognitive-functional perspective on language with a focus on (Diacronic) Construction Grammar, and the analysis is framed under the formalisation of Cognitive Grammar.

The overall aim of this research is to understand whether the grammatical category of modality exists in Catalan Sign Language (LSC): its resources, its interaction with other functional categories, and the diachronic origin, as well as whether the full modal performs the grounding function. To attain this final aim, we formulate the following research goals (RG):

- RG1.** To identify and describe the constructions encoding meanings that belong to the semantic domain of (volitional, epistemic and non-epistemic) modality in LSC.
- RG2.** To examine the interaction of modal meanings and forms with other grammatical or functional categories in LSC, namely negation, evidentiality and aspect.
- RG3.** To explore and posit gestural and linguistic elements, either lexical or grammatical, that may constitute the source for modal constructions and to trace evolving processes and possible grammaticalization paths.
- RG4.** To elucidate whether modals elements in LSC effect the semantic function of grounding and how this is accomplished, contributing to the discussion of grounding systems from the perspective of the signed modality.

The organization of the study is as follows. Chapter 1 aims to justify the need for such research by presenting an introduction to LSC and a brief description of its presence in the Catalan educational system, focusing on the functions that LSC performs.

Chapter 2 introduces and motivates the topic of this dissertation and its basic tenets. It starts out by outlining the theoretical background questions: how is grammar construed? What is a grammatical category in a particular language? It presents the theoretical

assumptions behind our research: Cognitive Linguistics. Moreover, it describes the conceptual tools that have guided our analysis taken from the framework of Cognitive Grammar (Langacker 1987, 1991, 2013).

Chapter 3 provides a theoretical foundation for this study by situating it within previous research on modality and their interaction with other grammatical/functional categories, namely negation, evidentiality, aspect, etc. It identifies the main problems when addressing the study of verbal constructions, such as verbal periphrasis.

Research questions and their justification are the focus of Chapter 4. Chapter 5 presents the methodology: discussion of data management and coding procedures used in this work, as well as ethical issues concerning the research.

Chapters 6 through 11 present the results. Chapter 6 addresses the first research goal (i.e. modal resources), whereas Chapters 7, 8 and 9 are related to research goal 2. The division between them is based on the addressed grammatical categories: Chapter 7 examines the interaction of modality with negative polarity, whereas Chapter 8 focuses on evidential constructions and Chapter 9 on aspectual constructions. Chapter 10 deals with the search of the origin and historical process implied in the emergence of modal resources in LSC, i.e. grammaticalization, constructionalization and pragmaticalization. Chapter 11 focuses on the grounding function and examines whether full-fledged modals constitute grounding predications in Langacker's characterization.

In chapter 12 we provide a summary of the results and their discussion. Finally, the conclusions are given in chapter 13, including an examination of the limitations of the study and guidelines for further research in modality, for the study of grammatical categories in LSC in general, and for research on bilingual deaf education.

RESEARCH JUSTIFICATION IN EDUCATION

Chapter 1. Catalan Sign Language and deaf education

1.1 Introduction

More than five decades of research on sign languages have allowed us to question and expand our knowledge of, among other topics, structural variation in linguistic and communicative competence, linguistic and cultural identity, patterns of language acquisition and learning, cognitive processing of language, and language communication disorders. A major question within the inquiry has been the role of signed languages and signed resources in the education of the deaf people, commonly referred to as *deaf education*¹ (Fernández-Viader & Pertusa, 2004; Knoors & Marschark, 2014, 2015; Lacerda & Dos Santos, 2014; Lacerda, Santos, & Martins, 2016; Marschark, Lampropoulou, & Skordilis, 2016; Marschark & Spencer, 2016; Swanwick, 2016a, 2016b).

Over the last thirty years, the investigation has centered on the “best approach” to deaf education in terms of using, or not using, the signed mode, either as a natural language or as a signing support for spoken language. However, “despite the myriad approaches, interventions, and educational philosophies that have been offered through the centuries (Lang, 2011), deaf learners continue to lag behind hearing peers in their academic achievement” (Marschark, Lampropoulou & Skordilis, 2016, p. viii).

Recent voices claim for the need of moving the focus from the language or language modes (spoken, written or signed) that should be used in the classroom to the way deaf children are using language(s) and learning the (Swanwick, 2016b). They ask for a more flexible approach, based on evidence, implementation and evaluation in practice, having in mind that “diversity in deaf learners and in deaf education must be acknowledged and perhaps even embraced” (Marschark et al., 2016, p. ix).

This claim is even more crucial since a growing body of research suggests that deaf children learning styles and profiles, independently of the communication modes and languages they use, or technical supports they wear (cochlear implant, digital hearing aid, etc.), may differ from those of hearing children in language comprehension,

¹ We will use through the dissertation the term *deaf* as in *deaf education* or *deaf person*, as a neutral term. Swanwick (2016b) indicates that internationally *deaf and hard-of-hearing* is the current and most preferred term as a way of seeking “to avoid the pathological connotations of loss or impairment and is inclusive of diverse cultural perspectives and audiological experience” (p. 11). As customary, we write Deaf with an uppercase “D” when referring to deaf people that adopt a cultural perspective.

cognition and learning. Research has uncovered differences in cognitive development, summarized in (1) (Marschark, 2012; Marschark & Hauser, 2012).

- (1) Deafness and differences in cognitive development
 - (i) Memory (Hall & Bavelier, 2010; López-Crespo, Daza, & Méndez-López, 2012)
 - (ii) Visual information processing (Blatto-Vallee, Kelly, Gaustad, Porter, & Fonzi, 2007; Emmorey, 2002; Marschark, Morrison, Lukomski, Borgna, & Convertino, 2013)
 - (iii) Concept learning and knowledge organization (Hermans, Knoors, Ormel, & Verhoeven, 2008; Marshall et al., 2018; Marshall, Rowley, Mason, Herman, & Morgan, 2013; Mineiro, Nunes, Moita, Silva, & Castro-Caldas, 2014; Moita, 2013)
 - (iv) Executive functioning and metacognition (Figueras, Edwards, & Langdon, 2008; Marschark & Everhart, 1999; Pisoni, Conway, Kronenberger, Henning, & Anaya, 2010)

Thus, for instance, Figueras et al. (2008) found a correlation between language ability and executive functions (inhibition, impulse control and working memory) in deaf children with and without cochlear implants. They conclude that deaf children's deficits in executive functions are linked to delayed language acquisition, and they are not a direct consequence of deafness. Deaf children with total accessibility to a language do not exhibit deficits in executive functions.

Marschark (2012) notes that the cognitive differences in (1), are mostly the result of differences in children's early environments and early experiences in them and "can be strengths, weaknesses, or just differences, but all add to diversity in the classroom" (p. 47). In several papers, Marschark and colleagues stress how important it is that teachers, as well as students, recognizing these differences and argue that teachers should hold the conviction and certainty that scientific evidence shows that deaf students can learn as much as hearing peers when taught by skilled teachers for the deaf. For instance, Peters (2014) proposes a list of teaching strategies to be used by teachers of the deaf in their interaction with them for contributing to develop response inhibition, building working memory, and cultivating meta-cognitive skills. Some of them are given in (2).

- (2) Strategies for teachers of deaf children (Peters, 2014)
- (i) Reinforce and talk about mental state and cognitive vocabulary.
 - (ii) Externalize self-talk and be explicit about your, the child's and others' feelings and thoughts.
 - (iii) Draw attention to the conversations of others.
 - (iv) Propose guessing games within interaction.
 - (v) Model prediction and make hypothesis about past and future events, while reading, etc.
 - (vi) Monitor and coordinate conversation and facilitate early development of extended turns.

Furthermore, "the interplay between sign and spoken language is becoming a more adaptive and flexible aspect of deaf children's communication in social and educational context" (Swanwick, 2016b). Moreover, socio-constructivist and dialogic approaches to deaf education, in inclusive and special settings, require a fine-grained analysis of discourse and interaction in classroom and of students' construction and co-construction of meanings using language(s), as described for hearing students (Coll, 1985; Coll, Onrubia, & Mauri, 2008; Felton, Garcia-Milà, Villarroel, & Gilabert, 2015; Gràcia et al., 2015; Gràcia, Vega, & Galván-Bovaira, 2015; Hamre et al., 2013; Linnell, 2009; Marinac, Ozanne, & Woodyatt, 2004; Mercer & Hodgkinson, 2008).

Nevertheless, putting under scrutiny the interacting processes requires the availability of a deep knowledge of the languages used (the linguistic constructions repertoire, their functions and uses), their users and the contexts. Catalan Sign Language (LSC) is not only the signed language used by the signing deaf and deaf-blind community in Catalonia. It is also the main allowing access to the construction of knowledge and identity in deaf signing children and adults.

Moreover, LSC and elements thereof constitute alternative and/or augmentative means enabling interaction and communication in hearing individuals with developmental and/or language and communication disorders. However, despite its importance, a reconceptualization of what language is and what language can do in deaf education is not possible unless the scientific community and the professionals acquire a wide knowledge of LSC linguistic resources.

In Catalonia, this kind of research on education is not yet possible given the lack of research on Catalan Sign Language, acquisition processes, etc. The linguistic resources that convey the strategies and linguistics skills listed in (2) are related to the semantic/grammatical domains of modality and evidentiality and to discourse strategies, the focus of this dissertation. This chapter creates a framework for the research and it provides an overview of the main issues concerning LSC and its importance in development and education, namely, its origin, legal status, the bimodal experiences at present, its acquisition, its use as augmentative/alternative resource, and etcetera.

The rest of chapter is laid out according to the following plan. The next Section traces back the origin of LSC and how it is tied to deaf education. Section 1.3 is devoted to the links between disability, sign languages and deaf/Deaf identity. LSC legal status and deaf education is the focus of Section 1.4. While Section 1.5 sketches some experiences on bimodal education in Catalonia, Section 1.6 focuses on the most crucial issues in deaf education: literacy achievement, its concurrent and longitudinal predictors and its relationship with sign language. These issues will lead us to present the process of sign language acquisition, both along normative and atypical paths, and the consequences of language delay and language and auditory deprivation in deaf children (§ 1.7).

Also, in Section 1.8, we will recall sign language teaching resources currently available and the small body of research on LSC conducted thus far. LSC is also used as an alternative linguistic vehicle for communication and it provides elements for augmentative communication that enhance the acquisition and learning of spoken language (Catalan and Spanish) by non-deaf children with language and communication difficulties and writing language in deaf children. This will be the focus of Section 1.9. Especially relevant for our work is the link between social cognition and the linguistic constructions discussed, as it will be shown in Section 1.10. We do not want to close the chapter without making reference to the impact of technological progress in deaf education and why we, as educators, have to be cautious about it. This will be addressed in Section 1.11. Lastly, a summary and final remarks are given in Section 1.12, where we stress the importance of the study of LSC.

1.2 Education and the origins of the signing deaf community

There are no records concerning the origin of LSC or the LSC Deaf community, but it is generally assumed that the emergence and genealogy of most Western signed languages does not parallel the genealogy of spoken/written languages. Rather it depends on the history of education for deaf children and, specifically, the establishment of special schools for the deaf toward the end of the eighteenth century and throughout the nineteenth century. Thus, for example, American Sign Language grew partially out of the old French Sign Language. The same family includes also Spanish Sign Language (LSE), Irish Sign Language (ISL), Italian Sign Language (LIS), Danish Sign Language (DSL), French Belgian Sign Language (LSFB), Sign Language of the Netherlands (NGT) and Catalan Sign Language (LSC) (McBurney, 2012; Wittmann, 1991).

For instance, the first information about Spanish Sign Language (hereafter LSE) is related to the education of deaf children. It goes back to the sixteenth century and, specifically, to the work of the Benedictine monk Fray Ponce de Leon. In 1620, one of his disciples, the Aragonese educator and speech therapist Juan Pablo Bonet, wrote *Reduccion de las letras y Arte para enseñar áblar los Mudos [Simplification of the Letters of the Alphabet and Method of Teaching Deaf-Mutes to Speak]*², the first historical text that addresses the communication of deaf people in the signed modality. It contains scattered references to the monk's practice. Also, it describes the work of Melchor Sánchez de Yebra, another disciple of Fray Ponce, especially his manual alphabet and his method to teach deaf children based on explanations of the meaning in sign language (Cabeza Pereiro & Iglesias, 2015; Plann, 1997; Torres, 2016).

However, the first proper linguistic description of a sign language in Spain is not written until the late eighteenth century. Indeed, in 1795 the Jesuit linguist Lorenzo Hervás y Panduro, considered one of the founders of comparative linguistics, wrote the two-volume treatise *Escuela española de sordomudos o Arte para enseñarles a escribir y hablar el idioma español [The Spanish School for the Deaf-Mutes or Art for the teaching of writing and speaking Spanish]*. This publication includes a list of signs related to lexical

² English translation by H.N. Dixon (1890). *Simplification of the Letters of the Alphabet and Method of Teaching Deaf-Mutes to Speak*. London: Hazel, Watson & Viney, cited at Julià i Munné (2000).

categories, a brief glossary with 115 entries and the description of some LSE syntactic structures (Cabeza Pereiro & Iglesias, 2015).

Similarly, as far as it is known, the first proper lexicographical work on LSE, the *Diccionario de mímica y dactilología* [*Mime and Fingerspelling Dictionary*]³ published in 1851, was written by Francisco Fernandez Villabril, teacher at the *Colegio Nacional de Sordomudos* in Madrid. The volume contains 1,547 entries (LSE signs) and the description of the formal characteristics of their production.

The use of LSC is attested, instead, only at the beginning of the XIX century, in the schools for the deaf set up in Barcelona and other cities in Catalonia (Bellés, Cedillo, González de Ibarra, & Molins, 2000; Fernández-Viader, 2008; Ferrerons, 2001; Torres, 2016). The first municipal school attending deaf children in Catalonia had place in the *Saló de Cent*, the plenary hall of Barcelona City Council (Ainaud, 1919). It was founded by the French priest Jean Albert Martí, with the help of Lorenzo Hervás y Panduro. Before soliciting the city's help, the priest had been doing a house-to-house search for deaf children and had started giving them formal education in 1800 (Fernández-Viader, 2008). The very same Juan Martí writes in a letter that his teaching practice is based on the previous work by the French abbot Charles-Michel de l'Épée (1712-1789), *La véritable manière d'instruire les sourds et muets* [*The true method of educating the deaf and dumb*] –published in Paris in 1794— and the cited *Escuela Española de Sordomudos* by Hervás y Panduro (Antonio Gascón Ricao; Antonio Gascón Ricao & Storch de Gracia y Asensio, 2004).

Judging by his writing, it is believed that the method used by Martí in this phase of his teaching activity was based on Hervás y Panduro's style, and it included both the system of L'Épée's "methodical signs" as well as his own signs, created on the basis of his personal experience (our emphasis). The municipal minute, dated March 7th, 1800, describes Martí's experience and points out the use of signs during the school official opening ceremony as if it was a rehearsal or public examination to display the advances obtained by Martí after eight months of instruction, as shown in:

(3) Municipal minute (Acords, fol. 60-61, AB, AHC)

³ The *Diccionario de Villabril* can be consulted thanks to the *Biblioteca Virtual Miguel de Cervantes* and the *Proyecto Diccionario Histórico* (Herrero-Blanco, Nogueira and Peidro, 2001). The address is <http://www.cervantesvirtual.com/obra-visor/diccionario-usual-de-mimica-y-dactilologia-util-a-los-maestros-de-sordomudos-a-sus-padres-y-a-todas-las-personas-que-tengan-que-entrar-en-comunicacion-con-ellos--0/html/>

Uno de los sordo-mudos con una varilla iba señalando sucesivamente las palabras escritas en los cartones, y a cada una de ellas el mudo destinado para la explicación, **con señas muy claras y en que no cabía equivocación**, manifestaba el sentido de aquella voz [...] se les insinuó que escribiesen lo mismo... (*Acorás*, fol. 60-61, AB, AHC, cited in Gascón Ricao & Storch de Gracia y Asensio, 2004)⁴

However, it is not known, since it is not stated in the municipal minutes, whether these personal signs are the signs used by the deaf students and known as “family signs”. Therefore, based on this information, Gascón Ricao and Storch de Gracia y Asensio (2004) argue that the deaf students used both Pedro Ponce de León’s methodic signs, the signs created by Martí, as well as the home signs used by the students. On the other hand, it should be noted that Hervás’s method integrated the French method, based on L’Épée’s work, with, to some extent and as a complement to French, the Italian method. Also, he used methodical or conventional signs, that were different from the family signs and more akin to mimic, like the signs used by uneducated deaf people. These influences could explain the relations and the contact between LSF, LSE, LIS and LSC.

Albert Martí’s work has been carried on, albeit with some interruptions, between 1805 and 1807, by the Catalan priest Salvador Vieta i Catá and later by the Catalan Dominican Manuel Estrada until 1823 (Antonio Gascón Ricao & Storch de Gracia y Asensio, 2003). That year the absolutists regained power, cancelled the previous reforms introduced by the liberals and closed the school for deaf people. Deaf people education in the city resumed by municipal initiative in 1843 by Manuel Estrada, followed by Vicens Monner i Viza and later by Miquel Rispa and, subsequently, by his brother Antoni Rispa (Torres, 2016).

In 1856, the school for deaf people was merged with the school for blind people, thereby creating the *Escola Municipal de Cecs i Sords-Muts de Barcelona* [Barcelona *Municipal School for the Blinds and Deaf-Mutes*] that lasted till 1910. Antoni Rispa went on a tour to know the principal European schools for deaf people. He collected his reflections on his teaching in the book *Memoria relativa á las enseñanzas de los sordos-mudos y de los ciegos* [Report about the teachings directed to deaf-mutes and blinds], published in 1865. In one chapter he describes the situation of the school that year, specifying the courses that were taught as shown in (4) (Torres, 2016, pp. 99-100) (our emphasis):

⁴ “One of the deaf-mute people was signaling with a stick the words written on cards, and for each of them the deaf person that was asked to give an explanation, with clear signs that allowed for no misunderstanding, expressed the meaning of that term [...] it was suggested that they write the same...” (Gascón Ricao & Storch de Gracia y Asensio, 2004).

(4) Courses at the Barcelona Municipal School for the Blinds and Deaf-Mutes in 1865

Son objeto de la enseñanza para los sordo-mudos: la lengua española – la Religion y Moral – la Doctrina Cristiana – **la Dactilología** – **la Mímica** – la Caligrafía – la Pronunciación – la Lectura labial – la Aritmética – la Geografía – Nociones de Historia – Principio de Geometría – rudimentos de Física – dibujo lineal – id. natural – pintura – y conocimientos útiles. (Rispa, 1865, pp. 118-199)⁵

Among these courses we can observe that there is a course on Sign Language –in those times called *Mímica* ('mimics')— and *Dactylogy* ('fingerspelling'). These two courses are also part of the curriculum under the following direction of Francesc d'Assís Valls i Ronquillo, as stated in his two pieces of work: *Manual para el uso de los alumnos que concurren á la escuela de Sordo-mudos de Barcelona* [*Handbook for the use of students that attend Barcelona's School for Deaf-mutes*] (1871) and *Reglamento de la Escuela de ciegos y de sordo-mudos de Barcelona* [*Regulations of the School of blind and deaf-mutes of Barcelona*] (1877). Specifically, in the *Regulations* the courses for boys are shown in (5) (our emphasis):

(5) Courses for boys at the Barcelona Municipal School for the Blinds and Deaf-Mutes in 1877

TÍTULO CUARTO. De la enseñanza de los Sordo-Mudos.

Art. 16. La enseñanza para los sordo-mudos, además de las materias que son objeto de la primera enseñanza elemental y superior, comprende: **Dactilología; Mímica; Lectura en labios; escritura aérea, en las manos y en la espalda; Pronunciación; Dibujo.** Ya varios conocimientos generales de aplicación y notoria utilidad, atendida la clase especial de los alumnos (Valls i Ronquillo, 1877, p. 6)⁶

As for the girls, the use of sign language and dactylogy is explicitly qualified as powerful for basic teaching, (6) (our emphasis).

(6) Courses for girls at the Barcelona Municipal School for the Blinds and Deaf-Mutes in 1877

TÍTULO QUINTO. De la enseñanza de las Sordo-Mudas.

Art. 17. Á las sordo-mudas se les dará la enseñanza primaria elemental **valiéndose de los poderosos auxiliares de la mímica y de la dactilología.**

Art. 18. La enseñanza industrial para las sordo-mudas será la de labores propias de su sexo, á saber: abalorio, cordones de lana, de seda, calados, costura, bordados de diferentes clases y aquellas otras labores que sean de conocida utilidad y pongan á las niñas pobres en disposición de ganarse el sustento, sin

⁵ The courses taught to deaf-mute are: Spanish language – Religion and moral – Christian Doctrine – Dactylogy – Mimics – Calligraphy – Pronunciation – Lip Reading – Arithmetic – Geography – Notions of History – Principles of Geometry – Basics of Physics – Line Drawing – naturalist drawing – painting – useful knowledge. (Rispa, 1865, p. 118-199)

⁶ SECTION FOUR. About teaching to Deaf-Mute.

Art. 16. The education of deaf-mute people, besides the courses that are part of primary and higher schooling, include: Dactylogy; Mimic; Lip Reading; aerial writing, on hands and shoulder; Pronunciation; Drawing. And general applied knowledge that is recognized as useful, given the special class of the students" (Valls i Ronquillo, 1877, p. 6)

perjuicio de que á las alumnas de posición acomodada se las dedique á ocupaciones recreativas y de adorno (Valls i Ronquillo, 1877, p. 6)⁷

In addition, around the same time there appeared a manual about the communication with deaf people using signs. In 1866, the Claretian priest Jaume Clotet published at Vic *La comunicacion del pensamiento por medio de las señas naturales o sea Reglas para entenderse y hacerse entender de un sordomudo [The communication of thought by means of natural signs, i.e. Rules to understand and be understood by a deafmute]*⁸. This brief grammatical treatise on the communication of deaf people adopts the style of traditional grammar and terminology based on Latin and Greek works. It presents a description of the formal characteristics of the lexicon (the signs), the parts of speech, the order of elements in the sentence, the expression of mode, tense, person, etc.

Due to the prohibition imposed by the International Congress of Educators of Deaf People in Milan in 1880, where the primacy of oral language over sign language is established, the teaching of mimics (sign language) and fingerspelling lost ground. A testimony of this state of affairs is Ronquillo i Valls's memoir (1888) where these topics were not listed as courses. According to Torres (2016), the only remnant was the use of mimics at the beginning of children education, possibly as the first system of communication between teachers and pupils. As for dactylology, it was part of the beginning classes of Reading (*Lectura*) and Grammar (*Gramática*).

In 1910 the City Council added a third section to the school, that changed its name to *Escola Municipal de Cecs, Sord-Muts i Anormals de Barcelona [Barcelona School for the Deaf-mute, Blind and Abnormal people]*, until 1918 when it was divided into three schools. Then, it recovered the original name *Escola Municipal de Sord-muts de Barcelona*, under the direction of the renowned phonetician Pere Barnils i Giol, that created also the *Laboratori d'Estudis i Investigacions* conceived of as the leading entity of the new educational model of special need students (Fernández-Viader, 1988; Julià i Muné, 2000; Torres, 2016).

⁷ SECTION FIVE. About teaching to Deaf-Mute.

Art. 17. Deaf-mute will receive the basic elementary education using the auxiliary means of mimics and dactylology.

Art. 18. Vocational training for deaf-mute people will be according to their sex, that is: beads, strands of wool and silk, fretwork, sewing, different kinds of embroidery and all those chores the usefulness of which is recognized and that give the poor girls the possibility to earn a living, notwithstanding that well-off students can dedicate themselves to recreational and embellishing activities (Valls i Ronquillo, 1877, p. 6)

⁸ It may be consulted at the following address:

https://books.google.es/books?id=latl3C44JmMC&printsec=frontcover&dq=jaime+clotet&hl=en&sa=X&ved=0ahUKewir7t7Kp4_PAhVqK8AKHWUtBCYO6AEIHjAA#v=onepage&q=jaime%20clotet&f=false

The new methodology put an end to the XIX century style based on benevolence and adopted a scientific and medically oriented mentality based on teacher training, state-of-the-art teaching methods and laboratory experimentation (Julià i Muné, 2000). The principles of pedagogical renewal were adopted, thus incorporating the contributions by Maria Montessori, Eduard Séguin and Ovide Decroly (Llombart, 2013; Puigdel·lívol, 2015).

As for the communicative and linguistic aspect, pure oralism was adopted, following closely the conclusions of the Milan Conference. At this point, the received knowledge was that oral language was the ideal way to integrate deaf children into the society. Despite this, Barnils argued that mime could be used in some circumstances, since it could help to “fijar ideas que el sordomudo llegará a expresar de palabra”⁹ (Fernández-Viader, 1988, p. 73).

After the war, the name was expressed in Spanish as *Escuela Municipal de Sordomudos*. Finally, in 1970, the *Centre Municipal Fonoaudiològic José María de Porcioles* opened and subsequently split into the current *CREDAC Pere Barnils* and the school *Tres Pins* (Antonio Gascón Ricao & Storch de Gracia y Asensio, 2004; Llombart, 2013; Torres, 2016).

In conclusion, since the establishment of the first public teaching for the deaf in Barcelona, there has been a sort of continuity in the use of sign language in the schools for the deaf along these two centuries. Sign language had not been taught since 1888, but it became part of the *hidden curriculum* and the main language for social exchanges among the students in the schoolyard, as well as in the dorms in the case of boarding/residential schools for the deaf, as it was the case in several schools of the Holy Orders, such as La Purísima, or private schools, as the *Instituto Catalán de Sordomudos*. In (7) we reproduce a fragment of the autobiography of Imma Codorniu, a deaf woman and LSC instructor, where she describes with liveliness and sincerity her experience at the *Instituto Catalán de Sordomudos* (our emphasis).

(7) Transmission of LSC (Codorniu, Farrerons, & Ferrerons, 2014)

Finalment pel Nadal, tres mesos després d’haver ingressat a l’internat, ja entenia moltes coses. En tres mesos havia assimilat pràcticament tota una llengua. Apresa d’una manera natural, per immersió, la utilitzava cada dia. **Em servia per comunicar-me amb tots els del meu entorn.** L’LSC ha estat la meva primera llengua, la llengua amb què penso i que m’ha servit des d’aleshores per aprendre a llegir, a escriure i també a parlar català i castellà.
[...]

⁹ “to fix ideas that the deafmute could later express orally”

Aprènia dels companys sords. Afortunadament, perquè a les classes no vaig aprendre absolutament res. De tots els possibles coneixements i valors que els professors creien que em traslladaven, res de res barrejat amb poca cosa. I quan em feien posar llavis i llengua en diferents posicions, pitjor: no hi havia manera que m'hi entengués. Per variar, havíem de repetir coses una vegada i una altra com els lloros, imitant com ells uns sons que no tenien res a veure amb el vertader acte de parla, i diferint-ne en el fet que no podíem jutjar per nosaltres mateixos el resultat de la imitació. No tenien gaire recursos. Vaig començar a desitjar impacient **els moments en què podia signar: l'hora del pati, l'hora dels àpats i els caps de setmana.** Durant aquests darrers signava tothora amb els nens i nenes que es quedaven com jo a l'internat. (Codorniu et al., 2014, pp. 45-46).¹⁰

The fragment in (7) illustrates how LSC has been learnt and passed on from generation to generation of students horizontally (not from adults to children, but among children) and it has become the main language of social and private communication and incidental learning. This situation has been described for other signed languages and deaf schools, as Plann (1997) remarks for LSE and we reproduce in (8) (our emphasis).

(8) Transmission of LSE

[...] the use of signs in teaching survived in Spanish schools well into the twentieth century. (One alumnus of a deaf school in Madrid relates that during the 1950s, "**Sign language was completely forbidden, in other words... everyone used it,**" further observing that when teachers needed to communicate important information, they had to do so in signs.) (Plann, 1997, p. 194).

We can recall also Félix Pinedo Peydró (1989), former president of the *Spanish Confederation of Deaf People (Confederación Nacional de Personas Sordas de España o CNSE)*, and a prominent Deaf referent for the Spanish Deaf Community and its associative movement. In (9), we reproduce an illustrative fragment taken from his book (Pinedo Peydró, 1989), as cited in Plann (1997, p. 276) (our emphasis).

(9) Transmission of LSE

[...] during many hours of class sign language was prohibited, depending on the mood or tactics of the professor, and in these cases, if a child was caught signing, he received blows to the hands that ... were very painful.... In general **during class the students used signs more of less secretly to communicate among themselves.** When the class ended, during recess, or after class ...

¹⁰ Finally, for Christmas, three months after entering the boarding school, I understood many things. In three months, I had assimilated almost a whole language. I learned it in a natural way, by immersion, and I used it every day. **I needed to communicate with everybody around me.** LSC has been my first language, the language with which I think and I have used since then to learn to read, write and also speak Catalan and Spanish. [...] **I learned from deaf colleagues.** Fortunately, because in classes I didn't learn anything. Of all the possible knowledge and values that the professors believed they were passing on, absolutely nothing or very little. And when they asked me to put my lips and tongue in different positions, it was worse: there was no way I could get it. For a change, we had to repeat things over and over like parrots, imitating like them sounds that had nothing to do with the true act of speech, with the difference that we could not judge for ourselves the result of the imitation. They did not have much resources. I started eagerly awaiting the moments in which I could sign: the time of the break, the time of the meals and the weekends. During these days, I spent the whole time signing with all the children that stayed like me at the boarding school. (Codorniu et al., 2014, p. 45-46).

everyone used sign language with the relief of one who can take off a gag he had been obliged to wear all day (Pinedo Peydró, 1989, p. 31).

Fragments (7) to (9) clearly show the typical linguistic attitude toward minorized languages: the language is undervalued by the educators, and its use is secret and limited to informal functions and incidental learning by the students.

It is generally assumed that the gathering of deaf children paved the ground for the constitution and maintenance of a social group using a signed language. This process has been documented in the second half of the 20th century concerning Al-Sayyid Bedouin Sign Language (ABSL) in Israel (Sandler, Aronoff, Padden, & Meir, 2014) and Nicaraguan Sign Language (ISN) in Nicaragua when the Sandinista government grouped deaf children from around the country in a boarding school (Coppola & Senghas, 2010; Pyers & Senghas, 2007; Senghas, Senghas, & Pyers, 2005).

Also, highly relevant for the emergence of a social group was the creation of the deaf clubs and associations. Deaf people of all ages and conditions gathered in deaf entities, where they could communicate and have social interaction in signed languages with total freedom and without prejudiced gaze. They constituted rich contexts for acquiring LSC for those deaf from hearing families who had attended mainstream schools.

In 1909 the first Deaf club in Barcelona was founded (*Sociedad de Ayuda Mutua*) (Bellés, et al., 2000). The Catalan Federation for the Deaf was established in 1979. At present, there are around 30 deaf associations affiliated at the *Federació de Persones Sordes de Catalunya* (FESOCA). Some books written by Deaf people bear witness of the building of the community and the importance of deaf schools (Calafell, 2011; Cedillo, 2013; García, 2018; Martínez, García, & Carles, 2005).

LSC has only gained recognition as a language since the beginnings of 1990s, as a result of the participation of a group of Catalan deaf leaders in the *Deaf Way I* in July 1989 (Segimon, p.c.). In this international congress, thousands of deaf participants from all over the world met at Gallaudet University in Washington DC to celebrate Deaf culture (Lane, Hoffmeister, & Bahan, 1996). The Catalan participants attended talks on sign language linguistics, Deaf culture and identity. Also, they went to theater, cinema and different visual arts performances in the different natural sign languages from the participant countries.

This rich experience helped them realize that their means of communication was a true language, a linguistic system, diverse from the sign language used in other countries (Segimon, pc). And they become aware of the properties that define languages and that they were present in signed languages (Jarque, 2016b). They learned at the conference that there are *sign languages*. Previously, the deaf people in Catalonia used to label their communication as *mímica* ('mimics'), or similar expressions (Frigola, 2010). In fact, *mimics* was the official name given to LSC as subject taught in the school for the deaf, as explained above.

Plaza-Pust (2012) points out that their **lack of awareness that they were bilingual** is "an indication of the effect of oralism on the identities of deaf individuals" (2012, p. 39). Since then, the deaf signing community in Catalonia initiated a process to obtain legal recognition and to fight for their linguistic rights and particularly for the use of LSC in deaf education. While opening to a broader international view, particularly by the North American and European Deaf movement, the community was inspired also by their Catalan sociolinguistics context and the political activism in defense of Catalan language and culture (Gras, 2006; Morales-López, 2008a; Morales-López et al., 2002).

Through a series of interviews with members of two associations for the deaf in Barcelona, Morales-López and colleagues confirmed this change and observed that it was still an ongoing process that has not reached yet all members (Morales-López, et al., 2002). Also, the research revealed that the traditional system of communication had begun a process of conversion towards a symbolic instrument, thus endowing its users with a certain power, and conferring it the status of symbolic capital in Bourdieu's terms (Morales-López, 2008a).

Some of the mentioned issues will be the focus of next sections: political activism and its relation to deaf identity and education in section 1.3, legislation on LSC in Section 1.4. and cross-modal bilingual education in Catalonia at present in Section 1.5.

1.3 Disability, Catalan Sign Language and Deaf identity

Catalan deaf and deaf-blind people consider disability a non-defining aspect of deafness and conceive of it essentially as a **cultural experience**. The disability identity is mainly adopted through political activism. The political activism on behalf of deaf linguistic rights is organized via the clubs and entities around the deaf movement and network as well

as the entities related to disability. For instance, the Catalan Federation for the Deaf (FESOCA), which clusters the deaf associations from all around Catalonia, participates in disability forums and entities such as the *Catalan Committee of Representatives of People with Disability* (*Comitè Català de Representants de Persones amb Discapacitat* or COCARMÍ), that, in turn, is part of the *Spanish Committee of Representative of People with Disability* (*Comitè Espanyol de Representants de Persones amb Discapacitat* or CERMI), and participate in the *Catalan Board of the Third Social Sector* (*Taula del Tercer Sector Social de Catalunya*).

Among the different petitions, one that is particularly important is the approval of the Catalan Law of Rights of Disabled People and, regarding accessibility, the development of the Accessibility Law and the creation of a Catalan Fund for the Promotion of Accessibility.¹¹ FESOCA and the *State Confederation of Deaf People* (*Confederación Estatal de Personas Sordas* or *CNSE*) are full members of the *European Union of the Deaf* (EUD) since 1985. The main objectives EUD wants to realize are the recognition of the right to use an indigenous sign language, empowerment through communication and information, and equality in education and employment.¹²

The cultural experience, on the other hand, is built around the use of LSC and the sharing of common values. Last year during the October 1st celebration of the International Day of Deaf People a manifesto was read. It was signed by the Catalan Federation of the Deaf (FESOCA), and two deaf associations from Barcelona, the *Deaf Recreational Center* (*Centre Recreatiu de Sords*, CERECUSOR) and *the Cultural Center of Deaf from Barcelona* (*Casal de Sords de Barcelona*). It has also been broadcasted over the social networks as a video where young Deaf people signed in LSC¹³. We reproduce in (10) the text in the Catalan version that was printed and handed out among the participants to the celebration (upper case theirs).

(10) Deaf Manifesto 2016 (FESOCA, CERECUSOR and Casal de Sords de Barcelona)

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>a. En el Dia Internacional de les Persones Sordes volem dir-li al món qui som i com som perquè la nostra realitat deixi de ser invisible, perquè es respectin els nostres drets, i per combatre el desconeixement, la manca de voluntat o els prejudicis sobre el nostre col·lectiu en general</p> | <p>a. During the International Day of Deaf People, we want to tell the world who we are and how we are, so that our reality will no longer be invisible, so that our rights will be respected, and to fight the ignorance, lack of will or prejudices about our community in</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

¹¹ http://www.fesoca.org/es/noticias/cocarmi-y-la-consejera-bassa_345.html

¹² <http://www.eud.eu/about-us/about-us/>

¹³ https://www.youtube.com/watch?v=sbsI_5dDA2o

- i, sobre les llengües de signes i els que les utilitzem.
- b. SOM PERSONES SORDES, així ens identifiquem i així volem que la societat ens reconegui. Tasca difícil quan la sordesa encara es concep com una limitació. Ni sordmuts ni deficients auditius: PERSONES SORDES.
 - c. Reivindiquem la nostra DIVERSITAT perquè la diversitat, lluny de ser una amenaça, és un factor de progrés. La diferència no ens limita; no ens fa por; ENS ENRIQUEIX.
 - d. Els drets humans no són qüestió de números o de percentatges. SOM PERSONES SORDES que mereixem tenir les mateixes oportunitats, sense distinció.
 - e. SOM PERSONES SORDES, una comunitat amb identitat lingüística i cultural pròpia que vam forjar per respondre a una situació d'exclusió històrica en el pla educatiu, lingüístic, polític, econòmic i cultural. Identitat que, sense dubte, ha servit perquè tant en la dimensió individual com en la col·lectiva, adquirim plena consciència de les nostres capacitats, superant així la minoria d'edat social, i assumint plenament la nostra representativitat com a ciutadanes i ciutadans.
 - f. SOM PERSONES SORDES que, unides al voltant de la FESOCA i les associacions, hem contribuït a combatre la incomprensió, a conquerir i fer valer els nostres drets, i a forjar una trajectòria que ja arriba als 100 anys, com en el cas del Casal de Sords de Barcelona. Amb valentia, coratge i dedicació. Perquè així SOM les PERSONES SORDES.
 - g. Exigim que es garanteixi la nostra LLIBERTAT en l'ús de la llengua de signes, perquè a més de ser el tret que configura els nostres valors culturals i identitaris, és una llengua de vida que permet l'exercici dels nostres drets en IGUALTAT de condicions. Una llengua que al llarg de generacions hem tret de l'ostracisme per convertir-la en una llengua de CONVIVÈNCIA, i no ho oblidem, en una llengua LEGAL gràcies a la Llei 17/2010, del 3 de juny, de la Llengua de Signes general and about sign languages and the people that used them.
- b. WE ARE DEAF PEOPLE, this is how we identify ourselves and this is how we want society to recognize us. This is a difficult task, at a time when deafness is still conceived of as a limitation. We are neither deaf-mute nor hard of hearing, just DEAF PEOPLE.
 - c. We assert our diversity, because diversity, far from being a threat, is a factor of progress. Difference is not a limit to us; we are not afraid of it; it makes us RICHER.
 - d. Human rights are not a question of number or percentages. WE ARE DEAF PEOPLE and we are entitled to the same opportunities, with no distinction.
 - e. WE ARE DEAF PEOPLE, a community with its own linguistic and cultural identity that we crafted as an answer to a historical situation of exclusion at the educational, linguistic, political, economic and cultural level. This identity, without any doubt, has helped us, both on the individual as well as the collective dimension, to acquire full conscience of our abilities, overcoming a socially inferior status and fully assuming our representation as citizens.
 - f. WE ARE DEAF PEOPLE, that united by FESOCA and other associations, have contributed to the fight against incomprehension, to the conquest of our rights, and to the creation of trajectory that, in the case of the Casal de Sords de Barcelona, has already lasted for 100 years. And we displayed bravery, courage and dedication. Because that is how we, THE DEAF PEOPLE, are.
 - g. We demand that we are free to use the sign language because, besides being the defining characteristic of our cultural and identity values, it is the language of our life and that allows us to exercise our rights on equal terms. It is a language that, over generations, we have rescued from ostracism to convert it into a language of HARMONIOUS COEXISTENCE and, let us not forget it, into a legal language thanks to the June the 3rd 17/2010 Law of Catalan Sign Language, unanimously

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Catalana aprovada per unanimitat al Parlament de Catalunya fa 6 anys.</p> <p>h. SOM PERSONES SORDES. I no ens espanta, ni ens avergonyeix, ni ens incapacita. No ens eximeix dels nostres deures, ni resta valor als nostres drets. PERSONES SORDES CAPACES de ser el que vulguem ser. Nosaltres decidim! Amb audiòfons, amb implants coclears, o sense aquests. PERSONES SORDES que utilitzem la llengua de signes o no. I no, no ens amaguem. I sí, ho volem tot. Sense barreres de cap tipus.</p> <p>i. SOM PERSONES SORDES! Coneixeu-nos. Escolteu-nos!</p> | <p>approved by the Catalan Parliament six years ago.</p> <p>h. WE ARE DEAF PEOPLE. And this does not frighten us, it does not embarrass us, it does not incapacitate us. It does neither exempt us from our duties, nor belittle our rights. We are DEAF PEOPLE ABLE to be what we want to be. We decide! With hearing aids, with cochlear implants, or without any of these. DEAF PEOPLE that use sign Language or do not. And no, we do not hide. And yes, we want everything. Without barriers of any kind.</p> <p>i. WE ARE DEAF PEOPLE. Get to know us. Listen to us!</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

The manifesto opens declaring which are the goals that bring the community to speak out and claim recognition within a particular identity. The Catalan deaf people campaign for a human rights-based approach to disability. They struggle against ignorance, discrimination, prejudice, negative attitudes and stereotypes still predominant in society (films, media, education, health system, etc.).

Subsequently, fragment (10)(b) advocates for and celebrates the wording *deaf people*, the term used to define themselves, and rejects the traditional terms *deaf-mute* or *hearing impaired*, used till very recently by the educational services specialized in deaf issues in Catalonia. Their self-conception rejects the view of deafness exclusively from a clinical or medical perspective (Morales-López, 2008; Seaver, 2014). As pointed out by Obasi (2008), “the continued use of the word deafness is unworkable and should be more widely recognized as a social construct, which has current usage beyond the paradigm in which it was originally intended” (2008, p. 455).

They claim their diversity in (10)(c), both appealing in a veiled way to the disability view based on functional diversity as well as calling for recognition of the diversity within all identities, as it has been discussed for race identities (i.e. Black identity) or feminism (Obasi, 2008). The alliance between Deaf and disabled people is done on the basis of equality and the fight for recognition of their rights.

As the manifest shows in (10)(e)-(g) the Catalan Deaf Community conceives of itself as a linguistic minority group, with a rich cultural and artistic heritage, social structure, and shared history (Frigola, 2010; Gras, 2006; Morales-López, 2008a), similar to other Deaf

communities around the world such as the American (Lane, 2005; Lane, et al., 1996; Padden & Humphries, 1988, 2005), the British (Ladd, 2003), the Australian (Robinson & Adam, 2003), the Irish (McDonnell, 2016) or the Argentinian (M. Ignacia Massone, Simón, & Druetta, 2003). Moreover, it shows how the process of self-construction of identity responds to the limitations and restrictions imposed by the pathological/medical approach, especially at the educational linguistic, political, economic and cultural level. Regarding education, they ask to move the focus from rehabilitation to education (Senghas & Monaghan, 2002).

The manifesto calls, just as at its beginning, for the acceptance of diversity inside the Deaf community, specifically with reference to technology (using or not using hearing aids or relying on cochlear implants) and to the use of languages in different modalities.

Overall, it is an example of an emancipatory identity discourse, Cuff et al (2006)'s third phase, that we believe has already reached the youngest people, but that is not common among the adults or the eldest. After passing through the inclusionist phase, mainly concerned with correcting the dominant inaccuracies in mainstream discourse and pushing for change in terminology, and a more radical separatist movement, the manifesto presents an approach that includes diversity and flexibility. The Deaf identity discourse is totally dissociated from disability. It moves away from the medical perspective— according to which the deaf individual is limited by an audition impairment— to a broader perspective, in which the limitations come from the presence in the society of communication barriers and prejudices.

In fact, the discourse of young people, that corresponds, approximately, to the first generation raised in the cross-modal bilingual paradigm, closely reflects the Social Model of Disability (C. Barnes, 1996; Marks, 1997; Oliver, 1996; Shakespeare & Watson, 1997; Tregaskis, 2002), result of the *Disability Movement*. Under this perspective,

Disability is located not solely within the mind or body of an individual, but rather in the relationship between people with particular bodily and intellectual differences and their social environment, then greater focus may be placed on ameliorating disability through changes in social policy, culture and institutional practices (Marks, 1997, p. 85).

This perspective is the one adopted by the World Health Organization, who defines disability as "a complex phenomenon, reflecting the interaction between features of a person's body and features of the society in which he or she lives. Overcoming the

difficulties faced by people with disabilities requires interventions to remove environmental and social barriers" (WHO, 2007). Moreover, it is a concept closed to learning difficulties (Goodley, 2010).

In their discourse, as heir to the *Disability People's Rights Movement* in United Kingdom and the United States, which sought to advance social justice for disabled people (C. Barnes, 1996), they identify systemic barriers, negative attitudes and exclusion by society (purposely or inadvertently) considering, thus, the society to be the main factor disabling deaf people. They assert that although sensory variations may cause individual functional limitation or impairments, these do not have to lead to disability unless society fails to take them into account and include deaf people regardless of their individual differences in the use of technology (hearing aid, cochlear implant, hearing induction loop, etc.) and other resources to access to communication (written text, signing support or a natural sign language).

Concepts from the Social Model of Disability have been essential within the fields of Deaf studies and sign language studies for more than 20 years, despite the fact that their implications for practice have not been fully assimilated, revealing the vigor of the paradigm (Levitt, 2017; Oliver, 2013). Over the years, the cultural social model of deafness, often called in education *Bilingual-bicultural approach*, has evolved and has taken more into account other linguistic and culture minorities, while also incorporating, as noted above, an emancipatory approach.

Despite these theoretical advances, there is still room and need for theorizing using the Supports Paradigm and the Quality of Life paradigm to disability, as has been the case for people with Intellectual Disability (Wehmeyer & Shogren, 2017). One of the main factors predicting quality of life for deaf people is accessibility. Total accessibility to communication necessarily includes the use of signed languages.

Moreover, the use of a natural sign language has become the main symbol of identity in most urban Deaf signing communities. Deaf identity and culture are proclaimed as a source of pride. Terms such as *Deaf power* and *Deaf pride* constitute slogans for political mobilization within the Deaf Community, similar to the Black, feminist or gay movements. Totally different, however, is the conception of deaf people and their means of communication in mixed deaf-hearing village sign language communities. In these

villages, social factors usually do not contribute to differentiate between hearing and deaf people as much as in the formers (Morales-López, 2008a).

According to Morales (2008), signing deaf people in Catalonia and in Spain constitute a group, that, through the use of sign language, has become (or is in the process of becoming) a linguistic minority. The use of a sign language (LSE or LSC) has become their main sign of identity and is conceived of as a necessary educational tool. For these reasons, they strive for a formal and political recognition of the use of languages in the signed modality and, above all, they demand the necessary means to reach educational equality between deaf and hearing students. They call for an effective bimodal bilingualism in schools to enhance their literacy level, that has been historically very low (Morales-López, 2008a).

Thus, we consider that the Catalan Deaf individuals define themselves using diverse perspectives simultaneously, far from a simplistic dual model allowing only the medical and the social models, and closer to a Dialogue Model as proposed by McIlroy and Storbeck (2011). This socially constructed process, kaleidoscopic in essence, includes issues regarding disability, deafness, nationality (Catalan/Spanish/...), gender, as well as other dimensions. More explicitly, the deaf narrative includes social constructions that reflect:

- (i) the emotions, feelings and knowledge of deaf people as social agents,
- (ii) their interaction with other minorities, groups and entities of people with disability as wells as other deaf communities, and
- (iii) the constant cultural osmosis with environment.¹⁴

Below, in (11), we highlight some of the main features of signed languages that contribute to the study of the relationship between language and society. Some of them are specific to sign languages, while others are differences in degree (Jarque, 2012):

(11) Relationship between language and society in signing communities

- (i) The **language-identity binomial** is related to the disability, not only deafness, but also to deafblindness.

¹⁴ See the interesting volume edited by Morales-López and Floyd (2017) on the development of identities in social conflicts from a constructivist perspective.

- (ii) According to Ladd (2003, p. 218), the group of Deaf signers is the “only language group that has a **community in every country of the world**”.
- (iii) Derived from the previous situation, there is a **glocal growing view**: a combination of local and global view, which results in a process of identity construction based on the assumption of diversity and unity. The overall design is manifested in actions carried out by the deaf associations, such as the creation of supranational institutions (the World Federation of the Deaf), in the organization and participation in European and international meetings on topics related to the Deaf Community, in the presence of news about the deaf people and signed languages worldwide in the local media as well as in the use of names such as *Deaf Community*, *Deaf nation*, *Deaf culture*, etc. to refer to the group of deaf signers.
- (iv) Therefore, by definition, the groups of deaf signers constitute **intercultural communities**. For example, the deaf young from Barcelona studied by Palmer (2012) defined themselves with respect to their cultural identity as Deaf and Catalan. This duality is due both to context (social identity, family, etc.) as well as to the importance of the instrumental use of reading and writing in the local spoken language for access to information and communication.
- (v) The **transmission** of the signed language and culture is **horizontal** in the context of the school and the deaf signers associations and, exceptionally, intergenerational, within the family, for the small minority of families with deaf and hearing signers (Morales-López, 2008a).
- (vi) The **construction of deaf signer identity** passes, as Ladd (2003) points out, by a process of **deconstruction** as hearing impaired (*deaf*, written in lower case) and reconstruction as deaf signer (or *Deaf*, usually with the initials written in capitalized).
- (vii) **Political action** is focused primarily on removing communication barriers for accessibility to information and education in the framework of a model of intermodal bilingualism/multilingualism. Therefore, linguistic planning is generally language and education-oriented (Gras, 2006; Hult & Compton, 2012; Reagan, 2010).

In conclusion, when addressing the questions of deaf education and Deaf cultural identity, it is important to incorporate issues of diversity. This is an underdeveloped area

in the field of education. An interesting line of research would be the analysis of the process of linguistic and cultural identity construction in relation with the process of learner identity construction (Coll & Falsafi, 2010; Falsafi & Coll, 2015). This interaction is, maybe, more radical in the sense that language in the signed modality allows total accessibility in the process of construction of knowledge and communication and is, therefore, tightly connected with the abilities and competencies related with the second process of construction.

1.4 Education and Catalan Sign Language legal status

As indicated in previous sections, many of the political actions directed to the recognition of LSC are related with its use as the working language at school. In this section, we will retrace the main steps of different actions toward LSC legal recognition until the establishment of the current legal framework. For an whole description, we refer to the work by Jarque, Bosch-Baliarda and González (in press).

In May 1994, the Autonomous Parliament of Catalonia pioneered legal measures presenting a proposal (228/16) for the promotion and diffusion of the knowledge of sign language. In this text, the Catalan Parliament urged the Executive Council of the Generalitat (the autonomous government) to adopt bilingualism in the education of deaf children.

The **Catalan Autonomy Law of 2006** (*Estatut d'Autonomia*) includes the right to use LSC. Article 50.6 of the Autonomy Statute established as a guiding principle of public policy that it will guarantee the use of Catalan sign language. With this provision, the statute became, along with the Autonomy Statute of the Valencian Community, the first legal text of the Spanish State governing the protection of a sign language (in this case, LSC). The fact that the protection is a statutory right places Catalonia, along with Finland and Portugal, at the forefront of the legal protection of sign language.

LSC was legally recognized, as well as LSE (Spanish Sign Language), by a law that was approved in 2007 by the Spanish Parliament (Ley 27/2007, October 23rd 2007). It was not until May 26th that a specific bill was passed in the Catalan Parliament (Law 17/2010,

June 3rd, 2010).¹⁵ The Law 17/2010 adopts a strictly linguistic perspective and recognizes LSC as a Catalan linguistic heritage. Also, it establishes the grounds for its regulation, as well as for the teaching, learning and professional accreditation, and to carry out its interpretation. It designates the Institute of Catalan Studies (IEC) as its academic institution.

The department of the Catalan government (*Generalitat de Catalunya*) in charge of language policy has to promote its regulations, normalize it, protect it and disseminate it. Regarding channels for social participation, on October 30th, 2012 the Catalan Parliament passed a bill (*Decret 142/2012*), which creates and regulates the *Social Counsel of Catalan Sign Language (Consell Social de la Llengua de Signes Catalana)*, a body for consulting and social participation on issues of the Catalan language policy related with LSC.

The law also indicates that it is competence of the government to establish the condition of access to the bilingual educational modality. Specifically, **Law 17/2010** establishes the right to be informed about the diversity of educational options for deaf children, as stated in (12)(1). It also establishes that LSC learning must be guaranteed for those children that opted for the intermodal bilingual educational modality in (12)(2), and stresses the necessity to promote the language and a linguistic attitude of respect toward multilingualism in (12)(3).

(12) Article 5. Learning of Catalan Sign Language (Law 17/2010)

1. Els serveis públics educatius garanteixen la informació a les mares, els pares o els tutors d'infants sords i sordcecs sobre les modalitats educatives disponibles per a llur escolarització, perquè puguin escollir lliurement entre la modalitat educativa oral, en què la llengua oral és la llengua vehicular, o la modalitat educativa bilingüe, en què la llengua de signes catalana és la llengua vehicular, juntament amb l'aprenentatge de les llengües oficials a Catalunya.¹⁶
2. En l'àmbit escolar, es garanteix l'aprenentatge de la llengua de signes catalana en la modalitat educativa bilingüe, en què és llengua vehicular d'ensenyament juntament amb el català, com a llengua pròpia i vehicular del sistema educatiu, i les altres llengües orals i escrites oficials a Catalunya.¹⁷

¹⁵ The legal text published in the BOE can be consulted at <http://www.boe.es/buscar/doc.php?id=BOE-A-2010-10216>. The reference for the Catalan text is DOGC 5647, 10-6-2010. For the process carried out until approval, we refer the reader to Quer (2012).

¹⁶ 1. Public education services shall guarantee information to parents or guardians of deaf and deaf-blind children on the various education programmes available for their schooling, with a view to allowing a free choice between the oral education programme, where oral language is the teaching language, and the bilingual education programme, where Catalan Sign Language is the teaching language and the official languages of Catalonia are also learnt. (Law 17/2010)

¹⁷ 2. Within the education system, the learning of Catalan Sign Language shall be guaranteed in the bilingual education programme, where sign language is the teaching language along with Catalan, as own language and teaching language of the Catalan education system, and the education in Catalonia's other official oral and written languages is also guaranteed. (Law 17/2010)

3. El departament competent en matèria d'educació, per mitjà dels plans d'estudis generals, ha de difondre l'existència de la llengua de signes catalana i fomentar el respecte pels valors de la diversitat lingüística.¹⁸

In 2014, the **Accessibility Act** (Law 13/2014, of October 30, on accessibility) is approved. This is a law promoting accessibility as an instrument to enforce the principle of equality. It addresses the abolition of barriers in communication, together with the suppression of architectural barriers and the promotion of technical aids to improve the quality of life and the autonomy of people with disabilities or with reduced mobility. It has mainly two objectives

(13) Llei 13/2014, del 30 d'octubre, d'accessibilitat

[...] d'una banda, aconseguir una societat inclusiva i accessible que permeti d'avançar cap a la plena autonomia de les persones, eviti la discriminació i propicii la igualtat d'oportunitats per a tothom, especialment per a les persones que tenen discapacitats; de l'altra, actualitzar i facilitar un marc normatiu propi més àgil en matèria d'accessibilitat, adequat a les directrius internacionals, europees i estatals, en exercici de les competències de la Generalitat.

Article in (13) uses the terminology of people with disabilities, as indicated in the preamble of the law, following the uses made by the World Health Organization, "for a matter of legal security and with the will to facilitate -and interpretation, application and linkage with other regulations". However, reference is made to the term *functional diversity*, understood as the quality of functioning in a diverse way, a concept that some people and groups use to make reference to people with disabilities, from a positive point of view, with the purpose of generating a change of mentality of the society and to suppress prejudices that have been dragged throughout history".

It is also noted that the terminology of *functional diversity* is consistent with the principles on which the law is based, because disability must not be understood as a limiting element but must be interpreted as a set of ways to relate to the diverse and heterogeneous environment, and therefore, it is the environment that should be configured properly in order to include this diversity of ways to interact so that the ability of the person ceases to be the object that needs to be changed, making them social discrimination and the environment (World Health Organization United Nations,)

¹⁸ 3. The ministry responsible for education shall, through the general curriculum, spread the existence of the Catalan Sign Language and promote respect for the values of linguistic diversity. (Law 17/2010)

The accessibility law is directly related to the implementation of the Catalan education law of 2009 through the **Decree 150/2017 on inclusive school** (Decret 150/2017, *de 17 d'octubre, de l'atenció educativa a l'alumnat en el marc d'un sistema educatiu inclusiu*, October 17th, on educational care to students in the framework of an inclusive educational system). In the field of non-university education, the Catalan Government has the exclusive, shared and executing powers established by article 131 of the Statute of Autonomy of Catalonia and has implemented the Law 12/2009, of July 10, of education. The decree aims

to ensure that all schools supported by public funds in the field of non-university education are inclusive through the establishment of criteria that guide the organization and management of the centers; the ordering of measures and supports for educational attention and for the continuing training of each and every one of the students, and the diversification of the offer of services of the special education centers to become, also, educational centers special service providers and resources for ordinary educational centers in order to complete the support network for inclusive education. (Decree 150/2017, p. 3)

Thus, for example, in this decree, it is indicated that it corresponds to the educational Administration, to "guarantee the architectural accessibility and communication conditions of the educational centers" (Law p. 4). Therefore, the provision of interpretation services, teachers with a high competence in LSC, and the use of Catalan Sign Language can be inferred.

This legal frame is the context of this thesis. Although LSC is legally recognized, it is not recognized as an official language and nor are its users' rights. Therefore, despite being a fully-fledged minority language, it is minoritized. The Law 20/2017 on Transitional Jurisprudence and Foundation of the Republic, a law approved in September 2017 by the Catalan Parliament and overruled by the Spanish Constitutional Court, includes in the article on linguistic rights an explicit reference to LSC, see (14).

(14) Article 24. Drets lingüístics (BOGC 508, 8 de setembre de 2017)

Totes les persones tenen dret a no ser discriminades per raons lingüístiques i a exercir el dret d'opció en relació amb les llengües catalana, occitana i castellana, conforme amb allò que estableix la Llei 1/1998, de política lingüística i els drets que empara, així com la **llengua de signes catalana** i la resta de drets lingüístics vigents en el moment de l'entrada en vigor d'aquesta Llei.¹⁹

¹⁹ All persons have the right not to be discriminated against for linguistic reasons and to exercise the right of option in relation to the Catalan, Occitan and Spanish languages, in accordance with the provisions of Law 1/1998, on language policy and the rights it protects, as well as the Catalan sign language and the rest of linguistic rights in force at the time of entry into force of this Law.

Also, it is minoritized because it does neither enjoy a full legal recognition in all settings, nor has its social use been normalized. Its knowledge is not mandatory for the professionals that serve the needs of signing deaf people in fundamental areas such as health and education. In order to guarantee LSC learning and usage, it is necessary to make available a solid body of knowledge of its linguistic properties, as well as a variety of teaching resources and educational instruments, such as assessment tools of linguistic and communicative competence, of resources for educational intervention, etc.

In conclusion, LSC is legally recognized from two different perspectives. First, it is recognized as a linguistic system and cultural heritage by means of a specific law (Law LSC 17/2010) as well as by means of a general language article in the Statute of Autonomy of 2006 and in the Law 20/2017 on Transitional Jurisprudence and Foundation of the Republic – which is currently overruled by the Spanish Constitutional Court.

And, second, LSC is explicitly recognized as an accessibility resource in the framework of the legislation on disability, promulgated from the Catalan Parliament (Law on Accessibility 13/2014) and the Spanish Courts (Law 17/2007) (Jarque, et al., in press). Moreover, indirectly, the Education Law 12/2009 and the Decree on Inclusive School (150/2017) provide legal basis for its use at school and for the provision of supports, such as listening and language teachers, sign language interpreters and speech therapists.

1.5 Cross-modal bilingual education in Catalonia

At present, LSC is the main language in cross-modal bilingual approaches to deaf education in Catalonia. *Cross-modal bilingualism*²⁰ (also labelled *sign bilingualism*, *intermodal* or *bimodal bilingualism*) refers to the use of one language from the signed mode and one language from the spoken/written mode as tool, to access the curriculum content (Plaza-Pust, 2004, 2016a, 2016b; Plaza-Pust & Morales-López, 2008)²¹. In bilingual spoken contexts, the number of languages in the spoken/written modes will be

²⁰ The preferred Catalan term is *bilingüisme intermodal* (Morales-López, 2008).

²¹ For a state of art on deaf children's cross-modal bilingualism and education, we refer the reader to the volume edited by Marschark, Tang and Knoors (2014), the recent article by Swanwick (2016a), and for the Catalan context, to the dissertation by Sánchez Amat (2015).

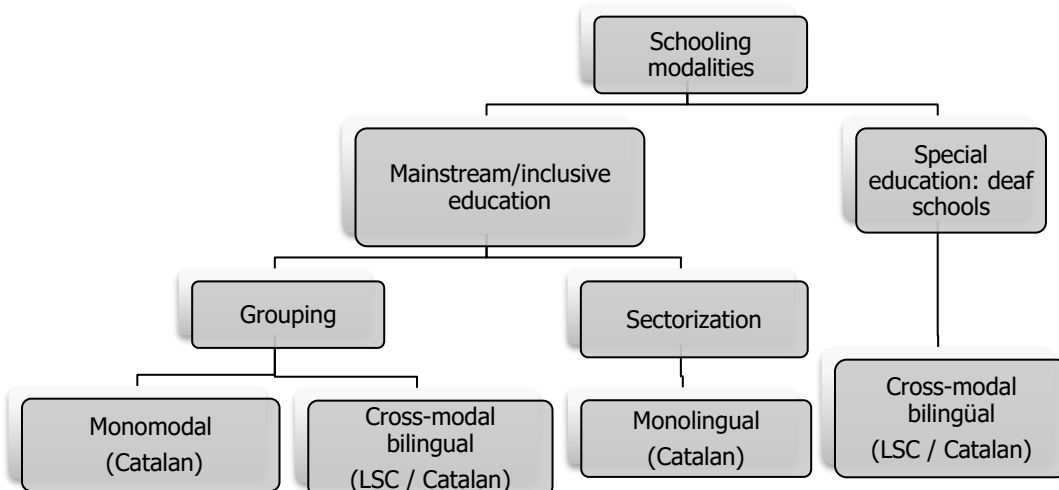
higher, such as in Catalonia or in United States in the case of the deaf Hispanic/Latino population (Morales-López, 2008; Gerner de García 1995, 2000).

However, there is such a diversity of communication strategies that the incorporation of LSC is better described as a continuum from exclusive monolingual spoken/written modes cross-modal bilingual (bicultural) programs, with intermediate options characterized either by the use of signs as a supportive means of communication or by teaching of sign language as a second language. This spectrum has been documented worldwide (Plaza-Pust, 2004, 2012, 2016a, 2016b). In this section, we focus on the projects that opt for the use of LSC with its genuine constructions and we will refer to the use of support signing (i.e. the use of signs from LSC within Catalan/Spanish syntactic and discursive constructions) in Section 1.9.

Worldwide, cross-modal bilingual education programs are usually implemented in specific centers for deaf students, as special schools for children or post-secondary schools for young and adults. The best renowned experiences take place in North-European countries, such as Sweden, that pioneer recognition of Swedish Sign Language as the first language of deaf people in 1981, and implemented bilingualism in 1983 (Bagga-Gupta & Domfors, 2003; Svartholm, 2007).

In Catalonia, the educative answer to deaf students can be characterized along the following dimensions (Fernández-Viader, 2008; Fernández-Viader & Fuentes, 2004; Fernández-Viader & Yarza, 2004; Sánchez Amat, 2015; Vinardell, 2010). See Graphic 1.1.:

- (i) the school type: mainstream/inclusive school vs. special school,
- (ii) the schooling modality: sectorization (*sectorizació*) vs. grouping (*agrupament*), and
- (iii) the linguistic modality for intervention: oral approach vs. cross-modal bilingual approach



Graphic 1.1 Education modalities for deaf students in Catalonia

Graphic 1.1 illustrates the schooling possibilities for deaf students as summarized in the *Guide for families with deaf or deafblind children (Guia per a famílies d'infants amb sordesa o sordceguesa)* edited by the Catalan government (Departament d'Educació i Universitats, 2006): (i) mainstream schools in oral modality, (ii) mainstream schools with grouping of deaf students in oral modality, (iii) mainstream schools with grouping of deaf students in cross-modal bilingual modality and (iv) specific schools for deaf.

In the sectorization modality, deaf students are enrolled in the neighborhood school, since external educational services are designed to satisfy locally their special needs. There they receive the necessary support for correct curricular follow-up, communicative and social development. This modality is designed for those students who have linguistic competences appropriate to their chronological age but that may, or may not, need help in some curricular contents and specific attention.

Concerning grouping, the students are enrolled in mandatory primary and secondary educational centers that are determined as reference centers for students with significant educational needs arising from deafness. In a grouping center, deaf students are assigned to an ordinary reference group with which they share as many activities as is deemed possible activities. Students receive the communicative modality that best suits their needs or the option that the family has at the time, i.e. oral (Catalan) or bilingual (Catalan and Catalan Sign Language).²² In the oral modality, Catalan is the main

²²A list of the grouping centers can be consulted at the following address:

language of learning -to the same extent as in the other Catalan schools- and Spanish is present as a second official language to be taught as one subject, whereas in the cross-modal bilingual modality LSC is the main language for communication and learning.

Independently of the type of schooling, deaf students may receive support from the CREDA. The CREDA or Center of Resources for the hearing Disabled (Centre de Recursos per als deficient auditiu) is an educational resource, specific to Catalonia, that offers educational, psycho-pedagogical and audiological/prosthetic support and speech therapy to students that are deaf or/and have language impairments, and that attend different schools. It is a service that takes care of special need students and their context that is proper to Catalonia, where the 10 existing services constitute a network, each of them intervening on a broad area (CREDA Jordi Perelló, 2010; Departament d'Ensenyament, 1999).

In addition, if the deaf student could not follow the teaching activities of the ordinary classes in mainstream education, he/she might be enrolled in the former USEE (the acronym for the Catalan multi-word unit unitat de suport a l'educació especial) if this service was present in the school and there were enough human resources. In this case, the deaf student could be taught in parallel to the ordinary classes, but with the adaptations that suit them (Article 7.5 Decret 299/1997).

Since 2017-2018, following the inclusive philosophy adopted by the Education Department expounded in the Inclusive Education Decree (Decret 150/2017), the USEE service has evolved into the SIEI service (Suport Intensiu Escolarització Inclusiva – Intensive Support for Inclusive Education). Another intensive support directed specifically to deaf learners is the SIAL service (Suports intensius a l'audició i llenguatge – Intensive support for audition and language).

Furthermore, the reality is more complex since there are also projects specific to schools and it fits better to describe it as a continuum of answers to the deaf student's necessities (Agustí et al., 2001), cited in Sánchez Amat (2015). This researcher presents a synthesis of the modalities that are currently available, as reproduced in Table 1.1 (2015, pp. 382-383).

http://ateneu.xtec.cat/wiki/form/wikiexport/media/cursos/escola_inclusiva/d238/modul_4/centres_amb_agrupament_de_sords.pdf

Table 1.1 Schooling modalities for deaf children in Catalonia

Center type	Schooling modality	Linguistic modality	Other characteristics
mainstream education	Sectorization	oral	Supports from the center
			Supports from the center and speech therapy support from CREDA
			USEE/SIEI
	grouping	oral	bilingual
			oral with signed support
			oral with signed support
special education (SE)	sectorization	oral/oral with signed support /LSC	Special school not specific for deaf students
	sectorization	bilingual	Special school for deaf students
		spoken with signed support and LSC	special school for deaf students + mainstream school (shared schooling)
		spoken / bilingual	special school not specific for deaf students

In Catalonia, the first cross-modal bilingual projects were established officially in 1994 for primary education, in the second part of the nineties for secondary education, and in 2001 for kindergarten and prekindergarten levels (Fernández-Viader & Fuentes, 2004). The three primary schools, despite starting their projects at the same time, come from different experiences: the *Special School Reeducació Auditiva* (also, denominated CRAS for the acronym), the *Special School Josep Pla*, and CEIP Tres Pins. Later, in 1996, the INS Consell de Cent was added, as a secondary education center where one could continue the education.

The special school *Josep Pla* –located in Barcelona – adopted bilingualism in 1994 in response to the demand of a group of deaf parents with deaf children (Fernández-Viader & Fuentes, 2004). It was created in 1991, as the result of a fusion of three private centers: *Centro Médico*, *Institut Català del Sordmut* and *Clot* (Vinardell, 2010). Over the last eighteen years, the project has undergone important changes.

The education professionals from the school distinguish two periods in Josep Pla: (i) 1995-2010 and (ii) 2011 until present. During the first period, the center catered for three groups of students:

- (i) 25% followed the ordinary curriculum (kindergarten and primary school);
- (i) around 35% followed a curriculum that had been adapted (kindergarten, primary and secondary school); and
- (ii) 40% were special needs students.

From this period, five students went on to study at university. During the second period, until the academic year 2016-2017, there were no students enrolled in kindergarten or primary school, only in secondary school and there were two groups: (a) 40% with an adapted curriculum and (b) 60% with special need students. Most of the students came from disadvantaged families and some 60% of them were schooled late in LSC, without having any knowledge of a signed language nor of a spoken language (González, 2015). The academic year 2017-2018 CREDA Pere Barnils considered the importance of recovering kindergarten and primary school and a new cohort of students initiated their second cycle of kindergarten there.

The *Centre d'Educació Infantil i primària municipal Tres Pins*, located in Barcelona, wanted to follow the encouraging results obtained through the use of signs in the research (Fernández-Viader & Yarza, 2006). This school was created in 1984 as an ordinary inclusive school, expanding the institution that had been specifically created for deaf pupils, José Maria de Porcioles's *Centre Municipal Fonoaudiològic*, referred to in Section 1.2 on Education and the origin of the Deaf community. In 1994, it became a school with grouping of deaf students (*escola d'integració preferent en modalitat bilingüe*) that are taught in the cross-modal-bilingual modality (Vinardell, 2010).

The Special School *CRAS* – located in Sabadell, a city near to Barcelona – started the bilingual project in 1995 after realizing that the bimodal system (i.e. signing supported speech) was not effective, while the cross-modal bilingual experiences in the Scandinavian countries seemed to be very positive. The school had been created as a special education school for deaf students in 1968. In 1998, an inclusive secondary education program was started at IES Escola Industrial, and in 1999 at IES Sabadell. And since 2001-2002 there were inclusive primary education programs at CEIP

Samuntada (Vinardell, 2010). CRAS was closed in 2008 and the CREDAV included in its project the schools from the district with cross-modal bilingual mode (CREDA Jordi Perelló, 2010).

Finally, the *Consell de Cent Secondary School* is the only center for Compulsory Secondary Education that offers inclusive cross-modal bilingual education in Barcelona. At the Consell de Cent, there are mixed groups of deaf and hearing students.

In inclusive mainstream education, *crossmodal bilingual mode* refers to co-enrollment (in the same room) of deaf and hearing children, where information is conveyed by the teacher in a spoken language to hearing students – in Catalonia, Catalan — and by another education professional in the sign language to the deaf students, – in Catalonia, LSC. This second professional may have different profiles depending on the educational level and the topics to be taught: an audition and language teacher or a language therapist in primary education, which also acts as a co-tutor and a sign language interpreter or an educational psychologist in secondary education.

This implies that in primary education two teachers give the lessons: a hearing teacher and a speech language therapist (or an audition and language teacher) who also acts as a support teacher (or co-tutor) and a sort of educational interpreter. The co-tutor always communicates with the deaf students in LSC and her main functions are: (a) to explain the contents of the class in LSC, adapting them when necessary to guarantee an optimum level of comprehension, and (b) to monitor the students' progress outside the classroom (Morales-López, 2008b).

For mandatory and post-mandatory secondary education, cross-modal deaf education has not been possible without the figure of the educational sign language interpreter (Kotaki & Lacerda, 2014; Santos, Diniz, & Lacerda, 2016). In December 1995, the Council of Ministers passed a Royal Decree 2060/1995, establishing the official diploma course in sign language interpreting and describing the curriculum required to obtain this qualification. This royal decree is official recognition of this profession (Fernández-Viader & Lozano, 2011). At present, Pompeu Fabra University offers a degree in interpreting that includes LSC as a working language since 2008-2009.

According to Baker (2007), who studied and compared the educational options available to deaf people, deaf education is characterized by the same parameters found in other types of bilingual education, as in (15):

- (15) Bilingual education variables
- (i) status of the languages (minority vs. majority language)
 - (ii) language competence(s) envisaged (full bilingualism or proficiency in the majority language),
 - (iii) placement (segregation vs. mainstreaming),
 - (iv) language backgrounds of children enrolled, and
 - (v) allocation of the languages in the curriculum.

Crucially, cross-modal bilingualism does not always imply a balanced competence or equal use of the sign language and the spoken/written language. Linguistic competences can vary substantially (Grosjean, 2008). Deaf children attending cross-modal bilingual education programs in Catalonia range from native fluency in one, two or three languages (LSC, Catalan and Spanish) to delayed, partial, or even only rudimentary skills. The factors behind such variation include the age at which hearing loss occurred, the degree of deafness, the age of exposure to the respective languages, the hearing status of the parents, their family language policy, schooling, and social networks, as it has been described for other countries (Grosjean, 2008; Lacerda, et al., 2016; Marschark & Lee, 2014; Marschark, et al., 2014; Plaza-Pust, 2016a, 2016b; Plaza-Pust & Morales-López, 2008).

The model adopts Cummins's linguistic interdependence theory (Cummins, 1981) as theoretical basis upon which to explain the construction of communicative competence through the transfer among languages and, specifically, to support literacy development (Cummins, 2006; Grosjean, 2010; Hermans, Ormel, & Knoors, 2010; Mayer & Leigh, 2010). In particular, cross-modal bilingualism programs in Catalonia exhibit the characteristics listed in (16).

- (16) Characteristics of cross-modal bilingualism in deaf education in Catalonia
- (i) It involves the joint, but not simultaneous by a single person, use of a **sign language** and a spoken language as a vehicle of **communication** and **access to the curriculum**.

- (ii) It seeks the **highest proficiency in both languages**: it is not a case of substitutive bilingualism.
- (iii) Given the difficulties encountered by deaf individuals acquiring a spoken language, they tend to achieve a higher competence in the sign language than in the oral language, which means that it is not, therefore, a balanced bilingualism. **Sign language is considered as an L1**, and the spoken language as an L2.
- (iv) L1 (sign language) is used as the language of communication and learning, as well as a **metalinguistic tool to help learning the oral language**, mostly in its written mode. In other words, the spoken language (Catalan) is explained in sign language (LSC), appreciating the similarities and contrasts between the two linguistic systems.
- (v) The **spoken language is taught mainly in written mode** with all students, while the spoken mode is restricted to those students that have the potential to become competent in this mode.
- (vi) The bilingual approach is often coupled with **a bicultural approach**, i.e. the culture that stems from the concepts of **Deaf Community and Deaf Culture**.

Therefore, in practice, many children are required to learn Catalan Sign Language while using it to learn, receiving language input from adult models who are mostly non-native users, as it happens in other countries (Lacerda, et al., 2016; Massone, et al., 2003; Plaza-Pust, 2012; Swanwick, 2016b). Since sign language is typically not included in the curriculum as a course as it is the case in Secondary School Consell de Cent or one-week-hour course as in School Tres Pins (Morales-López, 2008b), these children do not contrast systematically their two languages, thus failing to develop metalinguistic awareness and, consequently, they are not aware that they are bilingual.

Another element of complexity is the communicative interaction between deaf and hearing teachers and learners. The co-enrollment implies support activities to enhance a harmonious coexistence. For instance, during the academic year 2014-2015 the *Consell de Cent* Secondary School carried out a series of programs aimed at improving socialization strategies, summarized in (17) (Carreño, Urrutia, & Asta, 2015).

(17) Programs for improving socialization

- (i) The language policy plan: students receive information in LSC all the time.

- (ii) The Orientation Plan for newly arrived teachers and students.
- (iii) The Tutorial Action Plan for deaf and hearing students.
- (iv) The Listen to me! project aiming at enhancing social skills by explaining the social rules of the deaf and the hearing communities.
- (v) The Mediation Service to improve the relations among deaf and hearing students and among deaf students, where both hearing and deaf students act as mediators.
- (vi) The elective course for second year students: Introduction to sign language (duration of three months).
- (vii) Plan to improve the oral language of deaf students.

Another factor of complexity is the great heterogeneity among deaf students in bilingual programs in Catalonia. The main factors that contribute to heterogeneity within deaf population in secondary education as observed are listed in (18) (Carreño, et al., 2015).

(18) Heterogeneity factors for deaf students

- (i) **Technological resources:** whether they use or not technological resources such as digital hearing aid, cochlear implant, and whether the aid is, or is not, totally functional.
- (ii) The **educational background** with respect to the educational modality: students may come from cross-modal bilingual projects, that can be very different among them, or they may come from schools with an exclusively oral project for deaf students.
- (iii) The **speech ability:** they vary from a totally unintelligible speech in Catalan and Spanish to relatively fluent speech.
- (iv) **Spoken Language disorders:** they may present difficulties with spoken language that may include dislaly, stuttering, alterations of the vocal apparatus and specific language impairment.
- (v) **Written language alterations:** dyslexia and difficulties in reading comprehension and written composition.

These cross-modal bilingual programs were ground in the body of international research on intermodal bilingualism, such the research by Svartholm (1994) and Preisler, Tvingstedt and Alhström (2002). Also, important documents such as the UN *The Standard Rules on the Equalization of Opportunities for Persons with Disabilities* and the UNESCO *Salamanca Statement* (1994) had an impact, as demonstrated by publications

by the professionals involved, as teachers or advisors (Bellés, 1995; Bellés, et al., 2000; Bellés & Molins, 1999; Fernández-Viader, 2002; Galceran, 1998). A highly negative aspect is that there has been little research accompanying these experiences. Table 1.2 summarizes the main works. Only the items in bold corresponds to PhD Dissertations.

Table 1.2. Research on LSC and education

Area	Publications and thesis
Bilingualism and deaf education	<ul style="list-style-type: none"> ○ Educacional experiences (Bellés, et al., 2000; Fernández-Viader & Yarza, 2006; Morales-López, 2008b; Morales López, 2010) ○ Educational legislation (Fernández-Viader & Fuentes, 2004) ○ Education models (Fernández-Viader, 2002)
Literacy	<ul style="list-style-type: none"> ○ Literacy (Bellés, 1987; Bellés & Molins, 1999; Fernández-Viader & Pertusa, 1999; Pertusa, 2002) ○ Narrative competence in LSC and written Catalan (Sánchez Amat, 2015)
Social cognition	<ul style="list-style-type: none"> ○ False believe (Valdespino Núñez & Fernández-Viader, 2006) ○ Emotional experience (Fernández-Viader & Reiriz, 2010)
Mathematics	<ul style="list-style-type: none"> ○ Numerals comprehension and production (Fuentes, 1998; Fuentes & Tolchinsky, 2004) ○ Mathematical operations (Fernández-Viader & Fuentes, 2007, 2013)
LSC teaching/learning	<ul style="list-style-type: none"> ○ Teacher strategies (Jarque, Morales López, & Garrusta, 2014)

As the Table 1.2 shows, in Catalonia, there is a paucity of critical research regarding the learning and teaching processes in cross-modal bilingual experiences side by side with deaf education with different methodological orientations. To the best of my knowledge, only three pieces of research have been carried out over the last fifteen years, since the doctoral dissertation by Pertusa (2002): Silvestre and Ramspott (2003a), Morales-López (2008b) and Sánchez-Amat (2015).

The first study was commissioned by the Department of Education with the aim of evaluating the two schooling linguistic modalities for deaf students in Catalonia. The results were presented in 2002 and published later (Silvestre, 2009; Silvestre & Ramspott, 2003a, 2003b). The study shows that deaf students enrolled in exclusively oral education report better scores in narrative competence than the ones enrolled in cross-modal bilingual programs. However, this study was characterized by important limitations.

For instance, the results of the evaluation did not take into account the audiological conditions of the parents of deaf children, the socioeconomic status or the cultural background of families of deaf children and the onset of LSC learning by deaf students (Leal & Perich, 2002). But, the main limitation was that the data collection was carried out in 1998 and 1999 (Silvestre, 2009), i.e. between two and four years after implanting the bilingual model (Sánchez Amat, 2015). Thus, it was impossible to evaluate a model that had not yet been fully implemented, since there was the risk that the data was not reliable (Morales-López, 2004, p. 7).

Based on data collected during the 2003/04 school year in different schools with cross-modal bilingual projects in Catalonia and Madrid, Morales-López (2008b) qualifies bilingualism implemented in deaf education in Spain as *pre-bilingual* arguing that “sign language is the vehicular language of the school and for the contents of the curriculum, but it is still not the object of formal teaching that allows for the full development of the students' critical language awareness” (Morales-López, 2008b, p. 266). Furthermore, the researcher lists a series of proposals designed to improve the cross-bilingual model for deaf education (19) (2004, pp. 10-11; 2008, pp. 263-266):

- (19) Proposals to improve the cross-bilingual model for deaf education
- (i) The **creation of a research group into cross-modal bilingualism**, focusing the research on:
 - a. the description of SL, particularly the diverging aspects with the spoken language needed to be contrasted in teaching both languages;
 - b. the development of reading and writing skills;
 - c. the problems experienced in the learning of L2 in relation to the transfer from L1 as well as social aspects of bilingualism.
 - (ii) The **training of teachers** involved in this model, in the form of regular seminars where the research team would provide the necessary theoretical content and which would act as a forum enabling researchers and teachers to swap experiences in the form of research-action processes.
 - (iii) **Extensive legal reforms** that allow for the necessary changes to be made to the curriculum:
 - a. to increase the number of teaching hours dedicated to SL during the Infant and Primary phases,

- b. to include a number of formal teaching hours for SL in Secondary Education, and
- c. to modify the regulations regarding the hiring of teachers in public schools in order to ensure that they are fluent in SL.

After almost ten years, the “urgent” proposals have remained “proposals” and just a few of them have come into the practice. Also, the recent research conducted by Sánchez Amat (2015) insists in some of the same proposals, and add a new series. Her main conclusion, after analyzing narratives produced by deaf children, small class groups observations, the linguistic context of classrooms, teachers’ perceptions, and intervention with deaf children in Catalonia, is that “the role of sign language in written language teaching and learning activities in small group lessons for sign bilingual education needs to be promoted much more” (2015, p. 554).

Besides suggesting some proposals to ensure LSC immersion context at the 0-3-year-old stage and measures for linguistic normalization of LSC, Sánchez Amat (2015, pp. 564-572) includes a complete series of proposals to enhance teaching and learning processes in cross-modal education for the deaf. We present a summary, organized around key issues, in (20):

(20) Proposals for improving deaf education in Catalonia

- (i) **Curriculum of LSC:** review, if appropriate, approve the curriculum of LSC, and provide the necessary means for its implementation.
- (ii) **Environment in LSC:** create the right conditions for schools to become a sign bilingual context, reinforcing learning of LSC by hearing children, transforming the support figure of deaf teacher in a main teacher in the classroom, incorporating more deaf signer professionals to contribute to linguistic immersion in LSC for both deaf and hearing, etc.
- (iii) **Signing support:** the use of signing support should be restricted to the framework of specific teaching – learning situations, and therefore delimiting its use as a vehicular linguistic system in the classroom.
- (iv) **Interdisciplinary work for improvement and innovation:** provide the intermodal bilingual institution with the resources necessary to create an interdisciplinary work group that includes teachers and external professionals and that carries out joint work for the improvement and innovation of education in the bilingual school.

- (v) **Cross-linguistic transfer:** stimulate a culture of interlinguistic transfer from LSC, consider interlinguistic comparison of grammars, promote activities, and favor processes of transfer between sign language and written language.
- (vi) **Composition:** start from LSC in written composition activities to highlight what they express in sign language and are not expressing in written language.
- (vii) **Reading:** maintain a dialogue in LSC on reading, to create a new term that designates the process of reading a written text using sign language, the difficulties involved and encouragement of processes to favor it.
- (viii) **Linguistic and metalinguistic awareness:** specify the language or the linguistic system used to favor their differentiation, contributing, thus, to the awareness of the characteristics of each language or system.

All these proposals require that the professionals have a good competence in LSC as well as a knowledge of linguistics of LSC and spoken language.

This academic year, the cross-modal bilingual model for deaf education in Catalonia is 14 years old. It is not yet the age of majority, but it should have been enough to see a full implementation of the model and to be able to state that no deaf child is without communicative linguistic resources. Unfortunately, this is not the case.

In addition, the profile of deaf students attending cross-modal bilingual programs and their families have changed, and it clearly diverges from the profiles of the bilingual students' first cohort, which is finishing university education (with degrees in geography, psychology, teaching, pedagogy, kindergarten, veterinary, etc.) or professional training in community colleges. The deaf students tend to show needs that are more complex and professionals face new challenges. So far, no research has been done on this issue and the causes that have motivated it. More research is needed to attain a greater understanding of the biological, cognitive, linguistic, sociocultural, and pedagogical conditions that influence the acquisition of language competence and knowledge through the visual modality.

Especially relevant would be to focus on literacy since "deaf children's underachievement hampers overall progress in school and influences life and work choices" (Cawthon, Schoffstall, & Garberoglio, 2014; Mayer & Trezek, 2015; Swanwick, 2016a). This issue

will be the topic of the next section, especially regarding the linguistics factors that contribute to its development.

1.6 Deafness, literacy and sign languages

Deaf children's literacy development is the most researched area of deaf education because of the complex challenges that reading and writing present for them. Research conducted over the last three decades on the reading processes have shown the difficulties that deaf children face when learning to read. Results show that deaf children do not reach the same reading levels as their hearing peers both in the schools where only an oral/written language is used as well as in intermodal bilingual educational programs. Thus, for instance, longitudinal studies of the oral modality conducted in the United Kingdom, that include both primary and secondary schools, show that the gap between hearing and deaf students widens during the secondary education, when it reaches a 3-year difference (Harris & Terlektsi, 2011; Harris, Terlektsi, & Kyle, 2017).

Also, large scale studies of the academic achievements and reading comprehension in countries where bilingual intermodal education is dominant and has a long tradition (Sweden, Denmark and Netherlands) do not show a bigger improvement. The results of the study by Rydberg, Gellerstedt and Danermark (2009) about academic achievements of over 2,100 deaf people in Sweden show higher achievement in bilingual education groups, when compared with bilingual pre-education groups, but the level of hearing peers is not reached.

Although there is agreement on what these difficulties are, there is no consensus about the underlying causes and the factors that contribute to the success in learning to read. The candidate factors are the lexical competence, the phonological skills and phonological awareness, the learner's level of understanding of the language, the deaf learner's intelligibility and clarity of speech and the linguistic competence. The various studies that have analyzed which factors predict the results over time have been fundamental to determine the educational intervention in children at risk of having reading difficulties (Hulme & Snowling, 2009). In addition, the interpretation of the results of the existing studies is more complex due to the great diversity of factors that may affect development in deaf children, as listed in (21).

- (21) Main concurrent and Longitudinal Predictors of Reading for Deaf Children
- (i) The age of diagnosis of deafness
 - (ii) The severity of the loss
 - (iii) The effectiveness of technological support and the age of intervention
 - (iv) The characteristics of the educational intervention
 - (v) Family support and family language(s)
 - (vi) Comorbidity with other developmental disorders
 - (vii) The effects of language deprivation in the early stages of development

In 2007, Marschark and colleagues (Marschark, Rhoten, & Fabich, 2007) published a study reviewing previous studies on reading in deaf children with implants. Despite the variability of results, the investigations reviewed indicate that deaf children with implants often read better than deaf children who use hearing aids, although their levels are lower than hearing peers. On the other hand, some studies show that children with implants who have access to sign language and the spoken language during the school years show higher levels of reading skills.

As for phonological awareness, there is the meta-study conducted by Mayberry, del Giudice and Lieberman (2011), that examines 57 studies with deaf populations from the United States, United Kingdom, Canada, Germany, Belgium, France, the Netherlands and Israel (from an initial pool of 231 studies), with a total of 2,078 participants and a sample of deaf participants who presented severe or profound deafness (80 dB or more in the better ear, although some studies explicitly included deaf participants with cochlear implants). The fact that approximately half of the studies found no significant effects suggests that phonological awareness is not a robust factor in individuals with severe and profound hearing loss. The results of this meta-study indicate that the recognition of written words only through spoken phonology is moderately associated with reading achievements in the deaf population. This means that reading instruction for deaf children requires an educational approach based on language and words recognition skills.

The findings supporting this conclusion are that such a big variation in reading achievement cannot be explained by phonological awareness skills alone, given that other factors, especially language ability, are highly associated with reading achievement in this population. In parallel with the findings of hearing readers, the meta-study authors suggest that more research should be done to identify the specific influence of language

ability on reading and to discover what strategies to teach word recognition skills are successful with deaf readers. In addition, the authors also suggest that intervention efforts should focus on building a strong linguistic foundation in deaf students.

In a review study, Mayer and Leigh (2010) emphasize that deaf children do not reach the reading-writing levels of their hearing peers. The authors themselves give two reasons for these results:

- (i) **The acquisition of literacy as a second language requires mastery of the first language**, a competence that is mostly not attained. Other studies confirm this observation: most deaf children and their families learn sign language too late and families and schools rarely have the resources to yield a process of immersion in a context in sign (Johnston, Leigh, & Foreman, 2002). This situation has also been documented in Australia, where among the children between 3 and 11 years of a bilingual program (English-Auslan) only the children of deaf parents demonstrated having understanding abilities in the normative range (Leigh & Johnston, 2004).
- (ii) **The relative inadequacy of speech exposure**. Deaf children, in comparison with their listening peers, have limited exposure to the spoken language despite the use of visual resources, such as lip-facial reading, dactylology, cued speech, etc. An indicator is also the lack of research on the relationships between spoken language skills and measures related to reading-writing.

On the other hand, the results are different in the studies of the United States. Several studies with American deaf people show a correlation between scores in ASL and English reading (Chamberlain & Mayberry, 2000; DeLana, Gentry, & Andrews, 2007; Hoffmeister, 2000; Prinz, Kuntze, & Strong, 2001). Similarly, empirical findings point out a relationship between proficiency in a signed language and literacy proficiency in deaf children, as shown for Chinese Sign Language and Chinese (Yang, 2008), French Sign Language and French in Switzerland (Niederberger, 2008), German Sign Language and German (Plaza-Pust, 2008), New Zealand Sign Language and English (Biederman, 2003), Quebec Sign Language and French in Quebec (Dubuisson, Parisot, & Vercaingne-Ménard, 2008), to name just a few.

On the other hand, different studies show that a good ASL competence of parents and their children may be more important for reading comprehension than whether the

parents are deaf or hearing (Chamberlain & Mayberry, 2008; Novogrodsky, Caldwell Harris, Fish, & Hoffmeister, 2014; Padden & Ramsey, 2000; Prinz, et al., 2001; Strong & Prinz, 2000; Strong & Prinz, 1997), i.e. the determining factor is the parents' competence in the sign language and not their audiological condition. In other words, what matters is that deaf children are exposed early to sign language so that it becomes their first language and that sign language is introduced early at school, and "the earlier, the better" (Mayer & Trezek, 2015).

A recent study by Scott and Hoffmeister (2017) shows a correlation between competence in ASL and reading comprehension. The other factor was the ethnic background: one can observe better results in white population compared to non-white. Other contributions were word reading fluency and the mastery of academic English, though these findings were not consistent.

Clark et al. (2016) evaluated which of these theories best describes variances in deaf children's reading development. They tested four groups of children—hearing with dyslexia, hearing without dyslexia, deaf early signers, and deaf late signers (N = 857)—from 4 countries using both shallow and deep orthographies (American English, Hebrew, German, and Turkish). The results suggested that deaf participants do not have a phonological processing deficit. The fact that Early Language Access Theory provides a more satisfactory explanation for the similarities between hearing and deaf early signer participants suggests that early access to visual language has long lasting consequences and that early sign language acquisition facilitates deaf children' acquisition of spoken and written language.

These findings support the hypothesis of a positive relationship between SL and reading/writing development and suggest that Deaf children benefit from early exposure to a natural sign language for their literacy development. These correlations have led some researchers to re-examine the development of literacy and its relation to a sign language (Kuntze, Golos, & Enns, 2014).

What they indicate is that a simple exposure to ASL and English is unlikely to be sufficient for linguistic development and the transfer between both languages, and educators must be involved in what is called *cultivated transfer*, i.e. establishing explicit connections between the languages and the modalities (Bailes, 2001), and drawing attention to more

complex elements of language such as polysemic words and phrasal translations (Hoffmeister & Caldwell Harris, 2014).

Moreover, the need for explicit teaching of the academic language (academic English), necessary to progress academically in high school and post-secondary, has also been revealed as being one of the determining factors for reading comprehension (Scott & Hoffmeister, 2017).

For all these reasons, one of the important limitations of cross-modal bilingual programs is the linguistic competence of children at the beginning of schooling. As long as in the 0-3 and 3-6 stage the acquisition of the sign language is not guaranteed, it will be difficult to construct the rest of the learning.

This leads us to address what are the characteristics of the course and the processes of acquisition of the sign languages and the characteristics of the educational intervention in relation to the teaching and learning of these in the school context. This will be the focus of the next section.

1.7 Sign language acquisition: normative and delayed

In the process of communication and language acquisition and development in the signed linguistic mode there can be alterations, delays and/or disorders, equivalent to those described for spoken languages. In addition, different investigations have revealed differences in grammatical development between prelinguistic deaf signers that have learned a signed language as their first language and those signers that have learned it as a second language (Boudreault & Mayberry, 2006; Cormier, Schembri, Vinson, & Orfanidou, 2012). To understand the alterations, delays and disorders, we need, first of all, to describe the normative process of sign language acquisition.

1.7.1 Normative development in a signed language

Children who are exposed to signed languages from early childhood show remarkable resemblance in onset, rate and patterns of development compared to children acquiring spoken languages (Chen Pichler, 2012). Research on signed acquisition is a productive area, as shown in the volumes edited by Chamberlain, Morford and Mayberry (2000), Morgan and Woll (2002), Schick, Marschark and Spencer (2005), Baker and Woll (2008), and Marschark, Tang and Knoors (2014), *inter alia*.

Also for sign languages, conversation is the fundamental frame where there have place the numerous intersubjective processes of shared attention, management of interaction and strategies that facilitate acquisition and learning of signed languages. There are several studies that describe the strategies adopted by competent care-givers (mothers, fathers and educators) in the signed interaction and that facilitate the acquisition processes (Fernández-Viader, 1993; Fernández-Viader & Pertusa, 1995; Harris, Clibbens, Chasin, & Tibbitts, 1989; Harris & Mohay, 1997; Marschark, Lang, & Albertini, 2002; Mohay, Milton, Hindmarsh, & Ganley, 1998; Spencer, 2000; Spencer & Harris, 2006).

Just a few studies explain LSC acquisition. Mainly, they focus on the longitudinal process for acquiring the handshape parameter, a phonological sublexical unit that conforms to the sign (Fernández-Viader, Segimon, & Jarque, 1995; Fernández-Viader, Segimon, & Jarque, 1996; Fernández-Viader, Segimon, & Jarque, 2004) and on lexical acquisition (Fernández-Viader, 1993; Fernández-Viader & Pertusa, 1995; Fernández-Viader, Segimon, & Jarque, 2000).

The lack of studies on LSC acquisition forces the professionals and researchers to consult and take as a reference data from other sign languages. Table 1.3 presents a summary of the main acquisition milestones, elaborated by Mayberry and Squires (2006) taking into account data from ASL (American Sign Language), LSQ (Langue de Signes du Quebec), SLN (Sign Language of the Netherlands) and JSL (Japanese Sign Language)²³.

²³ See also Chen Pichler (2012) for a recent overview.

Table 1.3 Synthesis of the main milestones

Structures	Age of first appearance	Age of first mastered	Sign languages
Babbling	0;7 – 0;10	- ²⁴	ASL, JSL, LSQ
First words	-	0;8 – 0;12	ASL, JSL, LIS, LSQ
Word combinations		-	
- Two words	1;2 – 1;6	-	ASL, JSL
- Basic word order	2;4 – 2;6		ASL, SLN
Pronouns			
- First person	1;8	2;2	ASL
- Second person	1;10 – 2;0	2;2	ASL
- Third person	2;0	3;6	ASL
- Possessives	2;0	2;4 – 2;9	ASL
Negation	1;6	-	ASL
- Negative signs	1;6	-	ASL
- Negative-incorporated verbs	1;8	4;0	ASL
- Negative sign with headshake	2;0	4;0	ASL
- Negative-incorporated verb with headshake	1;8 – 2;2	4;0	ASL
- Negative predicate with headshake			
Questions			
- Yes/no facial grammar	1;0	-	
- Questions signs	1;6 – 2;4	-	ASL
- Non-manual markers over questions signs	3;6	6;0	
Facial adverbials	1;10- 2;0	5;0	ASL
Topics	2;9	3;0	ASL
Conditionals			
- Conditional signs	3;0	4;0	ASL
- Non-manual markers over signs	5;0	7;0 – 8;0	
Verb agreement			
- Agreement verbs without inflection	2;6	-	ASL
- Agreement verbs with inflection	3;0	6;0	ASL
- AB verbs	6;0	11;0 – 12;0	ASL, BSL
Perspective shift			
- Shift roles with eye gaze	3;0	-	ASL, BSL
- Direct quote	3;6	6;0 – 8;0	ASL, BSL
- Non-manual markers	3;6	13;0	ASL, BSL
Classifiers			
- Figure (handshapes)	3;0	8;0 – 9;0	ASL, BSL, SLN
- Use of space	3;0	9;0 – 10;0	ASL, BSL, SLN
- Ground	4;0	11;0 – 12;0	ASL, BSL, SLN

The data from the table shows that an important number of linguistic constructions in sign language mode, such as classifiers, role-shift and non-manual markers, are mastered beyond first infancy. This “difference” compared to the acquisition of languages in the spoken mode has been interpreted as a consequence of lower

²⁴ The hyphen may refer to: (i) the lack of available data, or (ii) the lack of agreement on the issue.

frequency of exposure of signing children to the language due to the characteristics of the sign language mode interaction, that requires divided attention.

Also, the quantity of regular patterns is smaller than for spoken languages, such as Romance languages, since the grammaticalization history is more reduced. See for example Morgan, Barrière and Woll (2006) with respect to the influence of typology on the acquisition of verb morphology in BSL. This is explained by the age of sign languages, younger than most of spoken languages, as well the horizontal process of transmission and the fact that the majority of users are not native signers (Morales-López, Boldú-Menasanch, Alonso-Rodríguez, Gras-Ferrer, & Rodríguez-González, 2005).

Indeed, the acquisition processes shown in Table 1.3, however, only correspond to a small percentage (less than 10%) of deaf children acquiring a signed language from birth because they had deaf parents who signed to them: around 4% in the United States (Mitchell & Karchmer, 2004). The majority profile is a deaf child who is a non-native or non-fluent signer, since she is born in a hearing family with no prior experience of deafness or sign language.

The development of sign language fluency for the majority of deaf children is problematic since they display a general delay in sign language development and difficulties in catching up (Marschark & Lee, 2014; Swanwick, 2016a; Tang & Kun-Man Yiu, 2016). Evidence has been reported through the use of standardized assessments of sign language such as checklists, reproduction test (fingerspelling, signs and sentence) and receptive and productive skills tests (Hermans, Knoors, & Verhoeven, 2010; Marshall, et al., 2013; Quinto-Pozos, 2014) or general language comprehension measures (Rodríguez Ortiz, 2008). Delays, also, have been detected in early narrative competence (Becker, 2009; Sánchez Amat, 2015) and pragmatic skills, such as the conversational maxims (Surian, Tedoldi, & Siegal, 2010).

This delay finds its causes in the fact that, not surprisingly, hearing parents do not easily learn sign language as adults, as a second language (Napier, Leigh, & Nann, 2007; von Pein & Altarriba, 2011). Therefore, the children are not involved as often as their hearing peers in everyday conversation and routine interactions, do not hear as many parental commentaries around shared activities, are not so exposed to storytelling, etc.

On the other hand, in the process of acquisition and development of communication and language in the signed linguistic mode, alterations, delays and/or disorders may occur, equivalent to those described for spoken languages. This will be the focus of the following section.

1.7.2 Communication and language disorders in Catalan Sign Language

Alterations in signed languages have been observed in both deaf and hearing students, belonging to signing families. Its description has begun only recently and has been stimulated both by the researchers and by the professionals of the educational and speech therapy intervention (Quinto-Pozos, 2014). Jarque and Cedillo (2017) stress the difficulties when examining communication and language disorders in LSC in deaf children, since it is complex to disentangle language delays from language disorders, as consequences of language deprivation may converge with specific language impairment and/or the comorbidity with developmental disorders.

For instance, they present the case of two three-year-old twins, children of signing deaf parents. The two children display communication and language delays in LSC and one of them seems to present Autism Spectrum Disorder (ASD). A few studies have revealed the characteristics and limitations in communication and language in deaf people with ASD, users of a signed language (Beals, 2004; Denmark, Atkinson, Campbell, & Swettenham, 2014; Sort, 2015; Szymanski, Brice, Lam, & Hotto, 2012).

Jarque and Cedillo (2017) also examined an eight-year-old student with alterations in productive skills in LSC after five years of exposure and participation in LSC exchanges, with suspicion of ASD and specific language impairment despite the fact that temporalization remains largely intact. Just a few studies have described specific language impairment in children acquiring signed languages.

Most of them have been on British Sign Language (BSL) or American Sign Language (ASL). Morgan (1996) documented impairments in English and BSL in a hearing bilingual child with deaf parents and native exposure to both languages. Morgan, Herman and Woll (1984) examined the case of a deaf child with deaf signing parents that, at the age of 5.2, despite having been exposed to fluent sign language models from birth, signed as a child of 2-2.6 years.

More recently, Mason and colleagues have documented deficits in narrative abilities in a group of 17 deaf signing children who have been diagnosed with disorders in their British Sign Language development (Ros Herman, Rowley, Mason, & Morgan, 2014). Moreover, other studies have analyzed alterations in lexical development in BSL (Woll & Morgan, 2012). In relation to the American Sign Language, the research carried out also reveals these deviations from the normative developmental process and Specific Language Impairment (Quinto-Pozos, Forber-Pratt, & Singleton, 2011; Quinto-Pozos, Singleton, & Hauser, 2017).

The alterations discussed in the literature do not only refer to the syntactic structure and the lexical competence. Alterations that correspond to a dysarthria have also been identified (Tyrone, 2014), as well as phonetic/phonological "errors" in LSC after eight years of participation in signing contexts (Jarque & Cedillo, 2017). In addition, stuttering in the signed modality has been described, in relation to the difficulties in the rate of production (Whitebread, 2014). Jarque and Cedillo (2017) reports the case of an eleven-year-old student, who was exposed to LSC at five and who signs fast but "deletes" sign parameters elements.

As evidenced by the aforementioned studies, the described alterations may have a biological and/or social origin. Regarding the former, when the basis is genetic, Morgan's (1996) work describes alterations in English and BSL even though the child has been exposed to and participates in social interactions in both languages.

On the other hand, alterations can also originate in a poor exposure to communication and language due to lack of accessibility to the language material during the critical or sensitive period (Humphries et al., 2014; Lu, Jones, & Morgan, 2016). According to Petitto and Holowka (2002), young deaf children are bound to be exposed as early as possible to a cross-modal bilingual environment. Research shows that the critical/sensitive period for language learning is from zero to five years of age. Moreover, our contemporary world is simply and ineluctably multicultural and multilingual, and our multilingualism and multicompetence contributes to social cognition (Dewaele & Wei, 2012).

That is why it is essential to create rich signing environments during the sensitive period so that deaf children can fully develop their communicative competence during the period from zero to six years. A rich signing environment implies that the child is exposed

to interactions between adults and between fully LSC competent adults and children on various topics, expressed in various genres, linked both to one's own reality and to the world of fiction, that refer to situations that are far in space and time, and that the child participates actively and constructively in these interactions.

Professionals working in cross-modal bilingual projects in Catalonia report that many deaf students with a poor communication and linguistic development have been observed to accelerate in their competence in a surprising manner when they have been exposed to a signed language and their participation in interactions with signing adults and peers has been favored in accessible communication contexts.

However, according to the research on neurological development, the overall ability to learn language and stages of development in deaf individuals, delay of accessible exposure to sign language as a first language leads to processing deficiencies and, consequently, has a negative impact on the development of literacy (Berk & Lillo-Martin, 2012; Cormier, et al., 2012; Malaia & Wilbur, 2010; Mayberry, 2007; Mayberry, Chen, Witcher, & Klein, 2011). We will expand on these issues in Section 1.11.

To identify deaf children's linguistic alterations, monitor their language progress and plan interventions, appropriate instruments must be available. At the moment, we do not have validated instruments of evaluation of the linguistic and communicative competence in LSC. We only have an adaptation to the LSC of the screening tool *LSC Linguistic Behaviours (Els comportaments lingüístics en LSC)* (Jarque et al., 2017). This instrument has as its main objective to locate individually or attribute a linguistic and communicative behavior to deaf students who present difficulties or communication and/or language disorders in LSC of different etiologies, with the aim of designing the intervention program or the work plan for the student, the CREDA and the educational center where he is enrolled, following the guidelines established by the Departament d'Ensenyament (1999, 2004).

The linguistic behaviors in LSC is an instrument elaborated from prior adaptations of signed linguistic behaviors and is based on the documents *CREDA's Framework for Action (Marc d'Actuació dels CREDA)* (Departament d'Ensenyament, 1999) and *The use of Language at school (L'ús del llenguatge a l'escola)* (Departament d'Ensenyament, 2004). This is a tool for the organization of the speech therapy-educational service that must necessarily be complemented in the near future with the use of instruments of evaluation

of the linguistic and communicative competence in LSC, for the use in the educational and clinical contexts, similar to those developed for other sign languages. Up to now, such instruments have been built for, among others, German Sign Language (Haug, 2012), American Sign Language (Simms, Baker, & Clark, 2013), British Sign Language (R Herman, Holmes, & Woll, 1999), Sign Language of the Netherlands (Hermans, Knoors, et al., 2010), and Spanish Sign Language (Valmaseda, Pérez, Herman, & Ramírez, 2013).

In addition, within the European project Signmet, the APRELS group coordinated by Dr. M. Pilar Fernández-Viader has begun to develop four tests to evaluate the communicative competence (comprehension and production) in 4-to-11 year-old children that are LSC users (Fernández-Viader, Barella Siscart, Pérez Aguado, & Barea, 2015). The pilot tests include: (i) the adaptation of the BSL Receptive Skill Test, (ii) the adaptation of the Sentence Repetition Test-LIS to the LSC, (iii) the development of the test of productive skills, and (iv) the development of the test of receptive skills.

A preliminary study for the adaptation of the BSL receptive test to the LSC has been conducted by Lara (2017) under the supervision of Dr. Imma Miralpeix and the author of this dissertation. Also, in the context of a research project on the design, and construction and validation of a digital resource to training service teachers on communication and oral language teaching oral language (Gràcia et al., under review; Lacerda, Gràcia, & Jarque, 2018), we have designed and developed an instrument to evaluate receptive and productive narrative skills in LSC (Jarque, Lacerda, Gràcia, Cedillo, & Serrano, 2018).

1.8 Teaching and learning Catalan Sign Language

In this Section we will address some issues related to teaching and learning LSC as well as the level of knowledge on LSC available.

1.8.1 Courses and resources

The first course to learn LSC was offered by the Catalan Federation for the Deaf (*Federació de Persones Sordes de Catalunya*, FESOCA) in 1977, as *mimic sign language course* (*Curs de llenguatge de signes mímic*) (LSC Social Counsel). Later some deaf clubs and associations were in charge. Initially, deaf professionals in charge of LSC teaching trained at the *Institut Català de Noves Professions (INCANOP)*, that issued a diploma certifying the new professional profile of sign language instructor (Rodríguez González, 1993), recognized by the *Federació de Persones Sordes de Catalunya (FESOCA)*.

Later, LSC teacher training was transferred to different vocational and postgraduate studies, organized by the University of Barcelona, the University of Girona and, more recently, by the Pompeu Fabra University. These studies were designed to train future LSC teachers and instructors also a support teacher and LSC advisor in schools and in different work contexts with deaf children.

In 2000, an accredited study program was recognized, and the first courses for training Catalan Sign language interpreters were organized at the *Secondary School Consell de Cent* (Barcelona), and later by CEYR Villarroel. This training came to an end in 2016 because of the European reform of vocational training. The academic year 2008-2009, Pompeu Fabra University began the training of pre-service Catalan Sign Language interpreters at university level (Frigola, Aliaga, Barberà, & Gelpí, 2015).

Despite the 20-year long LSC teaching history, there are few teaching-learning resources. Table 1.4 gathers, to the best of our knowledge, the resources available in the market.

Table 1.4. LSC teaching and learning resources

Area	Publications
General bilingual dictionaries/glossaries	<ul style="list-style-type: none"> ○ Etymology (Ferrerons, 2011) ○ General (Perelló & Frigola, 1987; Quijo & Viana, 2007; Segimon et al., 2004) ○ Ponent area (Martín & Alvarado, 1996, 2004)
Specialized glossaries	<ul style="list-style-type: none"> ○ Animals (Segimon & Fernández-Viader, 2000) ○ Food (García & Codorniu, 2007) ○ Medicines and health (Codorniu, Segimon, & Fernández-Viader, 2005)

Area	Publications
	<ul style="list-style-type: none"> ○ Natural sciences (DOMAD, 2002a) ○ Social sciences (DOMAD, 2002b) ○ Toponyms (Fernández-Viader, Pulgarín, Martín, & Samadi, 2013) ○ Philosophy (Navarro & Segimon, 2016) ○ Insults (Ferrerons, Navarro, & Segimon, 2017)
Grammar	<ul style="list-style-type: none"> ○ Basic grammar (Quer et al., 2005) ○ Basic grammar exercises (Frigola, Barberà, Aliaga, & Gil, 2011)
Textbooks	<ul style="list-style-type: none"> ○ <i>Aprenem LSC</i>. Level 1 (Fernández-Viader et al., 1998) ○ <i>Aprenem LSC</i>. Level 2 (Fernández-Viader et al., 2000) ○ <i>LSC. Llengua de Signes Catalana, Nivell 1. Introducció</i> (Roura & Martín, 2008) ○ <i>LSC Level A1. Usuari bàsic</i>. (Fernández-Viader, Barea, & Barella, 2013) ○ <i>LSC Level A2</i> (Fernández-Viader, Barea, & Barella, 2015)
Evaluation	<ul style="list-style-type: none"> ○ Testing (Fernández-Viader, Barella, Pérez, & Barea, 2014; Lara, 2017)

More recently, some on-line glossaries have been developed by the Directorate General of Language Policy (*Direcció General de Política Lingüística*, Departament de Cultura) of the Catalan Government. The thematic areas concerning the signs are letters and numbers, colors and shapes, greetings, character and mood, culture, time, and technology.²⁵ And more recently, a new project on the definition of the B2 level descriptors according to the Common European Framework of Reference for Languages.

In addition, it is possible to teach oneself LSC using recently developed technological resources, such as *Signem. Guia Bàsica per a la comunicació en llengua de signes catalana* ('Let's sign. Basic guide for the communication in Catalan Sign Language') by the Autonomous University of Barcelona²⁶. Moreover, Pompeu Fabra University set up a massive open online course (MOOC) on LSC *Introduction to Catalan Sign Language: Speaking with Your Hands and Hearing with Your Eyes*²⁷, a MOOC that was rewarded

²⁵ http://llengua.gencat.cat/ca/llengua_signes_catalana/recursos-i-activitats/vocabulari/ambits-tematics/

²⁶ <http://transmediacatalonia.uab.cat/signem/>

²⁷ <https://www.futurelearn.com/courses/lsc>

in 2015 with the *II Premi de Foment de l'LSC*, organized by the Culture Department of the Catalan Government (*Departament de Cultura de la Generalitat de Catalunya*).

These courses mainly cover the A-level, according to the Common European Framework of Reference for Languages, and are adult-oriented. This is not enough if the aim is that deaf students' educators learn LSC and use it creatively in an educational setting and enhance their students' linguistic awareness proposing a cross-modal comparison of linguistic structures.

On the other hand, this review of resources for teaching and learning LSC reveals that there is very little material designed for deaf (or hearing) children, both as a first language or as a second language. At present, LSC is a (non-official) **curriculum area** in (i) inclusive mainstream schools with deaf students grouping that have adopted a cross-modal bilingual project (i.e. Municipal Primary School Tres Pins in Barcelona), (ii) inclusive mainstream schools with deaf students grouping but without a cross-modal bilingual project (i.e. Secondary School Montserrat in Terrassa) and (iii) in special schools for deaf children (i.e. Special School Josep Pla in Barcelona o Special School Xalest in Sabadell).

Also, LSC is offered as **an elective course** for hearing students in mainstream schools with a cross-bilingual project (e.g. Municipal Primary School Tres Pins), with deaf students but without a cross-bilingual project (e.g. Secondary School Montserrat in Terrassa²⁸) and, even, in schools without deaf students (e.g. Primary School Mare de Déu del Roser-Amílcar in Barcelona).

Only the glossary on Animals (Segimon & Fernández-Viader, 2000) is child-friendly. The glossaries on natural and social sciences are about educational vocabulary for primary education (DOMAD, 2002a, 2002b). Also, the platform Webvisual, addressed to deaf people, includes tales and story for children in LSC²⁹. However, the most important limitation is that, despite the proposal elaborated in 2010, there is no official LSC curriculum for teaching and learning LSC in a school context, even those with a cross-modal bilingual project.

²⁸ <https://sites.google.com/a/xtec.cat/in-smontserratroig/home/eso-i-batxillerat/parelleslinguistiquesalnostrecentre>

²⁹ <http://www.webvisual.tv/index.php?seccio=8>

Moreover, there is almost no investigation focusing on LSC teaching-learning as a second language neither regarding children nor adult, either deaf or hearing. The only piece of research focuses on the acquisition of reference control in the narratives of adult LSC learners (Bel, Ortells, & Morgan, 2014). See Chen Pichler and Koulidobrova (2015) for a review of international research on sign language acquisition as a second language.

1.8.2 Research on Catalan Sign Language and theory of language

In addition, most of the resources for teaching and learning LSC are not based on the linguistic research. Moreover, although LSC enjoys high recognition, currently no comprehensive description of it exists. Despite, the fact that some published works and master thesis are already available in different linguistic areas, LSC is an understudied language. Table 1.5 includes the main paper presentations, published works and masters theses. The list does not intend to be exhaustive, but it does name the main representative analysis and linguists working in the area.

Table 1.5. Studies on LSC linguistics

Area	Studies
Phonetics- phonology	<ul style="list-style-type: none"> ○ formational parameters (Segimon, 1993) ○ phonological transcription (María Ignacia Massone, Bosch-Baliarda, & Fernández-Viader, 2003) ○ phonology of compounds (Bosch-Baliarda, 2005)
Morphology- lexicon	<ul style="list-style-type: none"> ○ lexicalization (Jarque et al., 2012) ○ terminology (Jarque et al., 2005)
Morphosyntax	<ul style="list-style-type: none"> ○ agreement (Quadros & Quer, 2008; Quer, 2009, 2010) ○ negation and aspect (Quer & Boldu-Menasanch, 2006) ○ classifier constructions (Benedicto, Cvejanov, & Quer, 2007, 2008; Fourestier, 2002) ○ impersonals (Barberà & Quer, 2013) ○ negation (Pfau & Quer, 2007; Waters & Sutton-Spence, 2005) ○ numeral-incorporating roots (Fuentes, Massone, Fernández-Viader, Makotrinsky, & Pulgarín, 2010) ○ possessives (Quer et al., 2008) ○ verb typology (Morales-López, et al., 2005) ○ verb category (Ribera Llonc, 2015) ○ word order (Jarque, Massone, Fernández-Viader, & Bosch-Baliarda, 2007)

Area	Studies
Syntax	<ul style="list-style-type: none"> ○ relative clauses (Mosella, 2012) ○ specificity (Barberà, 2012, 2015) ○ wh-questions (Alba, 2010, 2016)
Discourse	<ul style="list-style-type: none"> ○ discourse cohesion (Barberà, 2008) ○ discourse markers (Gabarró-López, 2017; Jarque, 2006) ○ gender (S. Palmer, 2012) ○ role shift (Pascual & Jarque, 2013; Quer, 2005; Quer & Frigola, 2006)
Cognitive mechanisms	<ul style="list-style-type: none"> ○ conceptual metaphor and metonymy (Jarque, 2005; Moriyón, Fernández-Viader, & Codorniu, 2006) ○ iconicity (Jarque, 2005; Wilcox, Wilcox, & Jarque, 2003)

As Table 1.5 shows there is a relative degree of dispersion in the studies and it should be highlighted that few dissertations (marked in bold at the table) have been dedicated to the study of LSC. Table 1.6 presents a list of the main studies on LSC from the overlapping domain between linguistics and related areas such as psychology, interpreting, language planning, sociolinguistics, etc.

Table 1.6. Studies on applied linguistics to LSC

Area	Studies
interpreting and translation	<ul style="list-style-type: none"> ○ translation techniques (Farrerons, Serra, & Jarque, 2011) ○ cognitive mechanisms (Jarque, Farrerons, & Serra, 2012) ○ machine translation (Massó, 2012)
deaf adult literacy	<ul style="list-style-type: none"> ○ writing composition (Fernández-Viader, Barella, Pérez, & Hilzensauer, 2015; Pérez-Aguado, 2017; Pérez & Fernández-Viader, 2015)
language planning	<ul style="list-style-type: none"> ○ interpreter's role (Gras, 2008) ○ legislation (Quer, 2012)
lexicography	<ul style="list-style-type: none"> ○ database design (Ribera Llonc, 2007) ○ lexicography in LSC (Barberà & Ribera, 2010)
sociolinguistics	<ul style="list-style-type: none"> ○ linguistic community (Gras, 2006) ○ linguistic identity (Jarque, 2012; Morales-López, et al., 2002) ○ variation (Parkhurst & Parkhurst, 2003)

Area	Studies
journalism	<ul style="list-style-type: none"> ○ information referents in the Deaf Community (Serrat Manén & Fernández-Viader, 2013) ○ perception of current affairs by deaf people (Serrat Manén, 2011)
psycholinguistics	<ul style="list-style-type: none"> ○ lexical access in production (Baus, Gutiérrez-Sigut, Quer, & Carreiras, 2008)

As is shown, the paucity of research linked to LSC characterizes also those cross-disciplinary areas on the intersection between linguistics and other disciplines.

1.9 Catalan Sign Language and augmentative and alternative communication

Aside from spoken or sign natural languages, professionals of deaf education have created artificial systems of communication for special purposes. Among such systems are Cued Speech (a manual system for distinguishing among ambiguous speech), fingerspelling (a manual system for representing the alphabet) and signed versions of spoken languages, considered unaided resources for augmentative and/or alternative communication (henceforth AAC) (Spencer, 2016). The use of some of these resources has become very valuable as a way to enhance specific accessibility to spoken and written words in deaf children in specific learning contexts, such as the teaching of written language. For instance, the use of cued speech constitutes for deaf children in cross-modal education in Madrid a key resource to develop phonological awareness (Alegría & Domínguez, 2009; Augusto, Adrián, Alegría, & Martínez de Antoñana, 2002).

Cued Speech and fingerspelling, then, are used to increase accessibility at the phonemic and lexical level, but not at the syntactic and discourse level. To attain this latter goal, resources from sign languages may be used as augmentative means with deaf children as well as with children with alterations in language and communication and/or with developmental disorders others than deafness. This will be the content of the following section.

1.9.1 Catalan Sign Language as augmentative resource for non-deaf students

As pointed out previously, sign languages also provide linguistic resources as unaided augmentative and alternative communication in toddlers and adults with developmental disorders and complex communication needs (Basil, Soro-Camats, & Rosell, 1998; Beukelman & Mirenda, 2013; Boudreault & Mayberry, 2006; von Tetzchner & Grove, 2003). Augmentative communication includes several resources, namely the use of more or less isolated manual signs, key word signing (i.e. production of manual signs that represent the most important content words of their message) or the production of as many signs as possible supporting the spoken enunciate.

They have been used in different ways, labels and programs such as *simultaneous communication*, *total communication* or *dual communication* as well as names that include the spoken language used as, for instance, Manually coded English, signed English (Power, Hyde, & Leigh, 2008), or, for Catalan, the Catalan word *bimodal* ('bimodal') – the traditional and most common label— or *català signat* ('signed Catalan'), up to the most recent *suport signat* ('signing support').

For instance, the use of LSC lexical items in the context of spoken interaction, labelled as *manual signs*, has been reported for individuals with multiple disabilities (Díaz, Gasch, & Tormo, 2012; Harding, 2012; Mendes & Tavares, 2012; Soro-Camats, 2002; Soro-Camats, Rosell, & Basil, 2012; Soto & Solomon-Rice, 2012; Torrents, Serra, & Badia, 2012). Data reports indicate that combined or not with spoken language promote positive early communicative exchanges in non-deaf children with developmental disorders and thereby support positive social-emotional growth.

Moreover, the use of these resources in the communication with students with intellectual disability has a long tradition and there is a large body of research (Rombouts, Maes, & Zink, 2017). See Vega (2012; 2013) for an extended review. The use of Key Word Signing (KWS) with LSC signs by educators has turned out to be a very fertile augmentative communication strategy to enhance communication and to promote the acquisition of spoken Catalan (Vega, 2012). The research reports an important amount of benefits for individuals with intellectual disabilities in interaction with adults

who consistently use it: it helps them to develop the initial lexicon, previous to spoken words (Vega & Fernández-Viader, 2014), and they may enhance the comprehensibility of their utterances (Meuris, Maes, & Zink, 2015; Rombouts, et al., 2017; Windsor & Fristoe, 1991).

Also, augmentative and alternative communication unaided interventions have been shown to be effective in supporting children with autism spectrum disorder (ASD) to communicate (Carbone, Sweeney-Kerwin, Attanasio, & Kasper, 2010; Schepis et al., 1982; van der Meer, Sigafos, O'Reilly, & Lancioni, 2011; Wendt, 2009). However, as noted out by Logan, Iacono & Trembath (2017), the AAC research for individuals with ASD has mostly focused on the use of aided rather than unaided systems.

Overall, more evidence is needed to evaluate the extent to which KWS (key word signing) or signing support intervention can support children with developmental disorders to communicate using a variety of communication functions, and to demonstrate sustained, transferable and meaningful change.

1.9.2 Catalan Sign Language as augmentative resource for deaf students

The use of (elements of) sign language as augmentative resource in deaf education is controversial. Research has shown that signed versions of spoken languages do “not bolster language acquisition” (Tang, Yiu & Lam, 2015, p. 123). Moreover, Bavelier, Newport and Supalla stress the possibility of a negative impact:

unlike sign languages, [they] do not provide adequate natural language input for deaf children. In fact, they can have a negative impact on the deaf child's developing ability to communicate with language. What has become increasingly clear from studying the characteristics natural languages, spoken or signed, and how the brain processes them, is the critical importance of providing even the youngest deaf children with access to a natural language. (Bavelier, Newport & Supalla, 2003, p. 19)

For instance, according to American researchers a result of the use of this “sign-supported speech” in education in the United States was that most deaf children were not really experiencing a full model of English through signing and, thus, were unable to process complete information from spoken language (Spencer, 2016). Some studies on its use in schools with total communication approach in the United States report that only around 80% of spoken language was supported by the use of signs (Luetke-Stahlman, 1988; Marmor & Pettito, 1970), creating, thus, a semilingual environment.

We believe that this percentage would be much higher in research in Catalan schools since Catalan or Spanish words include a higher number of morphemes. Moreover, the problem arises with the characterization of *what* has been used and *how* and *for what* is being used. Sign-supported language is actually a spectrum of possibilities. However, there is no consensus on the terminology. Different educators and researchers use, among others, the following terms: *bimodal*, *Signed Catalan|Spanish*, *Exact Signed Catalan*, *signed oral language*, *Catalan with signing support*. Their definitions are sometimes similar, slightly different, different or even opposite, as the research by Morales-López (2004) and Sánchez Amat (2015) shows.

For instance, Sánchez Amat (2015) proposes to distinguish between *Catalan with signing support* and the *bimodal system*. According to her, the first would refer to the spoken discourse coarticulated with signs produced for helping the comprehension of spoken language. The signs mostly correspond to lexical signs but also may include some grammatical signs, although there is no systematization in the expression of morphemes. In the bimodal system, on the other hand, the signs would reflect all the morphemic content from the spoken utterance (Sánchez Amat, 2015, p. 275).

The above definitions do not correspond with the terms and definitions used by speech language therapists working with deaf students, as for example in Vinardell, Surià, Rubiés and Martín (2014). These professionals highlight the differences between what has been called traditionally in our educational context "bimodal" (sign supported speech) and signed Catalan. According to them, Signed Catalan focusses mainly on the spoken and written language syntactic structure, but it shows the grammatical elements from the LSC, such as deictic signs, predicate structures with classifiers and deictic/directional verbs, whereas bimodal would mainly refer to "the use of spoken language coupled by the use of some signs", without morphemic elements, thus resulting in a "more artificial and rigid" system (Lagunas & Vinardell, 2015).

Regarding the way and reason why sign-supported speech is used, Morales-López (2004, 2008b) reports on the use of these mixing codes and languages in the bilingual classes with a hearing teacher aimed at focusing on spoken/written language, since the teacher "pronuncia simultáneamente al signar; este hecho propicia, pues, que en este tipo de clase se suela utilizar indistintamente la lengua de signos propiamente dicha y la

variante mezclada (dentro del continuum bimodal-lengua oral signada)³⁰ (Morales-López, 2004, p. 4).

That is, even with the goal of teaching spoken/written language, professionals tend to use both languages and both modes of communication without establishing clearly which one is being used and, especially concerning the signed mode, without specifying at which point along the continuum of the sign-supported speech they are situated.

Also, the investigation by Sánchez Amat (2015, pp. 310-315) on the interaction between teachers and deaf students in a cross-modal school in Barcelona describes some characteristics displayed by the use of Catalan with signing support that, in her opinion, can hinder the access to utterances content, as listed in (22).

(22) Catalan with signing support

- (i) Expression of **parenthetical remarks** in oral language that can be confused, depending on the auditive capacity and experience of the interlocutor, since the parenthetic fragment is marked by prosody.
- (ii) Use of lexical signs and establishment of **sign-word correspondences** that lead to a **decrease of use of classifiers, role structures and signing space**.
- (iii) The expression of **a plural** within the verb or within the noun **can be lost** or can be marked with strategies that are not genuine in LSC.
- (iv) Coarticulation of two utterances with **different meaning**.
- (v) **Lack of correspondence between signs and words**, usually because the sign does not fit the meaning of the sentence in spoken language.
- (vi) **Addition of unnecessary signs**.
- (vii) **Utterances in which the signing support is not complete**, either because some morphemes (such as person, tense or aspect) are not expressed or the sign corresponding to a word is omitted.

The characteristics of the discourse between deaf students and hearing teachers described above may leave students without a complete access to content and

³⁰ “[the teacher] utters while signing; this fact promotes, thus, that in this kind of classes one can use indistinctly both proper sign language and its mixed variety (inside the bimodal/signed oral language continuum).”

metalinguistic explanations, since oral language with signing support “és la llengua predominant a l’aula d’agrupament, atès que és el sistema de comunicació principal en les interaccions amb la mestra, tot i que hi ha alumnes que es comuniquen eminentment en LSC també amb la mestra oient en aquest context.”³¹ (Sánchez Amat, 2015, p. 318).

On the other hand, professionals attending deaf students prefer the general term *signing support* (support signat) for referring to the whole continuum of elements and strategies used. Vinardell, Surià, Rubiés and Martín (2014) propose four types of signing support: fingerspelling phonemes, fingerspelling, Signed Catalan and Signed Exact Catalan. Table 1.7 presents the strategies, their characterization and functions.

Table 1.7 Signing support (Vinardell et al., 2014)

Signing support + LSC				
Use and form Language goals and approach to the linguistic curriculum				Use and communication Sign Language
Fingerspelling phonemes	Fingerspelling	Signed Catalan	Signed Exact Catalan	
They show place and manner of articulation and the phoneme.	They show graphic and formal aspects of the word.	It shows the oral/written syntactic structure. The directionality and deictic signs from sign language are respected.	It shows the oral/written morphosyntactic structure. The directionality and deictic signs are reinforced.	- LSC curriculum - Contents map - Law 17/2010 LSC - Teaching profile LSC
Phonetics and phonology Phonological awareness	Lexicon Fingerspelling types: - global/lexical - analytic /syllabic - stressed	Syntax Linguistic structure	Morphosyntax Morphosyntactic awareness	Concepts and conceptual systems from curriculum
Orthography		Grammar		Pragmatics
Phonological route	Lexical route			
Signifier (Oral language/Written language mode)				Meaning (concept/idea)

The target to be addressed with deaf children determines the resources that can be used. For instance, fingerspelling can be used to focus on phonological awareness. Similarly, LSC deictics and other LSC elements produced following Catalan order and coupled with spoken words can be used to stress the morphosyntactic elements of the

³¹ Since oral language with signing support “is the predominant language in the grouping class, given that it is the primary communication system in the interactions with the teacher, despite the fact that there are students that interact mostly in LSC also with the hearing teacher in this context” (2015, p. 318).

oral language and therefore contributes to the morphosyntactic awareness of the spoken language, thus enhancing the content comprehension.

The use of LSC fingerspelling in Catalan schools with deaf students constitutes a strategy used by teachers, speech language therapists as well as audition and language teachers (Fernández-Viader & Pertusa, 1999; Pertusa, 2002). Research on deaf literacy reveals that it constitutes a valuable resource for facilitating the English decoding in the transition from ASL fingerspelling to English print (Haptonsall-Nykaza & Schick, 2007).

We consider this resource very appropriate since fingerspelling is a subsystem that belongs, in Western sign languages, to the linguistic system of sign languages and it is used in the natural interaction among native users with several aims. Some uses are related to the metalinguistic function and interaction management, such as the clarification of the meaning of a sign, the specification of the sense of a polysemic sign, etc. Other uses are related with the creation of neologisms, such as lexicalized fingerspelling or initialization (Brentari & Padden, 2001; Jarque, 2016a).

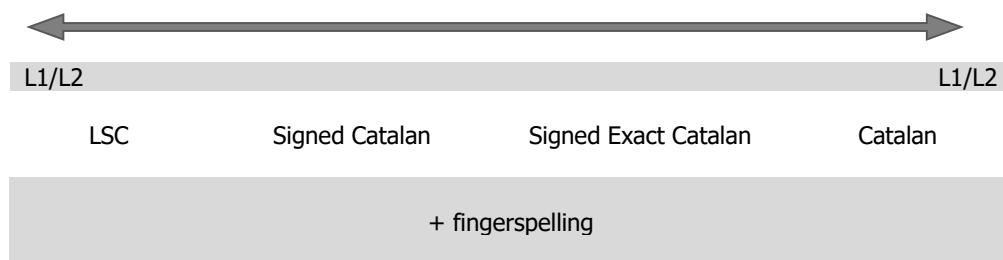
Moreover, deaf families fingerspell to their deaf children when they are very young and children from signing families initiate to produce fingerspelled words very early, when they are two-year-old (Padden, 2005; Padden & Le Master, 1985). Research also has shown that early exposure to fingerspelling helps these children become better readers, since it facilitates vocabulary growth and it enlarges the lexicon. Also, competence in fingerspelling correlates with stronger reading skills (Padden & Ramsey, 2000). However, the form that words are produced in natural interaction among native signers differs from the form in educational settings with literacy aims. As Padden (2005) remarks:

When signing deaf children begin literacy education, teachers should expect to see a transition in use of fingerspelling, where the child is more aware of the internal composition of fingerspelled words. Spelling correctly in fingerspelling as well as writing is a developmental task, and teachers should have expectation that as the child's literacy skills increase, the components of these skills, including fingerspelling, will change. (Padden, 2005, p. 1999)

This implies that deaf educators must be aware of these differences and they must have a good command of the different functions, forms and contexts. Therefore, research on deaf literacy must include a fine-grained analysis of these issues, especially in order to foster metalinguistic awareness in deaf students (Tang, et al., 2015).

Also, recent research has revealed the benefits of augmentative signs in word learning by deaf children. The research conducted by van Berkel-van Hoof, Hermans, Knoors and Verhoeven (2016) shows that the use of Sign-Supported speech in word learning is a good help for Dutch deaf children in classrooms of cross-modal bilingual children, but it does not represent an advantage either for children with specific language impairment or for typically hearing developing children.

All the strategies of Table 1.7 are viewed as combinable and complementary within a session or working goal, depending on the linguistic necessities. The use of these strategies is aimed at facilitating a process of intermodal transfer, focusing on the connection and contrast between both languages (L1 and L2), as illustrated in Graphic 1.2 (Vinardell, et al., 2014).



Graphic 1.2 Continuum in signing support

Signed Catalan follows the syntactic ordering of spoken Catalan but it uses some grammatical resources from LSC, whereas Signed Exact Catalan includes also the morphosyntactic equivalents. Despite the educators' descriptions of the differences in using signing support with hearing and deaf children, both in orally-educated projects and in cross-modal bilingual projects, it is not clear to what extent the morphosyntactic and grammatical structures are present through teaching and whether signing support interventions result in positive outcomes.

Indeed, the accomplishment of these educational and speech language therapist goals demands that educators have a good competence in Catalan Sign Language, a good metalinguistic awareness and a good command and consciousness of the linguistic resources produced through both channels, spoken and signed. Moreover, without an explicit description of LSC grammatical constructions, that can be consulted by

professionals (deaf and hearing), the “cultivated” transfer is left to a reduced group of professionals, mainly native signers.

1.9.3 Catalan Sign Language as alternative linguistic system

Indeed, LSC may be used as an alternative linguistic system by children, young and adults with difficulties in the communication in the spoken modality (Jarque, Cedillo, & Molins, in prep.). We are aware of three different cases and in what follows we will refer briefly to two of them.

The first case corresponds to a hearing student who is currently attending the second year of a secondary school with a group of deaf students in a cross-modal bilingual program. She has been diagnosed with aphasia. She began her schooling in cross-modal bilingual project when she was 8 years old and presented important alterations when producing spoken language. Throughout its primary schooling, LSC has become its language to promote the learning of contents, especially for its production, and, also, her communication language with her deaf fellows. The acquisition/learning of LSC was a strong impetus for the development of the spoken Catalan (P. Cedillo, personal communication).

This case is interesting since it complements the few results of research on aphasia in signed languages. Neurolinguistic studies of language processing and of brain damaged signers support the idea that the left-lateralized network of the brain subtends in a similar way both sign and spoken languages (Corina & Knapp, 2008; Hickok, Love-Geffen, & Klima, 2002). Thus, the phonological processing of signs and words is identical (MacSweeney, Capek, Campbell, & Woll, 2008). Although spatial and movement encoding in sign language leads to some right hemisphere activity³², the left hemisphere shows dominance for sign language processing (Mineiro, et al., 2014).

Concerning brain damage, the literature reports similar patterns of sign language impairments in signers with damage in selective areas of left hemisphere to those of aphasia in auditory-vocal languages. Also, Falchook et al. (2012) examine the effects of

³² Right hemisphere activity is explained due the large involvement of visual-spatial properties of the linguistic signal, such as abstract and motivated spatial locations, movement trajectories and paths through 3-dimension space, assessments of location and orientation of the hands relative to the body.

degenerative dementia in an ASL signing woman. Examination revealed marked impairments in the production and comprehension of fingerspelling and grammatically complex sentences.

However, even though therapists encourage individuals with aphasia to use gesture, signs or more complex linguistic constructions from a sign language, in addition to speech therapy, there has been little research concerning the use of a sign language in hearing individuals with diagnosis of verbal aphasia (such as a childhood epileptic aphasia or the Landau-Kleffner syndrome) in the school setting and within the interaction with deaf and hearing peers and educators. Most of the existent research focusses on the benefits for them and the impact of such use in the recovering of expressive and receptive language in clinical context (Anderson et al., 1992; Perez & Davidoff, 2001; von Tetzchner, 1984). See Gordon (2004) for a review.

The second case corresponds to a child with difficulties in the production of linguistic sounds because of an important alteration in the articulatory organs in the vocal track. The communication exchange with the speech language therapist combines Catalan produced in the spoken mode by the therapist, whereas the child initiates turns and responds using mainly Catalan in the signing mode. But in the social exchanges with his deaf mates, he uses LSC.

To the best of our knowledge, there has not been any research explaining how hearing children with complex language difficulties acquire some resources from LSC or the wholes language, in the situation where LSC is used the language of social exchange and a vehicular language for learning in class and how this use contributes to the development of communicative and linguistic competence in the spoken language.

In the two cases referred to, academic achievement and social-cognitive development have been mainly possible thanks to the use of (elements from) LSC. The link between learning and social cognition and the use of languages in the signed mode will be the focus of next section.

1.10 Sign languages and social cognition

Social cognition is concerned with “cognitive process that involves other people”, how students learn to understand other people’s mental states (knowledge, beliefs, desires, emotions etc.) and how these states are related to certain patterns of behaviors (C. D. Frith & Frith, 2012; U. Frith & Blakemore, 2006). Early home environment, especially early rich interaction and language use can provide children with good social-cognitive foundations for school learning. Differences among individuals have led researchers to consider the factors that contribute to development of social cognition, such as gender, age, general cognitive capacity, executive functions, cultural variations and language competence (Serrano Ortiz, 2012).

A growing body of studies show a robust relationship between Social Cognition, specifically Theory of Mind skills (ToM) and linguistic competence (Astington & Baird, 2005), and between Theory of Mind and executive functions (Watson, Archbold, & Nikolopoulos, 2006). Observational studies provide evidence of the correlation between conversational input and the evaluation of false belief (Hyde & Punch, 2011; Milligan, Astington, & Dack, 2007; Taumoepeau & Ruffman, 2006, 2008).

For instance, the meta-study by Milligan, Astington and Duck (2007) clearly shows a significant relationship between the child's linguistic ability (measured as general language performance, semantic competence, receptive vocabulary, syntax and complementation structure) and the understanding of the false belief regardless of the age of the subjects and other cognitive or social variables. This study is of great importance when we consider the dimensions of the sample: it combines results from more than 100 studies, analyzing a total sample of almost 9,000 children, both in normative development and in clinical populations (Jarque & Valdespino, 2010).

Summing up, the advance in the understanding of the mind seems to occur thanks to the resources the language and the conversational style provide (Astington, 1996; Astington & Jenkins, 1999; Farrar & Maag, 2000; Hughes, 1998; Ruffman, Slade, Rowlandson, Rumsey, & Garnham, 2003).

Another source of evidence comes from experimental studies on training programs by showing a causal relation between some linguistic structures and the evaluation of false belief, as shown with relation to the syntax of complementation with cognitive and

communicative verbs (Hale & Tager-Flushberg, 2003; Lohmann & Tomasello, 2003; Sidera, Amadó, & Serrat, 2014), labelling (Serrat et al., 2013) and prosody (Sidera, Serrano, & Amadó, 2012).

In addition, studies analyzing the role of executive functions and language in the development of social cognition show that both are crucial and bear different weight according to the mentalist ability considered (P. A. de Villiers & de Villiers, 2011; Serrano Ortiz, 2012).

To these lines of investigation, research on deaf children adds important solid evidence for the relations between language and social cognition. A large body of research has shown that the development of language is essential for the cognitive and social development (Hintermair, 2015; Meristo, Helmquist, & Morgan, 2012; Morgan, 2015; Tang, et al., 2015). Deaf children of hearing parents that display a delay in the development of language, also show a delay in the development of notions of ToM in false-belief tasks: deaf children performed significantly worse at the unexpected-content and second-order belief task compared with their age-matched controls.

Moreover, the study by Peterson (2016) on the development of empathy in hearing and deaf children in comparison with the development of theory of mind revealed that deaf children scored lower in empathy than their hearing peers and empathy and ToM were significantly correlated for deaf children but not for the hearing, showing, thus, diverse developmental paths.

However a large number of studies show that deaf children with complete access to a signed language since their first infancy do not show delay in these areas, and even late-signing deaf children attending cross-modal bilinguals schools show better scores than profoundly and prelingually deaf children from hearing homes who are instructed in a spoken mode (Courtin, 2000; Courtin & Melot, 2005; J. de Villiers, 2007; Jones, Gutierrez, & Ludlow, 2015; Meristo, et al., 2012; Moeller & Schick, 2006; Morgan & Kegl, 2006; Candida C Peterson, 2004; Candida C Peterson & Siegal, 1995; Candida C Peterson & Siegal, 2000; Schick, de Villiers, de Villiers, & Hoffmeister, 2007; Tomasuolo, Valeri, Di Renzo, Pasqualetti, & Volterra, 2012; Valdespino Núñez & Fernández-Viader, 2006; Woolfe, Want, & Siegal, 2002).

Globally, these studies reveal that language appears critical for the development of ToM. We agree with these authors that these results imply that a delay or a deficit in ToM is “attributed to limited opportunities to converse and overhear conversations about mental states” (Jones, Gutierrez & Ludlow, 2015, p. 47) and to the limited quality of conversational experience compared to their hearing peers (Morgan et al., 2014). Indeed, deaf children cannot overhear conversations about other people’s actions, their motivations, or their intentions and beliefs. More in general, they have limited access to explanations of thoughts and feelings. But if their parents can sign, their input about mental states does not differ greatly from the input of their hearing peers.

Moreover, the emergence of the ability to recognize others’ beliefs “needs to be supported initially by very early conversational input in dialogues with caregivers” (Meristo, Strid & Hjelmquist, 2016, p. 139). Published work suggests the need for practitioners and parents to promote mental conversations, via rich and varied contexts and activities such as play or storybook reading (Chilton, 2017).

Little research has been conducted on the ToM development by deaf children in Catalan schools. As far as we know, there are only two studies, respectively on false-belief in oralist-educated deaf children (Figueras-Costa & Harris, 2001) and on the application of the Organizing Models theory to the affective experience (Fernández-Viader & Reiriz, 2010; Reiriz, 2010). In the first research, the authors evaluate deaf children with verbal and nonverbal version of a false-belief task. The latter facilitated performance in children of all ages (from 4 to 11 years old), but equally showed a developmental delay. The second research analyzes the application of Organizing Models Theory (Moreno, Sastre, Bovet, & Leal, 1998) in the stories of joy and sadness of deaf and hearing students of an inclusive educational center and a specific school for the deaf, both centers with a cross-modal bilingual education.

Concerning whether deaf adults have deficits in false belief understanding due to their language impairment, the research by Hao, Su and Chan (2010) examined deaf adults’ performance on three aspects of advanced ToM. The results show:

- (i) All the deaf groups lacking mental state language tended to perform worse than the hearing group on explicit mental state understanding.
- (ii) Deaf groups with either vocabulary skill or interpersonal experience from early years were similar to the hearing group in implicit mental state reasoning.

Individuals frequently using syntactic complements or having interpersonal experience with hearing people from early years tended to use ToM better. Moreover, language ability was the only predictor for explicit rather than implicit mental state understanding.

The authors conclude that sufficient language is not necessary for all aspects of advanced ToM and rich interpersonal experience as a substitute for language may facilitate deaf adults' advanced ToM.

1.11 Deafness, language accessibility and technology

Despite the amount of research supporting the benefits of natural sign languages in deaf education, as it has been reviewed in the previous sections, LSC is typically not introduced (if at all) until deaf children are 8-9 year old, and educators and parents become convinced that they are simply not going to develop functional spoken language. For instance, it is not rare for profoundly deaf children without functional communication or important language impairments to be enrolled in an ordinary school and be transferred only later at the Primary School Tres Pins, at any of the six years of this cross-modal bilingual program.

It seems that this is also the case in the United States, where the majority of deaf children of hearing parents transfer into schools for the Deaf after the age of 6 (Henner, Caldwell-Harris, Novogrodsky, & Hoffmeister, 2016). Moreover, some children attending cross-modal programs present learning problems, social-cognitive disabilities or developmental disorders.

Another typical moment of getting in touch with the Deaf community and adopting LSC as a functional learning and social communication language is when deaf individuals reach adolescence and ask themselves for the provision of LSC interpretation in the classroom. The data by Sánchez-Amat (2015) show that the number of students that are LSC users increases with age. However, research has provided evidence of delayed first language acquisition also in deaf adolescents (Ferjan Ramirez, Lieberman, & Mayberry, 2013). This is the case of some students attending the special school Josep Pla in Barcelona.

The practice of postponing LSC until is “clear” and “evident” that no progress can be made in the spoken language acquisition is based on the false belief that allowing young children to sign would actively interfere with spoken language development. Still, an important number of educators, speech language therapists and psychologists look at sign language like a “second choice”, and not like a viable and highly functional alternative linguistic mode to spoken language. This situation is even more surprising in Catalonia, where almost the totality of the population is bilingual, and a high percentage multilingual, and where the competence in several languages is recognized socially as being of high value. This practice is against the large amount of evidence on the positive impact of unimodal and cross-modal bilingualism/multilingualism.

Research over the last forty years has provided evidence of positive effects of cross-modal bilingual experiences (de Quadros, Lillo-Martin, & Chen Pichler, 2016; Swanwick, 2016a; Tang & Kun-Man Yiu, 2016), as examined above in Section 1.6, for instance, concerning literacy outcomes. The use of a signed language in classroom by fluent signers enables the accessibility to curriculum contents and social participation.

Also, there have been reported benefits on self-image and self-esteem and lower mental health problems in deaf children and adolescents from signing (deaf) families compared with deaf children from hearing families (Brown & Cornes, 2015; van Gent, Goedhart, Knoors, Westenberg, & Treffers, 2012). Similarly, evidence reports that a higher self-esteem is a characteristic of deaf young with a high degree of hearing loss and skills that help them navigate both the hearing and the Deaf culture, showing bicultural acculturation (Hintermair, 2007, 2015).

Indeed, mental well-being outcomes have been reported in the literature. Øhre, Volden, Falkum & von Tetzcher (2017) found clinical and demographic differences between patients using Norwegian Sign Language (NSL) and those speaking Norwegian, the latter group displaying, significantly, more prevalent medical comorbidity and a tendency to be more socially isolated and stressed.

Recent studies add further evidence about the importance of the quality of linguistic input addressed to deaf children (Lu, et al., 2016). In some individuals, language deprivation may be long-standing or for brief periods. Studies of Deaf adults have revealed that late acquisition of sign language is associated with lasting deficits in diverse areas as listed in (23). See Jarque (in prep.) for a review.

- (23) Language deprivation lasting deficits
- (i) **picture processing** (Davenport, Ferjan Ramirez, Leonard, Mayberry, & Halgren, 2015)
 - (ii) **analogical reasoning skills** (Henner, et al., 2016),
 - (iii) **semantic fluency** (Marshall, et al., 2018) and lexical processing
 - (iv) **grammatical processing and competence** (Mayberry, 2007)
 - (v) **social cognition**: theory of mind, empathy, etc. (Morgan & Kegl, 2006)
 - (vi) **pragmatics**: scalar implicatures (Davidson & Mayberry, 2015)
 - (vii) **non-verbal executive function** (Botting et al., 2016)
 - (viii) **functional organization of language** (Mayberry, Chen, et al., 2011)
 - (ix) **second language acquisition** (Mayberry, 2007)

The question arises, why parents and professionals opt for educational options that do not offer the possibility to acquire a totally accessible language, that may act as a “cognitive development safety net”. One of the answers is related to technology. Similarly, as the great hopes in technological advances of the XIX century characterized the Milan Conference in 1888 (Torres, 2016), contemporary confidence in technological advances, together with linguistic prejudices on signed languages and Deaf Community, may lead the professionals to adopt decisions on the grounds of general assumptions without considering the particular cases and without providing the support needed as early as possible.

The impact and benefits of recent advances in amplification technology is irrefutable. The provision of implants at earlier ages and with less time spent without access to sound tends to provide better results. Both cochlear implants and digital hearing aid technology have improved the speech perception abilities of individuals with profound hearing loss. Also, screening and early intervention programs have contributed to access to these technologies from birth. As a result, linguistic and communication profiles of deaf children have changed over the last decade, as reported by researchers (Mayer & Leigh, 2010) and parents (Huttunen & Välimaa, 2010).

Despite these progresses, a recent meta-analysis conducted by Lund (2016) demonstrated that deaf children with cochlear implants show lower vocabulary knowledge than children with normal hearing. Also, reading levels are lower, as

described in 1.6. Evidence from cochlear implant research reports enormous variability in auditory performance and speech and language functioning after implantation (Ghiselli et al., 2016; Kral, Kroenenberger, Pisoni, & O'Donoghue, 2016). Their benefits depend upon individual biological circumstances since cochlear implants do not work if hearing is limited by problems to the auditory nerve or in some of the brainstem, midbrain or cortical areas in which sounds are progressively analyzed (Spencer, 2016).

Also, studies on preschool and school-age deaf children with profound sensorineural hearing loss with cochlear implants reveal that, despite the fact that they may achieve age-appropriate spoken language skills not possible before implantation, "reduced access to auditory experience may have downstream effects in fundamental neurocognitive processes" (Kronenberger et al., 2014, p. 608).

For instance, in the research by Kronenberger et al. (2014), they were rated as having significantly more problems than children with normal hearing in the areas of comprehension and conceptual learning, factual memory, attention, sequential processing, working memory, and novel problem solving. The authors conclude that deaf children are "at 2 to 5 times greater risk of clinically significant deficits compared with children with normal hearing" (2014, p. 608). The impact of language and auditory deprivation in executive functions in individuals with cochlear implant has been also highlighted by experimental studies.

Also, difficulties with executive function often are manifested in behavioral problems. In a recent study, Hall, Eigsti, Bortfeld, Lillo-Martin (2017) disentangle, through evidence from a parent-report measure in naturalist contexts, the effects of language deprivation from the effects of auditory deprivation comparing the behavior of deaf children from deaf signing families, that correspond to individuals with auditory deprivation but without language deprivation, with other deaf children. The results show that scores among the Deaf native signers were age-appropriate and similar to scores among the typically developing hearing sample, but that was not the case for the other deaf children. The authors conclude that auditory deprivation does not impair executive function, but language deprivation might do it.

Research reveals that after cochlear implantation, signing children may show a "general shift towards spoken language", as predicted, but the use of a sign language nevertheless continues. Communication in one or another mode becomes more flexible

depending on individuals, contexts and functions (Hyde & Punch, 2011; Watson, et al., 2006). Communicating and receiving information in a sign language continues to have been critical in students with additional difficulties and for those whose cochlear implant outcomes are not satisfactory.

Parents of deaf children in Catalonia indicate that Catalan Sign Language has been crucial for early communication and on-going communication, even with deaf children with cochlear implant whose outcomes are positive, under specific circumstances, among others, sports, aquatic play, noisy environments and bedtime and wake up routines (Bosch-Baliarda, Jarque, Serrano, & Vinardell, 2017). Research shows that this is also the opinion among parents and young deaf people themselves, which manifest that sign language is very useful previous and after implantation, since it offers support for learning, communication and networking flexibility, and for social-emotional development and identity (Preisler, Tvingstedt, & Ahlström, 2005; Walker & Tomblin, 2014; Watson, Hardie, Archbold, & Wheeler, 2008; Wheeler, Archbold, Hardie, & Watson, 2009).

Moreover, recent research reveals that signing does not hamper the development of spoken language in deaf children with cochlear implants. On the contrary, early sign language input limits the negative consequences of early auditory deprivation (Davidson & Mayberry, 2015). Moreover, Hassanzadeh (2012) compared spoken language skills of implanted native signers with children with hearing parents and found better outcomes in the former.

Swanwick (2016a), in her review of deaf children's cross-modal bilingualism and education draws the following conclusion: "sign language continues to be part of the communication journey of young people with implants and an important part of growing up deaf with an implant" (Beckner et al., 2009; Cramér-Wolrath, 2013)" (2016, p. 9). Therefore, we can conclude that since language deprivation may have such a strong impact on the development of deaf children and the outcomes of cochlear implantation are uncertain, "it may be wise to expose children to a full natural language like ASL" [or LSC, LSF...] "as a safety net" (Bavelier, Newport & Supalla, 2003, pp. 19-32).

The metaphorical conceptualization of sign language as a "safety net", a preventive measure, has been proposed from different researchers and professionals working within deaf education as well as parents of deaf children at different times and locations

(Galceran, 1998; Humphries, et al., 2014; Mellon et al., 2015; Sánchez Amat, 2015; Trovato, 2013). Sánchez-Amat (2015), on the basis of her research on cross-modal bilingual deaf education in Catalonia, proposes to overcome the current dichotomy between educational modalities, to prioritize simultaneous bilingualism during the 0-3 year stage, and to allow to choose the educational modality depending on the child's linguistic development.

This proposal is in line with the UN statements. The UN *Convention on the Rights of Persons with Disabilities* (2006) urges its members to protect the rights of deaf and deafblind people by "facilitating the learning of sign language and the promotion of the linguistic identity of the deaf community" (2006, p. 17) and by guaranteeing that their education "is delivered in the most appropriate languages and modes and means of communication for the individual, and in environments which maximize academic and social development" (2006, p. 17).

This global review draws attention to the need for further research focused on LSC grammatical and discourse structures and, also, socially motivated choices so as to initiate research for improving the quality, quantity, and consistency of the evidence base, as well as its relevance for addressing the most significant communication and learning needs of deaf children. As pointed out by McDonnell (2016)

Research in sign languages and Deaf communities has changed our understanding of deafness and has provided new insights in education. It has shown that the important issues for deaf communities are language and culture and that the problems experienced by Deaf students really have little to do with decibels, audiograms, or even cochlear implants. The research has shown that the real barriers are to be found in unsuitable methods of teaching, in inaccessible curricula, in the absence of a working language, in the lack of Deaf teachers and in high levels of inequality (McDonnell, 2016, p. 784).

The lack of a body of research on the main LSC grammatical and discursive linguistic constructions prevents (significant) developments in all the areas discussed in this review. To investigate children's language use, in order to develop deaf education's understanding, requires documenting, describing and understanding LSC use by the Deaf adult community. The educational intervention aimed at students who have language and communication delays and disorders in LSC requires that teachers and language therapists have assessment tools, materials and help specific to their design and implementation. This dissertation wants to be a contribution to these needs.

Specifically, a deaf learner with delays in understanding the reasons for other people's behavior and mental states will be at a disadvantage for learning in a classroom. Social awareness and abilities in understanding others are crucial elements for a deaf child's full inclusion in the mainstream classroom. There is very little research that addresses the question of social-cognition and academic learning directly or that analyses what happens with deaf children's interactions in the classroom. Carrying out an inventory of the main linguistic mechanisms that allow us to understand, explain, predict and manipulate our own and others' behavior through the attribution of mental states (beliefs, desires, emotions and intentions) in Catalan Sign Language supposes the analysis on the linguistic resources listed in (24).

(24) Linguistic resources in LSC for social cognition skills:

- (i) **Labels** to identify emotions, feelings, reasonings, doubts, suspicions, hypotheses, etc.
- (ii) **Grammaticalized-topic and topicalized constructions** to guide and establish reference subjects and discourse frames, etc.
- (iii) Role-shift constructions to specify viewpoints and referents in discourse, etc.
- (iv) **Modal constructions** to express desires, beliefs, doubts, guesses, commands, etc.
- (v) **Evidential constructions** to refer to the source of knowledge, express the basis for reasoning and guessing, etc.

This dissertation focusses on how signing deaf adults use modal constructions in LSC in conversation in naturalistic contexts. Modal constructions allow the individual to express desires, distinguish between seeing and knowing, discern between believes and reality, conceptualize parallel worlds, suggest and deliver commands, etc. (Bybee, Perkins, & Pagliuca, 1994; Coates, 1990; Nuyts, 2006; F. R. Palmer, 2001; Plungian, 2010).

Also, we will address the description of evidential constructions. Evidential constructions allow us to express the source of knowledge, distinguish between appearance and facts, understand the existing relation between experience and knowledge, formulate hypothesis, predict behavior, make inferences, encoding issuer's perspective, etc. (Bermúdez, 2005; de Haan, 2005; Tournadre & LaPolla, 2014).

1.12 Summary and final remarks

In conclusion, the study of Catalan Sign Language is relevant in the field of developmental and educational psychology for the reasons stated in (25):

(25) Arguments linked to deaf education for studying LSC

- (i) LSC is the **main language for teaching/learning** and symbolic mediation in the dialogic interaction and knowledge construction for educators and deaf/deafblind children attending primary and secondary schools that adopt the cross-modal bilingual approach.
- (ii) LSC is the **tool that allows building metalinguistic awareness** and carry on transfer processes during the acquisition of reading and writing in primary and secondary education at programs that adopt the cross-modal bilingual approach.
- (iii) LSC is the **first language**, or one of the first languages, in the processes of language acquisition by deaf and hearing children from signing families, both with deaf or hearing parents.
- (iv) LSC is the language that **guarantees total accessibility** to learning content transmitted in oral contexts in secondary and higher education through the professional figure of the sign language interpreter for deaf students and the guide-interpreter for deaf-blind students.
- (v) LSC provides the **backbone of Deaf identity**, both at personal and at community level, and it is the main language of the signing deaf community; it contributes to our knowledge about the relation between language and society, minorities and disability, and about sign language as a symbolic capital.
- (vi) LSC is the **primary language** of some children that show Specific Language Impairment and other difficulties with linguistic structures across their languages, and it is the language used for education and speech therapy programs by professionals of the Department of Education (Departament d'Ensenyament), specifically of the CREDA centers (*Centres de recursos per a discapacitats auditius*).
- (vii) LSC is an **area of the school curriculum**, in those institutions that adopt globally the cross-modal bilingual model or that use it specifically with students that have an individual plan due to their deafness.

- (viii) LSC is a tool, an **augmentative resource**, for teaching Catalan to deaf children attending schools that follow the oralist model with signing support.
- (ix) LSC is an **alternative natural language** for hearing children that display speech impairments due to aphasia or phonation disorders.
- (x) LSC is **part of the alternative and augmentative communicative systems** (manual signs, key word signing, signing support, etc.) used in communication and learning processes of hearing children with developmental disorders, such as autism spectrum disorder, intellectual and developmental disabilities or motor disorders.
- (xi) LSC is a **curriculum area** in ordinary schools, with or without deaf children, offered as an elective course for hearing students.
- (xii) LSC contributes to the **knowledge of language acquisition processes**, providing evidence from a different mode, the visual-gestural modality.
- (xiii) LSC and its linguistic study provide data, methodology and theoretical constructs for the investigation about **human communication** from the perspective of multimodality, as well as about the role of gestures in the teaching and learning processes.
- (xiv) LSC is a natural language and, as such, it can provide us with interesting information about language abilities, the **emergency of communication** and creativity in human beings.
- (xv) LSC provides us with crucial information about the interaction between language acquisition and the **development of abilities of Theory of Mind** and social cognition.
- (xvi) LSC users define themselves as a cultural and linguistic group more than a disabled collective contributing to the discussion of mutual relations between deafness identity/experience and **disability identity/experience**.
- (xvii) LSC is part of the **deaf cultural heritage and richness**, and it is the vehicle of artistic expression.

Our study provides comprehensive data on the constructions coding the semantic space of modality in LSC, as well as other linguistic resources that might constitute grammatical and semantic interfaces or appear complementarily in discourse, namely, negation, aspect and evidentiality. Thus, our study paves the ground to further studies on the following areas (26):

(26) Areas in deaf education for future studies

- (i) The development of Theory of Mind and **social cognition** in LSC signers.
- (ii) Knowledge about **LSC core structures**, fundamental to distinguish between Catalan with signing support (manual coded Catalan) and LSC in dialogic education.
- (iii) Choice of lexical and grammatical elements for interventions with **signing support**.
- (iv) Analysis of **conversational management**, as for instance the use of LSC grammatical courtesy strategies in interaction.
- (v) **Metalinguistic awareness** comparing structures in the several languages at school in literacy contexts.

Embracing the diversity framework, our research questions will not focus on the differences with spoken language (in this case, Catalan), but understanding the structure of the language from typological perspective, multilingual and multicultural society. The next chapter will introduce our perspective on language, the emergence and the establishment of linguistic structure in spoken and signed languages. And chapter 3 will focus on the semantic domains on modality and evidentiality and will provide examples of their linguistic resources to express them across languages. The accomplishment of these two goals will allow us to undertake future studies on interaction and how academic achievement and social-cognitive development might be linked.

LITERATURE REVIEW

Chapter 2. Grammar, grounding function, and grammar construction

2.1 Introduction

Throughout the first chapter, we stated the arguments that justify the linguistic study of Catalan Sign Language from a developmental and educational perspective. It is not a futile and easy demonstration, since a vast number of educators are still not convinced of the language status of sign languages and of their potential as teaching languages, not only because of the accessibility they allow to deaf learners, but also a resource that may provide identity bounds and life quality.

To understand that sign languages are true, genuine languages demands a comprehensive view on languages and their diversity. Indeed, to conduct research on them, linguists have to inquire about what a language is, what a language is made of, why and what for. Also, it implies to approach them from a typological perspective, and considering that language, cognitive mechanisms and social interaction are deeply intertwined. This chapter will present our perspective on language, and how linguistic structure and functions are established.

What is a language? What is included in the grammar of a human language? How does it arise/develop? Which concepts/items tend to be included in the grammar of a language? Which cognitive and communicative factors underlie grammatical meaning? Which mechanisms are involved in the process? Do the participants (utterer and interlocutors) have a role? Does social interaction have a role?

These questions constitute the point of departure of this dissertation. In the last twenty years, researchers interested in the question of *how do languages acquire a grammar* have elaborated a theory of grammaticalization, the process by which grammar is created (Bybee, 2010; Croft, 2001; Feldman, 2006; Goldberg, 1995, 2006; Heine, Claudi, & Hünnemeyer, 1991; Hopper & Traugott, 1993; Traugott & Dasher, 2002; Traugott & Trousdale, 2013).

If language does not provide a static organization of meaning because grammatical meanings are changing constantly (Bybee, Perkins, & Pagliuca, 1994), which are the grammaticizable categories? What constitutes the grammar of a particular language? According to Elizabeth C. Traugott (2010), grammaticalization provides a schema of tendencies attested over time and it involves recruitment of items to mark speaker's perspective on the questions raised in (27):

- (27) Issues that guide our comprehension about functions of elements in language structure
- (i) who does what to whom: **argument structure**.
 - (ii) how the proposition is related to speech time or to the temporality of another proposition: **tense**.
 - (iii) whether the situation is perspectivized as continuing or not: **aspect**.
 - (iv) whether entities referred to are construed as same or different: pronouns, **indexicals**.
 - (v) which part of a clause is viewed as discourse-old/discourse-new or hearer-old/ hearer-new: **topic and focus markers**.
 - (vi) how utterances are connected to each other: **connectives**, discourse markers.
 - (vii) whether the situation is relativized to the speaker's beliefs: **modality**.

What can be said about the grammar of languages expressed in a different channel, such as signed languages? Do signed languages have (complex) grammars? Do the differences in the articulators involve differences in the substance of the language? Could it be asserted that a specific semantic domain, such as modality, constitutes a grammatical category? This dissertation addresses some of the above questions, as listed in (28):

- (28) General questions addressed in this dissertation
- (i) Do LSC display (complex) elements for expressing values belonging to the semantic space of modality? Does the semantic domain of **modality** constitute a grammatical/functional category in LSC?
 - (ii) Does modality interact with other semantic domains, namely **negation**, **aspect** and **evidentiality**?
 - (iii) Which are the main mechanisms and elements involved in the **emergence** of modal resources in LSC?
 - (iv) Do modals in LSC constitute **grounding predications**?

This chapter aims to justify the formulation of these questions looking at three very different issues. Firstly, we examine the **theoretical foundations that underpin our research**: our understanding of what is a language, the theoretical framework we will adopt and the theoretical instruments we will use to analyze the LSC. For this purpose,

we will present the theoretical foundations of Cognitive Grammar and explain how research on the sign languages can contribute to its development.

Secondly, we discuss **the theory of emergence and development of a grammatical category (in our case, modality) in a given language (LSC)**, analyzing synchronically the linguistic elements that express it and studying diachronically its development. Thus, we will focus on finding the raw material from which the category could have emerged and explaining the mechanisms of change that were at work.

Thirdly, we address **subjectification and modal grounding from the perspective of signed languages**. This is especially interesting in the sense that modals and verbs in signed languages do not tend to show inflection expressing the grammatical categories of mood, person, number, or tense as it is the case for grammatical aspect. Furthermore, this lack of inflection is not the result of a high degree of grammaticalization. On the contrary, these categories are mainly grammaticalized as free morphemes, periphrastic-like expressions, or constructions made of several elements. Their morphological expression shows a less advanced state of grammaticalization since it is not selected by all verbs and, even when it is possible, it is not mandatory (see Beuzeville et al., 2009 for examples with the category of person in Australian Sign Language, Auslan).

If grounding predications constitute the final step in forming a finite clause, how is this semantic function effected in signed languages? Which are the deictic elements that effect clause grounding? How is their degree of grammaticalization attested? Do they show subjectification? Which implications do they pose to the universal function of grounding in languages? Which similarities and differences can we point out? Are there modality-dependent differences?

The chapter will be structured as follows. Cognitive Grammar belongs to the wider cognitive linguistics perspective, which in turn is part of the functional tradition. The next section introduces the main theoretical assumptions in the cognitive-functional linguistics perspective on language (§ 2.2). Section 2.3 will review the main assumptions of the Cognitive Grammar framework and Langacker's definition of the semantic space of modality. This leads to a description of the concept of grounding, the features defining *grounding predications* in the Cognitive Grammar framework, and the problems pointed out by different works (§ 2.4). Section 2.5 examines the main concepts related with the

development and construction of grammar and discourse. Specifically, it deals with the notion of grammaticalization and its main mechanisms (§ 2.5.1). Section 2.5.2 introduces the synchronic notions of subjectivity and intersubjectivity and the correspondent diachronic notions of subjectification and intersubjectification and their relation to modality. Next, Section 2.5.3 addresses the notion of pragmaticalization and Section 2.5.4, lexicalization. In Section 2.5.5 a summary of the characteristics of three diachronic process is given. Finally, Section 2.6 presents a summary and some considerations for the research.

2.2 Cognitive-functional perspective on language

Cognitive Grammar belongs to a wider approach to language and cognition originated in the late seventies and early eighties by the work of Charles Fillmore, Leonard Talmy, George Lakoff and the very same Ron Langacker. In the following section, we will introduce this perspective examining briefly the main assumptions and the principal theories that will constitute the theoretical foundations of this dissertation.

2.2.1 The Cognitive Linguistics movement

Cognitive Linguistics is an approach to the analysis of natural languages that understands language as an instrument for creating, organizing, processing, and conveying information. It stresses how language is motivated by and grounded in experience, including its bodily, physical, social, and cultural dimensions (Johnson, 1987; Lakoff & Johnson, 1980, 1999). Given this perspective, the analysis of the conceptual and experiential basis of linguistic categories is of primary importance within Cognitive Linguistics: the formal structures of language are studied not as if they were autonomous, but as reflections of general conceptual organization, categorization principles, processing mechanisms, and experiential and environmental influences (Geeraerts & Cuyckens, 2010).

Cognitive Linguistics has not (yet) crystallized into a single uniform theory. It is understood as a flexible framework, rather than a single theory of language that shares common features and perspectives. Twenty years later, the characterization provided by Cuenca & Hilferty (1999) in one of the first handbooks on this perspective³³ is still valid:

³³ We refer the reader for an introduction to cognitive linguistics to the following textbooks: Croft & Cruse (2004), Cuenca & Hilferty (1999), Evans (2007), Evans & Green (2006), Evans, Bergen & Zinken (2007), Geeraerts (2006), Geeraerts &

La lingüística cognitiva, como modelo integrador y heterogéneo, no se entiende como una propuesta unitaria, sino, más bien, como el resultado de la confluencia de diferentes líneas de investigación que parten de unos postulados comunes sobre el lenguaje y el estudio de las lenguas. (Cuenca & Hilferty, 1999, pp. 22-23)³⁴

For this reason, it is better understood as a “linguistic movement” (Ibarretxe Antuñano & Valenzuela, 2017, 2012), based in sharing principles from a multidisciplinary perspective and open to empirical evidence.

Cognitive linguistics can point to no definitive text or single authority does not mean that it is a trackless wilderness of shifting sands. There is a set of core concepts and goals, most of which are shared by most cognitive linguists, as well as by the philosophers, psychologists, and other scholars who have collaborated on the development of this framework. These concepts are not the product of an imposed theory, but have instead emerged from empirical observation corroborated across languages and disciplines. (Janda, 1999, p. 3)

In what follows, we will present the main assumptions and theories and the topics of special interest from this perspective on language and cognition. Also, we will point out the implications for the research on signed languages.

2.2.2 Assumptions in Cognitive Linguistics

Cognitive Linguistics researchers share, among others, the main following assumptions as in (29):

(29) Main assumptions

- (i) language is a complex adaptive system,
- (ii) language interacts with other cognitive functions,
- (iii) language and cognition are embodied,
- (iv) language is a system integrated in communication,
- (v) language is a usage-based system, and
- (vi) language change and language acquisition are different processes.

In what follows, we will briefly introduce these assumptions and, in order to characterize them, we will provide elements from the study on signed languages.

Cuyckens (2008), Geeraerts (2010), Geeraerts & Cuyckens (2010), Ibarretxe-Antuñano & Valenzuela (2017, 2012; Taylor & Littlemore, 2014), Lee (2001), Taylor (2002), Taylor & Littlemore (2014) and Ungerer & Schmid (2006 [1998]).

³⁴ Cognitive linguistics, as an integrative and heterogeneous model, is not understood as a unitary proposal, but rather as the result of the confluence of different lines of research that start from common postulates about language and the study of languages.

Language is a complex adaptive system

The conceptualization of language as a complex adaptive system is characterized as follows in (30) (Beckner et al., 2009):

- (30) Properties of language as a complex adaptive system
- (i) The system is **formed by multiple agents** that interact among them: the agents are the diverse language users within a linguistic community.
 - (ii) The **system is adaptive**. The behavior of the users is based on the interactions over (past and current) time and these nourish the future behavior.
 - (iii) The performance of the language users is **consequence** of several competing factors, which range from the mechanical of the **perception** and **production** to **social and functional motivations**.
 - (iv) The structures of the language surfaces from **interrelated patterns** of experience, social interaction and cognitive processes.

Rather than given a priori or by design, linguistic structure is conceived as emergent from the repeated application of underlying processes (Ellis & Larsen-Freeman, 2006). Indeed, language is viewed as a complex adaptive system, in addition to the properties in (30), because it exhibits a great deal of variation and gradience (Bybee, 2010). Variation refers to the fact that "the units and structures of language exhibit variation in synchronic use, usually along the continuous paths of change that create gradience" (Bybee, 2011, p. 2). And, gradience refers to the fact that usually "change occurs over time in a gradual way, moving an element along a continuum from one category to another" (Bybee, 2010, p. 2) and thus it is often difficult to identify many categories of language or grammar.

Variation and gradience are crucial concepts when researching on signed languages since gesture and language are produced by the same articulators (hands, arms, body, head and elements from facial expression) and, in some productions, it is difficult to differentiate them. Moreover, gesture and sign language are related both synchronically and diachronically (Jarque, 2011; Liddell, 2003; S. Wilcox, 2004b, 2007, 2009; S. Wilcox, Rossini, & Pizzuto, 2010; S. Wilcox & Xavier, 2013). Along the synchronic axis, sign language discourse shows a big amount of variation (in form and use). For instance, there are some units that it is especially challenging to decide whether they constitute

discourse markers or gestures. The fact that conventional gestures in the surrounding speaking community provide the raw material for lexicalization and grammaticalization processes makes/generates variance.

Language interacts with other cognitive functions

Cognitive linguistics claims that grammar is not an autonomous mental faculty with processes of its own, but it is intertwined with all other cognitive processes and structures. The linguistic structure depends on conceptualization and, in turn, it influences it (Bybee, 1985, 2010; Langacker, 1987, 1991).

In signed languages, this interrelation is strikingly important because of the influence of vision on the linguistic structure. For instance, polycomponential predicates (also called, *verbs of location and movement* or *classifier predicates*) select some morphemes to refer to the entities of discourse based on visual *imaginery*, taking into account not only their position, but also how their movement is perceived (Schembri, 2003; Slobin et al., 2003).

Embodiment

Another crucial notion is embodiment. It refers to the fact that language is motivated and grounded more or less directly in experience, in our bodily, physical, social, and cultural experiences (Johnson, 1987; Lakoff & Johnson, 1980, 1999). This claim implies that mental and linguistic categories are not abstract, disembodied and human-independent categories. Human beings create them on the basis of their concrete experiences and under the constraints imposed by their bodies.

This concept is particularly relevant for signed language grammars. Properties of articulators such as their visibility, their shape and the elements they consist of, the possibility of moving them in an independent, interwoven or similar way, enables the emergence of complex linguistic structures. For instance, each hand and/or arm can correspond to an entity and their location and movement correspond to the action/location of these entities. Embodiment is also shown in the iconic properties of sign language structures. Iconicity is not conceived of as a direct identification with the “real physical world”, but through a conceptual creation process that may involve similarity in visual imagery –*imagic* iconicity— and/or similarity among relations established in the domains involved in the process –*diagrammatic* iconicity, in Peirce’s sense (1994)— (Bybee, 1985; S. Wilcox, 2004a).

Language is a system integrated in human communication

Human communication is not limited to linguistic expression, but it includes other paralinguistic and semiotic systems, as for example gesture. As explained previously, some authors argue for the existence of a diachronic and synchronic link between gesture and signed languages. The relation is diachronic because manual gestural elements enter into the linguistic system as lexical items, and later develop grammatical functions (S. Wilcox, et al., 2010). This seems to be the case of ASL, LIS and LIBRAS modality markers (S. Wilcox, 2009). Furthermore, the relation is synchronic since sign languages exhibit gradient categories when producing a structure to represent action and other verbal meanings, verbs of location and movement (Liddell, 2003; S. Wilcox & Xavier, 2013). This claim leads us to include in our research more linguistic forms and gestural forms in discourse, without establishing a priori whether they belong to a specific taxonomical category.

Interactional view of language

A fundamental assumption is that grammar arises from discourse (Geluykens, 1992; Givón, 1983; Langacker, 2013; Li & Thompson, 1976). This claim implies an interactional view of language (Bakhtin, 1975 [1981]; Voloshinov, [1934] 1962; Vygotsky, [1934] 1962), whereby even everyday face-to-face conversation partly models cognition, language use, and grammar.

For instance, Pascual (2014) posits that discourse and linguistic structures "emerge from an intrinsically conversational mind" (2014, p. 3). This intersubjective basis is manifested in a conceptual phenomenon, a communicative type of fictivity (Talmy, 1996, 2000), coined as *fictive interaction*. Fictive interaction is defined as the use of the ordinary conversational structure to model cognition, discourse, and language (Pascual, 2002, 2006, 2014).

Recent research has highlighted how pervasive are interactional or intersubjective structures that fulfill non-conversational functions in lexicon, grammar and discourse, across languages and modalities, namely the expression of future and evidentiality (Pascual & Sandler, 2016). Concerning signed languages, Jarque (2016) examines the use of polar and content questions, and their subsequent answers, on cross-linguistic data from 30 signed languages. Our findings show that the pattern question-answer is

recruited across languages for the expression of non-information-seeking functions, such as topicality, conditionality, focus, connection, and relativization.

Moreover, Jarque and Pascual (2016) study direct discourse, typically used in situated intersubjective interaction. They focus on the use of role shift to set up non-genuine quotes in Catalan Sign Language narratives, such as representing a referent's utterances, actions, thoughts, emotions, attitudes and source of information.

As a matter of fact, the interactional nature of language constitutes the key factor that defines its conception across disciplines. To the three basics approaches to the nature of language in the history of linguistics and language sciences proposed by Steffensen (2009) (*formalism*, *internalism-cum-individualism*, and *social structuralism*), Linnell (2009, 2012) adds as a fourth: *dialogism* (or *contextualist interactionism*). Dialogism emphasizes the importance of language conceptualized as a resource for sense-making, emerged from interaction between people, and between people and the world (Linnell, 2009). Language, thus, is considered, fundamentally, a relational and intersubjective phenomenon and, thus, dialogical theory looks upon interactions and context as basic aspects of language use and communication.

Language is a usage-based system

The usage-based stance is related to the understanding of how language emerges, evolves and acquires its structure. Cognitive linguists consider that linguistic structures are abstractions from real productions, and not rules that guide use. Language is, therefore, a bottom-up system (Barlow & Kemmer, 2000; Bybee, 1985, 2007; Bybee & Hopper, 2001; Langacker, 1983, 1991). Further, language use affects storage in memory and the organization of that storage (Bybee, 2001; Bybee & McClelland, 2005).

For instance, token frequency has an effect in the strengthening or entrenchment of structures. Through repetition, sequences of elements become automatized and are processed as a single unit. This implies attending the frequency of linguistic elements combinations, such as collocations, collostructions, prefabs, as well as conventionalization of discourse patterns, in order to identify constructions and/or incipient grammaticalization processes. Indeed, the process of ritualization of linguistic expression is associated with the process of ritualization of social activity (Haiman, 1994).

Therefore, it may be relevant to our goals to take as a point of departure social activities and the linguistic units associated to them.

Language change and language acquisition are different processes

Change is both a window into cognitive representations and a creator of linguistic patterns (Bybee, 2010). Language structures change over time reflecting use and responding to communication needs. This might lead us to think that language acquisition goes through patterns similar to those of language change. However, although parallels between ontogeny and phylogeny have been posited, grammaticalization studies show that "language change and language acquisition are distinct processes and while they interact, the second does not cause the first" (Bybee, 2009, p. 345). This claim is based on works such as Bybee and Slobin (1982) that examined differences between the errors that children make when producing the English past tense and typical change in morphological systems.

The Cognitive Linguistics model of language acquisition establishes that children acquire constructions by first mastering specific instances (with particular lexical items) and then proceeding to generalize and use the constructions productively with other lexical items (Diessel, 2013; Tomasello, 2003). In other words, grammar emerges from the child's interactive performance which consists of a series of step-by-step usage-based extensions of the child's grammar, in which each successive stage is (co)determined by the actual knowledge and use of the child at a given stage.

2.2.3 Theories within Cognitive Linguistics

As pointed out at the beginning of Section 2.2, Cognitive Linguistics is a flexible framework rather than a single theory of language and it subsumes several theories that focus on different facets of language. Especially relevant are the following: (i) Cognitive Semantics, (ii) Construction grammars, (iii) Grammaticalization theory, (iv) Conceptual Metaphor and Metonymy Theory, and (v) Mental Spaces and Blending theory.

Cognitive semantics

Cognitive semantics advocates for a unified conception of semantics and pragmatics. This theory has led to various new theories and concepts: *Idealized cognitive model* (Lakoff, 1987), *cognitive domain* (Langacker, 1987, 1991), *frame* (Fillmore, 1985) or *mental space* (Fauconnier, 1994, 1997; Fauconnier & Turner, 2002).

Construction grammars

It includes the study of language as a structured inventory of units and 'construction' as the basic unit of the grammar. The most prominent models include Fillmore and *Berkeley's Construction Grammar* (Fillmore, Kay, Lakoff, & Goldberg, 1995; Michaelis, 2006), Goldberg's *Construction Grammar* (Goldberg, 1995, 2006), *Embodied Construction Grammar* (Feldman, 2006), and *Radical Construction Grammar* (Croft, 2001). The last model posits that syntax does not exist, and it is actually an epiphenomenon of the semantic structures of grammatical constructions. Typological in orientation, it considers the universals to be evident in the way constructions develop over time, arguing against static universals.

Grammaticalization Theory

Grammaticalization Theory deals with language change. The languages are conceived of as dynamic entities in the process of change promoted by continuous use. Among the various proposals, we should mention the hypothesis of 'emergent grammar' (Hopper, 1987), the hypothesis of subjectification and intersubjectification (Davidse, Vandelanotte, & Cuyckens, 2010; Traugott, 1995, 2010), the application of the conceptual metaphor theory to language change (Sweetser, 1990), and usage-based models (Bybee, 2001, 2007, 2010).

The different proposals have sparked a broad debate that resulted in considerable advances in the area. Thus, for instance, relations have been established between grammaticization and lexicalization (Brinton, 2000), and between grammaticization and language contact (Heine & Kuteva, 2005; Johanson, 2008; Matras, 2011).

These theories, despite their different research goals, might be combined to deal with the language facts. For instance, theoretical elements from Grammaticalization and from

Construction Grammar have given rise to the productive *Diachronic Construction Grammar* (Traugott & Trousdale, 2013).

Conceptual Metaphor and Metonymy Theory

Metaphor is defined as a cognitive mechanism used for the conceptualization and processing of abstract information from more concrete, simple and familiar concepts (Lakoff, 1987; Lakoff & Johnson, 1980, 1999). It entails a mapping from a source domain into a target domain. Source domain usually corresponds to knowledge related to human body in physical space. Metonymy, on the other hand, is based also on mapping but, in this case, within the same domain (Barcelona, 2002; Barcelona, Benczes, & Ruiz de Mendoza Ibañez, 2011; Goossens, 2002; Kövecses & Radden, 1998). As for research on modality, metaphor and metonymy have been examined as mechanisms for meaning extension (Goossens, 2002; Steen, 2007; Sweetser, 1990).

Research on conceptual metaphor and metonymy in signed languages has resulted in a productive area, particularly relevant for the links with iconicity, revealing a double mapping (Jarque, 2005; Taub, 2001; P. P. Wilcox, 2004; S. Wilcox, Wilcox, & Jarque, 2003). Further, metaphor and metonymy interact, giving rise to *metaphonymy* (P. P. Wilcox, 1993, 2000). This initial research provided the ground for research on other signed languages, such as LSC and LSE (Cabeza Pereiro, 2012; Moriyón, Fernández-Viader, & Codorniu, 2006).

Mental Spaces and Blending Theory

Conceptual blending or *conceptual integration* is a cognitive mechanism that creates networks of connections between several mental spaces (Fauconnier & Turner, 2002). The final result is a blend where meaning, that cannot be derived directly from the input, emerges and develops (Fauconnier, 1997; Fauconnier & Turner, 2002)³⁵.

Conceptual blending theory has proven to be an insightful theory when dealing with the properties of several constructions in signed languages, mainly the use of space and action/dialogue construction, a sort of direct discourse (Dudis, 2004; Liddell, 1995, 2003; Liddell & Metzger, 1998). Also, Shaffer (2012) applies it to examine the use of direct discourse for expressing evidential values.

³⁵ See George Lakoff and Rafael Núñez's *Where Mathematics Comes From* for an application to a different area.

Last, but no least, Cognitive Grammar focusses on the study of cognitive principles and mechanisms which structure and give rise to the units of language. This will be examined with more detail in Section 2.3.

2.2.4 Summary

Overall, Cognitive Linguistics has offered a great contribution to the study of language capacity as well as the description of particular languages. There are several reasons that fostered the extraordinary development experimented in the past two decades (31):

- (31) Factors contributing to the development of Cognitive Linguistics
- (i) It adopts **empirical methods**: the most relevant contributions come from insightful analysis of complex data natural sets, developed by linguists with a subtle and detailed understanding of the languages in which they work (Geeraerts, 2006; González-Márquez, Mittelberg, Coulson, & Spivey, 2007).
 - (ii) It addresses **the totality of linguistic phenomena** (phonology, morphology, syntax, text linguistics, semantics, and pragmatics) and, moreover, it encompasses studies of **applied linguistics**, such as second language acquisition, language learning and teaching, translation and interpreting, anthropological linguistics, and so on and so forth.
 - (iii) It includes **a wide range of use of language**: all natural productions, including errors, anomalies, creative uses, poetry, idioms and, even, “dead metaphors”.
 - (iv) It incorporates **diachronic development** as well as **language acquisition data** (Diessel, 2013).
 - (v) It is **multidisciplinary in nature**: cognitive linguistics takes and incorporates new concepts and discoveries from other research and areas.

Furthermore, the study of languages in the visual-gestural modality has been a great contribution within the Cognitive Linguistics movement. Signed languages pose new questions for the research and challenge established assumptions, since synchronic and diachronic differences do exist in the linguistic structure motivated by the factors listed in (32):

- (32) Factors that contribute to differences in the sign language modality
- (i) the **channel** of production and reception;

- (ii) the specificities of **cultural transmission** processes (mainly horizontal);
- (iii) differences in the **acquisition and learning processes**;
- (iv) **sociolinguistic characteristics** of the signing communities across the world and its potential constitution as a linguistic and cultural minority;
- (v) the **coexistence with the spoken/written languages** from the territory and the particular uses by the sign language users, depending on functions, contexts, subjects and interlocutors interpreting.

Signed language are particularly relevant since differences in the mode of expression entail differences in the linguistic structure. From the perspective of cognitive linguistics, we highlight a greater degree of the properties listed in (33) in the signed linguistic modality compared to the spoken mode (Jarque, 2012):

(33) Properties of the linguistic structure in signed languages

- (i) **Simultaneous expression and reception**: the properties and autonomy of different articulators and visual information processing allows simultaneous expression of information at different linguistic levels (Napoli & Sutton-Spence, 2010).
- (ii) **Gestural communication as a substrate** in the process of lexicalization and grammaticalization. Gestural elements from multimodal communication constitute the raw material for the emergency and development of grammatical constructions. The research developed by Wilcox and colleagues have addressed grammaticalization processes from manual gestures and lexicalized properties and non-manual hand gestures in different signed languages (Janzen & Shaffer, 2002a; S. Wilcox, et al., 2010).
- (iii) **Integration of linguistic and gestural elements**: a type of complex verbal constructions (*polycomponential predicates*, more commonly known as *classifier predicates*) consists of categorical components/lexicalized and analog component / mapped spatially (Johnston & Schembri, 2010; Liddell, 2003).
- (iv) **Conceptualization of the articulators as objects**: articulators, depending on their location and other characteristics, are conceptualized as different objects. This conceptualization, via cognitive mechanisms such as metaphor, metonymy and conceptual integration, has a strong impact on

linguistic constructions (Jarque, 2005; Liddell, 2003; P. P. Wilcox, 2004; S. Wilcox, 2004a; S. Wilcox, et al., 2003).

- (v) **Conceptual iconicity:** the articulatory system of signed languages allows a higher level of iconic relationship between the conceptual domains and the linguistic expression at all language levels (Janzen, 2006; Taub, 2001; S. Wilcox, 2004a).

The factors listed in (32) and the differences pointed out in (33) have offered linguists the possibility of questioning and contrasting theories and concepts as well as opening and exploring new avenues of research, that have complemented and substantially modified the assumptions on language and communication. Some of them will be addressed in the following sections.

2.3 Cognitive Grammar

Cognitive Grammar has been developed over the last thirty-five years by Ronald Langacker and has been detailed so far in five major works, Langacker (1987, 1991, 1999, 2002a, 2009); see also Taylor (2002) for an introductory overview and a summary of essential notions in Langacker (Langacker, 2008, 2013). The next section introduces the main theoretical assumptions of the model and the implications for our research.

2.3.1 Theoretical assumptions

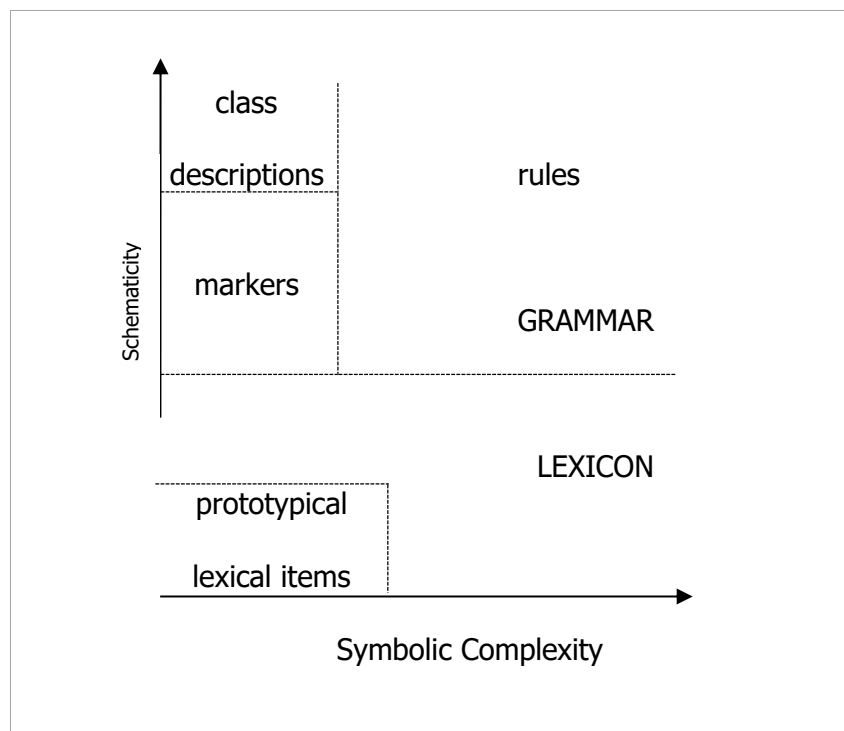
The point of departure of Cognitive Grammar is the assumption that the grammar of a language is part of human cognition and interacts with other cognitive faculties, especially with perception, attention and memory. Langacker defines cognition as a mental process of knowing, including aspects such as awareness, perception, reasoning and judgment. It enables human beings to make sense of what they feel, see, and hear, and to react accordingly. Therefore, Cognitive Grammar is based on conceptual semantics and on human experiences associated to mental grammar.

According to Langacker (1987, 2001), language is grounded in language-independent cognitive processes, such as *association* (the establishment of psychological connections), *automatization* (the use of structures without much constructive effort), *schematization* (the extraction of a general structure or schema out of the commonality

of specific experiences) and *categorization* (the use of stored structures to interpret new experience) (Langacker, 1987, 1990).³⁶

Langacker defines grammar as symbolization. Cognitive Grammar (CG) is an austere model in the sense that it proposes only three types of linguistic structures: semantic, phonological, and symbolic. *Semantic structures* are conceptualizations exploited for linguistic purposes. More interestingly, under the label of *phonological structure*, CG includes sounds, but also gestures and orthographic representations. Language and gesture are both manifestations of the human expressive ability (S. Wilcox & Xavier, 2013).

Both types of structures are paired to constitute the third type: the symbolic ones. Assemblies of symbolic structures form a continuum traditionally identified as lexicon, morphology, syntax and text/discourse (Graphic 2.1, Langacker, 2000, p. 21).



Graphic 2.1 The grammar-lexicon continuum

³⁶ This view does not exclude the possibility that our capacity for language (cf. Chomsky's language faculty) could be hardwired into our genes. It simply stresses that language cannot be thought of as a self-contained module as in traditional generative grammar (see e.g. Taylor (2016) for extensive discussion).

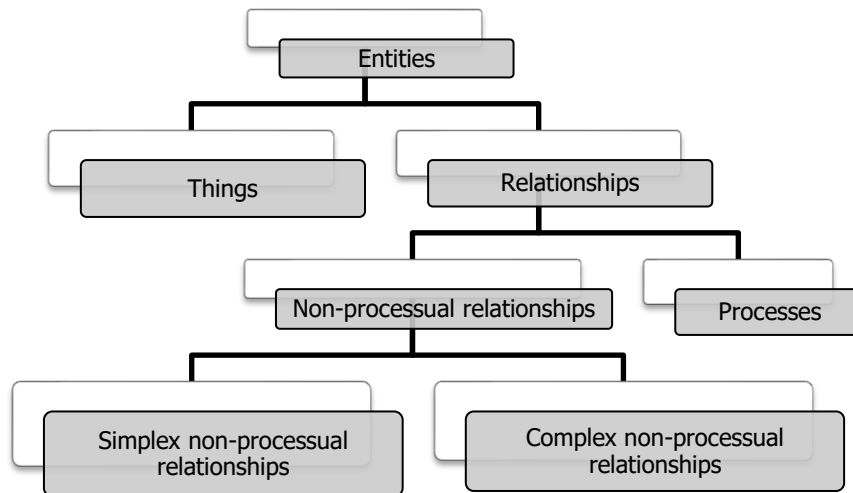
Cognitive Grammar is a usage-based model, since linguistic structure is understood as emerging by abstraction from usage events, i.e. the reinforcement of what is common across multiples instances of language use in interactive contexts “creates” grammar. The process of automatization of linguistic units is based on entrenchment through repeated use. And, while entrenchment occurs at the level of the individual, conventionality takes place in the linguistic community. “A linguistic unit or gesture is conventional to the extent that it is shared and known to be shared among a community of users” (Wilcox & Xavier, 2013, p. 93). Conventional, thus, is synonym of well-formed or grammatical. This provides arguments to consider gesture in signed languages as proper linguistic resources.

Another crucial aspect is meaning. The meaning of an expression depends not only on the conceptual content it evokes, but also on the construal it imposes on that content. The construal phenomena include the following cases: *specificity* (the degree of schematicity: from low as in idioms to high as in general patterns, such as the topic-comment structure), *focusing* (the choice, among the participants in the process, of the *trajector*), *prominence* (the profiling of relational expressions on the basis of a primary and secondary focal participant: the trajectory and landmark, respectively), and *perspective* (the vantage point). This entails that there is nothing like “synonymy” in languages. The selection of one or other resource in a usage event results in different profiles.

Cognitive Grammar is also constructional in nature. As said, it claims that grammar consists in patterns for assembling symbolically complex expressions, also called *constructions*. In large measure, symbolic assemblies are hierarchically arranged: at a given level of organization, component symbolic structures are integrated to form a composite symbolic structure, which in turn can function as component structure at a higher level, and so on.

This assumption implies a view of language as a network, where there are multiples relations among the linguistics elements by means of their form, their meaning, and their use. Another consequence is that constructions can include lexical meanings in their structure. In other words, lexical and grammatical elements “cohabit” in the constructions and, therefore, we can propose intermediate constructions between the more lexical ones (very detailed) and the more grammatical ones (more abstract) with links among them.

With regard to grammatical classes, it recognizes two main categories: things and processes. Things correspond to the traditional label of *noun*, while processes to *verbs*. See Graphic 2.2.



Graphic 2.2 The Cognitive Grammar analysis of grammatical classes

The characterization of things versus processes is defined on cognitive premises: *summary scanning* defines the former, while *sequential scanning*, the latter. That is, the difference is linked to conceived time. Indeed, halfway between nouns and processes there lie the non-processual relationships, i.e. atemporal expressions, “which correspond to such traditional categories as preposition, adjective, adverb, infinitive, and participle” (2008, p. 112).

The simplex type refers to stative relations, whereas complex atemporal relations include more than one configuration over time (e.g. *into*) and, thus, the several facets are scanned in summary fashion. Langacker’s characterization of things (nouns) and processes (verbs) helps us to distinguish between nouns and verbs in sign languages, since no morphological marking exists. Also, it is shown iconically in LSC, and ASL, when there are similar lexical signs for noun and verbs that contrasts exclusively in the movement parameter.

Cognitive Grammar has been qualified as “very innovative” since it pursues to link traditional lexical and grammatical categories with cognitive processes (Broccias , 2006, p. 90). Also, concerning sign languages description, it proved very useful, providing

theoretical tools that allow to capture the diversity, multidimensionality and complexity of the languages in the visual-gestural modality. The above brief summary of the main claims in Cognitive Grammar aimed to contextualize the conceptualization of modality in this approach.

2.3.2 Modality in Cognitive Grammar

Langacker (2002a, 2002c, 2009) characterizes modality semantically in terms of the idealized cognitive model referred to as "the control cycle" (Langacker, 2002c). The control cycle consists of several phases. Langacker makes them clear; see the quotation below:

The first is a static baseline phase, where the actor is at rest. In the next phase a target enters the actor's field, creating the potential for their interaction; this potential phase is one of tension, as the situation has to be resolved in some manner. The action phase consists in the actor resolving it by capturing the target. This yields the result phase, static once more, but with the target now belonging to the actor's dominion. (Langacker, 2009, p. 152)

This cycle of rest, tension, action, and relaxation is characteristic of many experiences and different levels (physical, perceptual, mental, and social).

Mentally, we formulate and evaluate propositions, and in some cases we accept them as part of the dominion comprising our view of reality. At the level of social interaction, we encounter new individuals and achieve a kind of social control by establishing stable relationships entailing definite expectations and obligations. (Langacker, 2009, p. 131)

As for modality, Langacker distinguishes between effective control –which explains root modality–, and epistemic control –that provides an analysis of epistemic modality. Following the Force-dynamics Model proposed in Talmy (1988) and applied to modals by Sweetser (1982, 1990), Langacker states that the modal force manifests the tension inherent in the potential phase of the control cycle and, more specifically, in the inclination phase.

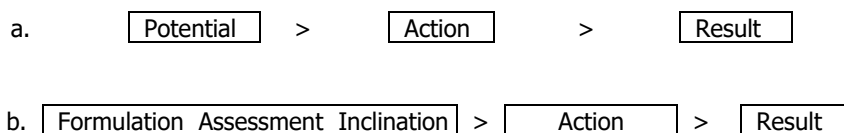
Force Dynamics is present, also, in addressing modal verbs analysis in languages other than English, as for instance in the works by Achard (1996), Boye (2001), Brandt (1989), Vandenberghe (2002). Talmy argues that force dynamics –a mode of construing the world in terms of entities interacting with force (1988, p. 49)– is a neglected semantic category, spanning across more semantic fields than the more traditional "causative". His "systematic application of force concepts to the organization of meaning in language" (Talmy, 1988, p. 50) aims to demonstrate the pervasiveness of force-dynamics thinking.

Effective control is the effort to influence what happens in the world itself, to change it, and the modal force is directed to the "real" reality. The grounding elements employed in English for effective control are the root modals and the basic imperative constructions. Epistemic control –the technical term for knowledge—involves the knowledge of the world, and is directed to the conceived reality.

According to Langacker, besides the distinction between root and epistemic modality, we can distinguish between compelling modality (necessity) and enabling modality (possibility). They represent different force-dynamic patterns and different degrees of the force.

The locus of the force may be participant-internal or participant-external. Participant internal refers to the situation where the force can be identified as a physical and mental capacity or need. However, typically it is manifested at the societal level, where it can often be localized to the interaction of particular individuals (*deontic possibility* and *necessity*). Prototypically, the speaker directs this force at the hearer, but also the speaker could just be reporting social force, or that the force is not necessarily directed at the hearer, or to somebody in particular. Also, the locus of forces may be external circumstances (*root possibility*³⁷ and *necessity*).

A schematic characterization of all instances of root modals must abstract away from the specific nature of the modal force as well as its locus. It simply indicates that some kind of force tends toward the realization of the target process. Concerning epistemic control, Langacker (2009) locates it in the potential phase. However, the potential phase is broken down into three successive stages: formulation, assessment, and inclination, as shown in Graphic 2.3.



Graphic 2.3 Epistemic control: phases

³⁷ We prefer this term instead of the van der Auwera and Plungian (1998) term "non-deontic possibility".

Formulation refers to the stage "when a proposition merely enters the conceptualizer's field of awareness as something that cannot be rejected outright" (Langacker, 2009, p. 133). This stage may lead to active assessment, and this to some preliminary inclination.

In the formulation phase, the proposition is merely present in the conceptualizer's field of awareness, as something that needs to be dealt with. Through assessment, the conceptualizer arrives at some sort of inclination in regard to it. The inclination could be toward accepting or rejecting it as part of his view of reality. "Epistemic control" is manifested in English with epistemic modals: the absence of a modal indicates that the profiled process is accepted by the speaker as real (the result phase), and the presence of a modal, that it is not (2009, p. 162).

More precisely, modals reflect the potential phase by indicating various degrees of inclination to accept the process as real—from *epistemic possibility* (uncertainty) to *epistemic necessity* (probability). Indeed, the characterization of modals in Cognitive Grammar includes necessarily a discussion on grounding. This will be our next topic.

2.4 Deixis, grounding and grounding predications

One of the main concepts of Cognitive Grammar (Langacker 1985, 1987, 1990, 1991, 2004, 2009, 2011 *inter alia*) is the notion of *grounding*. It refers to the (linguistic) process of situating an object or event in the speaker's and hearer's knowledge by means of certain grammatical elements. A fundamental tenet of this approach is that all grammatically construed nominals (i.e. noun phrases) and finite clauses make reference to an element of the ground, which, in turn, enables the identification of the entity (*thing* or *process*) referred to. *Ground* is defined as the situation of speech, including the speech event itself, its immediate circumstances (such as the time and place), its participants, and their respective spheres of knowledge. The function of grounding is crucial as it constitutes the final step in the formation of a nominal or a clause.

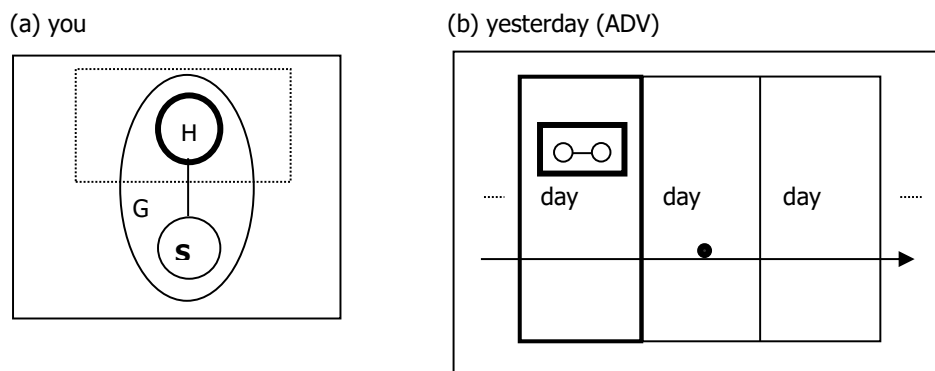
Moreover, Langacker proposes the concept of *grounding predication* to characterize highly grammaticalized linguistic elements that accomplish the grounding function, i.e. linguistic devices the function of which consist in indicating the relationship of a designated entity to the *ground* in regard to epistemic domains pertaining to reality, existence and speaker/hearer knowledge. In other words, grounding predications pose

the conditions that lead to successful communication in the sense that it allows to establish mental contact with, or direct someone's attention to, a referent that discourse participants are able to determinate (Brisard, 2002).

2.4.1 Grounding à la Langacker

Grounding predications constitute a special type of *deictic expressions*. A deictic expression is defined as one that includes the ground –or some facet of it– within its scope of predication. The scope of a predication comprises the full array of conceptual content that it specifically evokes and relies upon for its characterization. Langacker (1985, pp. 113-114) distinguishes two broad classes of deictic expressions. One class subsumes expressions like *I, you, here* and *now*, in which some facet of the ground is profiled. Langacker argues that its construal is highly objective.

The second class comprises expressions like *yesterday* or *tomorrow*, where the ground falls within its scope, but it remains implicit and non-salient, serving only as an "offstage" unprofiled reference point. The contrast is illustrated in Graphic 2.4 (Langacker, 2002a, pp. 9-10).



Graphic 2.4 Objective vs. subjective construals of the ground

Graphic 2.4(a) sketches diagrammatically the value of 'you' as follows. *H* stands for 'hearer', *S* refers to the 'speaker', identified as the conceptualizer, and *G* to the 'ground'.

The dashed-line rectangle delimits the onstage region. The bold line indicates the profile. In Cognitive Grammar, meaning is equated to construal.

Yesterday, used adverbially (e.g. *You came yesterday*), profiles the relationship between some event (e.g. *You came*) –represented by the bold-line box within the two connected circles– and the day in question, which respectively serve as trajector and landmark. Observe that *yesterday* is deictic because it invokes the ground as a point of reference, but the ground is not profiled. According to Langacker's view, this construal is subjective. Without being explicitly mentioned, some aspect of the ground is invoked as a point of reference serving to locate another entity. This means that it is not merely the platform of conception, but it figures at least marginally in its content (Langacker, 2002, pp. 8-10).

Grounding predications can be regarded as a special class of this second type of deictic expressions. However not all expressions invoking the ground as an offstage reference point function as grounding elements. Three properties define grounding predications, giving them a special status within the class of deictic expressions (Langacker, 2002, p. 29). The first property is the nature of the linguistic expression: only highly grammaticalized elements can serve as true grounding predications, one of which has to be chosen as the final step in forming a full nominal or a finite clause. Lexical elements, such as *yesterday*, are excluded, whereas tense-marking in English is included.

The second property refers to the nature of the conceptual content: they have a schematic meaning and a "relativistic" character as opposed to indicating a specific shape or value (Cf. Talmy, 1988), i.e. they do not locate the profiled entity in absolute terms but always relative to the ground (Langacker, 1990, p. 321). Whereas *yesterday* has a high order conceptual structure –the conception of succession of days on the temporal axis and the identification of one specific unit within this sequence– the past-tense morpheme merely indicates distance from the time of speaking. The import of grounding predications is related to notions such as time, reality, immediacy, and identification, i.e. the *mental contact*. By *mental contact*, Langacker refers to the action of singling out instances as well as coordinating reference.

Third, the nature of the ground's construal: the ground is subjectively construed, i.e. it remains as an unprofiled reference point ("offstage" and implicit). Langacker (1985, 1990) uses the theater metaphor to distinguish between the immediate and the overall

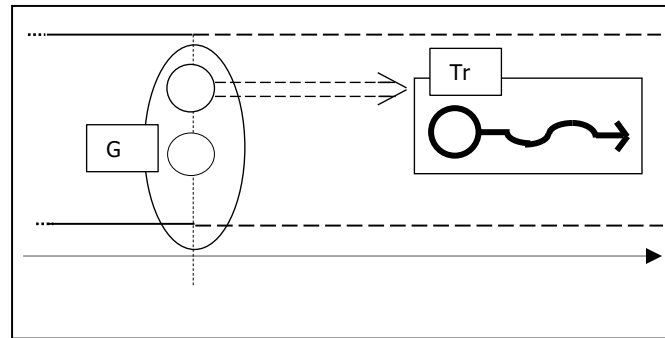
scope of a linguistic expression. The *immediate scope* corresponds to the focus of attention, metaphorically understood as the "onstage region". When a speaker/conceptualizer construes an entity from an objective perspective, "it is put 'onstage', as an explicit focus of attention, the object of conception, and it is distinct from the conceptualizer" (Langacker, 2002, p. 17).

In contrast, the *overall scope* is identified as the "offstage", i.e. the scope of predication that remains outside the immediate scope. An entity is subjectively construed when it is related to the semantic aspect of how a conceptualizer captures or apprehends the object of conception. The ground remains "offstage" when its content functions just as a reference point. Moreover, an entity is construed subjectively to the extent that it functions asymmetrically as the subject of conception but not as the object (Langacker, 1991, p. 554). In other words, when it is related to semantic aspects of how a conceptualizer captures or apprehends the object of conception.

The English grounding system comprises linguistic elements that carry out nominal and clausal grounding. Nominal grounding is effected by the definite and indefinite articles (*the, a*, unstressed *some, zero*), demonstratives (*this, that, these, those*) and certain quantifiers (*all, most, some, no, any, every, each*). Langacker (2004) specifies that nominals are grounded in the Idealized Cognitive Model (ICM) of the discourse rather than directly in the real world.

On the other hand, the elements identified as the clause grounding predications of English are the modals (*may, will, shall, can, must*) and tense (present and past). These serve to locate the profiled process with respect to the deictic center. At the center, there is a conceptualizer (C), by default the actual speaker, who apprehends the process and makes an assessment concerning its occurrence or realization, its existential status (Langacker, 2011, p. 39).

In Graphic 2.5, Langacker represents this potency diagrammatically by the double arrow, which is drawn with dashed lines to indicate that the unleashing of this force and the consequent realization of the landmark process are potential rather than actual (Langacker, 1990, p. 334).



Graphic 2.5 Modals as grounding predications

The conceptual nature of these grounding predications (profile and subjectivity) determines their grammatical behavior and allows them to show grammatical properties that distinguish them from other types of expression (Langacker, 2002a, pp. 11-15). The notion of grounding, a product of the reference-point construction and subjectification, supposes a great contribution because it takes into account a relevant property of language use: the speaker/issuer/conceptualizer's involvement to what is being communicated, as Pelyvás highlights:

The appearance of the grounding predication in Langacker's holistic cognitive grammar is a major development in the elaboration of a grammatical theory capable of dealing with a number of factors connected with language use (Pelyvás, 2006a, p. 121).

In addition, the concept has been crucial for accounting linguistic phenomena in a comprehensive and revealing way. For instance, Doiz-Bienzobas (2002) characterizes the preterite (*pretérito indefinido*) and the imperfect (*pretérito imperfecto*) in Spanish as grounding predications overcoming the three partial descriptions traditionally proposed based on aspectual, temporal, and discourse-related notions.

However, as already mentioned at the introduction, Langacker's characterization of grounding predication is "problematic for languages other than English" (Cornillie, 2005, p. 56), "is in need of a more qualified answer" (Mortelmans, 2002, p. 423), is "unsatisfying" (Mortelmans, 2006, p. 152), and "may require redefinition" (Pelyvás, 2006a, p. 147).

Since the grounding process leaves only the grounded head (the complement) in profile, the latter has to be a process if the clause is to be regarded as finite. According to the Langacker's Cognitive Grammar model, this condition excludes all forms that are clearly non-finite (because they are seen as summarily scanned and thus incapable of profiling

a process) and also the ones that are clearly finite (since tense can only come from a grounding predication already present in the structure).

On the one hand, this leaves only the English modals as grounding predications –or any other language in which the modal is followed by a form that can be seen as neither finite nor non-finite, e.g. the *bare infinitive* in English (Pelyvás, 2006b, p. 198); and it excludes modals in a number of other languages (e.g. German, Spanish, Dutch, and so on). On the other hand, because of this condition, cognitive predicates cannot be grounding predications, despite their meanings being very close to those of the modals (Pelyvás, 2006a, p. 123).

Nevertheless, this characterization also faces a number of problems pointed out in different works, as listed in (34):

(34) Limitations in defining grounding

- (i) grounding is considered **in absolute terms**;
- (ii) there is **no difference between root and epistemic modals** in terms of grounding;
- (iii) **properties other** than tense marking (i.e. distribution, negation, sentence type, etc.) **are not taken into account** as a degree of grammaticalization or subjectification;
- (iv) there is no **distinction between subjective and objective uses** of deontic modals;
- (v) it considers a **static conceptualization** of grounding; and, finally,
- (vi) it is based on a **restrictive conception** of linguistic devices that accomplish the grounding function.

A number of authors have proposed substantial modifications and claim the necessity of including more natural language data and the convenience of describing the grounding systems in languages other than English. In the next section, we turn to these proposals.

2.4.2 Alternative views of grounding

Some of the several proposals that appear in the literature are the following ones: the reduction to an epistemic view of grounding (Goosens, 2006, and Pelyvás, 1996, 2006a); a gradual view of grounding and subjectification (Cornillie, 2003, 2005, 2006;

Mortelmans, 2002, 2006, and Smirnova & Mortelmans, 2011); the extension of the definition of grounding predication to all epistemic devices (Nuts, 2002) or to lexical units (Laury, 2002); a dynamic and sociocentric ground (Laury, 2002); and the creation of a new category ("anchoring relations") to include grounded elements effecting a function similar to grounding (Temürçü, 2011).

Putting the emphasis on the conceptual side, Pelyvás (1996, 2006a, 2006b) argues that there is a discrepancy between conceptual content and formal considerations in Langacker's definition of epistemic grounding. Langacker's model does not establish differences between deontic (*root* in his terminology) and epistemic modals in terms of grounding, when a more fine-grained analysis of the conceptual structures reveals substantial differences in the nature and degree of subjectification occurring in them and concludes that only epistemic senses of the modals should be regarded as grounding predications (2006a, p. 123).

Also, Cornillie (2005) argues that some uses of Spanish modals are close to grounding predications whereas others are not; and later, in Cornillie (2006), he considers tense inflection not as problematic for advanced subjectification and stresses that Spanish epistemic modals have undergone more subjectification than the deontic ones. However, Goossens (1996) only takes root modals to be grounding "in the case of deontic modalities where the authority for the permission or obligation is clearly in the ground, as a rule, when the speaker has or assumes authority" (p. 28), i.e. the grounding status is reserved for those modal uses in which the locus of potency can be equated with (an element of) the ground.

On the other hand, Mortelmans (2002, 2006), Cornillie (2003, 2005) and Smirnova and Mortelmans (2011) argue for a more gradual view on grounding on the basis of the different degrees of subjectification. Mortelmans (2002) discusses the grounding status of the German modals *sollen* and *müssen* in interrogatives. She argues that German epistemic modals function as grounding predications. Her analysis takes into account local and constructional factors of the specific modal and looks at five parameters which enhance the degree of subjectification of a particular German modal (35):

(35) Parameters contributing to subjectification

- (i) the **syntactic environment** in which the modal occurs, i.e. the preferred types of subject and complement verb;

- (ii) the **sentence type**: the use of a specific modal is grammaticalized in a specific sentence type;
- (iii) the presence of explicit speaker-oriented expressions;
- (iv) the influence of **negation**; and
- (v) the **morphological flexibility** of the modal itself.

In addition, Smirnova and Mortelmans (2011) propose that a particular linguistic unit may show a weaker or a stronger degree of grounding and this degree is closely connected with the degree of grammaticalization. Moreover, different degrees in grounding and grammaticalization match different degrees in subjectification. They claim that such intermediate configuration can be described by adding a relevant reference point that cannot automatically be equated with the ground or the clausal subject, and that this reference point can be inferred via information present in the surrounding context.

Moreover, Pelyvás (2006a) not only excludes non-epistemic modality from the grounding function, but argues in favor of regarding cognitive predicates with epistemic meanings as grounding predications.

Furthermore, Nuyts (2002), on the basis of an empirical study on Dutch, expands the notion of grounding establishing parallelisms with the function of *qualification of the state of affairs* in the functionalist literature, and claims that the grounding function goes beyond grammaticalized devices and extends the analysis to any linguistic element related to the semantic hierarchy in the qualifications (Nuyts, 2002, p. 440) (Graphic 2.6).

- > evidentiality
- > epistemic modality
 - > deontic modality
 - > time
 - > quantificational aspect (frequency)
 - > phrasal aspect (internal temporal constituency)
 - > (elements of the) STATE OF AFFAIRS

Graphic 2.6 The semantic hierarchy of qualifications

Nuyts argues that all epistemic expressions, and expressions of any other qualification dimension (both grammatical and lexical) can be considered grounding elements if they

are used as a means to indicate the current status of the state of affairs in the speaker's conceptualization of the world. In other words, he considers that knowledge about events, in order to be fully anchored, should relate to aspect (its frequency), time (i.e. its spatial and temporal situation), deontic modality (social value), epistemic modality (its reality status) and evidentiality (i.e. how one got to know about it) (Nuyts, 2001). Even gestures would be included (Nuyts, 2002, p. 457).

Nuyts puts forward his proposal on the distinction between a level of conceptual semantics and a level of linguistic semantics, positing a nonlinguistic view of grounding, i.e. a view in which grounding is a matter of conceptual semantics, irrespective of the specific expressive device a speaker decides to use when she brings up certain grounding dimensions in communication (2002, p. 459).

Moreover, Laury (2002) presents a more dynamic and sociocentric view of grounding, providing evidence from ordinary speech to show that the ground is not static, but rather dynamic and constantly shifting in interaction, as it is not only maintained but also created and modified by the participants.

Finally, Temürçü (2011), examining the epistemic interpretations of the continuous aspect marker *-Iyor* in Turkish, proposes the new category of "anchoring relations", expanding the concept of grounding, in order to account for the use of tense, aspect and mood markers in utterances of natural languages. "Anchoring relations" can also appear onstage (e.g. when expressed by mental state predicates) and can be very specific (e.g. when specified by adverbial elements). The framework of anchoring relations achieves the distinction between epistemic and aspect-temporal categories by decomposing the meanings expressed by grounding predications into their temporal, epistemic and volitional building blocks.

In sum, the concept of grounding predication developed by Langacker along the last twenty years has proved to be a great contribution, but it has also generated a broad debate in the field. Probably, this controversy has led Langacker (2009) to point out:

My investigation of grounding and the grounding parallelism has focused on English. I make no claim concerning how much of the analysis carries over to other languages, or precisely how. Even for English I am concentrating on the core grounding systems, with no pretense that these are exhaustive or sharply distinguished from other phenomena. (2009, p. 149)

Despite the centrality of grounding in the organization of finite clauses, no study has addressed the question of what are the grounding predications in signed languages, i.e. what are the (obligatory) grammatical expressions that turn a verb into a finite clause. And, more specifically, nobody has asked the question whether the modal system serves that function. In this dissertation, we formulate this question: do modals in Catalan Sign Language (LSC) constitute grounding predications in the technical sense described by Langacker? In addition, we will discuss the implications that the data from signed language pose for the general characterization of grounding functions and grounding predications in natural languages.

Since the notion of grounding predication is strongly related to the degree of grammaticalization of the linguistic item considered as potential candidate and LSC is an understudied language with no previous studies on grammaticalization, we will review, in the following section, the main notions concerning the construction of grammar and the research that has been done on this issue in sign language linguistics.

2.5 The construction of grammar and discourse

Grammatical meaning consists of semantic substance that has evolved in a predictable way from lexical meaning (Bybee et al., 1994). The source concepts that enter into grammaticalization are basic to human experience and largely culturally independent in that "they tend to be conceived of in a similar way across linguistic and ethnic boundaries" (Heine et al., 1991, p. 33).

Despite the substance of a language being potentially universal, languages differ as "to show it is shaped because it is constantly undergoing change as language is used" (Bybee, et al., 1994). Croft (2001) denies the universality of constructions, arguing that each language defines its own constructions and the categories within them.

In the process of grammaticalization, different mechanisms enter/are at work, namely: analogy (Fischer, 2010) –as for instance via supporting constructions (De Smet & Fischer, 2017)—, blending (Fauconnier & Turner, 2002), frequency (Bybee, 2007), intersubjectification (Traugott & Dasher, 2002), metaphorization (Heine, et al., 1991; Sweetser, 1990), metonymization (Paradis, 2011), objectification (Kranich, 2010), pragmatic inferencing (or invited inference) (Dahl, 1985; Hopper & Traugott, 1993;

Traugott, 1989), reanalysis (Heine, et al., 1991; Meillet, 1958 [1912]), subjectification (Langacker, 1990; Traugott, 1995), constructionalization (Traugott & Trousdale, 2013) to name just a few of the main works.

These mechanisms lead to semantic and formal change (at phonological, morphological, or syntactic level) and eventually to grammatical meaning. However, the importance and extent of them all is open to discussion in the literature, especially on the issues in (36):

(36) Relevant issues on the mechanisms of linguistic change

- (i) How are they characterized?
- (ii) Do they constitute a motivation (the reason for the change), the responsible mechanism, the condition for change, or a consequence (a side effect), as for instance frequency?
- (iii) In which stage of the grammaticalization process do they participate? For example, subjectification seems to occur in the first stage of the process.
- (iv) Do they combine/overlap with other motivation(s) or mechanism(s), as for example metaphorization and metonymization in semantic change, or reanalysis and analogy in syntactic change?
- (v) In which linguistic context do they occur?
- (vi) Do they take place in the pragmatics or in the semantics (semanticization)?
- (vii) What is their explanatory value?

Two mechanisms are particularly interesting: subjectification and intersubjectification. These concepts are related to subjectivity and intersubjectivity, their synchronic counterparts (Benveniste, 1971 [1958]; Lyons, 1977). The definition of these four terms, however, is not without controversies, neither. Broadly speaking, **subjectivity** concerns the expression of self and the representation of a speaker's perspective or point of view in discourse and plays an important role in how meaning is created and construed, whereas **subjectification** refers to the structures and strategies that languages evolve in the linguistic realization of subjectivity (Finegan, 1995).

On the other hand, **intersubjectivity** refers to the context of communication where each participant is a speaking subject who is aware of the other participant as speaking subject, and intersubjectification is the mechanism by which meanings, "once subjectified, may be recruited to encode meanings centered on the addressee" (Traugott, 2010). Traugott and Dasher (2002, p. 225) schematized this cline in (37).

(37) non-/less subjective > subjective > intersubjective

The four concepts are related to the concept of *ground* and the process of *grounding*. The **ground** includes the speech event, their participants, as well as their knowledge, expectations, whereas **grounding** refers to a specific process of semantic change through anchoring the action more overtly into the speaker's deictic sphere. In this process, linguistic elements change their meaning, or acquire new meanings while retaining their old ones.

The study of grammar creation has a long tradition. It gained momentum with the publication of Meillet's work (Meillet, 1958 [1912]). However, a systematization of the paradigm did not take place till the end of the twentieth century with the works by Lehman (1982/1995), Heine et al. (1991), Hopper and Traugott (1993), and Bybee et al. (1994) (Garachana, 2015). Their main concepts, already pointed out in the introduction to this chapter, are subjectification and intersubjectification. In the next two sections (§ 2.5.1 and § 2.5.2) we turn our attention to them, and later (§ 2.5.3) we define pragmatization, also referred to as *secondary grammaticalization*.

2.5.1 Grammaticalization

Grammaticalization is the process whereby "functional categories come into being, either when lexical items take on a grammatical function in certain constructions, or when items that are already grammatical in nature develop into further grammatical categories" (Janzen, 2012, p. 819). As defined by Kuryłowicz (1965):

Grammaticalization consists in the increase of the range of a morpheme advancing from a lexical to a grammatical or from a less grammatical to a more grammatical status, e.g. from a derivative formant to an inflectional one. (Kuryłowicz, 1965, p. 52)

This development implies a number of changes in the whole construction where it takes place:

Grammaticalization is a process leading from lexemes to grammatical formatives. A number of semantic, syntactic and phonological processes interact in the grammaticalization of morphemes and of whole constructions. (Lehmann, 1995 [1982], p. viii)

This general process is often described in terms of grammaticalization paths. A path applying to modal elements is given in (38)(a) (from Lehmann [1982] 1995, p. 37, simplified). (38)(b) and (38)(c) show paths from Bybee, Perkins and Pagliuca (1994, p. 240), where > stands for 'evolve'.

(38) Grammaticalization paths

- (i) full verb > modal verb > auxiliary verb > mood marker
- (ii) desire > intention > future > imperative
- (iii) ability > root possibility > epistemic possibility > concessive

In other words, the diachronic process of grammaticization describes how lexical morphemes develop into grammatical morphemes, or where less grammatical morphemes (e.g., auxiliaries) develop into more grammatical ones (i.e., tense or aspect inflectional markers)(Bybee, et al., 1994). Indeed, this change toward more grammatical is understood by Traugott (1982) as a tendency for the meanings to follow this path: proposition meanings gain textual (cohesion-making) or expressive (presuppositional or pragmatic) meanings, as summarized in (39).

(39) Propositional > ((textual) > (expressive))

In this path, three tendencies are at work (40):

(40) Tendencies in the grammaticalization path

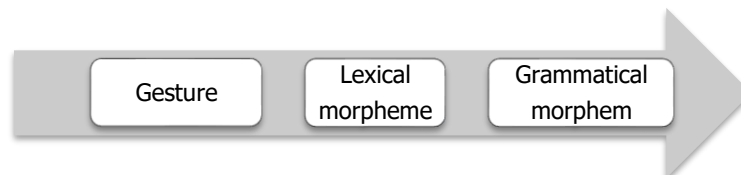
- (i) **Tendency I:** meanings based on external situation develop meanings based on internal (evaluative/perceptual/cognitive) situation
- (ii) **Tendency II:** meanings based on external or internal situation develop meanings based on textual and metalinguistic situation
- (iii) **Tendency III:** Meanings tend to become increasingly based on the speaker's subjective belief state/attitude toward the proposition.

Later, Traugott (1989) considers that, in fact, the three tendencies can be summarized by the third one alone: subjectification, being finally in Traugott (2010), the main mechanism for primary grammaticalization (i.e. the shift from lexical to grammatical meaning).

Research on grammaticalization in signed languages have identified modality-independent and modality-specific pathways. The first constitute the most part. The attested grammaticalization pathways from lexical to grammatical item include (41) (Pfau & Steinbach, 2006):

- (41) Grammaticalization pathways in sign languages
- (i) from (ad)verb to completive/perfective aspect marker in ASL, Italian SL (LIS), and Israeli SL
 - (ii) from noun to pronoun in Israeli SL (Meir, 2003)
 - (iii) from adjective/verb to intensifier in ASL, DGS, and Adamorobe SL (Ghana)
 - (iv) from noun/adjective to modal verb in ASL (P. P. Wilcox & Wilcox, 1995)

Moreover, the modality-specific pathways refer to the possibility of grammaticalizing manual and non-manual gestures. Wilcox (2004b, 2007) distinguishes two routes by which gesture is codified into a linguistic system in the context of natural signed languages. The first route establishes that manual gestures used within the surrounding spoken language enter in the sign language as lexical morphemes and later develop a grammatical meaning (Wilcox et al., 2010, p. 333) (See Graphic 2.7).



Graphic 2.7 From manual gesture to manual grammatical marker

Examples of this route concerning the expression of modality in signed languages are given in (42) for ASL and (43) for LIS.

- (42) ASL (Janzen & Shaffer, 2002b; S. Wilcox, 2007)
- (i) gesture 'partir' > lexical item PARTIR 'depart' > FUTURE
 - (ii) gesture 'come here' > lexical item COME-HERE > NECESSITY
- (43) LIS (S. Wilcox, et al., 2010)
- (i) gesture 'died' > lexical DEAD/TO DIED > IMPOSSIBLE
 - (ii) gesture 'physical strength' > lexical > POSSIBLE

Janzen and Shaffer (2002a) discuss how the contemporary grammatical marker in ASL signaling future time (FUTURE) has its source in the Mediterranean gesture meaning 'depart'. This gesture would have developed into the lexical verb meaning 'to go', documented in the old LSF as the lexical morpheme PARTIR 'depart' in Brouland (1855)'s dictionary.

The second example in (42) illustrates the path from the gesture meaning 'come here', documented by De Jorio ([1832]2000)([1932] 2000)'s study of Neapolitan gestures, to the ASL lexical item meaning COME-HERE. This would be the lexical source for the modal the old form NECESSITY in ASL as documented in Higgins (1923). Indeed, a similar form of this gesture in identified in LIS to mean 'encourage' and in LSC in the lexical item EMERGENCY (S. Wilcox, et al., 2010).

In the second route, the gestural source is part of a gesture, such as the manner of movement of a manual gesture or sign, and facial, mouth and eye gestures. Wilcox (2010, p. 333) suggests that this second route follows a path of development from gesture to prosody/intonation³⁸ to grammatical morphology (Graphic 2.8).



Graphic 2.8 From non-manual gesture to grammatical marker

An example of this second route is the grammaticalization of brows raising into grammatical markers coding polar questions, topic, conditionals, relative, and focus across signed languages (Janzen, 1999; Jarque, 2016).

The above two routes, as well the other paths pointed out for spoken languages, are promoted by cognitive mechanisms such as metaphor, metonymy (invited inferences), and, as highlighted at the beginning of this section, subjectification and intersubjectification. Subjectification is considered one of the most widespread and the

³⁸ Intonation in signed languages is produced by facial articulators: brows, eyes, cheeks, mouth and head.

most pervasive tendency in semantic extension (Langacker) and in semantic change (Traugott), particularly in the case of the development of modal elements.

These two notions, jointly with their synchronic counterparts, will be the focus of the next section, since a proper understanding of them "presupposes a proper concept of subjectivity and intersubjectivity" (Narrog, 2012, p. 21).

2.5.2 (Inter)subjectivity and (inter)subjectification

The notions of subjectivity and subjectification have been theorized in three different areas (Traugott, 2010): (i) the procedures for production and comprehension in communicative interaction (Schiffrin, 1990); (ii) the characterization of *cognitive construal* in Cognitive Grammar (Langacker, 1990, 2003 inter alia), and (iii) in psycholinguistics.

The concept of subjectivity has been present in semantic studies since the work by Bréal (1964 [1900]), but it was the influential work by Benveniste (1971 [1958]) that introduced the difference between subjectivity and intersubjectivity. The most common understanding follows Lyons's definition (Lyons, 1982):

The term subjectivity refers to the way in which natural languages, in their structure and their normal manner of operation, provide for the locutionary agent's expression of himself and his own attitudes and beliefs. (1982, p. 102)

Instances of linguistic structures that provide "the expression of himself" in English are giving in (44).

(44) Subjective constructions (Traugott, 2010)

- (i) raising constructions, in which the speaking subject differs from the syntactic subject (Benveniste's "sujet d'énonciation" vs. "sujet d'énoncé") (*She's going to give a lecture vs. There's going to be an earthquake*),
- (ii) illocutionary uses of speech act and mental verbs (*I recognize the Senator from California*),
- (iii) epistemic modals (*That must be wrong*),
- (iv) concessives (*while*),
- (v) focus particles (*even, incluso*), and
- (vi) discourse markers (*besides*).

The expression of subjectivity gives rise to diachronical developments in grammar. This process is called subjectification by Traugott. Subjectification is understood as the pragmatic-semantic process whereby "meanings become increasingly based on the speaker's subjective belief state/attitude toward the proposition" (Traugott, 1989, p. 37). To achieve speakers' communicative purposes, forms are constantly recruited from lexical domains expressing concrete, objective meanings, and are construed in terms of the perspective of the speaker, the speech event, and the discourse context. Such recruitment is far from arbitrary; the original meanings and inferences that can be drawn constrain the domains where they can be used and the subjective functions they perform (45).

(45) Examples of subjectification:

- (i) non-raising constructions > raising constructions (Langacker, 1990, 1995)
- (ii) verbs of desire or volition > epistemic modals (Traugott & Dasher, 2002)

For meanings to become more speaker-based, speakers -to gain expressivity- implicate conversationally meanings that are not linguistically encoded. Subjectification à la Traugott entails the rise of a new sense from pragmatic inferences in typical discourses ("pragmatic strengthening").

Subjectification, under her view, is not considered pragmaticalization, but semanticization (i.e. codification). This divergence lies on the assumption that there is a distinction between pragmatics and semantics.

However, for subjectivity and subjectification, Langacker (Langacker, 1999, 2002b) regards the vantage point and in particular the relative positions of the subject and object of conception as the crucial factor. To the extent that an entity functions as the subject or object of conception, it is said to be subjectively or objectively construed. Since Langacker's focus is on developing a theory of grammar based on a conceptualist view of semantics, he refers to the subjective/objective distinction in order to adequately capture the different ways in which an entity can be construed within the conceptual scene. Thus, a particular entity within the conceptualization of a linguistic expression is construed objectively (subjectively) when the viewer/conceptualizer conceives it as having a high(low) degree of awareness.

As for intersubjectification concerns, Traugott (2003) defines intersubjectivity as the means by which natural languages provide "for the locutionary agents's expression of his or her awareness of the addressee's attitudes and beliefs, most especially their 'face' or 'self-image'" (Traugott, 2003, p. 128). Instances of intersubjective structures are given in (46).

(46) Intersubjective resources:

- (i) euphemisms (Catalan *Ens ha deixat* Lit. 'He left us' meaning 'He died')
- (ii) insults/dysphemism's (the Italian expression *orca miseria* substituting *porca miseria*)
- (iii) politeness (Catalan *T'importaria portar-me un got d'aigua?* 'Do you mind to bring me a glass of water?')

According to Traugott (2010), through subjectification, meanings are recruited by the speaker to encode and regulate attitudes and beliefs. In a similar but opposite vein, meanings, once subjectified, are recruited, through intersubjectification, to encode meaning centered on the addressee. An example of intersubjectification is the shift from subjectified discourse markers to intersubjectified hedges: *perhaps* (Traugott & Dasher, 2002). When intersubjectification takes places, "pragmatic intersubjective meanings that are pragmatically inferrable from the context [...] come to be coded as part of the semantics of the item" (Traugott, 2010, p. 54).

While Traugott presents a pragmatic approach to subjectification, Langacker (2006, 2011) defends a conceptualist perspective. According to him, subjectification concerns several semantic processes whose common denominator is the gradual change from physical movement to a merely virtual movement in the speaker's mind. Subjectification involves the shift of the locus of relevance away from the linguistically coded, objectively construed subject, to the speech situation which is not itself linguistically coded, thus becoming the site of implicature.

Subjectification is not restricted to grammaticalization processes, but it is more likely to appear in them, rather than in lexicalization or semantic change. Moreover, some of the cases described by Traugott as grammaticalization through intersubjectification would be considered by other linguists as cases of pragmaticalization. This will be the focus of next section.

2.5.3 Pragmaticalization

The status of pragmaticalization, as well as discursivization, is controversial as it is not a generally accepted type of language change. This concerns, for instance, the development of modal constructions that acquire a discourse function, such as the use of mental state predicates (*I think/believe*) that become discourse markers (Aijmer, 1997). A review of the literature³⁹ reveals that views on this topic cover a wide spectrum, limited by the following two positions (Deagand & Evers-Vermeul, 2015).

On the one hand, the “narrow” view on grammaticalization argues that discourse markers do not constitute instances of grammaticalization because they do not comply with Lehmann’s (1995) grammaticalization parameters, as for instance because they involve scope increase instead of scope reduction, and an increase in syntactic freedom instead of syntactic fixation (e.g. Waltereit, 2006). This presupposes that these grammaticalization parameters are central criteria when defining what counts as grammatical.

The “broad” view, on the other hand, argues that pragmatic functions are genuinely grammatical functions which are indispensable for the organization of spoken dialogic discourse, so the emergence of discourse markers should be viewed in terms of proper grammaticalization (e.g. Diewald, 2006, 2011).

The intermediate views, in addition, seem to consider pragmaticalization as a subprocess of grammaticalization (Dostie, 2009; Wischer, 2000), or extend the notion of grammaticalization to include discourse markers as less prototypical cases (Diewald, 2011; Traugott, 1995). Finally, there are authors that postulate pragmaticalization as a separate type of change for the rise of linguistic items that operate at the discourse level (Norde, 2009; Ocampo, 2006). We summarize the four positions in Table 2.1, following Ocampo (2006, pp. 316-317).

Table 2.1 Relationship between grammaticalization and discourse

Position	Explanation	Works
Grammaticalization	Without any change in this notion	Brinton (1996), Onodera (1995), Pinto de Lima (2002)

³⁹ Moreover, the ongoing debate is present in the conferences. As for instance, the last edition of the conference *New Reflections on Grammatization V*, that took place in Edinburgh in July 2012, included a special workshop on pragmaticalization.

Position	Explanation	Works
Grammaticalization	Expand the notion and they constitute less prototypical cases	Diewald (2011), Traugott (1995)
<i>Grammaticalization II</i>	Postulate two subtypes of grammaticalization	Traugott (2010)
Pragmaticalization	It constitutes a different phenomenon.	Beeching (2009), Dostie (2009), Günthner & Mutz(2004), Norde (2009), Ocampo (2006)

This dissertation adheres to the fourth position. We will consider the rise of linguistic elements that regulate and organize discourse structure within the pragmaticalization.

We take the definition of pragmaticalization from Günthner and Mutz (2004):

“Pragmaticalization”, then, would be the term to denominate the kind of diachronic change where elements [...] assume functions on the discourse-pragmatic level (cf. Erman & Kotsinas, 1993; Aijmer, 1997). [...] This type of change which leads to discourse and pragmatic markers, to elements which organize, structure, and contextualize discourse with respect to discourse-pragmatic concerns and not with respect to sentence grammatical concerns (e.g. congruence, binding), contradicts classical grammaticalization [i.e. grammaticalization as reduction and increased dependency KB]. Whereas morphologization and syntacticization are classical instances of a grammaticalization process, the process of “pragmaticalization” as described and illustrated in this article, has to be regarded as a somewhat different (sub)type of linguistic (diachronic) change. (Günthner & Mutz, 2004, pp. 98-99)

Another relevant and clear definition is given by Dostie (2009):

The term [pragmaticalization] refers to a process of linguistic change in which a full lexical item (noun, verb, adjective or adverb) or grammatical item (coordinator, subordinator, etc.) changes category and status and becomes a pragmatic item, that is, an item which is not fully integrated into the syntactic structure of the utterance and which has a textual or interpersonal meaning. (Dostie, 2009, p. 203)

The different nature between grammaticalization and pragmaticalization is highlighted by Beeching (2009) as follows:

Pragmaticalization refers to the process whereby a lexical/grammatical item develops uses which are conversational (related to discourse strategies) rather than propositional. [It] leads from M1 [meaning 1] to M2 [meaning 2], from a lexical or grammatical item to a semantically relatively bleached pragmatic particle, is generally considered to occur through the semanticization of “invited inferences” (Traugott and Dasher, 2002) and to be a gradual and unidirectional process. [...] [T]he nature of the pragmaticalization process which leads from M1 to M2 is a ticklish process, as the semantic change may be lengthy and remain for centuries at the M1/M2 stage characterized by polysemy and pragmatic ambiguity. (Beeching, 2009, p. 83)

In short, pragmaticalization is “a composite type of language change, whereby lexical or grammatical expressions, in certain linguistic contexts, undergo both semantic

reinterpretation and formal reanalysis" (Beijering, 2012, p. 60). Grammaticalization and pragmaticalization need a third and complementary language change process: lexicalization. It is crucial to understand the characteristics of lexicalization, since the hypothesis that grammaticalization paths in signed language have their origin in gestural elements implies a previous lexicalization process. This will be the focus of the next section.

2.5.4 Lexicalization

Lexicalization is the process of creation of new words: absolutely new words that are adopted into the lexicon (Brinton & Traugott, 2005), as well as words that are used in new ways, such as a change in syntactic category. We adopt the definition proposed by Brinton and Traugott (2005):

Lexicalization is the change whereby in certain linguistic contexts speakers use a syntactic construction or word formation as a new contentful form with formal and semantic properties that are not completely derivable or predictable from the constituents of the construction or the word formation pattern. Over time there may be further loss of internal constituency and the item may become more lexical. (Brinton & Traugott, 2005, p. 96)

Lexicalization can be the result of various word formation processes, such as compounding and blending, derivation and conversion. Brinton (2000) distinguishes two processes: *semantic lexicalization* and *formal lexicalization*. On the one hand, **semantic lexicalization** (also called *primary lexicalization*) involves converting a syntactic element in a lexical unit with a new meaning. This change in the meaning also may imply a change from grammatical category to lexical category (Cifuentes-Honrubia, 2003).

On the other hand, **formal lexicalization** (or *secondary lexicalization*) refers to changes into the phonetic-phonological structure of the lexical item produced by merging the component parts, even when it keeps the meaning. This process of weakening or loss of the boundary between words or morphemes leading to compounding is considered a type of reanalysis (Hopper & Traugott, 2003). Brinton and Traugott (2005) refer to this as "fusion" or "univerbation", (wherein the individually definable features of compositionality are decreased in favor of the new whole). Univerbation takes place, also, in lexicalizations of phrases into lexemes or of complex into simple lexemes (Brinton & Traugott, 2005, p. 68).

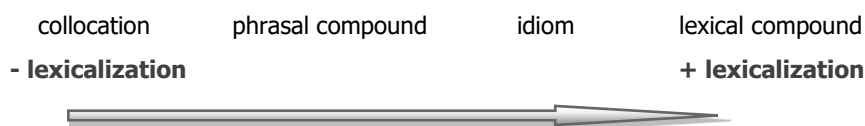
Lexicalization processes are gradual and are related to the frequency of use and the processes of diachronic change (Brinton, 2000; Brinton & Traugott, 2005; Elvira, 2009).

With respect to the semantic lexicalization, there is a progressive loss of compositionality of meaning, which involves the semantic specialization of the new lexical item. Brinton and Traugott (2005) examined the properties of lexicalization as follows (47):

(47) Lexicalization properties

- (i) **Gradualness** makes reference to the fact that most changes occur in very small structural steps, usually with new uses coexisting alongside older ones.
- (ii) **Unidirectionality** refers to the tendency to lead to more contentful meaning.
- (iii) **Fusion** refers to the freezing and fixing of collocations.
- (iv) **Coalescence** involves the reduction of phonological segments subsequent to fusion.
- (v) **Demotivation** is the loss of semantic compositionality, leading to an increase in semantic specificity, contentfulness and idiosyncrasy.
- (vi) **Metaphorization/metonymization** are mechanisms of semantic change. Metaphorization relates to conceptualization across different domains, while a metonymization takes place within the same domain.

A few studies that analyze lexicalization processes in signed languages are: for ASL and Auslan (Johnston & Ferrara, 2012; Johnston & Schembri, 1999, 2010), for IPSL (Zeshan, 2000), and for LSC (Bosch-Baliarda, 2005; Jarque et al., 2012). These studies show that the principles of this processes apply equally across signed and spoken languages. For instance, Jarque et al. (2012) examines Catalan Sign Language (LSC) multiword units in word-formation, along with the central role of conceptual metaphor and metonymy in its original motivation. The different multiword units form a continuum which can be characterized both semantically and formally in their lexicalization process: collocations, phrasal compounds, idioms and lexical compounds (Graphic 2.9).



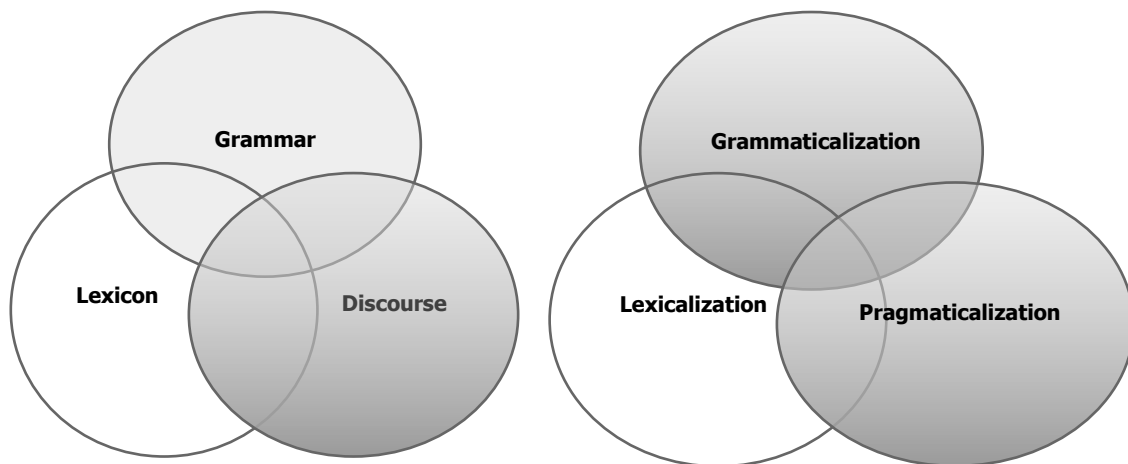
Graphic 2.9 Lexicalization continuum in LSC

However, as pointed out by Janzen (2012), there are some challenges for investigating lexicalization in signed languages not only because of the scarcity of their historical

records and the youth of the languages, but especially because some of them have their origin in gestures. Zeshan (2000) notes that gestures used among hearing people enter in the IPSL lexicon but they conform to existing patterning within the language in terms of phonetic, morphological, and syntactic constraints and the properties of the categories.

2.5.5 The continuum of linguistic elements

In this study, we consider that lexicon, grammar and discourse form a continuum, and so do the three types of linguistic change, as represented in Beijering (2012) (Graphic 2.10).



Graphic 2.10 Synchronic and diachronic interfaces (Beijering, 2012)

Moreover, Beijering (2012, p. 78) summarizes the converging and diverging properties of lexicalization, grammaticalization and pragmaticalization as shown in Table 2.2. She distinguishes between primary lexicalization (Lxn1) and secondary lexicalization (Lxn2). Whereas primary grammaticalization (Gzn1) refers to optional grammatical items, secondary grammaticalization (Gzn2) leads to grammatically obligatory items (The sign '+' stands for a key-defining property, '-' denotes that a certain feature does not apply, and '(+)' represents characteristics that may, but need not, be involved in a certain type of language change.).

Table 2.2 Properties of lexicalization, grammaticalization and pragmaticalization

i. Mechanisms in language change	Lxn1	Lxn2	Gzn1	Gzn2	Pgzn
REANALYSIS					
-hierarchical reanalysis					
◦ propositional > extra-propositional status	-	-	-	-	+
-categorical reanalysis					
◦ major > minor category	-	-	+	-	+-
◦ minor > minor category	-	-	-	+	+-
-constituent internal reanalysis					
◦ syntagm/complex lexeme > (simple) lexeme	+	-	(+)	(+)	(+)
◦ bound morpheme > semi-independent word	-	+	-	-	-
REINTERPRETATION					
-metaphor/metonymy					
◦ referential > referential meaning	+	-	-	-	-
◦ referential > relational meaning	-	-	+	-	-
◦ relational > relational meaning	-	-	-	+	-
◦ referential/relational > referential meaning	-	+	-	-	-
◦ referential/relational > communicative meaning	-	-	-	-	+
ii. Primitive changes	Lxn1	Lxn2	Gzn1	Gzn2	Pgzn
- phonology/phonetics					
◦ loss of phonological /phonetic substance	(+)	-	(+)	(+)	(+)
- morphology					
◦ loss of morphological compositionality	+	-	(+)	(+)	(+)
◦ loss of morphosyntactic properties	-	-	+	(+)	(+)
- syntax					
◦ loss of syntactic variability	-	-	+	+	-
◦ loss of syntactic autonomy	-	-	+	+	-
- semantics					
◦ loss of semantic substance	-	-	+	+	+
◦ loss of semantic compositionality	+	-	(+)	(+)	(+)
- discourse/pragmatics					
◦ subjectification	(+)	(+)	(+)	(+)	+
◦ intersubjectification	(+)	(+)	(+)	(+)	+
iii. Side effects of change					
- paradigmaticization	-	-	+	+	(+)
- obligatorification	-	-	(+)	(+)	-
- condensation	-	-	+	+	-
- layering/divergence/specialization/persistence	+	+	+	+	+
- productivity	-	+	+	+	+
- frequency	-	+	+	+	+
- typological generality	-	(+)	+	(+)	(+)

Despite the fact that our study is qualitative in nature and we did not include among the goals an extensive description of the historical development of the grammatical forms discussed, we considered it necessary to provide this comprehensive summary of the properties observed in lexicalization, grammaticalization and pragmaticalization across spoken languages.

2.6 Final remarks

In sum, Cognitive Linguistics provides a comprehensive theoretical framework for examining linguistic structures of signed languages. The way languages in the visual-gestural modality work can be accounted for using the mentioned theoretical tenets and concepts, such as embodiment, conceptual iconicity in the grammar, interaction between language and other linguistic functions, grammar as a dynamic process, fuzzy logic and prototype categorization, language as a usage-based product, language as a system integrated in human communication.

We have drawn attention to the notion of **grounding**, i.e. the (linguistic) process of situating an object or event in the speaker's and hearer's knowledge by means of certain grammatical elements, as one of the key tenets in Cognitive Grammar. The reason is that it constitutes the final step in the formation of a nominal or a clause and poses the conditions that lead to successful communication establishing mental contact with, or directing someone's attention to a referent that discourse participants are able to determinate. Despite its importance, the characterization of the concept of *grounding predication* still needs to be improved.

Given the centrality of grounding in the organization of finite clauses, there are important questions that beg for an answer. Which are the grounding predications in signed languages, i.e. which are the (obligatory) grammatical expressions that turn a verb into a finite clause? And, more specifically, does the modal system serve that function? Since no study has characterized the possible grounding status of modal markers in a signed language, this dissertation aims to ascertain whether modals in LSC (Catalan Sign Language) constitute *grounding predications* in the technical sense described by Langacker (1990). In order to accomplish this, in this dissertation we will offer an analysis of LSC core modal markers of possibility and necessity, especially the modal nuances they express, their syntactic distribution, and information ordering in discourse.

Furthermore, we can ask what implications do the data from signed language pose for the general characterization of grounding functions and grounding predications in natural languages. As it has been pointed out by Smirnova (2011), the criteria for grounding predications –the nature of the grounded entity, the nature of the grounding relation, and the nature of the construal configuration of the ground– constitute a model which

may be applied to grounding predications in different languages in order to discover their similarities and differences.

On the other hand, conceiving language as a complex adaptive system and linguistic structure as emergent leads us to focus our attention not only on the linguistic structures that express modality in LSC, but also on the processes that create them (i.e. the main sources and the cognitive mechanisms involved in these processes) and on the differences of the modality domain with the semantic/functional domains of negation, evidentiality and aspect, and how they interact (Bybee, 2010; Hopper, 1987; Massip-Bonet & Bastardas-Boada, 2013; Verhagen, 2002). Our hypothesis, goals and specific research questions will be detailed in chapter 4. Also, we will deal with the methodological aspects of the research derived from the adoption of this epistemological frame in chapter 5.

Chapter 3. The semantic domain of modality: lexicon, grammar and discourse

La modalité est l'âme de la phrase; de même que la pensée, elle est constituée essentiellement par l'opération active du sujet parlant. On ne peut donc pas attribuer la valeur de phrase à une énonciation tant que on n'y a pas découvert l'expression, quelle qu'elle soit, de la modalité. (Bally, 1932, p. 36)

3.1 Introduction

Modality has been defined as "the grammaticization of speakers' (subjective) attitudes and opinions" (Palmer, 1986, p. 16), see also Benveniste (1971 [1958]), Halliday (1970), Lyons (1977). Philosophers such as Aristotle or Kant carried out the first studies of this semantic domain and they did it from the perspective of logic or rhetoric (van der Auwera & Zamorano Aguilar, 2016). Later, semiologists and linguists draw attention to this field, creating a great amount of investigation that keeps growing (Nuyts & van der Auwera, 2016). On the other hand, other researchers have highlighted the discursive functions of modality, either as part of the issuer's subjective activity (Cervoni, 1987; Ducrot, 1980; Kerbrat-Orecchioni, 1980; Vion, 1992) or because of its interactive and cohesive function (Englebretson, 2007; Simon-Vandenberghe & Aijmer, 2007).

Within the linguistics area, modality is a controversial category and profound discrepancies and disputes between the different views appear in the literature. Nuyts (2008, p. 185) points out that "there is discussion over nearly every aspect of the notion, including very basic questions such as how to define the category as a whole and how to delimit it, and how to define and delimit modal subcategories".

It suffices to read the classical work by Coates (1983), Palmer (1986, 2001), Bybee and Fleischmann (1995), van der Auwera and Plungian (1998), or the more recent contributions that appear in the monography edited by Nuyts and van der Auwera (2016) to ascertain the main issues under discussion⁴⁰. In this sense, Nuyts (2016b) in the preface to the book states:

⁴⁰ For a state-of-the-art overall review, we refer the reader either to the recently published *Oxford Handbook of Modality and Mood*, edited by Jan Nuyts and Johan van der Auwera (2016), or to the work by De Haan (2006), Mortelmans (2006), Narrog (2012), Nuyts (2005, 2006), Van Linden (2012), Van Linden and Verstraete (2008; 2011). For a historical overview of the term *modality* and *mood*, the reader can look up van der Auwera and Zamorano Aguilar (2016).

In spite of these intensive research concerns, however, the linguistic domain at stake remains among the most intriguing and puzzling ones in the field. That is precisely, of course, why they continue to fascinate many and why they enjoy continuing popularity. But it also signals that they often concern very "slippery" phenomena that are hard to grasp. (Nuyts, 2016, p. 2)

These limitations affect the object of study, in this dissertation, the description of modal elements in LSC, since they pose difficulties in establishing the limits of the category as a semantic space and its borders with other categories, principally evidentiality. They also involve the establishment of the various subcategories and values, how the linguistic resources that encode them evolve over time and assume new functions, contributing in this way to the amount of evidence that relates with diachronic trajectories, the unidirectionality of change and the hypothesis of the correlation between kinds of modal categories and kinds of formal expressions (Bybee, Perkins, & Pagliuca, 1994).

The goal of this introductory chapter is to set out succinctly the main theoretical elements to be kept in mind when characterizing LSC modal resources and aiming to carry out its inventory. Therefore, we will address the following issues (48):

- (48) Main areas under scrutiny in this chapter
- (i) the **semantic characterization** of modality;
 - (ii) the **typology of subcategories of modality** and the modal values that are included, in relation with semantic change and the grammaticization processes;
 - (iii) the **linguistic resources** for the expression of modal content, making special reference to verbal periphrasis and their diachronic relation with other elements and linguistic constructions;
 - (iv) the **limits between modality**, on one hand, and other categories, on the other hand, and the possibility of interaction specially with negation, and evidentiality.

We will provide an account of the issues in (48) assuming a theoretical perspective that takes into account studies that range from the functionalist-typological framework (de Haan 2006; van der Auwera & Plungian 1998), *Cognitive Grammar* (Langacker, 1987, 1991; Mortelmans, 2006; S. Wilcox, 2004a) and the theoretical assumptions of *Grammaticization Theory* and *Diachronic Construction Grammar* (Bybee, 2010; Hilpert, 2014; Hopper & Traugott, 1993; Traugott & Trousdale, 2013). With this aim in mind, we

will adopt a comprehensive approach, which includes work on spoken/written languages and signed languages.

The chapter is structured in the following way. In Section 3.2, we will define modality as a semantic space (§ 3.2.1) and the different subdomains or categories and values that constitute it (§ 3.2.2). Next, we will dwell on the discussion whether volition should be included within modality (§ 3.2.3). In Section 3.3, we present the various resources available to languages for the expression of modal content, both in the case of spoken (§ 3.3.1) as sign languages (§ 3.3.2). Section 3.4 is about the interaction of modality and other grammatical categories, focusing regarding evidentiality (§ 3.4.1) and with mirativity (§ 3.4.2). Later, Section 3.5 is concerned briefly with the interaction between modality and discourse. Finally, in Section 3.6, we summarize the main concepts dealt in the chapter and indicate possible implications for the research in this area.

3.2 Defining the semantic space of modality

The following three subsections focus on the characterization of modality, its subcategories and values, and inclusion (or not) of volition in this linguistic domain.

3.2.1 Modality as semantic space

Modality is a complex semantic domain, the study of which is difficult to approach. A review of the literature shows that there are few characterizations that provide a generic, concise, clear and precise definition of this domain, unlike in other domains such as aspect, tense or person (Bybee et al., 1994; Nuyts, 2005). We started this chapter with Palmer's definition, possibly one of the first consolidated definitions in the field that has these characteristics: "the grammaticization of speakers' (subjective) attitudes and opinions" (Palmer, 1986, p. 16).

Instead, much of the characterizations tend to be ostensive or extensional definitions, where linguists list the elements that, in their view, constitute the category. They are defined individually and the list is, normally, not conclusive and ends with an etcetera or similar expression. As an instance, consider Stephany's (1988) definition: "From a linguistic point of view, modality is a semantic category expressing concepts such as 'possibility', 'necessity', 'obligation', 'permission', 'intention' and so on" (1988, p. 375).

A third type of description consists in adding to the list of possible values a comprehensive characterization, where the author strives for a unifying definition that captures the common denominator of the list items. Coates (1990) provides such an example:

Modality has to do with notions such as possibility, necessity, ability, volition, obligation. **It can be explained in terms of our ability to conceptualize parallel worlds**; in so far as humans can imagine things being otherwise, they express that awareness using forms whose essence is that they qualify the categorical. (Coates, 1990, p.54)

Bybee and Fleischman (1995) offer another example of this combination of enumeration and ad hoc global definition. They define modality as follows:

The semantic domain pertaining to **elements of meaning** that languages express. It covers a broad range of semantic nuances –jussive, desiderative, intensive, hypothetical, potential, obligative, dubitative, hortatory, exclamative, etc. – whose common denominator is **the addition of a supplement or overlay of meaning to the most neutral semantic value** of the proposition of an utterance, namely factual and declarative. (Bybee & Fleischman, 1995, p. 2)

The intrinsic difficulty in addressing the characterization of this semantic domain has lead several authors to propose different solutions. An alternative to the list of modal values or a global, concise but not comprehensive definition consists in establishing some common features, as manifested by Depraetere and Reed (2006) (emphasis ours):

The term 'modality' is a cover term for a range of semantic notions such as ability, possibility, hypotheticality, obligation, and imperative meanings. This is a serviceable definition for practical purposes. If, however, we wish to provide a more theoretically useful definition, we need to find what it is that all modal utterances have in common. [...] One feature that is common to all modal utterances is that they do not represent situations as straightforward facts [...]. We can get nearer to a positive characterization of modality if we say that modal meaning crucially involves the notions of necessity and possibility, or, rather involves a speaker's judgment that a proposition is possibly or necessarily true or that the actualization of a situation is necessary or possible. [W]e shall work on the basis that all **modal utterances are non-factual**, in that they do not assert that the situations they describe are facts, and all involve the speaker's comment on the necessity or possibility of the truth of a proposition or the actualization of a situation. (Depraetere & Reed, 2006, p. 269)

Unfortunately, these attempts at providing a feature that defines the category not only have not reached a consensus, but they have provoked an avalanche of terms with very different nuances (Boye, 2005; Nuyts, 2005, 2006, 2016a). We present a review of the most common terms in Table 3.1.

Table 3.1 Definitional term of modality

Focus	Term	Authors
factuality vs. non-factuality	actuality	Chung & Timberlake (1985)
	factivity	Lyons (1977), Topor (2011)
	(lack of) factuality	Kiefer (1997), Palmer (1986), Stephany (1988), Narrog (2005a), Declerck (2009), Depraeter & Reed (2006)
	irrealis	Mithun (1999), Palmer (2001), Pietrandrea (2012)
	potenciality	Ziegeler (2012)
	reality	Portner (2009)
focused on the issuer	speakers' attitudes	Jespersen (1924), Palmer (1986)
	subjectivity (or speaker's stance)	Bybee et al. (1994), Calbert (1975), Lyons (1977)
focused on the interlocutor(s)	(intersubjectivity)	Nuyts (2001), Porter (2009)

Another solution consists in situating modality on another conceptual level, different from that of aspect and tense. For instance, Nuyts (2006) argues that modality is best described as a more abstract supercategory that consists of a set of more specific semantic categories.

[T]he domain is usually characterized by referring to a set of more specific notions, each of which is defined separately, and which may be taken to share certain features motivating their grouping together under the label modality, but which differ in many other respects. As such, the notion of modality is best viewed as a supercategory (Nuyts, 2005), which is much more loosely structured -and in fact probably belongs at a higher level of abstraction- than categories such as time and (types of) aspect. (Nuyts, 2006, p. 1).

The frequent association between modality and *irrealis* has led some authors to consider a hierarchical relation. For instance, Pietrandrea (2012) proposes that *irrealis* should be considered a *supercategory* that includes several domains linked with the qualification of the actual state of affairs. Nevertheless, various works cast doubt on the categorical status of *irrealis* (Bybee, et al., 1994; Givón, 1994; Narrog, 2005b). In this sense, Bybee et al. (1994, p. 238) points out that the identification of this category in their database is problematic and that it never appears to be a binary category.

Other features that are prominent in the definition are **subjectivity** and, more recently, intersubjectivity. In this sense, Narrog (2005c) argues for the independent nature of

modality as a grammatical category and subjectivity as a pragmatic (or semantic) concept. Furthermore, **intersubjectivity**, as defined in the previous chapter, refers to taking into account the interlocutor(s) in order to be communicatively successful.

In opposition to subjectivity (Portner, 2009), it entails both conceptualizing and sharing the perspective with the other member of the communicative dyad (Benveniste, 1971 [1958]; Lyons, 1977), as well as developing cohesive and interactive functions (Englebretson, 2007; Simon-Vandenberghe & Aijmer, 2007). From this point of view, modality would be part of the issuer linguistic stance, i.e. of the expression in the discourse of the personal feelings, the attitudes, the value judgments or evaluations, and so on.

From this perspective, modality would belong to *linguistic stance* (White, 2003), that is, to the expression in discourse of personal feelings, attitudes, value judgments or assessments, and it would include the following linguistic categories: "modality, polarity, evidentiality, hedging, concessions, intensification, attribution and consequentiality" (White, 2003, p. 259).

As examined in previous chapter, Cognitive Grammar offers a notably different characterization of modality. One line of investigation describes the conceptual structure that is shared by all commonly accepted modal categories using Talmy (1988)'s concept of force-dynamics (Brandt, 1989; Sweetser, 1982, 1990) Achard (Achard, 1996) Boye (Boye, 2001, 2005; Langacker, 1990, 2002a, 2013a; Vandenberghe, 2002).

From this point of view, modality is conceptualized as a dynamic force that pushes the agonist to the realization of the action expressed by the verb. Prohibition and permission are conceived of as, respectively, presence or absence of barriers (Langacker, 2013a, 2013b). From this perspective, modality should be included in the semantical category of force-dynamics, i.e. a way of constructing the world based on entities that interact with a force and that goes beyond the semantical domain of causation.

3.2.2 Typology of modal notions and values

Numerous divisions of modal notions have been proposed in the literature but there is no consensus neither on the number nor on the types. The commonly subdomains in

use are ultimately derived from the literature on modal logic, but in recent years newer terms have started to appear which are based more on linguistic typological principles instead of on abstract notions. To review the many subtypes into a conveniently arranged overview goes beyond the scope of the current investigation.

Therefore, we will introduce the main issues from the studies in logic and philosophy in the next section (§ 3.2.2.1), and only three main proposals in the linguistic studies will be examined, because they are relevant to the present study and constitute the grounds for the categories used: Bybee's and colleagues recategorization (Bybee, et al., 1994), van der Auwera and Plungian's framework (§ 3.2.2.2) and Narrog (Narrog, 2005b, 2005c). Other important studies will be referred to tangentially, focusing mainly on similarities and divergences in terminology and the concepts they rely on.

3.2.2.1 Modality in logic and philosophy

Traditional studies in logic and philosophy are concerned with the notions of possibility and necessity in three systems of modality: alethic, epistemic, and deontic (Palmer, 1986). The *alethic* (derived from the Greek word for 'truth') refers to propositions described as necessary truth, that is, propositions that are true in all logically possible worlds. Cervoni (1987) represents as in Figure 3.1.

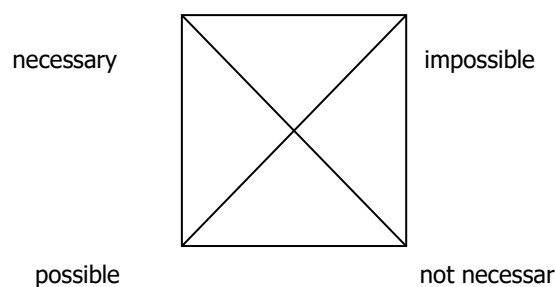


Figure 3.1 Alethic modality

The *epistemic system* (from the Greek word for 'knowledge') is related to "the logical structure of statements which assert or imply that a particular proposition, or set of propositions, is known or believed" (Lyons, 1977, p. 793).

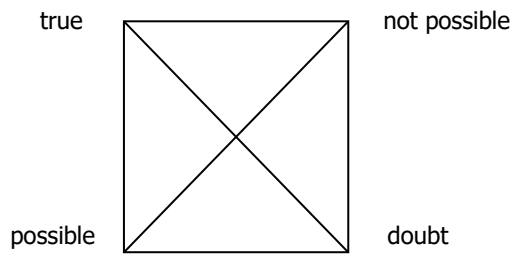


Figure 3.2 Epistemic modality

Alethic modality (i.e. the modes of truth) and *epistemic modality* (i.e. modes of knowing) differ in the sense that the former concerns the necessary, possible, contingent and impossible truth of a proposition, the latter pertains to the verified (known to be true), falsified (known to be false) and undecided (neither known to be true nor known to be false) truth of a proposition (von Wright, 1951).

Finally, *deontic modality* (from the Greek δέον 'what is binding') has to do with the logic of obligation and permission; the necessity or possibility of acts performed by morally responsible agents (Lyons, 1977, p. 823).

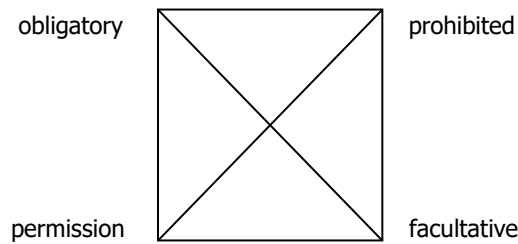


Figure 3.3 Deontic modality

The combination of the different values yields the possibilities that we reproduce in Table 3.1. (Cervoni, 1987; Hintikka, 1973).

Table 3.1 Modalities and modal values

symbolic representation	dynamic	deontic	epistemic	alethic
$\square p$	necessary to do	obligated to do	necessary	necessary
$\diamond p$	possible to do	permitted to do	possible	possible
$\square \neg p$	necessary to not do	obligated to not do	necessary not	necessary not
$\neg \diamond p$	impossible to do	not permitted to do	impossible	impossible
$\neg \square p$	not necessary to do	not obligated to do	not necessary	not necessary
$\diamond \neg p$	possible to not do	permitted to not do	possible not	possible not

The alethic category has been the main focus of logicians, but banished by linguists, who consider that it is not concerned with ordinary language on the basis that native speakers do not recognize distinctions between alethic and epistemic meanings, as for instance in the proposition *John is a bachelor, so he must be unmarried* (Palmer, 1990, pp. 6-7). As Palmer (1986) points out speakers cannot establish a difference between “what is logically true and what the speaker believes, as a matter of fact, to be true” (1986, p. 11).

Jespersen (1924) suggests that modality can be categorized into two sets: (i) expressions that contain an element of *will*, and (ii) expressions containing no element of *will*. The functions included are given in (49) and (50), respectively (1924, pp. 320-321):

(49) Functions with an element of will

- (i) *compulsive*: He has to go.
- (ii) *obligative*: He ought to go.
- (iii) *advisory*: You should go.
- (iv) *permissive*: You may go if you like.
- (v) and others.

(50) Functions without an element of will

- (i) *necessitative*: He must be rich.
- (ii) *assertive*: He is rich.
- (iii) *dubitative*: He may be – is perhaps– rich.
- (iv) *potential*: He can speak.
- (v) *conditional*: If he were rich.
- (vi) and others.

The philosopher von Wright (1951) proposed four types of modality: *alethic*, or modes of truth; *epistemic*, or modes of knowing; *deontic*, or modes of obligation; and *existential*, or modes of existence.

Some differences arise when contrast modality in logical terms, to modality within the linguistic system. First, the main aim of modal logic is to establish the modal categories in terms of logically possible. By contrast, linguistics is concerned with real facts in language. Linguistic modal categories do not lead an autonomous existence in some abstract logical or semantic space, as Bybee and Fleischman (1995) point out they are

determined by the formal distinctions made in particular languages, documented pathways of language change, and prominent cross-language patterns of form-function correlation (1995, p. 3). As Gee (1985) claims, discursive approaches to modality provide insights to the characterization of modality and reveal the necessity to reformulate the traditional modal categories, from an ethnographic perspective, in terms of how they function, not in terms of how they fit into predetermined semantic categories. We will focus on this issue in the next section.

3.2.2.2 Modality in linguistics

Modal logic concerns the notions of possibility and necessity in deontic and epistemic dimension. By contrast, linguistic modality has been characterized, as mentioned above, as the semantic domain which comprises a broad range of elements of meaning, among others, it includes the notions of obligation, permission, ability, desire, intention, exclamation, doubt, possibility, prohibition, and prediction.

van der Auwera and Plungian (1998) established a classification scheme for modal grams. It has been developed further by van der Auwera and Ammann (2005) and van der Auwera (2008). Their approach considers modality as the semantic domain that involves only necessity and possibility, and these plays out in four subdomains: participant-external, participant-internal, deontic and epistemic (Table 3.1., 1998, p. 82).

Table 3.1. Classification of Modal Types (van der Auwera & Plungian, 1998)

Possibility			
Non-epistemic possibility			Epistemic possibility (uncertainty)
Participant-internal possibility (dynamic possibility, ability, capacity)	Participant-external possibility		
	(Non-deontic possibility)	Deontic possibility (permission)	
Participant-internal necessity (need)	(Non-deontic necessity)	Deontic necessity (obligation)	Epistemic necessity (probability)
	Participant-external necessity		
Non-epistemic necessity			
Necessity			

The first three (included under, in my view, infelicitous⁴¹ label of *non-epistemic modality*) correspond with the traditional label *deontic modality*, to the notion of *root modality* commonly encountered in the Anglo-American tradition, the Bybee et al.'s (1994) category of *agent oriented modality* and *event modality* in Palmer (2001). A more recent label can be found in Langacker (2013b), that introduces the term *effective modality*, in opposition to epistemic modality⁴². For examples of works using the different terms see Table 3.2.

Table 3.2. Labels used for the *non-epistemic modality* subdomain

Terms	Authors
non-epistemic modality	van der Auwera (2008), van der Auwera and Plungian (1998), Shaffer (2004)
deontic modality	Cornillie et al. (2009), Nuyts (2001)
root modality	Achard (1996), Abraham (2008), Coates (1983), Langacker (2002b), Maché (2008), Mortelmans (2006), Sweetser (1982), Wilcox & Wilcox (1995), RAE/ASALE (2009)
agent-oriented modality	Bybee (1985), Bybee et al. (1994), Heine (1995)
event modality	Palmer (2001)
effective modality	Langacker (2013b), Marín-Arrese (2009)

According to van der Auwera and Plungian (1998), *participant-internal modality* refers to those situations where the source of the condition is internal to the participant engaged in the state of affairs. See the ASL example in (51) with the modal CAN 'can' (Figure 3.4).

(51) ASL (Shaffer, Jarque & Wilcox, 2011, p. 25)

[CAN LIP.READ R-E-A-D L-I-P-S EMPHASIZE LIP.READ]top

LAER CAN PIC-U-P SEAK, SOUND

'If you can read lips (they emphasized lip-reading), then you can learn to talk.'

⁴¹ We consider it infelicitous since it is a negative category and it is highly generic. The fact that, despite this remark, we commit to it, is a reflection of the difficulty encountered not only when trying to define the domain of modality in a concise way (Nuyts, 2016a), but also when trying to come up with appropriate labels.

⁴² This term comes from the application of the Force-dynamics theory (Talmy, 1988) to the conceptualization of modality based on the idealized cognitive model called control cycle (Langacker, 2002b). "Root modals pertain to effective control: they reflect the effort to influence what happens in the world itself" (2002, p. 164) to change it. The modal force is directed toward the real reality.



Figure 3.4 ASL CAN 'can'

In Spanish, at different times, the periphrastic constructions *ser de* + infinitive ('to be + infinitive') (52), *saber* + infinitive ('to know + infinitive') (53), and *poder* + infinitive ('to be able + infinitive') (54) constitute examples of dynamic participant-internal possibilities (Artigas & Cabré, 2017; Bosque, 2000; Cornillie, 2007b; López Izquierdo, 2008; Octavio de Toledo y Huerta, 2017; Silva-Corvalán, 1995; Yllera, 1980).

- (52) Spanish [*Las Etimologías romanceadas de San Isidoro*, 15th century] (Octavio de Toledo y Huerta, 2017, p. 383)
 'uno', el qual es señero e non **es de departir** [= no puede dividirse]
- (53) Spanish [de Barrionuevo, *Avisos*, 17th century] (Jarque, 2017, p. 86)
 Decíanle el Obispo se volviese á su convento á ser fraile, pues no era ni **sabía defender** su jurisdicción
- (54) Spanish [Anónimo, *Primaleón*, 1512] (Jarque, 2017, p. 86)
 Y desde que don Duardos **podía caminar**, despidióse de su huésped y agradecióle el servicio que le fizo.

The values of participant-internal modality that refer to the (mental, moral, physical, etc.) strength of the subject are very close to the values more similar to the original lexical meaning of the auxiliary verb. These constructions witness how difficult it is to identify, from a semantical point of view, the periphrastic function of constructions with *poder*, for instance, due to the fact that the desemantization process does not need to be very pronounced and the limits between the full and the auxiliary verb are fuzzy (Schmid, 2012).

This subcategory corresponds to the traditional notion of *dynamic modality* minus the situational subtype. Other labels used in the literature are *facultative modality* (Goossens, 1985) and *inherent modality* (Hengeveld, 1989). We believe that participant-internal modality is an adequate denomination since this subdomain not only includes abilities, capacities, etc. (as far as possible), but also necessities that are inherent to the participant in a given situation (Palmer, 1986).

Crosslinguistically, the participant-internal modality constitutes a source of raw material for the emergence of values of external and epistemic modality, either by grammaticization in the strict sense (Bybee et al., 1994), by grammaticization induced by contact with other languages (Heine & Kuteva, 2003, 2005), or by analogy with other constructions within the language itself. The latter is the case of the Spanish periphrasis *tener de + infinitive* ('to have of + infinitive') (Garachana, 2017b).

Participant-external, on the other hand, makes reference to those situations where the source of the condition is external to the participant engaged in the state of affairs, such the conditions that make this state of affairs either necessary or possible (1998, p. 80). It includes *non-deontic modality* and *deontic modality*. Non-deontic modality refers to those agent-external conditions that make possible/inevitable the realization of a situation. This subcategory corresponds to the labels *root modality* (Bybee, et al., 1994; González Vázquez, 2006; Topor, 2011) or *situational dynamic modality*—Cf. Nuyts et al., (2005), Narrog (Narrog, 2005b, 2005c). In the ASL example in (55) root possibility is expressed with the reduplicated form of the sign CAN (POSSIBLE).

(55) ASL (Shaffer, Jarque & Wilcox, 2011, p. 26)

AMERICAN 3rd poss index rt AMERICA COM LETTER TWO ADD MEAN **CAN** LIVE WITHOUT THAT TWO LETTER DON'T-CARE [WE]-top 26 (lft hand) [index rt]-top 28 (rt hand) BUT **CAN** LIVE WITHOUT TWO

'They (people in Iceland) used American (TTYs). They have two more letters, but they can live without the two letters, it doesn't matter. We have 26, they have 28, but they can live without the two.'

In Spanish, the *non-deontic or root* possibility can be expressed with the periphrasis *poder + infinitive*, as illustrated in (56) where the origin of possibility does not stem from the ability of the protagonist, nor from the husband's external permission, but rather from the circumstances that are external to the participant. Therefore, the potency locus lies in participant-external circumstances.

(56) Spanish [Pérez Galdós, *Fortunata y Jacinta*, 1885-1887] (Jarque, 2017, p. 87)

- Quiero decir: después que volviste con tu marido, ¿no has tenido por ahí algún devaneo...?

- ¡Yo! -exclamó ella con el acento de la dignidad ofendida-; ¡pero estás loco! Yo no tengo devaneos más que contigo...

- ¿De cuánto tiempo **puedes disponer**?

- De todo el que tú quieras.

- 'I mean: after coming back to your husband, didn't you have some dalliance...?'

- 'Me? —she shouted with the accent of offended dignity -; but you are crazy! I have no dalliances but with you...'

- 'How much time can you have?'
- 'All the time you want.'

As for non-deontic or root necessity, in Spanish it has been expressed with the periphrasis *tener de* + infinitive (57), *tener que* + infinitive (58), *haber de* + infinitive (59), and *ser (a/de)* + infinitive principally (Garachana, 2017b; Hernández Díaz, 2017; Octavio de Toledo y Huerta, 2017).

- (57) Spanish [Juan de Valdés, *Diálogo de la lengua*, 16th century] (Garachana, 2017b, p. 245)
- Eso será cuando escribo el *vra.* abreviado, porque está en costumbre que el abreviatura se escriba con r; pero, si lo **tengo de escribir** por letras, no lo escribiré sino con s.
- 'This must be when I write *vra.* abbreviated, because it is customary that the abbreviation is written with r; but, if I have to spell it entirely, I can only write it with s.'
- (58) Spanish [C. M. de Bustamante, *Mañanas de la Alameda de México*, 19th century] (Garachana, 2017, p. 265)
- y **tuve que disimular** la risa, y **darme** por satisfecha de su profunda sabiduría
- 'and I had to hide my laughter, and be satisfied with his profound wisdom'
- (59) Spanish [R. Alberti, *De un momento a otro*, 1937-1938] (Octavio de Toledo y Huerta, 2017, p. 355)
- La adquisición de Santo Domingo **es de desear** debido a su posición geográfica.
- 'The acquisition of Santo Domingo is desirable because of its geographical position.'

Within this subdomain, some authors further differentiate two values according to whether or not participant properties are taken into account. On one hand, there would be the modality forced upon the participant, that makes reference to his/her abilities or necessities that are determined by external circumstances and that, therefore, can lie outside his/her control (Nuyts, 2016a), as (60) shows.

- (60) English (Nuyts, 2016, p. 35)
- (a) The garage is free so you can park your car there.
- (b) I'll be able to help you in a few minutes.

On the other hand, there is also the *situational modality* (or *situational dynamic modality*, Cf. Nuyts et al., 2005), where the possibilities or necessities depend only on the circumstances and where, prototypically, there is no participant, or it is not animated as in (61).

- (61) English (Nuyts, 2016, p. 35)
(a) It **can rain** here every day in winter.
(b) It **has to snow** here at least once in winter.

Nuyts (2016) stresses that the meaning of the utterances in (61) differs radically from the ones conveying epistemic modality, since it does not imply an estimation of whether or not the situation expressed by the verb had place. An investigation of linguistic change in the domain of modality has to take necessarily into account these values of the root modality, since they represent an evolutionary step from the dynamic modality to the epistemic modality (Byloo & Nuyts, 2012; Nuyts, 2016a)⁴³.

Thirdly, deontic modality (from Greek δέον 'duty, obligation') is used in a narrower sense than the traditional category and it "identifies the enabling or compelling circumstances external to the participant as some person(s), often the speaker, and/or as some social or ethical norm(s) permitting or obliging the participant to engage in the state of affairs" (van der Auwera & Plungian, 1998, p. 81), as illustrated in the examples in (62), with the modals MUST and NECESSARY from Brazilian Sign Language (LIBRAS).

- (62) LIBRAS (Xavier & Wilcox, 2014, p. 463)

PRO.1 MUST VITAMIN PRO.1 MUST UNTIL DIE VITAMIN MEAT NECESSARY BECAUSE VITAMIN
NECESSARY EVERYDAY NECESSARY EAT MEAT NOT POSSIBLE-S EAT TOMORROW NOT
TOMORROW POSSIBLE-S

'I (really) have to (have) vitamins. I (really) have to (have) vitamins for the rest of my life. As for meat, I (just) need (it). Because as for vitamins, I have to (have them) every day, (really) have to. As for eating meat, no. I can eat (meat) one day (but) not on the following day.'

In Spanish, deontic necessity has been expressed or can be expressed with the periphrasis *ser tenido-tenido* *ø/a/de* + infinitivo (63), *ser de* + infinitive, *deber* + infinitive (64), *haver de* + infinitive (65) and *tener que* + infinitive (66).

- (63) Spanish [Alfonso X, *Fuero Real*, 13th century] (Garachana, 2017b, p. 234)

E otrossi, mandamos que el comendador **sea tenido de responder** a los querellosos sobre fuerça o tuerto o debdas

'And moreover, we order that the Comendador has to answer to the demandants on issues of use of force, wrong doing or debts.'

⁴³ Nuyts (2005, 2006) includes the situational modality values within the dynamic modality.

- (64) Spanish [A. de Palencia, *Universal vocabulario en latín y en romance*, 15th century] (Octavio de Toledo y Huerta, 2017, p. 382)
 son mandamientos que enseñan lo que **deuemos fazer** & nos viedan lo que no **es de fazer**
 ‘These are commandments that teach us what we have to do and forbid us what we cannot do.’
- (65) Spanish [Anónimo, *Descripción sucinta de los naturales de Cataluña*, 18th century] (Hernández Díaz, 2017, p. 214)
 En fin, deberíamos estar en plena posesión de nuestros derechos, y todos han sido violados y ultrajados escandalosamente. *Si*, pues, **se ha de realizar** este juicio, deberá empezar reintegrándonos en nuestra dignidad
 ‘In short, we should be in full possession of our rights, and all of them have been violated and stepped on outrageously. If, therefore, this judgment is to be carried out, it must begin to reintegrate us into our dignity.’
- (66) Spanish [G. Melchor de Jovellanos, *El delincuente honrado*, 18th century] (Garachana, 2017b, p. 255)
 Nunca **tendréis que arrepentiros** de haberle honrado con vuestra compasión, pues además de sus buenas cualidades, tiene, para merecerla, la de ser inocente.
 ‘You will never have to repent of having honored him with your compassion, because in addition to his good qualities he has, deservedly, the quality of being innocent.’

As attested by the previous fragments, deontic modality is not reduced to the traditional case of permission (deontic possibility) and obligation (deontic necessity) and the related notions of prohibition, notice, etc., as exemplified in (64) (See Lyons, 1977; Palmer, 1986). The most recent characterization defines it as “indication of the degree of moral desirability of the state of affairs expresses in the utterance” (Nuyts, 2016, p. 36). In this definition, the concept of morality includes not only “social norms”, but also “ethic” criteria of the person that is responsible for the deontic evaluation, as illustrated in (65) and (66). This wider conceptualization implies, therefore, not only an extension of the values, but also the possibility that they can be lie on a whole spectrum, unlike in the more traditional categorical view.

In between the value of root and deontic modality, there are values like “convenience, adequacy” that seem to correspond to what has been called *attenuated necessity* (Yllera, 1980, p. 123), and that is attested in the use of *ser (a/de) + infinitive* (Octavio de Toledo, 2017)⁴⁴. We give an example in (67).

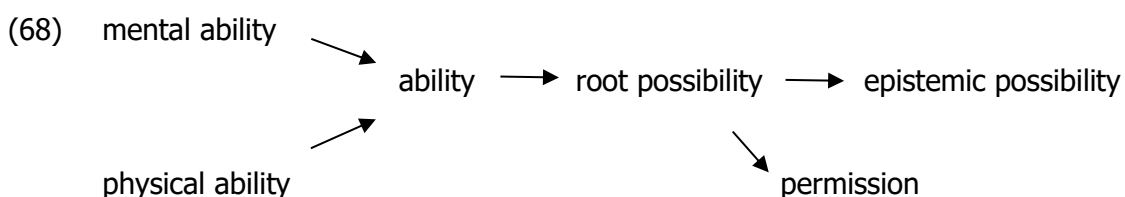
⁴⁴ Octavio de Toledo (2017) points out that these constructions show a marked preference for subjects that refer to events and situations, and not to entities, thus displaying some affinity with impersonal constructions.

- (67) Spanish [M. Arias-Paz, *Manual de automóviles*, 20th century] (Octavio de Toledo y Huerta, 2017, p. 355)

Con la batería menos de media carga **es de temer** su posible congelación en tiempo de heladas fuertes.

'With less than half full battery its possible freezing is to fear in case of strong frost.'

As explained earlier, from a diachronic perspective it is fundamental to differentiate these two values – root modality imposed upon the agent and situational root modality, as done by Sentí-Pons (2013)— if we want to account for the gradual evolution of certain constructions and if we want to avoid the mistake of proposing an evolution from prototypically deontic values such as permission. The different grammaticization trajectories proposed in the literature confirm the necessity of this clarification. Thus, for instance, Bybee et al. (1994, pp. 199/240) propose the development of epistemic possibility from root possibility, and not from permission, which constitutes a particular case. We reproduce here the path in (68):



This trajectory is documented in the case of English *may* (Bybee, et al., 1994; Traugott, 1989), in Danish, Lao and Cantonese (Bybee et al., 1994), and synchronic evidence suggests that it has also taken place in ASL and LIBRAS (Janzen & Shaffer, 2002; Shaffer & Janzen, 2016; Xavier & Wilcox, 2014).

Finally, epistemic modality (from Greek ἐπιστήμη 'knowledge') shows the degree of certitude with which one makes a statement. "[Epistemic modality indicates] the status of the proposition in terms of the speaker's commitment to it" (Palmer, 1986, pp. 54-55). van der Auwera and Plungian (1988) distinguish two subtypes: probability (epistemic possibility) and certainty (epistemic necessity). Also, along this dimension, there are divergences. For instance, Halliday distinguishes between probability and predictability:

[Epistemic modality] ... is the speaker's assessment of **probability** and **predictability**. It is external to the content, being a part of the attitude taken up by the speaker his attitude, in this case, towards his own speech role as 'declarer'. (Halliday, 1970, p. 349)

Alternatively, instead of this binary division one can consider the epistemic dimension as a spectrum that display different degrees:

By epistemic modality I mean the speaker's (expression of an) evaluation of the chances that the state of affairs talked about does or does not occur in the world. This evaluation can range on an (epistemic) scale going from certainty that the state of affairs applies, via a neutral or agnostic stance, to certainty that it does not apply, with intermediary stages on the positive and negative sides of the scale ((im)probability). (Nuyts, 2001, p. 103)

According to Bybee et al. (1994, pp. 179-180), the unmarked case of this domain is a total commitment with the truth of the proposition and the markers that are used indicate lower degrees of commitment up to the total lack of certainty. In this semantic scale, three prototypical values stand out both positively as well as negatively: (*lack of certainty*, (*im*)*possibility* and (*im*)*probability* (Bybee et al., 1994). This tripartite division is adopted by RAE/ASALE (2009): (i) certainty, (ii) probability and (iii) possibility. The term *certainty* lies on the positive end of the scale, probability lies roughly halfway to the positive side, and possibility is close or on the neutral point of the side, between positive and negative values⁴⁵.

Spanish disposed of the following periphrastic resources to express epistemic values according to the three mentioned degrees: (i) *tener que* + infinitive and *haber ø/a/de* + infinitive⁴⁶ (69); (ii) *deber (de)* + infinitive, and (iii) *poder* + infinitive and *parecer* + infinitive (70) (Cornillie, 2007b; Garachana, 2017b; Hernández Díaz, 2017; López Izquierdo, 2008; Nieuwenhuijsen, 2017; RAE/ASALE, 2009; Topor, 2011; Yllera, 1980).

- (69) Spanish [Valera, *Nuevas cartas americanas*, 19th century] (Hernández Díaz, 2017, p. 91)

No entremos aquí a defender ni a refutar esta teoría de la trasmisión hereditaria. Yo me limito a decir que **ha de tener** mucho de cierta

'I will not get into a defense or refutation of this theory of hereditary transmission. I confine myself to saying that it must have a lot of certain.'

- (70) Spanish [J. Zurita, *Anales de Aragón*, 16th century] (Nieuwenhuijsen, 2017, p. 319)

Este mismo testamento **parece haber sido ratificado** por el rey don Alonso

'This same will seems to have been ratified by King Don Alonso.'

⁴⁵ Nevertheless, this is not an absolute classification of the basic concepts that belong to the domains of epistemic modality. The context in which they have place can modify the degree of probability expressed by these concepts (Nuyts, 2001, p. 55). There are also several resources that nuance the graduation (as, for instance, *no totalmente*, *muy posible*, or *very* and *rather* in English), or even quantify likelihood (for example, *a 90 percent chance*). See Nuyts (2001, p. 22) for a discussion.

⁴⁶ The periphrasis *haber ø/a/de* + infinitive is used in formal language in most Spanish-speaking territories and *haber de* + infinitive in all in Spanish spoken in Catalonia.

van der Auwera and Plungian's semantic map takes into consideration the discourse function of each marker rather than merely its form. Moreover, it contains all cross-linguistically relevant synchronic and diachronic connections between modal, pre-modal and post-modal meanings and captures the motivation for the grammaticization paths seen in the signed languages data and motivates the search for gestures that likely served as language-external sources for these modal forms in signed modality (Shaffer, Jarque, & Wilcox, 2011). In addition, the hypothesis of the unidirectional trajectory of grammaticalization implies that the modal moves from the participant-internal possibility to the external possibility and, later, to the epistemic possibility, but not vice versa.

Certainly, the non-epistemic modality is in some sense more basic than the epistemic modality: the emergence of epistemic modals from non-epistemic modals has been documented for English (Bybee, et al., 1994; Coates, 1983; Gee, 1985; Palmer, 1986; Traugott, 1989) and Spanish, as shown by Yllera (1980) and summarized in Jarque (2017). However, these trajectories seem to be frequent in the European languages, but they are not quantitatively so important outside Europe (van der Auwera & Ammann, 2005) and, on the other hand, trajectories in the opposite direction have also been documented (cf. Narrog, 2005), some product of analogy.

In addition, other processes, different from the usual ones, have been proposed that explain the origin of epistemic constructions, namely, processes of grammatical calque by language contact (van der Auwera, 2005 # 167) and within the language itself by analogy and supporting constructions (De Smet & Fischer, 2017), as is the case of the Spanish periphrasis *tener de* + infinitive (Garachana, 2017b).

Throughout this section we have addressed the main divergences that are observed in the typology of subdomains and modal values and we have pointed out the main mechanisms of semantic change. For this purpose, we have used van der Auwera y Plungian (1988) semantic map to structure the discussion since it assumes a diachronic perspective. However, it does not take into account volitive meanings, unlike in other authors' work, such as in Bybee's proposal.

In addition, they considered evidentiality as a separated category. The relation of these domains regarding modality constitutes a controversial issue in the area. We believe that the relationship between modality and volition is especially relevant for the diachronic relationships that we have documented, and also between modality and evidentiality

because of the difficulty in characterizing certain values of periphrasis or other markers as evidential or modal. We address the criteria used to exclude or include it in the different studies and we will discuss our position on this issue in Section 3.2.3. The link between modality and evidentiality is the focus of Section 3.4.1.3.

3.2.3 Volition

Frequently, volitive elements are excluded from a discussion on modality on the ground that it does not form part of the core-meaning of modality, which is said to be comprised of possibility and necessity epistemic and deontic modality. However, there is also a lack of consent among those that include volition in the semantic space of modality. The different proposals and authors are given in Table 3.2.

Some consider volition, also called desiderative modality (Gómez Torrego, 1988), a subcategory of modality. Under this view, it is independent from and unrelated to its sisters, the deontic and epistemic modality (see, for example, Olbertz 1998). Other claim that it constitutes a subcategory of non-epistemic modality (in van der Auwera and Plungian' classification) (deontic modality) as for example Palmer (1986) or Bybee et al. (1994), whereas others consider it that belongs to the category of dynamic modality (e.g. Goossens, 1983; Palmer, 2001).

Table 3.2 Relation between modality and volition

Volition	Studies
excluded from modality	<ul style="list-style-type: none"> ○ Anderson (1986), van der Auwera & Plungian (1998), de Haan (1997), González-Vázquez (2006), etc.
subcategory of modality	<ul style="list-style-type: none"> ○ volitive or desiderative modality: Olbertz (1998), Plungian (2010), Schmid (2012), etc.
subcategory of non-epistemic modality (deontic modality)	<ul style="list-style-type: none"> ○ included in agent-oriented modality: Bybee et al. (1994), ○ volition: Plungian (2010), Palmer (1986) ○ deontic modality: Lyons (1977), Palmer (1986) ○ intrinsic modality (permission, obligation and desire): Quirk (1972), etc.
included among the dynamic modal meanings	<ul style="list-style-type: none"> ○ Goossens (1985), Palmer (2001); Maché (2008)

Volition	Studies
included in epistemic modality	<ul style="list-style-type: none"> ○ Within subjective modality: Hengeveld (1989) ○ Pea & Mawby (1981), excluded alethic modality ○ Mitchell (2003)
related to boulomaic modality	<ul style="list-style-type: none"> ○ Rescher (1968), Nuyts (2005, 2006; 2005)
contextual (pragmatic) nuance	<ul style="list-style-type: none"> ○ González-Vázquez (2000)

Even, other authors include volitive meanings in the epistemic category, as for instance *modalidad subjetiva* (Hengeveld, 1989). For instance, Pea and Mawby (1981) include volitional statements (intention) such as “I’ll give you a little tiny fork” in the epistemic category. However, in their study on modality acquisition they take into account alethic values as a category itself.

Moreover, Mitchell (2003) considers desires to belong to the epistemic modality and he goes as far as to use the denomination *epistemic volition*, “a wish that a proposition whose truth is unknown turns out to be true” (2003, p. 145). We agree with van der Auwera and Van Linden (2013) that “wishing something to be true is quite different from judging it to be true” (2013, p. 124). Instead, they propose the term ‘optative’⁴⁷, used in van der Auwera and De Wit (2010, p. 133) to distinguish the expression of a desire from the use of an advice, that they consider deontic. Denison and Cort (2010) go further and consider that some uses of optative (the grammatical mood that encodes desire or hope) include simultaneously a deontic and an epistemic element, as shown in (71) with the semimodal *had better/d better*.

(71) English [BNC ARK 2630] (Denison & Cort, 2010, p. 370)

“Kurt here. I have urgent information. There have been serious developments. Can we meet? You’d want to know at once.

[...]

I’ll meet you in the lobby of the Frankfurter Hof half an hour from now. It had better be important.”

On the other hand, some authors relate it to the boulomaic modality (Nuyts, 2005; Rescher, 1968). With regard to the association of volition with the parameter of necessity or possibility, we have also found divergences. Much of the analysis link volition with

⁴⁷ *Optative* appears already in the first philosophical treatises on modality (van der Auwera & Zamorano Aguilar, 2016).

necessity (Calbert, 1975), though the reasons vary a lot. First of all, in several languages there is evidence of the grammaticization of the verb meaning *to want* as a necessity gram/modal, as in German and English (Aijmer, 1985; Bybee, et al., 1994; Traugott, 1995), and that went through the grammaticization trajectory, via conversational implicature, that we show in (72) (Traugott, 1989, p. 43).

(72) lexical verb > premodal verb > deontic > weak epistemicity > strong epistemicity

In Italian and Sardinian, *to want* can express root necessity as illustrated by example (73)(a) and (73)(b), respectively.

(73) Italian (Remberger, 2010, p. 165)

(a) Ci **vogliono** tre uova per fare questa torta.

se want three egg-PL to make this cake

'You need three eggs to make this cake.'

(b) Custa macchina **cheret lavata**.

this car want-3S clean-PART-FEM-SING

'This car needs to be cleaned.'

Nevertheless, other analysis provide evidence that in certain constructions *to want* carries a possibility meaning (Maché, 2008). On the other hand, these values surface in negative contexts, as those that are attested in German, see example (74).

(74) German (Remberger, 2010, p. 166)

(a) Die Tür **will** nicht aufgehen.

the door WANT-3s not open

'The door doesn't open (but it should...).'

(b) Diese Idee **will** mir nicht gefallen.

this idea WANT-3s me not please

'I don't really like this idea (also if I am expected to like it...).'

Finally, there are even authors that deny the grammatical modal character. They analyze it as a contextual feature or a secondary implicature, as in the periphrasis *deber* + infinitive or *tener que* + infinitive (González Vázquez, 2000). Thus, while the periphrasis in (75)(a) using the present indicative expresses only obligation, in (75)(b), the use of the conditional adds, according to González Vázquez (2000), a contextual value of desire. In other words, she analyzes it as a pragmatic nuance and not as a semantic component in the periphrasis.

(75) Spanish (González Vázquez, 2000, p. 66)

(a) **Debes** irte a casa

'You have to go home.'

(b) **Deberías** irte a casa.

'You should go home.'

For all these reasons, we believe that the volitive values belong to the semantic domain of modality and that one has to consider them a different modal category that is autonomous with respect to possibility and necessity. Furthermore, we believe that the volitive modality should include desire, willingness and intention. Desire "reports the existence of internal volitional conditions in the agent with respect to the predicate action" (Bybee et al., 1994, p. 178). In Spanish, the value of desire has been assigned to the constructions *querer* + infinitive (Yllera, 1980; García González, 1992), *deber* + infinitive and *tener que* + infinitive (Gómez Torrego, 1988) (76).

(76) Spanish [F. Delicado, *La lozana andaluza*, 16th century] (Garachana, 2017b, p. 255)

Señora, por mi fe, que **tengo que ser** vuestro y vos mía.

'Madam, I swear to God, I have to be yours and you, mine.'

On the other hand, willingness expresses a subject's favorable attitude toward the realization of the action and that could be expressed in Spanish by *estar por* + infinitive (Fernández de Castro, 1990; Gómez Torrego, 1999; Yllera, 1980). Finally, intentionality corresponds to the determination of carrying out the action. It is expressed by the periphrasis *pensar* + infinitive (Gómez Torrego, 1988; Topor, 2011).⁴⁸ Evolutionally, these three values are related. For instance, Bybee et al. (1994, p. 256) proposes the grammaticization path reported in (77).

(77) desire > willingness > intention

This relation is relevant since according to Topor (2011, p. 164), for instance, while the volitional values are not fully grammaticized in Spanish, i.e. they do not constitute

⁴⁸ In the literature there are many more verbal clusters that have been associated with intentionality: *estar por* + infinitive (Olbertz 1998), *haber de* + infinitive (García González, 1992), *ir a* + infinitive (Yllera, 1980; Gómez Torrego, 1988), *tratar de* + infinitive (García González, 1992) and *venir a* + infinitive. See Topor (2011) for a discussion about the non-periphrastic character of the mentioned constructions.

periphrasis, this is the case for intentional modality expressed by the periphrasis *pensar* + infinitive (Gómez Torrego, 1988; Olbertz, 1998), as exemplified in (78).

(78) Spanish (Topor, 2011, p. 17)

Pienso volver a mi ciudad natal.

'I plan (think) to go back to my hometown.'

This difference leads Topor (2011) to consider the necessity of keeping the distinction between desire and intention in Spanish. On the other hand, one must keep in mind that some volitive constructions stem from verbs that lexically do not display values related with volition. It is the case of the medieval Catalan periphrasis *entendre (a)* + infinitive with semantic value of intention or willingness (Schmid, 2012, p. 872) (79).

(79) Catalan [*Curial e Güelfa*] (Schmid, 2012, p. 872)

Senyors, ¿què **entenets a fer**? -Anar a pendre la doncella.

'Sirs, what do you intend to do? –I will fetch the maid.'

Thus far, our discussion leads us to consider volition as a subdomain of modality, integrated by several values and that interacts with the notion of possibility and necessity in different ways. The volitive component is considered by some authors a central element in the definition of modality (Narrog, 2005b, 2005c). Thus, according to Plungian (2010) a broader conception of modality ought to include the expression of volition and of all the other kinds of evaluation:

Volitive modality may, in a certain way, be regarded as a **central element of the modal semantic domain** since it includes an evaluative component (people usually evaluate those things as positive which coincide with their desires) and the concepts of necessity/ possibility (people usually want things that are not available in a given moment, but which will probably so in the future). Volitive modality is the basis for grammatical categories of the verb like different kinds of the optative or the imperative. In this sense, necessity, possibility, epistemic assessment (and other types of evaluation) as well as volition all form a legitimate part of the semantic domain of modality. (Plungian, 2010, p. 45).

Finally, regarding volitive modality, we are only left to address its relationship with the boulomaic modality, both because of its semantics links as well as because of the terminological confusion revealed by our literature review. Indeed, some authors use *boulomaic modality* as a synonym or near synonym of volitive modality (Palmer, 1979; Carretero 1991; RAE/ASALE 2009). Thus, for instance, Carretero (1991) points out that "la posibilidad o necesidad determinada por una voluntad. [...] La necesidad bulomaica

está constituida por el deseo y la obligación” (1991, p. 46). This interpretation seems to correspond to Quirk et al. (1972)’s *intrinsic modality*.

However, more recently some authors highlighted the need to differentiate terminologically in English between *bouletic modality* and *boulomaic modality/attitude* (Nuyts, 2016). In English, the former corresponds to what we identified as volition, while the latter is related with the expression of appreciative or subjective judgments about the utterance content. In this sense, *boulomaic modality/attitude* indicates “the degree of the speaker’s (or someone else’s) liking or disliking of the state of affairs” (Nuyts, 2005, p. 12), as exemplified in (80).

(80) English (Nuyts, 2005, p. 12).

(a) **Unfortunately**, I won’t be able to join you guys on your trip to Paris.

(b) **I love it** that we’ll be in Paris all together.

This conception of *boulomaic modality*, also referred to by some authors as *evaluative modality* (Palmer 1986) o *estimative modality* (*modalidad estimativa*) (Morales Ascencio, 1999), is included in the descriptions by Kratzer (Kratzer, 1977), Rescher (1968), Hengeveld (1989) and Nuyts (2001), that call it *emotional attitude*. As for Spanish, it can be conveyed with expressions such as *es preferible* (‘(it) is preferable’), *es repudiable* (‘(it) is condemnable’), *es aconsejable* (‘(it) is advisable’), *es conveniente* (‘(it) is appropriate’), *afortunadamente* (‘fortunately’), *por desgracia* (‘unfortunately’), *ojalá* (‘I wish’), etc. (81) (Martí Sánchez, 2009; Morales Ascencio, 1999).

(81) Spanish (Martí Sánchez, 2009, p. 674)

Raúl, tu reflexión me parece muy interesante, pero **por desgracia** yo no lo veo tan sencillo.

‘Raul, your reflection seems very interesting, but unfortunately I do not think it so simple’

This category, that traditionally is not included in the modal domain, is related in the sense that it expresses appreciative or subjective judgments. This can be related with volition, but also with deontic values. Thus, for instance, in some uses of Spanish modal periphrasis we can find a *boulomaic* value of contextual kind. This is the case of the periphrasis *ser de* + infinitive expressing a meaning related with convenience or lack thereof, and that can be paraphrased as *ser digno de* + infinitive (‘to deserve + infinitive’), in the case of the positive polarity, or *no conviene* (‘it is not wise’), for the negative polarity, as illustrated by the examples in (82) (Octavio de Toledo y Huerta, 2017).

- (82) Spanish [*Relación del Segundo Viaje de Colón*, 15th century] (Octavo de Toledo y Huerta, 2017, p. 384)

la fuerza que una muger d'estas fazía con un arco no **es de olvidar**) [= no conviene olvidar, es inolvidable]

'the strength that a woman of these made with a bow is not to forget) [= it is not convenient to forget, is unforgettable]'

Therefore, we can find these appreciative values bridging in constructions toward convenience, in early moments, and deontic necessity, in later phases. As pointed out by Nuyts (2005, p. 12) "It will not always be easy to draw a precise line between this category and deontic modality".

3.3 The formal expression of modality

This section will deal with the type of resources that, from a crosslinguistic point of view, languages may display in order to code meanings from the modality domain. Section 3.3.1 will focus on spoken languages, whereas section 3.3.2 is concerning with signed languages.

3.3.1 Linguistic resources in spoken languages

Modal meanings are expressed in several ways in spoken languages, such as adjectives, adverbs, auxiliary verbs, inflection, intonation, nouns and particles, as illustrated in Table 3.3. We will refer to them as modal grams, using Bybee et al. (1994) terminology.

Table 3.3 Linguistic resources to express modal meanings in spoken languages

Means	Examples
adjective	English <i>necessary</i> (Lyons, 1977) or <i>crucial</i> (Van linden, 2012)
adverb	Italian <i>certamente</i> (Pietrandrea, 2008), Spanish <i>seguramente</i> (Zieliński & Espinosa, 2018) and English <i>evidently</i> (Simon-Vandenberg & Aijmer, 2007)
affix	<i>the ending form</i> (Choi) in Korean (Choi, 1991), <i>-able</i> [<i>alcaldable</i> 'to be eligible for being mayor']] in Catalan (Cabré & Rigau, 1985)
auxiliary verb	English modals, as <i>may</i> (Coates, 1983) and semimodals as <i>be able to</i> (Palmer, 2006)
	verbal periphrasis: Catalan <i>deure</i> + infinitive (Sentí-Pons, 2013), Spanish <i>ser tenido/tenido ø/a/de</i> + infinitive (Garachana, 2016), Italiana <i>volere</i> + infinitive (Pusch & Wesch, 2003)

Means	Examples
clitic	<i>tu</i> in St'át'imcets (Salishan) (Matthewson, 1998)
cognitive predicate	English <i>I think</i> + proposition (Nuyts, 2001)
complementizer	<i>om</i> in Danish for expressing uncertainty (Boye, 2016)
idioms	English <i>better</i> (Quirk, et al., 1972) but Cf. Denison & Cort (2010)
inflection	mood markers such as indicative (<i>va cantar</i> 'she sang' for assertions), subjunctive (<i>que canti</i> 'I wish she will sign', for desire) and imperative (<i>canta</i> 'sing', for orders) in Romance languages (Haverkate, 2002; Pérez-Saldanya, 1988)
intonation	fallrise intonation pattern (Hoye, 1997; Lyons, 1977)
discourse marker	Catalan <i>és clar</i> (Cuenca & Marín, 2012)
embodiment	facial and body expressions, as palm-up gesture and shoulders rug for uncertainty (Goodwin, 2006)
noun	English <i>possibility</i> and <i>probability</i> (Ziegeler, 2012)
particle	<i>nitigainai</i> in Japanese (Narrog, 2005c)
tags	English <i>I think</i> and <i>I guess</i> (Brinton, 1996; Englebretson, 2007)
voice	passive voices for expressing deontic modality (Paradis, 2009)
zero coding	assertions in English (Bybee, et al., 1994; Lyons, 1977)

From a diachronic point of view, it is interesting to consider the different forms with the objective of establishing links among the kind of modal meaning and the kind of linguistic form. Thus Bybee (1985), in her morphology study from a crosslinguistic perspective, suggests that verbal flexions in morphologically marked languages stem from the grammaticization of lexemes used previously to encode non-epistemic modality, i.e. in her terminology agent-oriented modality.

Furthermore, we believe it is also fundamental to know how to express modal values in a language when a linguist starts describing even just a specific construction, such as, for instance, a verbal periphrasis. This knowledge will help the researcher differentiating between the invariant and the contextualized meaning, using Silva-Corvalán (1995, p. 73)'s terminology. Whereas the former refers to the meaning that is present in all of the modal uses, the latter corresponds to the messages expressed by the modal in a specific context. The contextualized meaning is the product of the interaction of the modal verb

with morphosyntactic, semantic, prosodic properties as well as pragmatic factors. Clearly, the meaning goes beyond the sum of these meanings “because it incorporates pragmatic factors that may not be context-independent as the invariants meanings of grammatical forms (as opposed to lexical forms) appear to be” (1995, p. 73)⁴⁹.

The issue of contextualized meaning is fundamental to code the use of periphrasis such as the Spanish *deber de* + infinitive or *tener que* + infinitive, as modal or evidential, as we indicated previously. Thus, for instance, while Cornillie (2009) argue that these periphrases can express values that are more modal or more evidential, Topor (2011) considers that the information related to evidentiality is not codified by modal verbs, as in some Germanic languages, but by other contextual elements. That is, the epistemic modal content and the evidential content coexist in the same context, but not in the same element (Topor, 2011, p. 173).

In Section 3.4, we will address in detail this discussion and the fundamental issue of the relations between modality and evidentiality.

3.3.2 Linguistic resources in signed languages

Since Long (1918) initial work on the subject for ASL (American Sign Language), an increased number of studies have carried out formal and semantic descriptions of modality in several signed languages. In signed languages, the semantic space of modality can be expressed by a wide variety of linguistic forms: auxiliaries, mental state predicates, affixes, and prosodic elements. See Table 3.4.

Table 3.4 Linguistic resources to express modal meanings in signed languages

Means	Example
morphology	SHOULD/MUST in ASL (P. P. Wilcox & Wilcox, 1995)
adjective	OBVIOUS in ASL (P. P. Wilcox & Wilcox, 1995)
auxiliary verb	CAN in ASL (S. Wilcox & Shaffer, 2006)
body lean	body leans for affirmation/negation in NGT (van der Kooij, Crasborn, & Emmerik, 2006)
cognitive predicate	PENSAR ('to think') in LIBRAS (Ferreira Brito, 1990)

⁴⁹ See Rosemeyer (2017) for a discussion.

Means	Example
facial expression	labial protrusion in LSE for ability (Iglesias, 2006), tension in facial expression for expressing certainty in TSL (Lin & Chang, 2011)
marker	IS-PROHIBITED in GSL (Sapountzaki, 2005)
noun	FUTURE for epistemic necessity in ASL (Shaffer & Janzen, 2000) LEY in LSE for obligation (Herrero & Salazar, 2006)
particle	KARO (positive imperative) in IPSL (Zeshan, 2003)

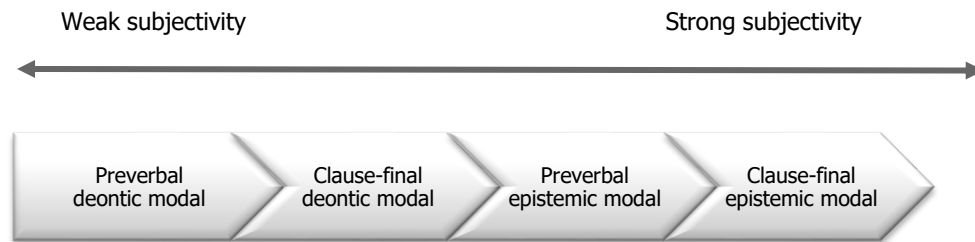
From different perspectives and scope, the form and semantics of auxiliaries (or free markers) have been the primary focus of the following studies. Ferreira-Brito (1990) constitutes the first in-deep study on modality in a signed language, namely LIBRAS (Sign Language of Brasil). Massone (1994) and Curiel & Massone (1995) tackled the expression of modal meanings in LSA (Argentinian Sign Language). Wilcox & Wilcox (1995), Shaffer (2004) and Wilcox & Shaffer (2006) are the first pieces of work concerning ASL. Rodríguez-González (1992), Herrero & Salazar (2006) and Iglesias (2006) addressed modals in LSE (Spanish Sign Language), Lin & Chang (2009) in Taiwan Sign Language (TSL), and Sapountzaki (2005) in Greek Sign Language.

Other works that make some reference to modals in a signed language are Smith (1990) for Taiwanese Sign Language; Deuchar (1984) for BSL (British Sign Language); Aarons, Bahan, Kegl & Neidle (1995), Padden (1993) and Wilcox (1996), for ASL. As for works dealing specifically with negation and modality, the main studies are Shaffer (2002) for ASL and Pfau and Quer (2007) for LSC and DGS (German Sign Language).

Concerning modal particles (i.e. signs that take scope over the entire clause and assign a clause to a clause type), Zeshan (2003) discusses KARO and JA:O in Indo-Pakistani Sign Language. KARO corresponds to the clause type "neutral positive imperative, distant force" (Zeshan, 2003, p. 164), whereas JA:O expresses "non-polite positive imperative, immediate force".

Regarding also sentence type, Donati et al. (2017) investigated grammaticalized imperatives (non-manuals elements and auxiliaries) in Italian Sign Language (LIS), French Sign Language (LSF), and Catalan Sign Language (LSC). These authors are currently on this issue regarding Icelandic Sign Language (ITM), Norwegian Sign Language (NSL) and Turkish Sign Language (TID).

A question that has been analyzed only in two research papers on the modality in signed languages is the role of syntax in the development of epistemic modals that are more subjective and pragmatically oriented. A productive line of crosslinguistic research would be to examine whether, as suggested by Shaffer (2004) for ASL and Lin & Chang (2009), modals with epistemic functions tend to appear more often in clause final position. The continuum proposed by Lin & Chang (2009) is illustrated in Graphic 3.1.



Graphic 3.1 The continuum of modals in subjectivity in TSL

Cognitive (or mental state) predicates glossed as 'to think', 'to believe', 'to seem', and 'to doubt' are the object of study in Ferreira-Brito (1990) on LIBRAS. Of particular interest, because of the discussion of iconicity, is the work by Wilcox & Wilcox (1995) on the morphological expression of modality in ASL.

Indeed, the expression of modal nuances through prosody, mainly through facial expression, is pointed out by Liddell (1980), Wilcox & Wilcox (1995), and Shaffer (2000) for ASL, Iglesias (2006) for LSE and body leans by van der Kooij & Crasborn (2004) for Sign Language of the Netherlands. Indeed, the study by Lin & Chang (2009) on Taiwan Sign Language highlights the role of non-manual elements that accompany the modal DEFINITE for the expression of epistemic commitment, as it is shown in Figure 3.5.

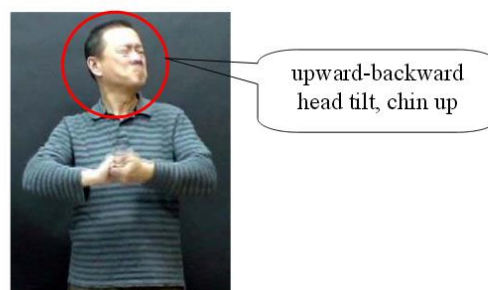
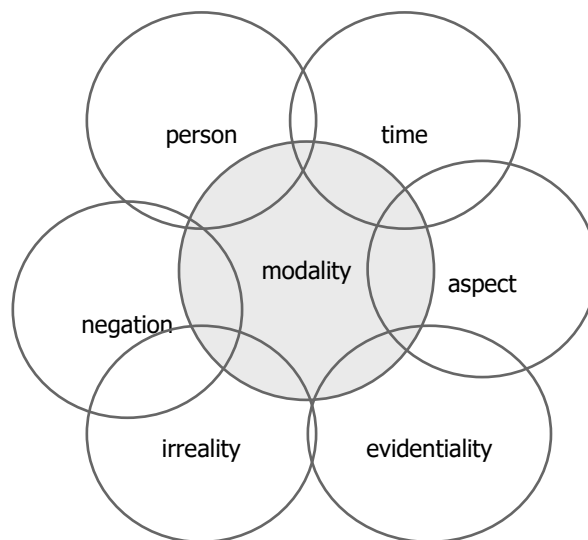


Figure 3.5 DEFINITE in TSL (Lin & Chang, 2009)

On cross-linguistic data and/or from a diachronic point of view, it is important to mention the work by Wilcox and colleagues, as pointed out in chapter 2, mainly on ASL, LIS and LIBRAS (Janzen & Shaffer, 2002; S. Wilcox, 2002, 2004b, 2009; S. Wilcox, Rossini, & Pizzuto, 2010). It is interesting to see the similarities in the grammaticization paths proposed both for signed and spoken languages, but also the differences regarding the grammaticization of gestures as a result of the differences in the modality (Pfau & Steinbach, 2006, 2011; Sexton, 1999; Wilcox 2004).

3.4 The interaction between modality and other grammatical categories

A comprehensive description of modal resources of a language cannot obviate the interaction produced with other semantic domains that constitute grammatical categories in the examined language, since they can overlap thus constituting grammatical interfaces⁵⁰. See Graphic 3.2.



Graphic 3.2 Interaction of modality with other categories

⁵⁰ We use the term *interface* to refer to an overlapping area among categories, in Beijering (2012)'s sense, and not in the sense of the generative tradition.

The analysis of the interplay of grammatical categories goes beyond the scope of this dissertation. Our aim here is just to point out some dialectical relationships regarding the link between modality and the other domains. This kind of analysis has been carried out, for instance, in the description of Spanish modal periphrasis in relation with aspect, tense or negation. Thus, for example, the negation of the aspectual periphrasis *dejar de* + infinitive (*'to stop'*) acquires a modal value of obligation in sentences such as (83) (Olbertz, 1998; Topor, 2011)⁵¹:

- (83) Spanish (Topor, 2011, p. 248)
 No **dejes de hablar** con Pedro.
 'Do not stop talking to Pedro.'

As for interaction with tense, verbal periphrasis of obligation rooted in the Latin periphrasis *dēbeō* + infinitive gave rise to the values of future in Romanic languages, such as Sardinian, Italian, French, Occitan, Aragonese, Spanish and Portuguese (Yllera, 1980, pp. 129-130)⁵². As for negation⁵³ (Veyrat Rigat 1990; Topor 2011), for instance, the intercalation of the negation adverb between two verbs yields an intentional modal meaning, as in (84)(a), while its location before the verbal complex conveys a non-periphrastic meaning of willingness, as in (84)(b).

- (84) Spanish (Veyrat Rigat, 1990, p. 226)
 (a) **Estoy por** no volver más.
 'I don't feel like going anymore.'
 (b) **No estuve por** acudir a la reunión.
 'I did not intend to go to the meeting.'

Furthermore, interaction with other domains can make more salient a specific reading of an apparently polysemic periphrasis. Thus, for instance, Rosemeyer (2017) proposes, based on previous evidence, that the verbal tense (tense + aspect) in which the auxiliary is conjugated constitutes a formal predictor of the contextualized meaning of *deber* + infinitive and *deber + de* + infinitive (non-epistemic vs. epistemic), together with text genre, the subject referent, the characteristics of the predicate of the main verb and the

⁵¹ Other studies that address the interaction between modality and aspect in other languages are Ljung (1980), Bybee et al. (1994), Bybee (1985), Silva Corvalán (1995), Fortuin (2007), Abraham (2008), Narrog (2008), Pustet (2008), De Wit and Patard (2013); see also, other contributions in the monography edited by Abraham and Leiss (2008), *inter alia*.

⁵² For more information about the interaction of modality and tense, we refer the reader to the works of Bybee et al. (1991; 1994), Pérez-Saldanya (2002), Patard (2011), Byloo & Nuyts (2012), Patard & De Munder (2012), *inter alia*.

⁵³ As for the interaction between modality and negation, the reader can consult the works of Horn (1989; 2000), de Haan (1997, 2006), van der Auwera & Plungian (1998), Li (2004), van der Auwera (2001, 2010), van der Auwera & Taeymans (2009), *inter alia*; and, concerning the sign languages, Shaffer (2002) and Pfau & Quer (2007).

diathesis of the construction⁵⁴. More specifically, his results show that the perfective parameter is highly relevant when explaining the different distribution of these two periphrases in formal texts.

However, the interaction between modality and evidentiality poses more problems, both from a theoretical point of view (how are the two categories delimited?), as well as from the practical point of view of characterizing the semantic values of probability of verbal periphrasis, such as *tener de* + infinitive, *deber* + infinitive, *deber + de* + infinitive in Spanish – such as examples in (85) and (86) – that have been labelled, at different times, in some studies as epistemic and in other studies as evidential (Cf. Olbertz 1998; RAE/ASALE, 2009; Topor, 2011; Blas Arroyo & Vellón Lahoz, 2014; Cornillie, 2009, 2016; Garachana, 2017b; Rosemeyer, 2017).

(85) Spanish (Corpus Gradia)

pero es que llegan a segundo / se estropean // \$ tercero ya / ni te cuento // \$ cuarto / iuy! / bachillerato // \$ *LUI: los de bachillerato **deben ser** terribles hhh

'but as they get to the second year / they spoil // \$ and third / let me tell you // \$ fourth / iouch! / baccalaureate // \$ *LUI: the baccalaureate ones must be terrible hhh'

(86) Spanish (Rosemeyer, 2017, p. 165)

En vues- tra casa yo me acuerdo que solia an- dar vna culebra, y esta **deue de ser** sin duda

'In your house, I remember that there used to be a snake and this, no doubt, must be it.'

Generally speaking, the interaction between modality and other domains includes the dimensions in (87):

(87) Issues on the interaction of grammatical/functional categories

- (i) the combination of constructions that contributes in a non-compositional way to the global meaning;
- (ii) the syntactic distribution of both constructions and the scope of one construction over the other;
- (iii) elements or constructions from other domains that provide cues for the modal interpretations;
- (iv) non-modal constructions that acquire modal meanings; and

⁵⁴ One can furthermore consult along this line the works of Silva-Corvalán (1995) and Eddington & Silva-Corvalán (2011).

- (v) the inverse process, i.e. modal constructions that develop other non-modal grammatical values⁵⁵.

Next, we will illustrate briefly each of the dimensions in (87). Firstly, we can observe in a sentence the combination of constructions from different domains that contribute semantically to a global non-compositional interpretation. Thus, for instance, in some languages linguistic elements that have a nuclear meaning belonging to the modality domain acquire evidential readings in specific contexts. More concretely, there are units that semantically express modal values, but pragmatically entail evidential values (via a conversational implicature or invited inference).

For instance, Pietrandrea and Stathi (2010) describe how in Italian the modal periphrasis *deve* + infinitive yields an evidential reading when it takes as complements stative, progressive, habitual or resultative subordinates. In their analysis, modal auxiliaries express the notion that corresponds to the (necessity or possibility) lexical meaning and it is the whole construction that expresses the deontic or evidential meaning. The evidential meaning is expressed by complex periphrastic constructions that combine the modal verb, the dependent infinite clause, and the aspectual incomplete values, as illustrated in (88).

- (88) Italian (Pietrandrea & Stathi, 2010)
 [Deve + infinitivo [aspecto habitual]] <evidencial de inferencia>
 Deve camminare ogni giorno, se è così in forma.
 'He has to walk every day if he is so fit.'

As for the syntactic distribution of both constructions and the scope of a construction over the other, we can observe combinations where both functions are combined. In example (89), there is an epistemic construction (*creer que* + proposition) and, in its scope, the periphrasis with evidential function *deber de* + infinitive.

- (89) Spanish (Rosemeyer, 2017)
 porque hasta entonces no lo había sabido y **creía que debía de ser** alguna mala gente y no vasallos de Vuestra Alteza
 'because until then I had not known and I thought it must be some bad people and not vassals of Your Highness'

⁵⁵ We are referring to a one-to-one relation, although there are descriptions of multiple relations in several languages, such as the configuration among modality, temporal reference and aspect in Catalan (Gavarró & Laca, 2008; Pérez-Leroux, 1998; Pérez-Saldanya, 2002) or in German (Maché, 2008), to mention just two examples.

The different position adopted by periphrasis of different categories is relevant not only from a practical dimension, i.e. descriptive and procedural in the elaboration of the studies, but also from a theoretical point of view. On one hand, it is important empirically because it allows the disambiguation of potential readings of a periphrasis. On the other hand, it is interesting theoretically as remarked in Giammatteo and Marcovecchio (2010, p. 26) that propose that periphrasis “mantienen un orden entre sí y que su comportamiento sintáctico-semántico resulta equivalente al de determinados elementos adverbiales, lo cual se correlaciona con el ámbito oracional en el que cada perífrasis opera”⁵⁶, and that we reproduce in (90).

(90) [epistemic [temporal-aspectual [frequency [deontic [aspectual [passive]]]]]]]

These authors propose not only that the mentioned order is not aleatory, but also that it surfaces from a universally valid hierarchy of morphological categories proposed in several investigations: Foley and Van Valin (1984), Bybee (1985), Hengeveld (1989, 2004), García, Krivochen and Bravo and (2017) among others.

Indeed, Nuyts proposed the supercategory called “qualificational category” to refer to the domain that includes the semantic dimensions of tense, aspect and modality (TAM). In (91) we reproduce Nuyts (2001)’s hierarchy of TAM markers.

(91) evidentiality > epistemic modality > deontic modality > time >
 quantificational aspect > aspect > STATE OF THINGS

Thirdly, constructions of other domains can provide cues to differentiate among modal or evidential interpretations. Thus, for instance, de Haan (1999) points out that, from a syntactical point of view, totally grammaticized evidentials behave in a different way with respect to negation, since, unlike epistemic modal elements, they cannot appear in its scope. de Haan (1999) illustrates this difference with the Dutch modal *hoeft* ‘to need’ in the sentence (92) where *geen* ‘not a’ falls obligatorily under the scope of the modal.

⁵⁶ “maintain an order inside itself and that its syntactic-semantic behavior is equivalent to that of certain adverbial elements, which correlates with the utterance scope in which each periphrasis operates” (Giammatteo & Marcovecchio, 2010, p. 26)

(92) Dutch (de Haan, 1999, p. 90)

Het **hoeft** geen goede film te zijn.
 It need.3SG.PRES not.a good movie to be.INF
 'It needn't be a good movie.' (epistemic)
 *'It is not said to be a good movie.' *(evidential)

Moreover, aspect is an important factor in the interpretation of modal constructions in some languages. For instance, Fortuin (2007) describes the interaction of constructional meaning and aspectual meaning in the dative-infinitive construction in Russian. In this construction, the modality is syntactically derived, and the aspect partly determines the modal meaning. Perfective aspect in negative polarity context provides an impossibility interpretation, whereas imperfective gives a prohibition reading. In positive contexts, perfective expresses possibility and permission. And, in Japanese grammatical aspect only provides a cue to modal interpretation. The context is pointed out as the ultimate determining factor that specifies a volitive or non-volitive reading for the utterance (Narrog, 2008).

Fourthly, historical studies have revealed diachronic evolutions where non-modal constructions acquire modal meanings. An instance is the Catalan aspectual periphrasis *voler* + infinitive ('to want + infinitive'), derived from the Latin periphrasis with volitive value. It used to express an aspectual value of imminence in old and modern Catalan – as illustrated in (93)- but it assumes an epistemic/evidential value from the seventeenth century on (Antolí Martínez, 2015).

(93) Catalan [*Curial e Güelfa*, 15th century] (Schmid, 2012, p. 870)

Curial mirà envers Jacob, e viu que **volia ociure** a Othó.
 'Curial looked towards Jacob, and saw that he wanted to kill Othó'

(94) Catalan [Jaume I, *Llibre dels fets*, 13th century] (Antolí Martínez, 2015, p. 21)

E, quant vench que nós **nos volíem gitar**, ell vench.
 'And, when we wanted to go to bed, he came'

(95) Catalan [*Cànon d'Avicenna*, 14th century] (Antolí Martínez, 2015, p. 26)

[...]e tota hora que veuràs espessetat de l'ayre e núvol e escuretat sequa que **sembla que vulla ploure** e 'ls núvols passen sens pluga.
 'whenever you see thickness of the air and clouds and dry darkness, looking like it seems to want to rain and the clouds go past without rain'

According to Antolí Martínez (2015), the only remnants in contemporary Catalan of the old and modern periphrasis *voler* + infinitive are the constructions *voler ploure* ('querer llover') and *voler caure* ('querer caer'). But, they have been reanalyzed semantically and have now an epistemic/evidential value. In (96) we reproduce the grammaticization trajectory.

(96) desire > intention > imminence > epistemic modality/evidentiality
(prospective aspect)

Bybee et al. (1991, p. 28) have shown that future tense markers may develop into markers of imperative modality. Also Patard (2011) describes modal uses of English simple past and the French *imparfait*. For Catalan, the Indicative present is used in the protasis of conditionals to express a condition that the speaker conceives a possible in the present or in the future (Pérez-Saldanya, 2002), as shown in (97)

(97) Catalan (Pérez-Saldanya, 2002, p. 2621)
(a) Si **ara és** a casa, li ho contarem tot.
'If now he is at home, we will tell him everything.'
(b) Si **demà és** a casa, li ho contarem tot.
'If tomorrow he will be at home, we will tell him everything.'

Present tense acquires deontic nuances in conversational contexts where the subject identifies him/herself with the interlocutor(s) and the sentence expresses an active situation, as in (98).

(98) Catalan (Pérez-Saldanya, 2002, p. 2621)
Demà li **telefonés** i li **expliqués** tot el que m'acabes de dir.
'Tomorrow you phone him and you explain him everything you just told me.'

Temporal markers acquiring modal meanings are reported in American Sign Language and in Argentinian Sign Language. Shaffer (2004) points out that the sign FUTURE is used to epistemic necessity. Consider the functions of FUTURE in (99), where the signer is explaining why he and his wife decide to build their home in a newer area rather than an already established one.

(99) ASL (Shaffer, 2004, p. 189)

RT 29 THINK-LIKE IND.lft R-O-C-K-V-I-L-L-E-P-I-K-E IND.lft BUILD+ IND.ctr

[FUTURE]-top / wg DEVELOP [FUTURE]-bf/hn

S-O WHY MUST _aMOVE_b NEAR COLUMBIA MALL

'(I live off) route 29, the Rockville Pike area. In the future I'm sure they will develop that area. So why do I have to move all the way up near Columbia Mall?'

In (99) FUTURE is used with a temporal function in the topic position while expresses a modal value in clause final position. In other word, a temporal marker (FUTURE) has acquired a modal value of certainty when it used in a different position in the clause. Indeed, Massone and Machado (1994) examine temporal adverbs expressing modal meanings in Argentinean Sign Language. EN-PASADO ('in the past') marks a "una aseveración fuerte del enunciado, una verdad absoluta o la conclusión de un tema o asunto" (1994, p. 126), as shown in (100)(a). Whereas EN-FUTURO ('in future') is used to "otorgar una modalidad hipotética a la emisión; con esta seña se expresa que el enunciado realizado es una probabilidad, posibilidad o deseo" (1994, p. 127), as in (100)(b) EN-PRESENTE ('in the present') only expresses temporal meaning.

(100) LSA (Massone and Machado, 1994, p. 126)

(a) DROGARSE SER-SUCIO **EN.PASADO**
'Drogarse, obviamente, es basura.' (their translation)
'Taking drugs, obviously, is junk.'

(b) JAPON LEJOS **EN.PASADO**
'Japón está lejos.'
'Japan is far away.'

(101) LSA (Massone and Machado, 1994, p. 127)

(a) MARIA PRO.3 ABANDONAR **EN-FUTURO**
'Seguramente María lo abandonará.'
'Surely, Maria will abandon it.'

(b) CAMPO POR.1 ANDAR-EN-BICICLETA PRO.1 GUSTAR **EN-FUTURO**
'Me gustaría –y lo deseo- ir al campo y andar en bicicleta.'
'I'd like –and wish- to go to the countryside and cycle around.'

Modal values of futures tenses have been also reported for Catalan (Martines, 2017) as well as French and Spanish (Azzopardi, 2017).

Finally, we can find other modal constructions that develop other grammatical meanings, of the evidential or mirative kind⁵⁷. Concerning the emergency of evidential readings from modal periphrasis, we give the example, for instance, of the Spanish periphrases *deber* + infinitive and *tener que* + infinitive (Cornillie, 2007b; Garachana, 2017b) and the Catalan equivalent expressions *deure* + infinitive and *haver a/de* + infinitive (Sentí-Pons, 2013; Sentí-Pons & Cornillie, in press), as illustrated in (102) and (103), respectively. (We underline the information that constitutes the basis of the inference).

(102) Spanish (Habla Culta, Caracas) (Cornillie, 2007, p. 207)

Pero si [la música] tiene ciento dos años y todavía se conoce y se... y se toca **tiene que tener** calidad ¿verdad?. ... exacto... y el músico que lo compuso tenía que ser de calidad.

'But insofar as the music is one hundred and two years old and it is still known and it is played, it must be of quality, true?... exactly... and the musician who wrote it must be of quality.'

(103) Catalan (Estefania, carta 2005, 1522-1542) (Sentí Pons, 2013, p. 196)

los negosis de aquí crec ageren pogut sofrir vostra absència, però, pux sa senyoria ó à determinat d'esta manera, **deu ser** lo millor.

'business here might have suffered because of your absence, but, since it is you, lord, that made this decision, it must be the best (option).'

Sentí-Pons (2013) considers that the Catalan periphrasis *deure* + infinitive consolidates during the sixteenth century, when in the corpus it reaches 30% of the occurrences. According to Sentí-Pons (2013, p. 215), while in the necessity periphrasis it is possible to omit the main verb in the infinitive form, this is not possible in the evidential periphrasis. This fact seems to be a clear indication of the difference between the necessity periphrasis (grammaticized to a lesser extent) and the evidential periphrasis (more grammaticized and subjectivized). Based on this evidence, Sentí-Pons (2013, p. 200) proposed a chain of grammaticization that is more fine-grained than the proposals that appear in the literature and that we reproduce in (104).

(104) deontic necessity > deontic necessity /external more subjective >
evidentials values of transition > specific inference > generic inference

Nevertheless, this analysis is not shared by many researchers, which consider it is a case of solely epistemic values (see Topor 2011 for Spanish). Furthermore, according to

⁵⁷ We will address this issue in Section 7 of this chapter.

Plungian (2010), the interrelation between modality and evidentiality is “one of the most complex problems of all the theoretical difficulties related to the description of the category of evidentiality” (2010, p. 44). Even so, this is only one aspect of the complex definition of the category. For this reason, we will address the description of the evidentiality category in the following section. In what follows, I will present the ideas related to this confusing from the main authors.

3.4.1 Evidentiality

Since Franz Boas’s seminal work on Kwakiutl at the beginning of past century and the first works by Jakobson (1971) on verbs in Russian, the amount of research on this category has kept growing. However, in spite of that – or precisely because of that – a literature review reveals a lack of consensus on questions as central as the following (105):

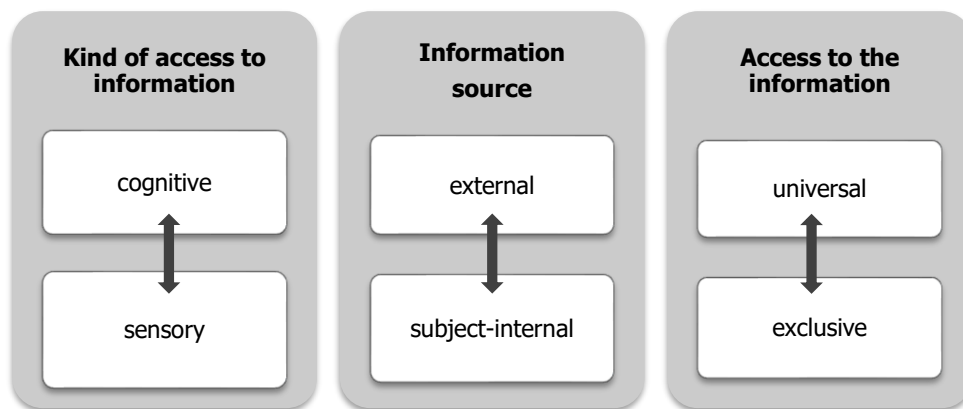
- (105) Topics of the debate on evidentiality
- (i) the core semantics of evidentiality
 - (ii) the typology of evidential system or categories included
 - (iii) the limits of evidentiality and its formal expression, what count as an evidential
 - (iv) the interaction with other grammatical categories, especially with modality and mirativity

Traditionally, evidentiality has been defined as a linguistic category whose core semantics indicates the source of information upon which a speaker bases a statement (Chafe and Nichols, 1986, p. vii; Aikhenvald, 2004, p. 3). Bybee (1985, p. 184) define evidentials as “markers that indicate something about the *source* of the information in the proposition”⁵⁸. In a number of studies de Haan has linked evidentiality with the notion of deixis (2001, 2007):

⁵⁸ For a state-of-the-art description of this issue, we refer the reader to the works in Spanish by González Vázquez (2006), Estrada (2013) and the recent volume edited by González Ruiz et al. (2016); in Catalan, to Senti-Pons (2017) and Greco (2012) for Italian. Also, the reader can consult the monographs on evidentiality edited by Chafe and Nichols (1986) and Johanson and Utahs (2000), and the special issue of the *Journal of Pragmatics* edited by Dendale and Tasmowski (2001) and Cornillie and Pietrandrea (2012); the *Italian Journal of Linguistics/Rivista di linguistica* by Squartini (2007), the *Functions of Language* by Ekberg and Paradis (2009), *Language Typology and Universals* by Wiemer and Stathi (2010), *eHumanista/IVITRA* by Martines and Miglio (2015) and *Belgium Journal of Linguistics* by Cornillie and Marin Arrese (2015).

- (i) treating visual evidentials as morphemes in which the situation is signaled from the perspective of the conceptualizer, and
- (ii) highlighting that inferential evidentials might be ambiguous between the function that expresses that the situation is being viewed from the perspective of the conceptualizer and those that indicate that the situation is viewed as one in which the conceptualizer plays no role at all.

In addition, from cognitive points of view, the characterization of this domain is broadened. Thus, for instance, Bermudez (2005) defines evidentiality as a deictic phenomenon of non-discrete nature, expression of the speaker's point of view and based on the context of utterance and in the speaker's relationship with the interlocutor and the conceptualized scene. Accordingly, Bermúdez (2005) proposes a model for describing the evidentiality domain, which emphasizes the scalar nature of the proposed parameters: information source (subject-internal ↔ external), access to information (exclusive ↔ universal) and mode of access (sensory ↔ cognitive), all of which are construed as bipolar continua. See Graphic 3.3. Support is also provided for the relevance of using the notions of deixis and perspective in describing evidentiality.



Graphic 3.3 Parameters forming the evidentiality domain

Bermúdez's characterization of the evidential domains exhibits the following characteristics (Bermúdez, 2005, p. 30):

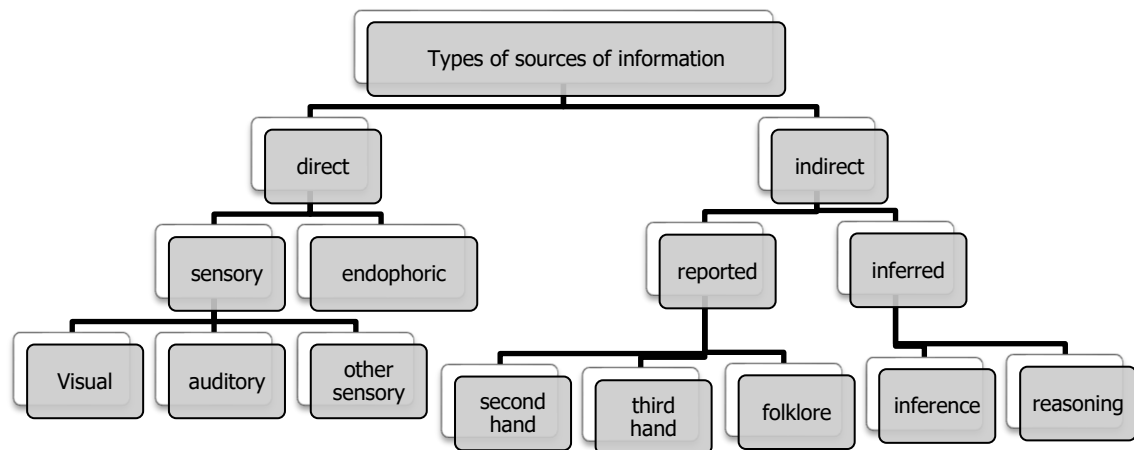
(106) Evidentiality according Bermúdez (2005)

- (i) Deictic description
- (ii) It includes the categories traditionally associated to the evidentiality (direct evidence, indirect, hearsay, etc.) and other evidential values not usually included (access to the information source, etc.)
- (iii) Although it considers modality and evidentiality as different categories, it establishes contact points.
- (iv) It does not include values not related with the information source, as for instant the modalization of formulation accuracy.
- (v) It includes in a natural way some categories of difficult classification, such as folklore.

Also in this sense, Cornillie's (2009, p. 45) defines evidentiality as a "functional category that refers to the perceptual and/or epistemological basis for making a speech act". Squartini (2008) also emphasizes the importance of defining evidentiality as multifarious phenomenon. He considers necessary to make a distinction between the source of evidence and the mode of knowing. The source would be intended as the locus where the information is acquired, i.e. internal or external source with respect to the speaker. The mode of knowing is defined as the process leading to the acquisition of the information, i.e. directly visual, indirectly through inferences, reports. Crucially this distinction accounts for the diverse distributional patterns of lexical items as opposed to grammatical forms.

3.4.1.1 Evidential notions

The second question under examination corresponds to the different subdomains and values that constitute the category. We will not go into the details about the different proposals. We will present Willet (1988, p. 57)'s classic typology, supplemented with the endophoric subdomain proposed by Tournadre (1996), as shown in Graphic 3.4. This typology is largely adopted in this area and it suits very well Spanish (Bermúdez, 2004, 2005a, 2005b) and Catalan.



Graphic 3.4 Typology of evidentiality

The first branching establishes a difference between direct evidence (the agent has witnessed/lived the situation) and indirect evidence (the agent has not taken part in the situation). Direct evidence, in turn, includes evidence based on senses (visual, auditory, olfactory evidence, etc.) and endophoric evidence. The latter refers to direct knowledge that is not mediated by the senses. It includes, for instance, past experiences (Tournadre, 1996).

The second big domain corresponds to indirect access to information. There are two possible subcases: referred or inferred evidence. Referred evidence includes three values: second hand information (obtained from a person that witnessed the situation), third hand information (the informer is not a direct witness) and folklore (the referred situation is common encyclopedic knowledge, belongs to oral history, etc.).

In Spanish, communication verbs have developed functions of referred evidentiality (Travis 2006; Olbertz 2007), such as the structure *según cuentan*, illustrated in (107).

(107) Spanish (Rosemeyer, 2017, p. 166)

Será desgracia mía, como lo fue de Llorente el no hallar más que 54 autos, siendo así que tuvo a la vista los archivos de la Inquisición, cuando, **según cuenta**, debieron de ser más de 782, aun sin contar los de América y los de Sicilia y Cerdeña.

'It will be my misfortune, as it was Llorente's, to find only 54 auto-de-fé, although he had in front of him the archives of the Inquisition, when, according to what he says, they must have been more than 782, not counting those of America and the of Sicily and Sardinia.'

Inferred modality includes two different processes: evidence based on contextual clues (inference) and on knowledge (reasoning). Squartini (2008) takes up this difference and elaborates on it. While the former – also known as specific or circumstantial inference – is based on the observation of external clues (108), the latter – also called generic inference – is based on previous knowledge of the issuer, both in relation with previous experiences as well as his/her encyclopedic knowledge (109).

(108) Spanish (Rosemeyer, 2017, p. 171)

Desde el mismo momento en que el dinero lo guardaba Muñoz en bolsas de basura, debió entender que **aquello no olía bien**

'From the very moment Muñoz put away the money in trash bags, he must have understood that there was something fishy about it.'

(109) Spanish (Rosemeyer, 2017, p. 166)

Pero él **debió de nacer** en Sevilla; a lo menos Hispalensis se llama en la portada de sus obras, aunque puede aludir no al lugar de su nacimiento, sino al de su educación

'But he must have been born in Seville; at least, he called himself Hispalensis in the covers of his work, although this can make reference not to the place of his birth, but to that of his education.'

This difference is fundamental in the grammaticization processes and explains according to Cornillie (2009) the different functional distribution of *deber* + infinitive – based on inductive inference (that corresponds to Squartini 2008's circumstantial inference) – and *tener que* + infinitive – based on deductive inference (equivalent to generic inference)⁵⁹.

Not all languages with a grammaticized evidential system display the same distribution of subcategories and values that constitute it. Thus, for instance, Aikhenvald (2004) proposes to distinguish systems with two, three, four, and five or more choices of evidential marking. Those with only two choices are referred to as "small" systems. They are divided into five types (110), namely (2004, p. 25):

(110) Evidential five-types system

- (i) first-hand and non-first-hand,
- (ii) non-first-hand versus 'everything else',
- (iii) reported (or 'hearsay') versus 'everything else',
- (iv) sensory evidence and reported (or 'hearsay'), and
- (v) auditory (acquired through hearing) versus 'everything else'.

⁵⁹ Sentí-Pons (2013, 2017) exploits this difference to account for the grammaticization path of the Catalan periphrasis *deure* + infinitive, which is acquiring an evidential value.

Next, in Table 3.5 we present a comparison of classifications of evidential categories (Hengeveld & Dall'Aglio Hattner, 2015).

Table 3.5 Comparison of evidential systems categories

Source	Classification of evidential categories						
Hengeveld & Dall'Aglio Hattner (2015)	Representational					Interpersonal	
	Event Perception			Deduction	Inference	Reportativity	
Willett (1988)	Direct			Indirect			
	Attested			Inferring		Reported	
	Visual	Auditory	Other	Results	Reasoning	Second-hand	Third-hand
De Haan (1998)	Direct			Indirect			
	Visual	Auditory	Other	Inferential		Quotative	
Plungian (2010)	Direct Access			Indirect Access			
	Personal			Personal		Non-personal	
	Participatory	Visual	Non-visual	Inferential	Presumptive	Reportative	
San Roque & Loughname (2012)	Direct			Indirect			
	Participatory	Visual	Sensory	Inferring		Reported	
				Results	Reasoning		
Aikhenvald (2004)	Visual		Sensory	Inference	Assumption	Hearsay	Quotative

Table 3.5 demonstrates the difficulties to classify evidential values crosslinguistically since to some extent the three parameters pointed out by Bermúdez (2005a), in Graphic 3.3, are present in different levels in the hierarchy.

3.4.1.2 Evidential forms

As mentioned earlier, the third debated dimension in the area of evidentiality refers to the establishment of the inventory of grammatical forms in the languages, i.e. the decision of what elements should be considered evidential. According to Aikhenvald: "in order to be considered as an evidential, a morpheme has to have 'source of information' as its core meaning; that is, the unmarked, or default interpretation" (Aikhenvald, 2004, p. 3) and it has to be part of the language grammar. Other authors propose also limiting criteria, as Anderson (1986), de Haan (1997)⁶⁰ or Pietrandrea and Stathi (2010).

⁶⁰ de Haan adds two parameters to Anderson's characterization: (v) evidentials do not display agreement with the issuer and (vi) they cannot fall under the scope of negation (de Haan, 1997, pp. 147-150; 2000, p. 75f.).

Based on empirical observations, Anderson (1986) suggests that “archetypal evidentials” have the definitional properties in (111).

(111) Anderson’s (1986, pp. 274-275) criteria for evidentials

- (i) Evidentials show the kind of justification for a factual claim that is available to the person making that claim.
- (ii) Evidentials are not themselves the main predication of the clause, but are rather a specification added to a factual claim about something else.
- (iii) Evidentials have the indication of evidence as their primary meaning, not only as a pragmatic inference.
- (iv) Morphologically, evidentials are inflections, clitics, or other free syntactic elements (not compounds or derivational forms).

From the grammaticization perspective, evidential morphemes can have very different origins compared with epistemic modals (de Haan, 1999). In Table 3.6, we provide a synthesis of linguistic elements that express evidential content (or that can license evidential readings based on other contextual elements and according to the degree of grammaticization, such as future in Romanic languages).

Table 3.6 Linguistic resources for the expression of evidentiality

Means	Examples
(obligatory) inflection	inflection in Tuyuca (Barnes, 1984)
(non-obligatory) suffix	<i>mış</i> (inference) in Turkish (Slobin & Aksu, 1982)
clitic	<i>-wa:t</i> in Makah (Mushin, 2001)
particle	<i>lo1</i> in Cantonese (Wakefield, 2011)
preposition	<i>según</i> in Spanish (Maldonado & de la Mora, 2015)
grammatical morphemes	resultatives and anteriors > indirect evidentiality (Bybee et al., 1994)
	verbal tense such as <i>pretérito imperfecto</i> of indicative in Spanish with quotative value (Bermúdez, 2005a; Estrada, 2013)
	experiential perfect in Mandarin V- <i>过</i> guo (Tantucci, 2013)
	English modal <i>must</i> (de Haan, 2005)
adverbs	Spanish <i>por lo visto</i> (Cornillie, 2007a), <i>evidentemente</i> (Estrada, 2013)
adjectives	<i>akivaizdu</i> in Lithuanian (‘obvious, evident’) (Ruskan, 2012)

Means	Examples
verbal groups/periphrases	<i>parecer + infinitive, deber de + infinitive</i> (Cornillie, 2007b, 2016)
substantives	<i>evidencia, obviedad, conclusión</i> in Spanish (López Ferrero, 2006)
syntactic constructions	raising: difference between <i>Vi que (María) llegó</i> /'I saw that (María) arrived' and <i>La ví llegar (a María)</i> /'I saw her arrive (María)' (Bermúdez, 2005a; Bolinger, 1974)
discursive constructions	direct discourse: constructed action/role shift in ASL and LSC (Jarque & Pascual, 2016; Shaffer, 2012), Ungarinyin (Spronck, 2016), <i>dizque</i> in Colombian Spanish (Olbertz, 2007)
discourse markers	<i>a ver</i> in Spanish (Estrada, 2013), <i>a veure</i> in Catalan (Montolío & Unamuno, 2001)

Bermúdez (2004, 2005)'s work is relevant for our endeavor, since it shows how limiting it is to consider uniquely flexion as a marker of evidentiality (see Aikhenvald, 2004) and it recognizes the evidential values that encode verbal constructions that are halfway between verbs that subcategorize clauses and verbal periphrases (see González Vázquez 2006). Thus, for instance, Bermúdez (2005a) refers to the difference in Spanish between the (a) and (b) sentences of, respectively, (112) and (113).

(112) Spanish (Bermúdez, 2005)

(a) **La oí** llegar (a Ana)
'I heard her (Ana) coming.'

(b) **Oí que** Ana llegó.
'I heard Ana came.'

(113) Spanish (Bermúdez, 2005)

(a) **La ví** llegar (a Ana).
'I saw her (Ana) coming.'

(b) **Vi que** Ana llegó.
'I saw that Ana came.'

While (112)(a) and (113)(a) only express direct access to the source of information (auditory and visual, respectively, (112)(b) can refer both to the auditory access as well as indirect access of the mentioned kind and (113)(b) can refer to visual access and

inferred indirect access. In other words, subject raising encodes distinctions in the domains of evidentiality⁶¹.

Besides the relation between syntactic constructions such as subject raising and verbal periphrases, there is also a relation between verbal periphrases and discourse markers with evidential value, such as *a ver* ('let's see') that comes from *vamos a ver* ('let's see') (Estrada, 2013; Montolío & Unamuno, 2001). To establish these relations, we agree with Wiemer and Stathi (2010) that assign the label of evidentials:

[...] not only to markers that are considered to be grammatical in the strict sense, but also to lexical means, more specifically: to various classes of function words and constructions, whose semantics contain a stable, non-detachable reference to the cognitive-communicative basis of judgment. (Wiemer & Stathi, 2010, p. 276).

On the other hand, DeLancey (1997) observed a connection between evidentials based on direct access to the source of information and mirative morphemes, as well as between mirativity and speech act, since a considerable share of the examples of sentences with miratives imply an exclamative speech act. Furthermore, we have attested mirative readings of the uses of the periphrasis *ser de* + infinitive. For this reason, we will present this linguistic category in Section 3.4.2.

3.4.1.3 Relation between evidentiality and modality

Finally, the fourth issue refers to the limits and interfaces between evidentiality and modality. Aikhenvald (2004) establishes evidentiality as a grammatical category in its own right and prevents it from being included in other categories, especially modality. Four positions represent the most commonly attested analyses on the relation between epistemic modality and evidentiality (de Haan, 2002; Dendale & Tasmowski, 2001) (Table 3.7).

Table 3.7 Positions on evidentiality

Positions	Studies
disjunction: separate domains	Aikhenvald (2004), Bermúdez (2005), Capelli (2005), de Haan (1999, p. 85), Fitneva (2001), Lazard (2001), Nuyts (2001), Salkie (1996), Plungian (2001), Wiemer & Stathi (2010), Topor (2011)
inclusion 1: evidentiality as part of epistemic modality	Palmer (1986), Willett (1988)

⁶¹ See Bermúdez (2005) for a detailed discussion of the examples and argumentation.

Positions	Studies
inclusion 2: epistemic modality as part of the evidentiality	Papafragou (2000), Ifantidou (2001)
hyponymy 1: both are part of a larger domain: (modality) propositional modality	Palmer (2001), Cornillie & Pietrandrea (2012)
hyponymy 2: evidentiality and epistemic modality as subcategories of the same superordinate category	Hengeveld (1989), <i>epistemicity</i> (Boye, 2006), <i>stance</i> (White, 2003)
intersection: evidentiality partially overlap with epistemic modality (inference)	Beijering (2012), van der Auwera & Plungian (1998)

The four kinds of relations (disjunction, inclusion, hyponymy and intersection) yield different possibilities, namely (114):

(114) Relation between modality and evidentiality

- (i) **Disjunction:** evidentiality and epistemic modality are separate domains. The notion of evidentiality is restricted to the identification of the source and means whereby information is available to the utterer (speaker/writer/signer) (Aikhenvald, 2004; de Haan, 1999).
- (ii) **Inclusion:** the relation may be in the two directions, i.e. evidentiality can be part of epistemic modality (Palmer, 1986), or epistemicity is incorporated into evidentiality.
- (iii) **Hyponymy:** in this case, evidentiality and epistemic modality are part of a larger domain. For Palmer (2001), the superordinate category would be *propositional modality*, and evidential together with epistemic modality would represent two subsystems of it. Also, according to Cornillie and Pietrandrea (2012), modality would be a supercategory including epistemic modality, evidentiality and deontic modality. For others, like Chafe (1986), evidentiality would be the superordinate category and it would include both the source of information and an estimation of its reliability.
- (iv) **Intersection:** evidentiality and epistemic modality partially overlap as in (van der Auwera & Plungian, 1998). The area of overlap is inferentiality. The interface between the two domains corresponds to inferential evidentiality and epistemic necessity. This relationship is pointed out in van der Auwera and Plungian (1998)'s proposal. Cornillie (2007) points out that the overlap

category between modality and evidentiality should not be exclusively situated in the domain of necessity but can also include prediction.

Besides, de Haan (1999) examines the main difference between the two domains as follows in (115):

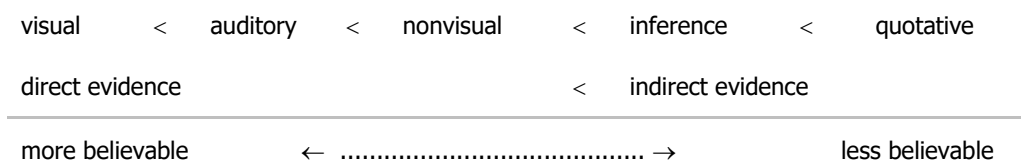
(115) Differences between epistemic modality and evidentiality

- (i) **Semantically**, there is a distinction between marking the source of the information (evidential) and the degree of commitment a speaker places in his/her utterance (epistemic).
- (ii) **Syntactically**, fully-grammaticalized evidentials behave differently with respect to negation. Unlike epistemic modal elements, such evidentials cannot occur within the scope of a negation.
- (iii) With regard to **grammaticalization**, evidential morphemes can have very different origins from epistemic modals.

In other words, concerning semantic differences among both domains, de Haan (2005) highlights that there is a difference between the encoding of the source of (evidential) information and the degree of commitment that a speaker manifests in his/her sentence (epistemic modality): "Evidentiality asserts the evidence, while epistemic modality evaluates the evidence" (de Haan, 2005, p. 380). Cornillie takes a stronger stand and argues that "the terminological confusion is the result of mixing up the speaker epistemic commitment and the reliability of knowledge" (Cornillie, 2009, p. 44), the latter linked with evidentiality. In this sense, Huddleston and Pullum (2002) eloquently say that:

[E]pistemic modality qualifies the speaker's commitment to the truth of the modalized proposition. While *It was a mistake* represents an unqualified assertion, *It must have been a mistake* suggests that I am drawing a conclusion from evidence rather than asserting something of whose truth I have a direct knowledge. And *You may be right* merely acknowledges the possibility that 'You are right' is true. (Huddleston & Pullum, 2002, p. 52).

The confusion between the domains is strengthened by the evaluation of reliability that can be carried out about the source of information. Some authors argue that there is a direct correspondence between different manners of acquiring knowledge (evidentiality) and different degrees of certainty about the truth of the proposition (epistemic modality) (Frajzyngier, 1985). The different interpretation of direct and indirect evidentials on a believability axis is schematized in Graphic 3.5 (de Haan, 1999):



Graphic 3.5 Evidential meanings and believability degree

However, de Haan points out that the interpretation outlined in Graphic 3.5 above is secondary in nature and the link present in some languages is far to be universal. On the other hand, and this is the case also of Catalan, Spanish and other languages, in several languages certain linguistic expressions express modal and evidential meanings, although not (always) simultaneously (Cuenca, 2015; Dendale & Tasmowski, 2001; González, 2005; Sentí-Pons, 2015).

3.4.2 Mirativity

Mirativity, a relatively new linguistic category, consists in the expression of new or unexpected information (de Haan, 2012; DeLancey, 1997, 2001, 2012; Estrada, 2013; Mocini, 2014; Peterson, 2013; Tournadre & LaPolla, 2014). De Haan defines it as “the marking of unexpected information, information that somehow shocks or surprises the speaker” (de Haan, 2012). It is a grammatical category⁶² that is fully developed in some languages, such as Lhasa Tibetan, while in other languages the mirative value is implied by different kinds of meanings and structures in specific contexts (Peterson, 2013). Thus, the perfect aspect as used with a *hot news* function (Bybee et al., 1994) could be considered as a mirative resource. The same applies for a specific use of Spanish imperfect, called “de sorpresa, desencanto o piropo”⁶³ (Estrada, 2013, p. 107). In this sense, Peterson points out its universal nature:

⁶² Regarding the categorical status of mirativity, we refer the reader to the discussions in the monographical issue *Linguistic Typology* (2012, Volume 16, Number 3).

⁶³ “of surprise, disappointment or compliment” (Estrada, 2013, p. 107).

Mirativity is probably a linguistic universal: all languages have linguistic strategies that speakers use to talk about states, events or activities that do not accord with their current mental state, situational awareness, or background knowledge. (Peterson, 2013, p. 3).

Mocini (2014) provides a description of lexico-grammatical patterns associated with semantic elements implied in the expression of surprise in English and Italian, such as nominals (*sorpresa* 'surprise'), intensifiers that modify a nominal clause (*quite a surprise; una vera sorpresa* 'a real surprise'), scalar focus particles (*incluso* 'even'; *and ... even*), adverbs (*neppure* 'not even', *nemmeno* 'not even'), focus structures (pseudo-clefts or question-answer patterns), intonational contours, etc.⁶⁴

As pointed out in the previous section, this grammatical category is associated with evidential constructions, as discussed in DeLancey (1997):

[Mirativity] marks both statements based on inference and statements based on direct experience for which the speaker had no psychological preparation... What these apparently disparate data sources have in common ... is that the proposition is one which is new to the speaker, not yet integrated into his overall picture of the world. (DeLancey, 1997, pp. 35-36)

According to de Haan (2012), mirativity is a phenomenon related with evidentiality, since in those languages that display both categories, the morphisms of the latter often expresses also the former. It is certainly true that Spanish evidential expressions, such as those in (116), carry a surprise reading when uttered with an exclamative or ironic intonational contour.

(116) Spanish

- (a) ¡Si no lo veo, no lo creo!
'If I don't see it, I don't believe it!'
- (b) ¡Lo he visto con mis propios ojos!
'I've seen it with my own eyes!'
- (c) ¡Qué callado te lo tenías!
'How quiet were you about it!'

Also, periphrasis such as *resultar* + infinitive (117) or periphrastic groups of the kind *va y coge y me dice*, express this value of unexpected.

⁶⁴ We refer the reader to Soto and Olguín (2010) for an analysis of this category in Spanish.

(117) Spanish [Martín Caparrós, *Pamplinas*, 2011]⁶⁵

Pero es que poca gente me ha hecho emocionar tanto como don Antonio Chenel, y ahora **resulta que se ha muerto**.

'But it is that few people have made me feel as much as Don Antonio Chenel, and now it turns out he died.'

Similarly, mirative nuances have been detected in modal constructions such as some uses of the periphrasis *ser de* + infinitive used to indicate an unexpected reaction or answer. Thus, for instance, Octavio de Toledo (2017) proposes that the combinations of *ser de* with infinitives expressing sensorial perception (principally *ver* and *oír*, but also, to a minor extent, *mirar* or *escuchar*), and frequently in association with imperfect, have adopted a joint meaning of modalized and evaluating nature. This meaning implies that the situation -expressed by the phrase that represents the (tacit or overtly expressed) subject of the construction- strikes the issuer as particularly funny, extraordinary, intolerable, hard to believe, etc. (Octavio de Toledo y Huerta, 2017).

These structures become clearly evident in the middle of the sixteenth century and its use will increase till the twentieth century, when it will wane. This is exemplified by the fragments reported in (118).

(118) Spanish [G. Martínez Sierra, *Granada: guía emocional*, 20th century] (Octavio de Toledo y Huerta, 2017, p. 376)

porque **son de escuchar** las patrañas que en la más incomprensible jerga cordobesa cuenta el mozo

'Because one has to listen to the pranks that the boy tells in the most incomprehensible Cordovan jargon.'

Identifying these patterns is relevant not only for the description of clearly grammatical elements that express these values in Spanish – an area that has offered few contributions – but especially for stirring up the theoretical discussion about the relations among the three domains (modality, evidentiality and mirativity). The connection between modality and mirativity is related, without doubt, with beliefs and expectations about our access to knowledge and interpretation of the world. For this reason, when

⁶⁵ <http://blogs.elpais.com/pamplinas/2011/10/al-maestro-chenel.html>

categorizing the data it is fundamental to start from the context and its clues, as highlighted by Peterson (2013):

More specifically, an important observation that draws these descriptions together is how the contexts associated with these examples reflect the intuition we have about making statements of surprise: we can only be surprised about things that we either witness, or believe to be true; or conversely, we can't be surprised about states, events, or actions we have no awareness of or haven't witnessed. This observation suggests the importance of the speech context, and the speaker's evaluation of the information within that speech context. (Peterson, 2013, p. 11).

Therefore, a characterization of modality has to adopt necessarily a broad perspective about meanings, pragmatic components and nuances that constitute a construction.

3.5 Modality, grammar and discourse

Apart from the functions performed by the modal constructions as a part of the subjective activity of the issuer that have been described by well-established works such as Kerbrat-Orecchioni (1980), Ducrot (1980), Cervoni (1987) and Vion (1992), we want to highlight the relations that occur between grammar and text/discourse, both from grammar/clause level to discourse/text-level and viceversa.

These relations are highly relevant for the description of modal structures in a language for two reasons. On the one hand, from a descriptive point of view, they facilitate the identification of functions at each level. On the other hand, they ease the establishment of grammaticization and discursivization paths in one or the opposite direction.

3.5.1 From clause level to text/discourse level in spoken languages

Some studies argue that grammatical categories are expressed not only at a morphological and clause level, but also in discourse structures (Pietrandrea, 2007, 2008). Pietrandrea (2008) studies and contrasts the distribution at the level of clause and macro-syntactic discourse configurations of two Italian adverbs: *certamente* ('certainly') and *sicuramente* ('surely'). Whereas they do not show differences at the clausal level, they behave differently when performing discourse functions. Indeed, some studies stress the polyfunctional (or hybrid) nature of modal markers, showing fuzzy boundaries with discourse markers and interjections (Cuenca, 2008, 2013; Cuenca & Marín, 2012; Maldonado, 2010; Pons, 2003; Romano & Cuenca, 2013). For instance,

Catalan markers as *bueno* ('well'; literally, 'good') and (*és clar* ('(it is) clear') literally, 'it is clear') (Cuenca & Marín, 2012).

Furthermore, some researchers consider modal forms a kind of discourse or pragmatic marker along with cohesive markers or connectives (Martín Zorraquino & Portolés, 1999; Norrick, 2007; Simon-Vandenberg & Aijmer, 2007).

Moreover, from a diachronic perspective, it is relevant to establish differences between processes. Beijering (2012), for instance, investigates the rise of epistemic expressions in the Mainland Scandinavian languages (i.e. Danish, Norwegian and Swedish) in relation to lexicalization, grammaticalization and pragmaticalization. They concluded that the complement taking predicate *I think* is an instance of subjectification and the discourse marker *I think* is an instance of pragmaticalization. Although Willens and Blanche-Benveniste (2014) examine it assuming a constructional corpus-based approach (See chapter 2 above for a discussion on grammaticalization and pragmaticalization).

3.5.2 From interaction to grammatical meaning

Recent research on language sciences increasingly focus on interaction, along the direction from discourse to grammar. Interactional linguistics takes into consideration how talk-in-interaction shapes language and discourse or intersubjective structures become grammatical constructions, both in spoken and signed modality (Geluykens, 1992; Jarque, 2016; Pascual, 2014; Pascual & Sandler, 2016).

This is especially relevant in signed languages, since it has been claimed that grammatical markers have grammaticalized from lexical items, whose origin is a gestural element from spoken multimodal discourse (S. Wilcox, 2004a; S. Wilcox, et al., 2010; S. Wilcox & Xavier, 2013). This leads us to consider crucial to analyze modal pragmatic co-speech gesture in spoken languages (Kendon, 1995; Payrató, 1993, 2013, 2014)⁶⁶.

Also in signed languages, recent research has pointed out modal functions in gestures used in signing interaction. Specifically, studies of *palm-up* form in signed languages associate it with several discourse functions (Amundsen & Halvorsen, 2011; Conlin,

⁶⁶ See the handbook edited by Müller et al. (2013, 2014) for a comprehensive state of the art in multimodality in interaction.

Hagstrom, & Neidle, 2003; Engberg-Pedersen, 1999, 2002; McKee & Wallingford, 2011; Waters & Sutton-Spence, 2005). Amunsden and Halvorsen (2011) have described the palm-up form used as a gesture with conventionalized discourse marker functions as well as a gesture expressing modality and affect, apart from other discourse functions (transition between topics, connecting discourse elements and focusing, interrogative function, conversation regulator and prosodic function).

3.6 Final remarks

Throughout this chapter, we have highlighted the limitations and difficulties that arise, when conducting empirical research on the semantic domain of modality, since the literature presents divergences related both with the delimitation of the semantic space, the subdomains and values therein included, the terms that identify it, as well as the multiple and complex relations with other domains. In this sense, it is especially relevant to be precise in the use of terminology and to make explicit exactly which meaning has a term in a contribution to the literature (Ziegeler, 2011).

The differences expressed in the delimitation of the subdomains and values of the category, as well as the combinations of categories that many of the empirical work in the area are faced with, show the inadequacy of a conceptualization of the domain in clear-cut categories. A characterization of this semantic space based on fuzzy set theory seems to be more adequate. It would allow differentiating between values that are prototypical and those that are marginal to the category.

This characterization is far from being new and has been adopted by Li (2004) and Narrog (2005) for the description of modality in Chinese and Japanese, respectively. Thus, Li (2004) defines the semantic category of modality as a fuzzy set of the semantic notions related with possibility and necessity, as reproduced in Figure 3.6.

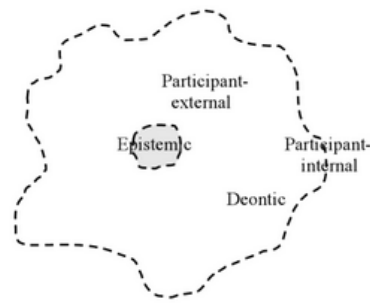


Figure 3.6 Modal semantic categories (Li, 2004)

However, contra Li (2004), we believe that it is not accurate to leave out the volitive or volitional modality, since volition constitutes one of the prototypical elements in the expression of subjectivity and the communicator's attitudes. Moreover, Narrog (2005b, 2005c) considers volition as one of the dimensions that shape this semantic space, together with the dimensions of event-orientation and speaker-orientation. Also, Jespersen (1924) considered it as a key factor for the bipartite classification: modals with or without an "element of will".

Furthermore, we think that, despite some attempts in this sense (see van der Auwera and Plungian, 1998), grammatical meaning is not based on a logical system of oppositions (Bybee, 2006, 2010).

Within the modal categories, there is no opposition in a strict sense between necessity and possibility; rather these are the two extreme points of a continuum in the modal space. Moreover, this setup allows root modality to be considered as one the central values, and not only as a particular case of (external) dynamic modality or of deontic modality (without a clear source of authority). Root possibility is a term that encompasses participant-internal possibility and external-possibility linked to circumstances (see Coates, 1983).

Regarding deontic modality in strict sense, we consider it to be scalar, with prototypical uses where there is an explicit source of authority, but encompassing also uses related with a non-explicit source, that can be either subjective or intersubjective (i.e. external, or culturally shared such as the morality of a social group or a culture).

In turn, epistemic modalities constitute a continuum – the commitment to reality or truthfulness of a proposition is generally a matter of degree –, where three prototypical members stand out: possibility (the proposition can be true), probability (that indicates a greater likelihood) and inferred certainty (that strongly implies that the speaker has good reasons to suppose that the proposition is true) (Bybee, Perkins & Pagliuca, 1994, pp. 179-180).

On the other hand, the adoption of a semantic map of the values constitutive of this domain, close to that proposed by Li (Li, 2004) and van der Auwera and Plungian (1998), allows for the implementation of a work methodology that combines an onomasiological and a semasiological perspective: we both work our way down from the meanings that constitute the domains of modality and other functionally similar domains, as well as we work our way up from a specific list of candidates emerged from the pilot studies.

With the adoption of an onomasiological perspective we start with an intentional definition of the function or value (for instance, modal or evidential) to arrive at an extensional description, i.e. an inventory of the forms. The integration of both perspectives is necessary (Wiemer & Stathi, 2010). On one hand, the top-down onomasiological process allows for the delimitation of the pool of items that can be potentially considered; on the other hand, the bottom-up process allows us to elucidate the empirical adequacy of the description of these elements with a lexical or grammatical status (see Nuyts 2001, for a proposal that goes from function to form).

Withal, it appears necessary to assume a perspective based on use (Bybee & Hopper, 2001; Nuyts, 2001) and that implies covering the linguistic facts in their discursive context. We agree with Gee (Gee, 1985)'s statement that discursive approaches to modality provide knowledge that facilitates the comprehension of modality as a linguistic phenomenon. Similarly, the necessity arises to reformulate traditional modal categories from an ethnographic perspective, i.e. from a language-internal perspective and not trying to fit forcefully the linguistic observations in predetermined categories.

Consequently, the conception of modality reviewed and developed along this chapter implies a wide array of assumptions and implications that challenges traditional approaches to modality. In (119) we outline the main ones:

(119) Implications for research on modality in LSC

- (i) **Possibility and necessity** are two **central elements** of a continuum. They differ from each other, but they relate in terms of negation, implication and implicature.
- (ii) The **transition** from one kind of modality to another is **gradual and not abrupt**. Therefore, the indeterminate cases of gradience, ambiguity and fusion have place in a continuum of meanings.
- (iii) A given (simple or composite) form with a modal meaning can acquire or develop **new functions or meanings over time**. A new function converts it into a new symbolic unit (Langacker, 2009). Therefore, modal verbs and periphrasis are not polysemous elements; rather they constitute different linguistic entities that coincide in aspects of their form.
- (iv) **Lexicon and grammar** constitute a **continuum** where one can identify grammatical constructions, with different degrees of specificity, and that fall between this two areas (Langacker, 1990; Traugott & Trousdale, 2013). This aspect is fundamental to analyze modal elements in LSC, because some of them may have had their origin in predicates that grammaticalized in a whole verbal construction and evolved to be similar to verbal periphrases⁶⁷.
- (v) Lexicon and grammar are organized at **different levels of abstraction**. Therefore, linguistic constructions can include specific elements, such as words. This is a fundamental aspect when reporting incipient grammaticization processes of verbal periphrasis rooted in other constructs and other constructions that share features, i.e. lexical chunks, elements of meaning, syntactic structure, etc. (Garachana, 2016, 2017b).
- (vi) **Modal elements and constructions interact** differently with elements that belong to other linguistic categories that have become grammaticized in Catalan, Spanish, LSA, ASL, and so on, giving birth jointly to new grammatical elements and constructions. In other words, it is the combination of elements and their use in functional contexts that allows for the consolidation of a new construction (Bybee, 2010; Garachana, 2015; Hilpert, 2014; Traugott, 2010; Traugott & Trousdale, 2013).

⁶⁷ See Garachana (2017a) and Anderson (2013) for a discussion of the category *grammatical periphrasis* in the Hispanic and the Anglo-Germanic tradition, respectively.

- (vii) **Modality and evidentiality** constitute two **different semantic domains**, that interact in discourse and use. Apparently, periphrastic constructions such as Catalana *deure* + infinitive and Spanish *deber de* + infinitive can encode both domains. Nevertheless, if we keep in mind contextual properties, we can observe differences that lead us to believe that they are two different constructions (Cornillie, 2007b, 2009; Sentí-Pons, 2013, 2015).
- (viii) Modal constructions can **adopt other readings** depending on the element of the discourse, such as boulomaic interpretations (estimative or evaluative modality) or mirative interpretations (expression of surprise).

To sum up, the study of modal resources of a language and their diachronic origins represents a major challenge not only for the difficulty posed by the characterizations of this domain and the diversity of terms used in the literature, but also for the inherent complexity of the subject, that is full of semantic nuances and that displays intricate interactions with other linguistic domains and categories.

THE STUDY

Chapter 4. Goals

4.1 Introduction

In the above chapters, we have surveyed previous research that deals with the formal expression of modal meanings in the spoken and signed languages, and we have outlined the main issues that motivate our research. In this chapter, we will specify the overall aim of this research, its goals and state the research questions we will attempt to answer.

The chapter is structured as follows. Firstly, Section 4.2 presents the problem addressed: the general aim and goals. Next, Section 4.3 states research questions. The following Section deals with the conceptual bases and relevance of the research questions (§ 4.4). Finally, Section 4.5 closes the chapter.

4.2 Aim and goals

The overall aim of this research is to understand whether the grammatical category of modality exists in Catalan Sign Language (its resources, its interaction with other functional categories, and the diachronic origin of its formal resources), and whether the modal elements perform the grounding function. To attain this final aim, we formulate the following research goals (RG):

- RG1.** To identify and describe the constructions encoding meanings that belong to the semantic domain of (volitional, epistemic and non-epistemic) modality in LSC.
- RG2.** To examine the interaction of modal meanings and forms with other grammatical or functional categories in LSC, namely negation, evidentiality and aspect.
- RG3.** To explore and posit gestural and linguistic elements, either lexical or grammatical, that may constitute the source for modal constructions and to trace evolving processes and possible grammaticalization paths.
- RG4.** To elucidate whether modal elements in LSC effect the semantic function of grounding and how this is accomplished, contributing to the discussion of grounding systems from the perspective of the signed modality.

4.3 Research questions

On the basis of the literature review conducted in the previous chapters, we formulate, for each of the mentioned general goals, the following research questions (RQ):

RG 1. To identify and describe the main linguistics constructions encoding meanings that belong to the semantic domain of (volitional, epistemic and non-epistemic) modality in LSC.

Modal constructions:

RQ 1. Which linguistic elements convey (volitive, epistemic and non-epistemic) modal meanings in LSC discourse?

Semantic dimension:

RQ 2. Which semantic values do these elements express and how are they structured in the modality domain?

Morphosyntactic dimension:

RQ 3. Which syntactic distribution do LSC modal elements exhibit?

RG 2. To examine the interaction of modal meanings and forms with other grammatical/functional categories or semantic spaces in LSC, namely negation, evidentiality, and aspect.

Negation:

RQ 4. How are the main modal constructions with positive polarity negated?

RQ 5. Are there negative modals in LSC? Which modal functions do they accomplish? Which properties do these constructions exhibit?

RQ 6. Which syntactic distribution do negative modal constructions exhibit? Are there combinations of negative modality markers? Do they express negative agreement? Do they show negative concord?

Evidentiality:

RQ 7. Which are the main constructions signaling evidential meanings in LSC?

RQ 8. Which are the sources for evidential markers?

RQ 9. Do modality and evidentiality constitute separate grammatical categories in LSC?

Aspect:

RQ 10. Which are the main elements signaling aspectual categories in LSC?

RQ 11. Which are the sources for aspectual manual markers in LSC?

RQ 12. Does LSC express modal values through aspectual constructions? Do modal constructions express aspectual meanings?

RG 3. To explore and posit gestural and linguistic elements, either lexical or grammatical, that may constitute the source for modal constructions and to trace evolving processes and possible grammaticalization paths.

Grammaticalization and source of modal constructions

RQ 13. Which modal forms and constructions have their source in lexical items, grammatical items, manual gestural items and non-manual gestural items?

RQ 14. Does LSC exhibit prototypical modal grams?

RQ 15. Can we determine grammaticalization paths from the different synchronous properties modal constructions exhibit? Which cognitive mechanisms may have been at work? Do LSC data confirm the two routes proposed for signed language grams in the literature?

Modal functions and discourse

RQ 16. Do LSC forms adopt modal readings via pragmatics?

RQ 17. Do gestures/discourse markers from the palm-up family express modal nuances in LSC discourse?

RG 4. To elucidate whether modals elements in LSC effect the semantic function of grounding and how this is accomplished.

RQ 18. Do modal grams in LSC constitute grounding predications in Langacker's (1990, 2002, 2013b) terms?

4.4 Research questions conceptual base and relevance

In this section, we will briefly explain the conceptual bases and relevance of the research questions formulated in relation with the research goals.

4.4.1 Goal 1: Constructions encoding modal meanings

The conceptual bases and relevance of the first goal derive from the following considerations. As indicated in chapter 1, LSC is an understudied language. Research has not established yet which are the grammatical categories in the language, what are the linguistic properties of its lexical and grammatical categories, etc. This is the reason why this study takes a broad and exploratory perspective.

According to Pietrandrea (2012), in order to consider a grammatical category in a language, the two following conditions are necessary: (i) a semantic notion is expressed by a specific form in this language, and (ii) this is grammatical.

We assume that grammatical categories in a language are no restricted to those expressed through inflection (Cf. Aikhenvald (2004) for arguments considering exclusively inflection as a grammatical expression concerning evidentiality). Indeed, we

assume that grammar and lexicon constitute a continuum and that the expressions traditionally called *lexical* may include restrictions, been general and specific and thus closer or grammatical elements based on constructions (Langacker, 1991). Following Boye and Harder (2009) grammatical expressions exhibit the following properties:

- a) They belong to a (limited) number of substantial domains relevant from a crosslinguistic perspective.
- b) They imply a secondary predication with respect to the main predication; which constitutes the lexical part in the linguistic system.

Thus, according to Boye and Harder (2009) the semantic content of an expression that can be considered grammatical must be related to the semantic domain of categories described crosslinguistically, namely aspect, modality, evidentiality, indexicality, negation, person, time, and others. Furthermore, the secondary predication refers to the fact that meaning of the expression under scrutiny is relational in nature. This property has been called *secondariness*.

Pietrandrea (2007) suggests a functional definition of grammar which considers grammatical all the linguistic units that express "general, abstract, relational meanings" (Bybee et al., 1994, p. 5), derived from the formal apparatus of enunciation (Benveniste, 1971 [1958]) and related with the most prominent aspects of cognition (Langacker, 1987, 1999, 2013a).

Indeed, a complexity theory approach to language (Beckner et al., 2009; Massip-Bonet & Bastardas-Boada, 2013) provides an epistemological perspective that guides our research. We consider complexity a pervasive aspect of language, in all its dimensions, structures, functions, etc. One can see it, for example, in the self-organization and adaptation as a code when grammatical functions evolve. The expression of a semantic or functional category (aspect, person, quantity, temporality, modality, etc.) in a language implies the interaction between its lexical and its grammatical expression.

For this reason, we cannot predict, either in Indo-European (Ballester, 2003) or in signed languages, the behavior of different linguistic constructions that encode, for instance, tense when they are studied separately. For this reason, we consider that, in order to study an unknown specific phenomenon such as modality, it is necessary to zoom out, taking into account this phenomenon from a broader perspective and examining all the possible meanings, assuming in first place an onomasiological perspective.

4.4.2 Goal 2: Modal resources interacting with other semantic categories

On the other hand, considering language as a complex system, the components of which are also systems (Beckner, et al., 2009; Cameron & Larsen-Freeman, 2008; Heylighen, 2010; Massip-Bonet & Bastardas-Boada, 2013), implies that the coding of a function interacts with the coding of the other functions within the language. This means that we cannot describe how modal elements of a language function without taking into account the behavior of other semantic domains or grammatical functions. This is true both when we are trying to establish whether or not we are dealing with constructions, as well as when we strive to define its function on the basis of its interaction with the elements of other grammatical domains.

Consequently, the perspective in our study is horizontal, rather than vertical. It includes the description of the main semantic domains, the potential grammatical categories of the language (fundamentally aspect, negation, and evidentiality). These categories are included either in the TAME hypercategory (Bybee, Perkins, & Pagliuca, 1994; Givón, 1982) – where TAME stands for “tense-aspect-modality-evidentiality” - or in the hypercategory of “qualifications” of states of affairs (Nuyts, 2001, 2005).

While the boundary between modality and the expression of time was a hot topic of discussion a few decades ago, the boundary between modality and evidentiality constitutes one of the most controversial issues of the last decade (Squartini, 2016), as discussed in chapter 3.

4.4.3 Goal 3: The sources for modal constructions

The third research question is about the origin of modal constructions. Since there is no research, in signed language studies, about the origin of the linguistic repertoire of a grammatical category, this study may provide solid evidence to ascertain whether or not grammatical forms have their origin in gestural forms, and whether or not the free forms have to pass through a lexical stage (Wilcox, 2007, 2009; Wilcox, Rossini, & Pizzuto, 2010).

Furthermore, as discussed in chapter 2 and 3, this issue is relevant since the formal and semantic evolution of a linguistic unit can give us additional information about its status. This issue is crucial in signed languages because of the relation and the interaction between gestural and linguistic units, both synchronically and diachronically (Jarque, 2011; Wilcox & Xavier, 2013). The formal changes that the form experiences, from gesture to lexical item, if that is the case, or from lexical item to grammatical form may shed light on its status, as well as the array of linguistic contexts in which it can appear.

Moreover, the research question is related with the following goal, since the degree of grammaticalization is relevant for considering a grammatical construction as grounding predication.

4.4.4 Goal 4: Prototype modals and grounding predications

The fourth research question focuses on whether prototypical modals in LSC constitute grounding predications. As mentioned in Chapter 3, Langacker establishes the grounding function as necessary for a clause to be considered a sentence (Langacker, 2002, 2009, 2013b). Indeed, Langacker proposes the concept of *grounding predication* to characterize highly grammaticalized linguistic elements that accomplish the grounding function, i.e. linguistic devices the function of which consists in indicating the relationship of a designated entity to the *ground* concerning epistemic domains pertaining to reality, existence and speaker/hearer's knowledge. In other words, grounding predications pose the conditions that lead to successful communication, in the sense that they allow to establish mental contact with, or direct someone's attention to a referent, that discourse participants are able to determinate (Brisard, 2002).

As discussed in chapter 2, *Grounding predications* (also termed *epistemic predications*) constitute a special class of deictic elements the presence of which is needed to turn a noun into a nominal phrase or a verb, into a finite clause. As for clause grounding, whereas a simple verb merely names a type of process, a finite clause profiles a process instance and situates it with respect to time and immediate reality of the speech event. While tense specifies whether or not the designated process is immediate to the ground (either temporally or in a more abstract sense), the absence/presence of a modal

indicates whether this process belongs to reality (where the ground is located) or it is merely potential (Langacker, 1991).

The notion of grounding, a product of the reference-point construction and subjectification, supposes a great contribution because it takes into account a relevant property of language use: the conceptualizer's involvement in what is being communicated. In addition, the concept has been crucial for accounting linguistic phenomena in a comprehensive and revealing way (Doiz-Bienzobas, 2002). As examined in Chapter 2, the initial characterization presents several problems pointed out in different works (Cornillie, 2003, 2005; Laury, 2002; Mortelmans, 2002, 2006; Nuyts, 2002; Pelyvás, 1996, 2006; Smirnova, 2011; Smirnova & Mortelmans, 2011; Temürçü, 2011). This is the fourth main goal of this dissertation: to contribute to the discussion on grounding systems in the languages of the world providing data from the signed language modality.

4.5 Final remarks

In this chapter, we have presented the aim, goals, and research questions of this dissertation, and their conceptual bases and relevance. The choice of the method depended on the research goals and questions. Thus, in the following chapter, we turn our attention to the methodological issues.

Chapter 5. Method

5.1 Introduction

In the previous chapter, we specified the goals and stated the research questions we will attempt to answer, while in this we will detail the different methodological and procedural aspects that define our work, beginning with the description of the pilot projects that helped to define it.

The chapter is structured as follows. Firstly, Section 5.2 presents the research design. Next, the two pilot studies that helped us to define our research are described in Section 5.3. In Section 5.4, we present the criteria used to select the informants and give some background information about them. The description of the instruments and procedure is included in Section 5.5 and 5.6, respectively. Section 5.7 presents the LSC texts included in the data corpus. Transcription and coding are the topic of Sections 5.8 and 5.9. A brief explanation of signs representation is provided in Section 5.10. The ensuing section addresses ethical considerations concerning the research (§ 5.11). Lastly, Section 5.12 presents some final remarks.

5.2 Design

This study follows a **qualitative approach**. Since LSC (Catalan Sign Language) is an understudied language, this research is **exploratory in nature** and it is intended to uncover the main constructions used to express modal notions, and the main resources to express complementary functional domains (aspect, negation, and evidentiality). We aim at “taking a picture” of the grammatical elements expressing modal values in naturalist interaction and capturing how these elements occupy a location in the grammar space together with other functional categories. Our emphasis is, thus, on the recognition, enumeration and a first description and understanding of an unstudied phenomenon, seeking patterns of unanticipated as well as expected relationships. For this reason, our research questions are expressed in an open style (Heigham & Croker, 2009; Kuntjara, 2006).

Our study aims at generating descriptions and situational interpretations. Our sample is selected with the purpose to provide rich data to answer the questions and it is complementary to a long commitment to field activities in the Deaf community.

This study, thus, does not aspire to express generalizations about the constructions described for several reasons:

- (i) Language is a non-static, changing phenomenon;
- (ii) LSC has not been standardized;
- (iii) language transmission is mostly horizontal and the majority of signers are late-learners or second language learners;
- (iv) our focus is on looking at a coherent system: the informants (the respondent) and the interviewer belong to the same generation and deaf association, so diversity is reduced as much as possible.

Although a quantitative study would be desirable and necessary to discover form-function relations, it demands more than the current level of knowledge of the language permits. There are no phonological, lexical, morphosyntactic and discourse studies that allow LSC researchers to determine the occurrence of phonetic reduction, to identify lexical categories, to contrast syntactic distribution and establish syntactic order fixation or even to determine the main characteristics of LSC signed discourse.

Furthermore, the research carried out in this dissertation has the following characteristics, listed in (120):

(120) Characteristics of the methodological approach

- (i) It is sign language-friendly.
- (ii) It takes a small-scale corpus approach.
- (iii) It is based also on participant observation.
- (iv) It includes native judgments.
- (v) It is contextual.
- (vi) It adopts a combination of an onomasiological and a semasiological perspective.
- (vii) It takes synchronic diversity as diachronic evidence.

The characteristics listed in (120) will be discussed in the following sections, where we will provide the theoretical foundation of the methodology we have adopted.

Sign language-friendly approach

This piece of work aims at adopting a sign language-friendly methodology. This implies the adoption of a wide perspective on Catalan Sign Language and, consequently, the following issues are *not* among the goals of the research: (i) the “search” for the similitudes between spoken and signed languages; (ii) the “search” exclusively for the differences, the “peculiarities” or “exotic properties”, and (iii) the position of LSC on the signed-spoken axis within a typological context, considering LSC on its own with no contact so ever with spoken languages in the social context (Báez Montero & Cabeza Pereiro, 2000; Cabeza Pereiro, 2001; Jarque, 2012; Karlsson, 1984; Meurant, 2008; Vermeerbergen, 2006; Wilcox & Morford, 2007; Woll, 2003).

The phenomena under investigation not only include the linguistic constructions, but they also encompass the relations among signed languages, the origin and evolution of communication and language, gestural communication and other cognitive abilities (Armstrong & Wilcox, 2007; Shaffer & Janzen, 2016; Wilcox & Xavier, 2013).

Small-scale corpus approach

This research is conditioned by two highly relevant factors. Firstly, unlike the case of other signed languages, for LSC there was no available corpus, on which we could base our research. Within the last fifteen years several projects have been developed that consist in the design and construction of sign languages corpora, namely the AUSLAN (Australian SL) corpus⁶⁸, the BSL (British SL) corpus⁶⁹, the DGS (German SL) corpus, the NGT (SL of The Netherlands) corpus⁷⁰, the ISL (Irish SL) corpus, to name only the best-known examples. Concerning LSE (Spanish SL), the University of Vigo is building a corpus⁷¹. Unfortunately, there were no LSC textual corpora that could allow us to provide frequencies of occurrence of linguistic constructions. There is currently a corpus under

⁶⁸ <http://www.auslan.org.au/about/corpus/>

⁶⁹ <http://www.bsllcorpusproject.org/data/>

⁷⁰ <http://www.ru.nl/corpusngtuk/>

⁷¹ <http://webs.uvigo.es/lenguadesignos/sordos/corpus/index.htm>

construction under the direction of Josep Quer at the Institut d'Estudis Catalans⁷² (Barberà, Quer, & Frigola, 2016). Consequently, we had to build our own LSC corpus.

Participant observation

Second, we consider participant observation as a crucial methodological dimension. Understanding the function of interaction among deaf signing people is both important and challenging for researchers. Rigorous participant observation offers a method for developing and constructing knowledge that includes the cultural and pragmatic perspective (Podesva & Sharma, 2013; Tavaloki, 2012). Throughout its chapters, this dissertation illustrates the application of participant observation to communication in a linguistic and cultural minority. Specific strategies can promote valid interpretations. In this setting, the researcher is both an active member of the community and an observer of the activity that take place therein (Podesva & Sharma, 2013). The most significant aspect of this method is that observation takes place in a natural context (Tavakoli, 2012).

Native judgments

This study takes into account also grammaticality/felicity/adequacy judgments by native or early native signers to overcome the limitations of using a small corpus. First, not all the aspects of the language are reflected in the corpus. Second, the corpus may include non-genuine constructions due, for instance, to calques or language-contact phenomena (Heine & Kuteva, 2003, 2005).

Contextuality

We agree with Hennemann (2012) and Kärkkäinen (2003) that the study of resources for the expression of modality must be highly sensitive to the context. The propositional level does not offer the necessary context to identify the modal and/or identical function of a marker. Thus, it is necessary to distinguish between: (1) aspects of meaning that are codified and (2) aspects given by the context (Hennemann, 2012). For this reason,

⁷² <http://blogs.iec.cat/lsc/corpus/>

the examples of the following chapters include a description of the situation, as well as a transcription of a wider context (not always totally included in the chapters).

Combination of an onomasiological and a semasiological perspective

The starting point includes both the meanings that come from the domain of modality and other functionally similar domains, as well as a specific list of candidates compiled on the basis of two pilot studies and the researcher's participant observation. We adopt an onomasiological perspective, i.e. a top-down strategy whereby an intentional definition of the function (for instance, a modal or evidential function) leads to an extensional description, namely the inventory of the forms.

According to Wiemer & Stathi (2010), the integration of both perspectives in the investigation is necessary. The top-down onomasiological process allows the delimitation of the pool of potential candidates. In turn, the bottom-up process yields a more empirically adequate description of the candidates with a lexical or grammatical status. See, for instance, Nuyts (2001) for a discussion for function-to-form perspective, and Cornillie (2016) for claims about the shortcomings derived from not adopting an onomasiological perspective in describing Spanish verbal periphrasis in Hispanic studies.

Synchronic diversity as diachronic evidence

As for our proposals about linguistic change and the origin of linguistic resources, we must mention some aspects of the method adopted in this research. The study of grammaticization processes in signed languages does not include, in general, the analysis of data from diachronic textual corpora, simply because they do not exist⁷³. Nevertheless, complementing synchronic textual corpora with information extracted from contemporary and historical lexicographic works, it is possible to carry out both a description of incipient grammaticization processes as well as processes that already took place, using in the latter case the method of internal reconstruction.

⁷³ One noted exception is the videotaped material about ASL (American Sign Language) carried out by the Deaf National Association between 1910 and 1920 with the aim of preserving the sign language of that time (2001). This material constituted a source for the analysis of processes of change of this language (Frishberg, 1975; Janzen & Shaffer, 2002; Wilcox, 2004).

Internal reconstruction is “the exploitation of patterns in the synchronic grammar of a single language or dialect to recover information about its prehistory” (Ringe, 2003, p. 244). The basic idea is to unearth the diachronic change by a process of inference based on the syntactic and semantic properties displayed by linguistic elements that are formally similar in the various constructions where they appear, thus establishing the lexical meaning or meanings and the syntactic functions that they carry (Ringe, 2003), as summarized by Pfau and Steinback (2006):

Given that the lexical and the grammatical item are phonologically similar (the target possibly being phonologically reduced), given that grammaticalization is usually unidirectional, and given that we do know about common grammaticalization paths from the study of languages for which written records do exist, one may make inferences about grammaticalization processes in the language under investigation on the basis of synchronic data – albeit with due caution. (Pfau & Steinback, 2006, p. 13)

This methodology has been applied in the studies of linguistic typology of spoken languages that lack historical data (see, for instance, Heine et al. 1991; Bybee, et al. 1994; Heine & Kuteva, 2007), but also in the few studies about modality in different sign languages such as ASL (Janzen, 1995, 1999; Janzen & Shaffer, 2002; Shaffer, 2004; Wilcox, 2004, 2007; Wilcox & Xavier, 2013), Italian SL (LIS) (Wilcox, Rossini, & Pizzuto, 2010), Israeli SL (ISL) (Meir, 2003) or Brazilian SL (LIBRAS) (Xavier & Wilcox, 2014).

This process of internal reconstruction based on inference can be complemented by a comparative methodology, thus yielding a higher degree of reliability to the conclusions (Fox, 1995; Pfau & Steinbach, 2011; van Loon, Pfau, & Steinbach, 2013). For this reason, we also compare modals of LSE and LSC with modal linguistic forms of other signed languages, especially those that belong to the same family⁷⁴, namely LSF (French SL)⁷⁵, LIS (Italian SL), LIBRAS (Brazilian SL), etc. The comparison extends also to aspect in ASL (Maroney, 2004b), in Auslan and BSL (Johnston, Cresdee, Woll, & Schembri, 2013).

⁷⁴ As indicated in the first chapter of this thesis, the genealogy of signed languages in Europe and in the USA is not related with the genealogy of oral languages. Rather, it depends on the history of education of deaf children and, more specifically, with the foundation of special schools for deaf pupils and students at the end of the eighteenth and through the nineteenth century. Thus, for instance, the American Sign Language took roots partially from the old French Sign Language. Other members of this family are the Spanish, Catalan, Irish, Italian, Danish, Belgian and Dutch languages (McBurney, 2012).

⁷⁵ It is especially relevant, since it disposes of an etymological dictionary: *Dictionnaire étymologique et historique de la langue des signes française. Origine et évolution* (Delaporte, 2007).

5.3 Pilot studies

While conducting the research that led to this dissertation, we have participated as a researcher in two larger pilot studies, on Catalan Sign Language (LSC) and Italian Sign Language (LIS). The two studies were directed by Dr. Sherman Wilcox and Dr. Joan L. Bybee from the University of New Mexico (Albuquerque, United States) and aimed to evaluate different techniques for crosslinguistic research on signed languages (Wilcox, 2000). Each pilot project helped us to refine both the area of study and the methodologies that we adopted in this dissertation. The substantive findings of these projects were presented in several conferences and publications (Jarque, 2000; Shaffer, Jarque, & Wilcox, 2011; Wilcox, 2000, 2004; Wilcox, et al., 2010; Wilcox et al., 2000) and are discussed in Chapter 3 and in the subsequent chapters. The methodological findings are described below.

5.3.1 Pilot study 1: the elicitation through scenarios

In the first pilot project the research team was formed by Sherman Wilcox (IP), Phyllis Wilcox, Barbara Shaffer, Jim McFarlane and Elisa M. Maroney. The project was aimed to study the adequacy of instruments and techniques for signed language gathering in order to conduct crosslinguistic studies. The techniques included, among other methods, elicitation of sentences, elicitation of word list, elicitation of narratives, and surveys.

The project led investigators want to test techniques on an unknown and understudied sign language and chose LSC for several reasons, listed in (121):

(121) Arguments for choosing LSC (Wilcox, 2000)

- (i) they had a long-standing collaboration with the research group APRELS from the University of Barcelona, directed by Dr. M.P. Fernández-Viader and ILLESCAT Foundation;
- (ii) a multi-generational native signer of LSC, Josep M. Segimon, member of APRELS group, was available to serve as a consultant; and
- (iii) the author of this research, at that time a graduate student at the University of New Mexico, was available to serve as researcher and interpreter on the project.

Two of the main goals of the pilot study were to determine the effectiveness of (i) the use of surveys to collect data about the expression of modality in relation with obligation

and necessity, and (ii) the use of interviews consisting of hypothetical scenarios designed to elicit modal answers.

The interview comprised a set of 21 hypothetical scenarios designed to elicit modal answers. It was elaborated by Barbara Shaffer from the University of New Mexico, on the basis of her own investigation of modality in American Sign Language (Shaffer, 2000). The scenarios were prepared in English and then translated into Catalan and LSC by this thesis's author, who also conducted the process of elicitation of the data that compose the corpus of this study. Examples of modal scenarios are given in (122):

(122) Modal scenarios for eliciting modal constructions

- (i) **Obligation**: performing an activity given various sources of authority (e.g. boss/employee, mother/father to son/daughter, doctor to patient).
- (ii) **Necessity**: performing a physical or mental activity (sleeping, eating, etc.).
- (iii) **Prohibition**: being prohibited from doing something given various sources of authority.
- (iv) **Permission**: being allowed to do something given different levels of hierarchy.
- (v) **Ability/capability** or lack thereof: being able/capable to perform a mental or physical action.
- (vi) **Possibility**: degree of likelihood for something to happen.

For instance, one of the questions was: "Suppose that they ask you to lift a big and heavy piano. You hurt your back some years ago. What would you say?" This question had been designed to elicit a negative answer related with the ability: "I cannot lift the piano" (Wilcox, 2000).

Data were transcribed using a gloss system and following the standard convention used for the transcription of signed languages. Mr. Segimon took part in this process as a project advisor. He reviewed the transcriptions. Following the transcription process, an analysis of the data was carried out by the investigating team composed by Dr. Sherman Wilcox, Dr. Barbara Shaffer and Maria Josep Jarque.

Wilcox (Wilcox, 2000) presents an appraisal of the effectiveness of this data collection method for the collection of modal verb data carried out by the researchers involved in the project. This document comprises the following observations:

- (i) While the scenario survey was effective at gaining information quickly and in a structured way, we found this question-answer format to be less effective in gaining information about how modals actually occur in conversational use.
- (ii) The overwhelming consensus of the investigators and of the deaf consultant was that bringing consultants to the University of New Mexico was not effective. The consultant felt he alone could not represent the variety of language use. Also, we found that, since the consultant was immersed in a context in which all the investigators were using ASL (American Sign Language), his own language use began to change even over the course of one week. Our deaf consultant confirmed this impression: he felt that his exposure to ASL may have been interfering with his judgments.

To overcome these two limitations, three data gathering were conducted later in Barcelona, at the former Developmental Psychology and Education Department of the University of Barcelona. The researcher elicited the data. The analysis of these data allowed us to enlarge our knowledge of the expression of modality in LSC, as well as clarify some methodological questions, as detailed below:

(123) Methodological outcomes

- (i) the list of markers that bear modal content in LSC was enlarged;
- (ii) we observed that there were both syntactic and topic-comment constructions in the same scenario;
- (iii) the same scenario was interpreted in different ways by different people;
- (iv) given the lack of a real context, it is extremely difficult to establish the certainty degree in the production of epistemic modality.

In conclusion, the first pilot study allowed us to identify the main modal elements in LSC as well as potential difficulties and limitations that were necessary to overcome.

5.3.2 Pilot study 2: the structured interview as instrument

A second pilot project was conducted under a Research Stay Fellowship from the National Research Council (*Consiglio Nazionale delle Ricerche, CNR*) awarded to Sherman Wilcox in the fall of 1999. Dr. Wilcox traveled to Rome and worked at the Institute of Psychology, Division of Neuropsychology of Language and Deafness (Wilcox, 2000) for three weeks with the late Dr. Elena Pizzuto and Dr. Virginia Volterra. There, Wilcox worked with one deaf consultant, Paolo Rossini, and two native language users. Rossini is a multi-generational, native speaker of LIS with a good understanding of the linguistics of signed languages.

We turn now our attention to the way data were collected in this pilot study. During the first several days in Rome, Wilcox, Rossini, and Pizzuto discussed the notion of modality and the expression of modality in LIS. Wilcox and Rossini conducted an extensive discussion of the expression of modality in LIS. Some of the scenario situations from the first two pilot projects were used by Wilcox to elicit modal forms from Rossini (these discussions took place in ASL; Rossini would then demonstrate how the notion would be expressed in LIS). This discussion was videotaped. Wilcox, Pizzuto, and Volterra reviewed several videotapes in the library of the laboratory to survey the expression of modality in natural conversations.

At this point, Rossini had acquired a good sense of a subset of modal meanings, including agent-oriented, epistemic, and speaker-oriented types. Rossini then engaged in interviews with other deaf users of LIS. During these conversations, Rossini would ask a series of impromptu, contextually appropriate questions which required answers incorporating modal expressions. For example, one consultant had come to Rome from Palermo by train. Rossini asked in LIS how long such a journey took. He followed up by asking whether the train could have arrived in Rome some 10 hours earlier, thus eliciting a modal form ("that would not be possible") as part of the consultant's reply. Finally, the scenario survey developed for the LSC pilot study was translated into LIS by a hearing LIS interpreter and administered to Rossini as it has been done with Josep M. Segimon. The evaluation of this data collection methodology determined that it was far more effective than the first. The positive outcomes were the following (124):

(124) Outcomes from the pilot study 2

- (i) The field method of data collection proved to be more effective, eliciting more naturalistic modal use.

- (ii) The use of a deaf field consultant to elicit the data was also judged to be a better method of collecting data, since as a native user of the target language the field consultant is able to elicit a full range of meanings and make appropriate judgments on the spot about which semantic fields can be explored with a particular language user.
- (iii) Finally, working on the field provides access to multiple participants, which means we can gain access to language users with different social, geographical and other backgrounds.

These two pilot studies laid the foundations of the present research. They have been useful to develop and test the methodology and they helped us formulating the goals and research questions, to create the instruments to gather the data, to build the corpus, etc.⁷⁶

5.4 Informants

To build our own LSC corpus of interviews, following the methodology tested in the pilot study 2, we selected three informants to be interviewed by the Deaf consultant that participated in the pilot study 1. These four people (the three interviewees-respondents and the consultant-interviewer) constitute the main informants of this research project.

In addition, we built a second corpus of LSC naturalistic texts. These texts, from different typology (news, documentary, tales, and interviews, etc.) were produced by, intended for, and available to the Catalan Deaf community. To select the texts we took into account the signer profile and we established a body of criteria. The signers of these second corpus constitute the secondary informants. In what follows, we will explain the criteria that guided the selection for the main and the secondary informants (§ 5.4.1 and § 5.4.2, respectively).

⁷⁶ Recently, it has been published a full-fledged guide to describing all components of the grammars of sign languages (Quer et al. 2017).

5.4.1 Main informants

We established 10 criteria based on the literature on sign language research. The first four criteria (main criteria) are adapted from the study by Janzen (1998) and adopted also by Shaffer (2000) for the study of modality in ASL (125).

(125) Main criteria for informant selection

Criterion 1. They consider LSC as their first language.

Criterion 2. They identify themselves as members of the signing Deaf community in Catalonia, as discussed in chapter 1.

Criterion 3. They are LSC native or early signers, i.e. either they have acquired LSC from birth or before their sixth birthday. It is necessary to include early signers, since usually SL acquisition takes place horizontally, as discussed in chapter 1.

Criterion 4. They are considered good signers by other members of the signing Deaf community in Catalonia.

Furthermore, we added more criteria considered important given the history of education of Deaf people in Catalonia, the sociolinguistic aspects of the Catalan deaf signing community, and the specificity of the research goals (126):

(126) Secondary criteria for informants selection

Criterion 5. They went to school in Catalonia. Given the history of deaf education, there were still the possibility that some Catalan Deaf people could have been sent to boarding schools in other regions of Spain. Then, it is important to take into account this criterion to avoid interferences from other language varieties.

Criterion 6. Their background and their parents are Deaf.

Criterion 7. The selection was gender balanced.

Criterion 8. They are not sign language teachers. They have not worked on their metalinguistic awareness.

Criterion 9. They belong to the same Deaf association. Linguistic differences can be observed among Deaf association in Catalonia (Gras, 2006; Morales-López et al., 2002). The aim was to build a coherent system.

Criterion 10. They have a close relation with the interviewer. A good level of complicity and shared memories is necessary for the emergence of subjectivity and intersubjectivity needed for attaining the research goals. In Chapter 3, we discuss the relation of subjectivity and modality.

In the selection process, we were advised by Deaf consultants and LSC instructors trained in signed language linguistics, since the researcher is a late second-language signer. Josep M. Segimon, the main consultant and advisor, played a special role. He acted also as Deaf informant-interviewer. The participants-respondent were three people from his family circle and from his friends: two female relatives and a male friend. They fulfill the main four criteria listed in (125) and discussed in (127):

(127) Discussion on main criteria for informants selection

Criterion 1. The three informants consider LSC as their first language. This information is a common and frequent topic of discussion in Deaf associations and in conversation about Deaf identity. Also, it was confirmed in the answers in the sociolinguistic questionnaire.

Criterion 2. They identify themselves as members of the signing Deaf community in Catalonia. All three are active members of the Deaf community. They participate in activities organized by the Deaf association they belong to, as well as to the events organized by other Deaf associations in Catalonia or, more generally, in Spain.

Criterion 3. They are LSC native signers since they have acquired LSC from birth and LSC is the main language used in their family context.

Criterion 4. They are considered good signers by other members of the signing Deaf community in Catalonia. The “quality of signing” is a frequent and common topic of conversation in the Deaf movement since LSC constitutes one of the main features of Deaf identity and allows not only personal exchange but, also, knowledge accessibility. Moreover, Morales-López (2008a) addresses its value as symbolic capital in Bourdieu’s terms.

Also, they fulfill the six secondary criteria, as listed in above (126) and discussed in (128):

(128) Discussion on secondary criteria for informants selection

Criterion 5. They attended a specific school for Deaf in the area of Barcelona.

The two female went to La Puríssima School for Deaf in Barcelona, a private center run by the order of Franciscan nuns, established in Barcelona in 1903 (Frigola, 2010). The male informant attended the Escola Municipal de Sords-Muts de Barcelona, commonly known as FONO. Although the formal teaching was delivered in Spanish, the main language for social exchanges and relationships was LSC.

Criterion 6. Their background and their parents are Deaf. The two females and the male belong to a family with hereditary deafness, who use LSC as the main language and identify themselves as a signing family. The three informants are second generation signers and have deaf parents.

Criterion 7. The selection was gender balanced: two of the informants are female and one of them and the deaf consultant are male.

Criterion 8. They are not sign language teachers. The three informants work in jobs not related with LSC teaching: two of them are self-employed in manual jobs and the third works as employee in an office.

Criterion 9. They belong to the same Deaf association, *Centre Recreatiu i Cultural de Sords de Barcelona* (CERECUSOR, Recreational and Cultural Center for Deaf in Barcelona), founded in Barcelona in 1941 with the name of *Acción Católica Nacional de Sordomudos* (National Catholic Action of Deafmutes), changed in 1964 to the current name, and with one of the highest number of members in Catalonia, around 300.

Criterion 10. They have a close relation with the Deaf consultant-interviewer, since the two females are relative of his and the male informant is a very close friend.

The Deaf consultant, that acted as the interviewer and thus as informant, fulfilled all the criteria except, obviously, Criteria 8 since he has been one of the first Deaf researchers on LSC and the Catalan Deaf community. He is a second generation signer from a numerous signing family, and he is a leader of the Catalan deaf associative movement. He attended *La Purissima* School and he is a member of CERECUSOR association.

The respondents and the interviewer signed an Informed consent (See Appendix A) and fulfill a Linguistic questionnaire (See Appendix B). The Informed Consent includes the cession of rights for the use of her/his image in publications and in teaching and researching activities.

It is clear from the dialogues that there is a high degree of mutual confidence and knowledge, and that they had lived together experiences they talk about in the dialogues. At the beginning, the interviewer was not considered an informant, but we came to the conclusion that he had to, given the high degree of implication and participation to the dialogues, where often the differences between the roles became fuzzy.

Despite this, the interlocutor participation was asymmetric in multiple ways. The interviewer structures the discourse and provides its scaffolding, i.e. he suggests topics, he decides when they have been talked over and it is time to move on to another topic. On the other hand, the interviewees are more informative: their turns are longer. At the same time, though, the interviewer is not an external agent that only leads the discussion. Rather, he participates himself in the narration of the shared memories, questions the opinions of the interviewees that, in turn, can make jokes about him.

5.4.2 Secondary informants

We built a secondary corpus (named *extended corpus*) to include texts from different typology, such as narrative and descriptive discourse, and to expand the occurrence of modal constructions. The texts in the secondary corpus are LSC texts that were already available, they are naturalistic and mostly addressed to the Deaf community. We described them in Subsection 5.6.4. For this reason, not all the criteria for the selection of the informants in the primary corpus apply. We maintain criteria: 1 (LSC as their primary language), 2 (belonging to the Deaf community), and 4 (reputation of being "good signers").

The extended corpus includes data from 21 signers, aged between 40 and 70 years old and living in the area of Barcelona. The characteristics of all the informants in the study (4 main + 21 secondary = 25) are given in Table 5.1.

Table 5.1 Informants characteristics⁷⁷

Code 1	Code 2	Gender	LSC acquisition	Deaf club	Profession
Informant 1	DA	F	N	C/Ca	LSC T
Informant 2	JMB	M	E	C	LSC T
Informant 3	AC	M	N	C	O
Informant 4	PC	F	L	C	LSC T
Informant 5	IC	F	E	C/S	LSC T
Informant 6	SF	F	N	C	LSC T
Informant 7	CG	M	E	O	LSC T
Informant 8	JG	M	N	C	O
Informant 9	JGf	M	N	C	O
Informant 10	CM	F	E	C	O
Informant 11	AM	F	E	V	O
Informant 12	SP	F	E	O	O
Informant 13	CS	F	N	C	O
Informant 14	JMS	M	N	C	LSC T
Informant 15	ESe	F	E	C	LSC T
Informant 16	ES	F	N	C	O
Informant 17	MS	F	N	C	O
Informant 18	MR	F	E	C	LSC T
Informant 19	JV	M	E	S	LSC T
Informant 20	CV	M	E	V	LSC T
Informant 21	FV	M	L	V	LSC T
Informant 22	AG	M	L	O	O
Informant 23	MM	F	E	C	LSC T
Informant 24	BF	F	N	C	O
Informant 25	JMV	M	E	V	O

⁷⁷ F= female, M=male, N=ative, E=early native, L=late learner, C= CERECUSOR Association (Barcelona), S = Deaf association in Sabadell, LSC T= LSC teacher/instructor, V=Deaf association in Vic and County, O=other (manual job)

As the Table 5.1 shows, the informants are mostly LSC native or early native signers; there are only three late signers. As Costello, Fernández & Landa (2008) stress for LSE research, it is difficult to count only on what can be considered native users of the language in naturalistic texts because of the dimensions of the signing population. As a result, the research methodology should include sociolinguistic metadata for each informant.

5.5 Instruments

After participating in the two pilot studies, we decided to use the semi-structured interview as the main instrument to gather the data. This will be the focus of the next section (§ 5.5.1). In addition, from our participation in the Pilot project 1, we collected LSC data by means of other techniques previously used in data gathering in studies on spoken languages, such as questionnaires or elicitation by means of stimuli like video or wordless books. We considered that these stimuli were valid as complementary means to the naturalistic data since LSC was (and is) an understudied language and there were almost no research studies on grammatical categories. In addition, they were very useful to get data on specific target goals, namely narrative structure and resources (§ 5.6.2) and the expression of aspect (§ 5.6.3).

5.5.1 Semi-structured interviews

An interview is semi-structured when it is based on a script that includes the topics that will be covered (Gillham, 2000). Nevertheless, the interviewer is free to choose the order of the questions and the way to formulate them (Corbetta, 2003; Edwards & Holland, 2013; Jorgensen & Phillips, 2002). It is worth noting that our interviewer was allowed to ask, besides the script questions, any question he may deem interesting.

The three interviews are divided in different parts: place of birth, school attended, communication system used, current job, ways to get a job, family, food, etc. For each interview, the researcher and the Deaf consultant –who acted later as the interviewer—elaborated a list of possible scenarios depending on the personal experience, the preferences and the taste of the informant. This was possible because the Deaf consultant knew very well the informants. A typical question was: What had to do the

informant to get a job? In Table 5.2, we illustrate the distribution of topics in the interview with MS.

Table 5.2 Distribution of topics in the text EMS

Sequence	Time	Duration	Subject	Specific topics
MS 01	00:00 - 04:03	4' 03"	Studies and work	Birth place Education Comparison of adult life with life when attending school Fulfillment of dreams Possibility of moving on to a new job
MS 02	04:03 - 10:52	6' 49"	Vacation	This year's vacation in Osca Comparison with previous holidays Similarities and differences among children Optimal number of children and their sex Alternative planes in case of cancellation of planned vacations Next year's vacation location
MS 03	10:52 - 14:28	3' 36"	Food	Preferred and disliked food Intolerances
MS 04	14:28 - 21:02	6' 34"	Smoking	Attempts to quit smoking
MS 05	21:02 - 26:39	5' 37"	Studies	Reasons for not studying to become a sign language teacher Shame, lack of vocation
MS 06	26:39 - 28:32	1' 53"	Family	Family resemblance in character
MS 07	28:32 - 32:24	3' 54"	Deaf association	Reasons to go to the Deaf association
MS 08	32:24 -39:58	7' 33"	Children's schooling Closing	Literacy problems Interview closing

Next, in Table 5.3, we provide the distribution of topics that have been suggested and those that occurred spontaneously during the interview with ES.

Table 5.3 Distribution of topics in the text EES

Sequence	Time	Duration	Subject	Specific topics
ES 01	0:00- 5:40	5' 40"	Studies and work	Interview introduction: courtesy. Job (start, satisfaction, possibility of a change, etc.)
ES 02	5:40 - 09:60	4' 20"	Sickness	Injury to the back: origin, process, evolution and consequences.
ES 03	09:60 - 13:61	4' 01"	Travels	Travel to Suisse: food, musts to visit and see, legal conditions, typical purchases.
ES 04	13:61 - 19:67	6' 06"	Family	Grandfather, kids, memories from infancy (false beliefs, dreams, etc.), rules at home (limits, obedience, etc.)
ES 05	19:67 - 23:86	4' 19"	Work Deaf association	Compliance and obedience at work Meeting with former mates from the boarding school; Organization and assistance expectation
ES 06	23:86 - 27:86	4' 00"	Travel plans	Weather and organization of holidays Things to bring along Communication when travelling
ES 07	27:86 - 32:24	4' 40"	Food	Preferred and disliked food Intolerances
ES 08	32:24 - 39:58	0' 43"	Future Closing	Perspective plans and desires (job, free time, children, etc.) Interview closing

Finally, Table 5.4 gives a list of the topics of the third and last interview, ranging from politics to food personal preferences.

Table 5.4 Distribution of topics in the text EJG

Sequence	Time	Duration	Subject	Specific topics
JG 01	00:00 - 05:54	5' 54"	Personal Studies and work	Interview introduction: initial courtesy, goals, and procedure. Family introduction: Deaf and hearing members. Work: Deaf people and business, current and desired occupation, reasons for the current election, advices to the children about the work world and the possible choices
JG 02	05:55 - 08:34	2' 79"	Politics	Basque Country: political and social situation; possibility of establishing independence. Possibility of establishing an independent Catalonia and its relationship with the European Union: autonomy of the member states, leadership and hegemony of other countries.
JG 03	08:35 - 10:24	1' 89"	Deaf community	Sign language interpreters: level and training
JG 04	10:25 - 11:55	1' 30"	Food	Food: likes, dislikes, intolerances, etc.
JG 05	11:56 - 20:33	8' 77"	Family and LSC	Children: studies, vocation and professional aspirations, occupation, etc.
JG 06	20:34 - 26:02	5' 68"	Research	Sign Language: legal and social recognition, primary language in education, formal training of LSC interpreters, LSC structure, neologisms.
JG 07	26:03 - 31:00	4' 70"	Interview closing	Interview closing

The informant-interviewer formed an "ideal audience" in Labov's terms: attentive, interested and responsive. And the informants-respondants answered the questions and comments posed by the interviewer. The three conversations are characterized by a high

degree of spontaneity –the informers formulate opinions and their reactions are immediate and fresh– and of subjectivity and intersubjectivity, since the nature of the issues addressed (work, family relations, dreams, everyday life, life in the Deaf Community, etc.) lead to interactions with plenty of highly personal comments and observations. We consider the data to be ecologically valid and to comply with all the requirement of investigations of this kind (Labov, 1984).

5.5.2 Elicitation stimuli: aspect

To elicit aspectual forms and constructions, we use Maroney (2004)'s adaptation to American Sign Language (ASL) of the questionnaire developed by Dahl (1985) for the crosslinguistic investigation of the tense-aspect system in 64 spoken languages.

Despite the inherent validity limitations of questionnaires, the data gathered is particularly interesting for a comparison between different spoken and signed languages, such as the research on aspect in Swedish SL (SSL) (Bergman & Dahl, 1994) and in ASL (Maroney, 2004a).

However, in order to deal with the aspectual meaning, it is crucial to go beyond the sentence and take into account the overall discourse and the communicative context (Hopper, 1982; Rafferty, 1982; Wallace, 1982). As Hopper points out:

Morphological and local-syntactic accounts of aspect are either incomplete or, to the extent that they are valid, essentially show the sentence level correlates of discourse structures [...] We have to study the types of functions which are central to discourse as a universal phenomenon and then to examine the typical extensions of these functions as they become grammaticized (Hopper, 1982, p. 16).

Therefore, the data from this survey were only complementary with data from interviews and production of narratives.

5.5.3 Elicitation stimuli: narratives

For the gathering of narratives, we elicited data using three types of elicitation stimuli, all of them tested in the pilot study 1 (129):

(129) Stimuli for narrative elicitation

- (i) *The Frog Story*, the well-known wordless picture book (Mayer, 1969) used as eliciting tool by studies in the spoken modality (Bamberg, 1987; Berman

& Slobin, 1994; Rossi, Pontecorvo, López-Orós, & Teberosky, 2000) as well in the signed modality (McIntire & Reilly, 1996; Morgan, 2002; Sánchez Amat, 2015).

- (ii) The short wordless movie *The Pear Story*, which is another story successfully used in a variety of studies, such as Chafe (1980).
- (iii) The four **topics of personal experience** used to elicit made-up narratives in Labov (1984) studies on language variation.

According to Labov (1984) “narratives of personal experience” are the optimal technique to elicit the archetypical narrative, since once engaged in this type of discussion speakers tend to produce vivid recollections rich in vernacular features. The questions were as in (130):

(130) Topics for narrative of personal experience

- (i) “Did you ever get blamed for something you didn’t do?”
- (ii) “What was the worst thing you ever saw a teacher do to a kid?”
- (iii) “Were you ever in a situation where you thought you were going to get killed?”
- (iv) “Was there someone in your family who used to have a feeling that something was going to happen, and it did happen?”

The three techniques were used to collect narratives that could be compared across signers and languages. Whereas “personal narratives are never identical” because of people’s experience, picture-based elicited narratives are more similar since the procedure “provides a single framework, the content is held strictly constant not only across subjects who are using a particular language but across different languages” (Minami, 2005, p. 1620). As a result, data from narrative provided us with a wide knowledge about discourse structure in LSC.

5.6 Procedure: data collection

In this section, we will explain the procedure for data collection: the conduction of interviews (§ 5.6.1), the elicitation of narratives (§ 5.6.2), the elicitation of aspectual forms and constructions (§ 5.6.3), and the gathering of naturalistic texts (§ 5.6.4).

5.6.1 Data collection: interviews

In the case of the interviews, data collection sessions were conducted in the house of the Deaf advisor. Previously, the deaf advisor had asked the potential informants if they wanted to participate in a research project and had explained them the relevant ethical issues, e.g. confidentiality, the purpose of the inquiry, informed consent, data access and ownership, interview process (Gray, 2004). Once there, the interviewer first set out the terms of their collaboration in the project without specifying its specific object and stressing the importance of acting naturally (Corbetta, 2003; Gray, 2004). After signing the written Informed consent for videotaping the material for investigation purposes, the researcher mounted the camera and filming began. At this point, the researcher left the home leaving alone the informant-interviewer and the informant-respondent. There are two reasons that justify the researcher's absence at the interview: (i) avoiding the effects of the Observer's Paradox (Labov, 1972) and (ii) ensuring that the signers would not modify their signing in order to accommodate it to a hearing LSC late learner. This procedure was repeated for each of the interviews.

5.6.2 Data collection: elicitation of narratives

As descriptive in Section 5.5.3 for the elicitation stimuli, the elicited narratives consist of four types:

- (i) two are drawn from the well-known wordless picture book *The Frog Story* (Mayer, 1969);
- (ii) one is elicited showing the short wordless film *The Pear Story*, a story used successfully for a variety of studies both in spoken languages (Chafe, 1980);
- (iii) two commercialized narratives for children; and
- (iv) five made-up narratives, following Labov's techniques for the sociolinguistic interview.

5.6.3 Data collection: aspect questionnaire

As for eliciting aspectual forms and constructions, we used Maroney (2004)'s adaptation to American Sign Language (ASL) of the questionnaire developed by Dahl (1985) for the crosslinguistic investigation of the tense-aspect system in 64 spoken languages. The questionnaire was administrated by the author in LSC in real time through a video recording.

5.6.4 Data collection: naturalistic texts

The corpus of naturalistic data comprises LSC texts from various typology, originated by signers in functional contexts such as, among others, home, school, working groups and media. All the text were produced for goals external to the research project. The texts are tales for signing children available for commercial purposes or for dissemination of LSC, pieces of news and documentaries for adults from Webvisual, conversational discourse in meetings, etc. They were collected to include a diversity of signers.

5.7 Data corpus: LSC texts

The small-scale corpus built to conduct this research study comprises, thus, the interviews, the narratives, the data from the aspect questionnaire and a set of naturalist texts (which we called *the extended corpus*). The main texts for the research study are the three conversations gathered by the deaf collaborator, as explained above. They differ from everyday conversations since they take place in a semi-structured interview. The duration is given in Table 5.5.

Table 5.5 Interviews conducted

Interview code	Sex	Duration
EMG	M	31'
EMS	F	40'
EES	F	40'

The distribution of the pre-existent naturalistic texts across text type, genre, text title and signers that participated in each one is provided in Table 5.6.

Table 5.6 Extended LSC corpus: types of data and signers

Text type	Genre	Year	Text title	Signer(s)	Duration	Woman	Men
Conversational	Group discussion and chatting	2012	Face	IC+CG +JMS+ES	40'	2	2
		2012	Aspect	IC+CG +JMS+ES	40'	2	2
		2012	Lexicon	IC+CG +JMS+ES	40'	2	2
	Interviews	2016	Interview to CM	AC	21'04	-	2
		2018	The girl does not say hello	AC+IC	16'22"	1	2
Descriptive/ expositive	Expository class	2003	Neurons	JV	38'	-	1
		2003	Language games	ES	15'	1	-
		2003	Metaphor	IC	12'5'	1	-
		2003	SSI	JMS	16'	-	1
		2003	LS Phonology	JMS	20'	-	1
	Legal document	2006	VTS_01_0	M+ SF	31'	1	1
		2006	VTS_01_1	M+SF	14'	1	1
		2006	VTS_01_2	M+SF	31'	1	1
	Short talks	2003	Tutankamon	MR	12'	1	-
		2003	Mental health and deafness	MR	6'	1	-
		2003	Family service	MR	5	1	-
	News & documentaries	2011	Deaflympics	MR	2'30"	1	-
		2012	The success of unity	AC	37'32"	-	1
		2018	Comunicat	AC	4'41"	-	1
Narrative	Elicited stories out of Frog Story	1999	Frog_JMS	JMS	3'	-	1
		1999	Frog_ES	ES	3'	1	-
		1999	Frog_JG	JG	2'	1	-
		1999	Frog_CS	CS	1'40"	-	1
		2012	Frog_PC	PC	8'	1	-
	Elicited stories out of video	1999	Pear Story (1)	JMS	3'	-	1
		1999	Pear Story (2)	JMS	2'30"	-	1
	Tales from webs or commercial videotapes/ CDs	2002	Miracle of Marcelino	JMS	20'21"	-	1
		2002	The Three Billy Goats Gruff	JMB	5'	-	1
		2002	The spider tale	DA	5'	1	-
		2013	The old woman that ate a fly	DA	8'03"	1	-
	From group of friends and colleagues	2014	The stolen motorcycle story	JMS	5'	-	1
	Personal narratives	1999	Get blamed	JMS	5'	-	1
		1999	Visiting deaf school	JMS	5'	-	1

Text type	Genre	Year	Text title	Signer(s)	Duration	Woman	Men
		1999	Get killed_1	JMS	5'	-	1
		1999	Get killed_2	JMS	5'	-	1
		2008	Social sins	JMS	5'	-	1
Argumentative	Personal Vlogs	2014	The Emperor's New Clothes	JMS	10'14"	-	1
		2014	The surreal family	JMS	10'04"	-	1
		2014	Deaf People's future	JMS	5'50"	-	1
		2016	BREXIT	JMS	5'	-	1
	Street protests	2011	Deaf students' protest	--	19'07"	S	S
	Cultural ads	2011	LSCvisual	AM	3'54"	1	-
		2009	LSCVic	CV	1'29"	1	-
		2009	LSCVic	CV	1'30"	1	-
	Personal interviews	2018	BTV Volcanoes	BF	04'47"	1	-
	Statements	2018	President's statement	AC	4'41"	-	1
2018		LSC Seminar	AC/JMS/SF	30'	-	2	
Instructive	Short talks	2003	Food recipe	MR	2'18"	1	-
		2003	Setting the table	MR	4'30"	1	-
		2003	Snorkel	MR	5'	1	-
Poetic	Contest	2008	CM08 MP VV	MP	1'29"	1	-
		2008	CM08 CM Mar	CM	12'	1	-
		2008	CM08 SP Fut	SP	9'30"	1	-
		2008	CM08 FV Sui	FV	9'40"	-	1
		2012	Birds' source	JMV	6'56"	-	1

Such ecologically valid naturalistic data can be found rarely in the sign language literature, except for the corpus projects that are currently been built, and therefore we think that they are particularly valuable and revealing.

5.8 Procedure: Annotation

The annotation of sign language text is a very time-consuming task. The estimated ratio for basic annotation is 1:250, i.e. 250 hours of work for 1 hour of duration (Gabarró-López, 2017).

One of the main problems in the research on an understudied language is to identify the different linguistic units. The segmentation in utterances was one of the main concerns. It was done taking into account units of information containing a predicate, delimited by major prosodic boundaries and having a self-contained semantic interpretation (Ormel

& Crasborn, 2012). The markers of prosodic boundaries include a change in all aspects of facial expression (eyebrows, eyes, etc.) as well as changes in head and body position (Crasborn, 2007; Fenlon, Denmark, Campbell, & Woll, 2007; Jarque, 2016).

Videos were transcribed using a gloss system that is the system that linguists most commonly adopt and that best served our purposes. A gloss is a word from an oral language that, semantically, is approximately equivalent to the transcribed sign. Glosses identify not only manual signs, but also non-manual signs, such as facial expression features, head movements or use of signing space that express grammatical information. The notational conventions are listed in Appendix D.

The transcription was done by me and reviewed, when deemed necessary, by the deaf advisor/assistant. Although I am not a native signer, I have been participating regularly in the deaf signing community for more than twenty-four years, since I took the first LSC course in 1994. My linguistic competence includes the ability to teach linguistic content in LSC, to discuss linguistic issues and work on them with deaf colleagues, as well as to socialize in LSC with deaf friends.

Also, I have been teaching *Linguistics applied to signed languages* in the *Postgrau Especialista en Llengua de Signes Catalana: Professor i assessor sord*, organized by the former Faculty of Teacher Training (University of Barcelona) under the direction of one of my supervisors M. P. Fernández-Viader. Therefore, my approach to research was multidimensional. The interaction with the Deaf community was not based only on the search for data. Rather I took part in what has been defined a *comunidad de solidaridad* ('a solidarity community') (Massone et al., 2012, p. 12), i.e. "[una] comunidad que comparte las demandas y luchas de la comunidad Sorda, que entiende su cultura y maneja su lengua".⁷⁸

5.9 Procedure: Coding

After transcribing, we proceeded to code the data. In this section, we will refer to the database structure (§ 5.9.1), the coding approach (§ 5.9.2), the coding of modal values (§ 5.9.3), the coding of use types (§ 5.9.4), the coding of evidential meanings (§ 5.9.5) and, finally, the coding of functions for the palm-up form (§ 5.9.6).

⁷⁸ "a community that shares the demands and struggles of the Deaf community, that understands its culture and masters its language" (Massone et al., 2012, p. 12).

5.9.1 Database structure

The annotated data and the coding were recorded in an Access database. The database is organized in 9 classes of fields, as shown in Table 5.7. The codification consists of three category blocks. First of all, there are the functional and discursive categories (kind of activity, speech act, semantic space ...). The second block includes textual properties and properties relatives to the information flow and clausal category (text type, textual sequence, proposition modality, clausal category, construction, ...). Finally, there is the description of clausal grammatical and semantical categories (aspect, tense, person, number, polarity, modality of action and animacy).

Table 5.7 Database structure

Class	#	Fields	Class	#	Fields
Identifiers	1	Fragment identity code	Discourse and textual information	24	Textual sequence type
	2	Informant code		25	Sentential modality
	3	Token gloss		26	Sentence type
	4	Numbered token gloss		27	Information distribution
Transcription	5	Gloss transcription in Catalan		28	Constituent order
	6	Gloss transcription in Spanish	Grammatical information	29	Modal/evidential construction
	7	Gloss transcription in English		30	Modal linguistic element category
	8	Movement quality		31	Modal element syntactic position
	9	Modification of manual articulators		32	Aspect
	10	Torso position	33	Animation	
	11	Facial expression	34	Temporality	
	12	Vocalizations/mouthing	35	Person	
Spoken language equivalences	13	Translation into Catalan	36	Quantity/number	
	14	Translation into Spanish	37	Polarity	
	18	Semantic space	37	Gender	

Class	#	Fields	Class	#	Fields
	19	Broad modal/evidential category	Socio-linguistic information	38	Age
	20	Modal/evidential category		39	School
	21	Modal subcategory		40	Deaf association
	22	Use		41	Job
	23	Gradation	Other	42	Comments

5.9.2 Selection and coding approach

This study adopts an onomasiological perspective, i.e. a function-to-form approach, as adopted by Nuyts (2001). This choice is guided, in the first place, by the lack of research on the LSC linguistic forms expressing modal values. But it is also a methodological choice because we address the linguistic phenomena in use within a specific communicative context, taking into account all their complexity. Nevertheless, this approach is complemented by the semasiological perspective, which focuses on the specific linguistic forms and analyzes their meaning and functions across different contexts and discourse.

After identifying the potential constructions, we selected the utterances and the extension of the context needed to fully understand the use of the linguistic resources. We transcribed the utterances and coded them. The transcription was done using glosses and the reader can find the legend in the Appendix D Annotation conventions.

5.9.3 Coding: modal values

This research adopts the typology of modality values proposed by van der Auwera & Plungian (1998) with some modifications and adaptations, as explained in chapter 3. First, we assume that the semantic space of modality includes volition. Secondly, the values are considered from the point of view of Prototype Theory. This assumption implies that the values have non-discrete boundaries, and thus the frontier among values are fuzzy. In

Table 5.8 and in Table 5.9 we present the categories used to codify the modal meanings of possibility and necessity, respectively.

Table 5.8 Coding of modal possibility values

Domains	Subdomains	Denomination	Possible scenarios
Non-epistemic possibility	Participant-internal	mental possibility (ability)	speaking other languages, making calculations
		physical possibility	lifting a heavy object
		general ability	running a marathon
	Participant-external	root possibility	going to a meeting
		deontic possibility (permission)	law, rules
Epistemic possibility		Possibility	rain

Table 5.9 Coding of modal necessity values

Domain	Subdomain	Denomination	Possible scenarios
Non-epistemic necessity	Participant-internal	mental necessity	reading before going to bed
		physical necessity	taking a medicine
		general necessity	smoking
	Participant-external	root necessity	context conditions
		deontic necessity	obligation compliance of laws
Epistemic necessity		Certainty	weather

This categorization does not cover the value of epistemic probability, although some work (see *Inferred certainty* in Bybee et al., 1994) included it, because we agree with the researchers who believe that it is based on an inference and therefore it belongs to the domain of evidentiality (Cornillie, 2007; Pietrandrea, 2005; Squartini, 2008, 2016).

Modal items in natural languages are context-dependent expressions (Papafragou, 2000). For this reason, when in doubt, we applied a test to ascertain the meaning: we submitted to the Deaf advisor two possible paraphrases and asked him to choose among the two options. An example of such a test is given in (131).

(131) Context-dependent meanings in English (Papafragou, 2000)

(a) He must be back before dark.

(a1) He is obliged to be back before dark.

(a2) He will certainly be back before dark.

(b) The test should not take longer than 30 minutes

(b1) It is recommended that the test does not take longer than 30 minutes.

(b2) The test is not likely to take longer than 30 minutes.

(c) Students may use the sports facilities.

(c1) Students are allowed to use the sports facilities.

(c2) It is possible that students will use the sport facilities.

This type of paraphrases allowed us to disentangle the possible values when the context was rich enough for the deaf advisor/consultant.

5.9.4 Coding: use types

Nuyts (2001) establishes a distinction between a performative and a descriptive use of modal constructions. A **performative expression** signals a modal assessment maintained by the issuer herself at the signing event, that is the signer is committed to it. However, in the **descriptive use**, the signer is only reporting on an assessment concerning a state of affairs held by somebody else, or by herself but at some point in time other than the signing event (usually in the past), or she is only mentioning an assessment as a hypothetical possibility without any commitment to that assessment (Nuyts, 2016).

We consider that for the properties of signed languages, it is relevant to add a third category: a demonstrative use. See Table 5.10 for an explanation of the three uses and examples.

Table 5.10 Uses of modal utterances

Denomination	Description	Example
Performative use	modal resources are used to produce the intended meaning in context	expression of the issuer's commitment to the situation
Descriptive use	modal resources appear in descriptions of situations performed by other agents	narration of a past event

Denomination	Description	Example
Demonstrative use	performative form with a descriptive function: modal resources used in a constructed action structure	quotation of other agents' commitment to a situation

In our study, we are mostly interested in performative uses. However, demonstrative uses are also relevant since the importance and frequency of constructed action/dialogue structures in LSC.

5.9.5 Coding: evidential meanings

Table 5.11 comprises the coding categories for the semantic domain of evidentiality. The coding system has been elaborated on the basis of the literature review, see chapter 3. We provide in parentheses other equivalent terms used in evidential studies.

Table 5.11 Categories for evidential meanings

Type	Subtype	Categories	Definition
Direct access	sensory	visual	the signer claims that he witnessed the situation directly by the sense of sight
		olfactive	the signer claims that he witnessed the situation directly by the sense of smell
		auditory	the signer claims that he witnessed the situation directly by the sense of hearing.
		haptic	the signer claims that he touched the entity
	endophoric	description of entities that are not accessible by senses, such as desires, intentions and, more in general, mental states	
experiential	situations that have been experienced		
Indirect access	mediated (reported)	quotative (second hand)	the informant has witnessed the situation
		reportative (third hand)	the source of information is fuzzy
		folklore	values and knowledge shared in the cultural context
	inference (inferred)	specific inference (inference)	contact with marks or traces of the situation allows making the inference of what is happening or has happened, even without direct observation
		generic inference (reasoning)	knowledge that allows deducing that the situation is likely to be happening or has happened

5.9.6 Coding: functions for the palm-up form

Table 5.12 shows the categories used in the codification of discursive palm-up functions based on the literature (Amundsen & Halvorsen, 2011; Conlin, Hagstrom, & Neidle, 2003; Engberg-Pedersen, 2002; McKee & Wallingford, 2011; Waters & Sutton-Spence, 2005). The categories are not mutually exclusive.

Table 5.12 Categories for palm-up functions

Discursive macrofunction	Discourse specific functions
Transition	Transition: topic shift Event break: in an event sequence.
Connecting discourse elements and focusing	Connecting phrases: elements of a list, etc. Connecting clauses: elements of a list, etc. Connecting propositions within a sentence. Connecting sentences and propositions establishing relations of cause, consequence, temporal, conclusion, etc.
Content evaluation	Modality: epistemic commitment. Evidentiality: source of information. Affect: expression of feelings and emotions.
Interrogative function	Interrogative generic sign: question. Answer elicitation: to bring about an answer.
Conversation regulator	Turn-beginning: hand-raise in the neutral signing space. Turn-yielding: transitional movement toward the resting position, lower than the neutral signing space. Invitation: agreement/disagreement, confirmation, negation, etc. Turn-keeping: during a pause, when considering a list of elements, expressing doubt or self-correction, etc.
Prosodic function	Prosodic limit marker: produced at utterance end to signal closing.
Courtesy	Tag: used to turn a statement into a question. Hedging particle: used to reduce the force of the sentence.

Following the literature revisited, Table 5.13 presents the subcategories for the modality function of the palm-up form.

Table 5.13 Subcategories for the modality function of the palm-up form

Modal categories	Discursive functions
Inability	Resignation
Deontic possibility	acceptance of ideas or actions ("permission")
Epistemic possibility	possibility, possibility answer (possibility confirmation) confirmation request
Negation of epistemic possibility	lack of knowledge (imprecise knowledge, unfamiliar referent, etc.) lack of certainty (uncertainty, skepticism)
Epistemic necessity	confirmation answer, certainty

5.10 Signs representation

We decided to represent the signs through drawings because of their clarity. The drawings are not intended to be a phonetic or phonological transcription, which is to show accurately the sign parameters. They are considered a notation tool to identify the sign since standard glosses have not been established among LSC researchers and instructors, and for the same sign we have observed the use of different glosses. The sign drawings were made by Roger Quevedo, a professional illustrator. The drawings related to the expression of time were authored by Carme Jarque. Both authorized their use in this dissertation as well as in the public presentations and publications based on it. The Appendix C Sign List includes a list of these signs. In Figure 5.1, we provide an example of a drawing and in Figure 5.2 an example of annotation with SignWriting, a system for recording signed languages developed by Valerie Sutton. The drawings were borrowed from the SignPuddle Online 2.0.⁷⁹

⁷⁹ <http://www.signwriting.org/>



Figure 5.1 Example of movement

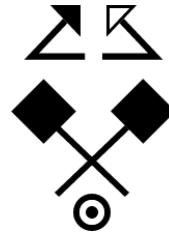


Figure 5.2 SignWriting

The drawing should be read/interpreted taking into account (132):

(132) Drawings legend

- (i) The dotted lines represent the first position of articulators, hand(s) or arm(s), as in Figure 5.1 where the initial position correspond to crossed arms.
- (ii) Change in place of articulation and orientation is represented sometimes with two independent drawings, as in Figure 5.3



Figure 5.3 Example of place of articulation change

- (iii) Local, head and body movements are represented with arrows.

The use of drawings or pictures is important to overcome the limitations of glosses. It allows the researcher to compare across sign languages without “imposing” restrictions or interpretations of semantic values derived from the use of spoken words.

5.11 Ethical considerations

This study adopts a theoretical perspective that draws on sociocultural understandings of deafness (Ladd, 2003; Padden & Humphries, 1988). Over the last twenty years, within the APRELS group, we have been building up “long-term relations with the Deaf community on the basis of mutual respect and benefit, and these are relations where

Deaf people are seen not only as informants but also as collaborators” (Singleton, Martin & Morgan, 2015, p. 8). We adopt the tenets held by the CENR paradigm, community-engaged research (Ross et al., 2010; Singleton, et al., 2015), namely by involving Deaf people in the research process. This implies Deaf-friendly research methods, communication adequacy and cultural sensitivity, and sharing with the Deaf community the finding of the research.

This study follows the recommendations for ethical practice in research involving Deaf individuals offered by Singleton et al. (2012, 2014), as summarized in (133):

(133) Ethical practice issues

- (i) **Accessibility of informed consent:** the informed consent was a document written in Spanish and with a simple structure. Spanish is the preferred written language for deaf adults in Catalonia because Deaf education in Catalonia during the sixties and seventies was only in Spanish. In addition, the content was signed by the researcher in Catalan Sign Language and was explained in LSC by the Deaf assistant. Participant reported that they understood the content of the consent and a copy was given to them.
- (ii) **Awareness of “overtesting”, confidentiality risks, and avoiding a “sample of convenience” mindset.** The study does not reveal background characteristics of individual subjects in the presentations and publications, as the individual may be identifiable to a reader or audience member on the basis of this information due to the dimension and close-knit characteristics of the Deaf community. In the presentations, we did not show original video clips but excerpts signed by the Deaf assistant retelling/coping the examples in LSC.
- (iii) **Research team dynamics: the roles of interpreters and communication accessibility.** The dynamics in the research team has been always conducted in LSC. The hearing researchers involved are fluent signers and communicate with the Deaf scholars and collaborators in sign language or in accessible written language.
- (iv) **Give back to the Deaf community, disseminate research findings in sign language.** The results of the study have been disseminated in a manner accessible to the audience. The target audience included deaf researchers, deaf students for LSC instructors, sign language interpreters, language therapists and educationalists working in schools with bimodal

bilingual approach, etc. The deaf researchers in the APRELS group participated to several seminars and working meetings, where we shared the results of the research. The pre-service language teachers followed courses on sign linguistics delivered in LSC at the University of Barcelona. Pre-service language interpreters have been trained in the *Cicle formatiu de Grau Superior en Interpretació de la llengua de signes*. We have been participating in seminars and workshops addressed at language therapists and educationalists both at the schools with bilingual approaches to deaf education (CREDA de Barcelona/Pere Barnils at the CEIP Tres Pins; CREDA Jordi Perelló at CRASS Sabadell) and in workshops organized by entities. The results of the research have been adapted to the needs of the target audiences. As Singleton, Martin and Morgan stress, the benefits of this community-based knowledge transfer are mutual. As a researcher, I have gained “the sustained support of the research facilitators and these same professionals are able to incorporate relevant and useful research findings into their practice” (2015, p. 11).

The ethical recommendations in (133) are not only linked to deaf studies but to the research involving language and cultural minorities.

5.12 Final remarks

In this chapter, we have presented the methodology adopted in this dissertation. It is a study, qualitative in nature that is characterized by the following features: it is sign language-friendly; it is based on a small-scale corpus approach; it relies on participant observation and native judgments; it takes into account the context; it combines an onomasiological and a semasiological perspective, synchronic diversity as well as diachronic evidence.

Also, we have described the two pilot studies conducted, the criteria for selection of informants and the instruments used. We have described the texts that form the extended corpus and the characteristics of informants who produced them. Also, we have specified the database structure, the coding values for modal, evidential and palm-up form. Moreover, this chapter has looked at issues related with the linguistic field work

within the signing Deaf community, taking into account their particularities as a linguistic minority group.

RESULTS

In chapter 4, we have specified the goals and stated the research questions we will attempt to answer and in chapter 5, we have detailed the different methodological and procedural aspects that define our work. In the following 6 chapters, we will present the results. They are organized following the goals with the exception of aim 2, that concerns the interaction of modality with three other semantic categories (negation, evidentiality and aspect). For this reason, the results are divided in three chapters (7, 8 and 9). Hence, the results are organized according the following distribution:

Chapter 6. The expression of modal meanings in LSC

Chapter 7. The interaction of modality and negation

Chapter 8. The interaction of modality and evidentiality

Chapter 9. The interaction of modality and aspect

Chapter 10. Modality: lexicalization, grammaticalization and pragmaticalization

Chapter 11. Modals in LSC and the grounding function

The following two chapters address the discussion (12) and the conclusions (13).

Chapter 6. Modal constructions in Catalan Sign Language

Ojalá se te acabe la mirada constante
La palabra precisa, la sonrisa perfecta
Ojalá pase algo que te borre de pronto
Una luz cegadora un disparo de nieve
Ojalá por lo menos que me lleve la muerte
Para no verte tanto para no verte siempre
En todos los segundos en todas las visiones
Ojalá que no pueda tocarte ni en canciones.

Silvio Rodríguez (1978[1969]) "Ojalá", *Al final del viaje*

6.1 Introduction

This chapter is devoted to the results related with the **research goal 1**, i.e. to identify and describe the main linguistic constructions encoding meanings that belong to the semantic domain of (volitional, epistemic and non-epistemic) modality in Catalan Sign Language.⁸⁰ To attain this goal, we have addressed the research questions (RQ), as specified in chapter 4, and reproduced in (134):

(134) Research questions addressed in chapter 6 (RG 1)

Modal constructions:

RQ 1. Which linguistic elements convey (volitive, epistemic and non-epistemic) modal meanings in LSC discourse?

Semantic dimension:

RQ 2. Which semantic values do these elements express and how are they structured in the modality domain?

Morphosyntactic dimension:

RQ 3. Which syntactic distribution do LSC modal elements exhibit?

The semantic description is based mainly on the typological definition suggested by van der Auwera and Plugian (1998), Bybee et al. (1994), Li (2004) and Narrog (2005a). We will argue that the coding of modal notions can be expressed in LSC in several ways, using main verbs, auxiliary verbs, adjectives, particles (or markers), etc. We consider that modality is a semantic domain with fuzzy borders and with prototypical and marginal

⁸⁰ Some data discussed in this chapter were published in Shaffer, Jarque and Wilcox (2011).

values and that contains the notions of necessity and possibility, and it includes four subdomains (135):

(135) Modality subdomains

- (i) **Participant-internal modality** (identified usually as dynamic modality)
- (ii) **Root modality** (also labelled as situational or circumstantial modality)
- (iii) **Deontic modality** (morality, permission/obligation, etc.), and
- (iv) **Epistemic modality** (certainty, doubt, etc.).

These values are interpreted along a continuum, following, among others, de Haan (1997), Li (2004), and Narrog (2005b). Thus, for instance, on the epistemic dimension the probability meaning is a central value that lies halfway between possibility and certainty (Bybee, et al., 1994). Furthermore, we consider fundamental to include also the volitive modality – that consists of desire, willingness and intention – because of its subjective character and strong connection with the issuer attitude (Narrog, 2005b; Plungian, 2010).

This chapter focuses mainly on free manual elements. They include verbs, adjective predicates and markers/particles. Since there is still no consensus on the characteristics that define most of the grammatical classes in sign languages and how to tease them apart, the categorization of some elements expressing modal values is a very complex issue. This has led some researchers studying modality in sign languages to recognize the impossibility to “ascertain with certainty” the grammatical class to which the forms elicited for the study belong (Xavier & Wilcox, 20XX, p. 477).

On the other hand, other researchers use labels referring to grammatical classes despite the lack of research on a corpus of naturalistic data of the studied sign language and basing their arguments only on a list of sentences elicited from a few signers. We will assign a grammatical category to an element only when there is clear research-based evidence. Otherwise, we will use the labels *construction*, *element*, *modal*, *gram* or *marker* to refer to them without implying a grammatical class.

Additionally, this difficulty encompasses also the use of glosses, i.e. the words used as notational resource for identifying the signs. We have revisited and evaluated the glosses used previously in books for LSC teaching and learning as well as other research studies. As a result, we have introduced new glosses for systematizing the labels and, whenever

the lexical source for the gram was a verb or a predicate adjective, we have used a verbal gloss. Since LSC does not exhibit a copula verb for states or properties, the signs usually glossed as adjectives have been glossed including the Catalan copula. Hence, for instance, IMPOSSIBLE 'impossible' has become SER.IMPOSSIBLE 'to be impossible'.

All the examples discussed in the thesis are accompanied by a brief explanation of the participants and the context of the fragment of discourse. Furthermore, we have tried to provide long fragments to contextualized richly the use of the modal element. We agree with the "conviction that the functions of modality are embedded in contexts of social interaction" (Aijmer, 2016, p. 496) and that this implies that modal resources "cannot be described adequately apart from their contextual moorings in interactive discourse" (Bybee & Fleischman, 1995, p. 3).

Furthermore, it is also important to consider whether a morphological expression of this category exists in LSC. As described in chapter 9, which deals with the coding of aspect values, LSC does not exhibit any grammatical category through inflection. However, some studies consider that a category of imperative sentence type does exist in sign languages, i.e. commands, requests, demands, recommendations, advice, and permissions. The crosslinguistic study by Donatti et al. (2017) reports the following non-manual markers for the marking of commands: intensity of the movement of the verb (LSC), body lean, repetition and directionality of the verb signs (PJM), a number of head-related non-manuals such as head nod (TÌD, NSL), furrowed brows (LSC, LIS, PJM), raised brows (LSF), and raised chin (PJM).

Also, the authors report the presence of a manual sign such as PALM-UP in utterance final position in the command constructions of a number of sign languages. While some researchers consider it a syntactic marker, for others it is a pragmatic sign/gesture, such as in NGT (Maier, de Schepper, & Zwets, 2013) and TÌD (Özsoy, Kelepir, Nuhbalaoğlu, & Hakgüder, 2014).

In our study, we will refer briefly to imperative since the genres in our data corpus, namely the interview, news or tales, do not constitute enabling environments for its naturalistic use, since a prototypical imperative places the addressee under an obligation (Nikolaeva, 2016). However, we will discuss the presence of the palm-up gesture/marker with modal functions in chapter 9.

We will focus only on a synchronic description, leaving the possible sources and the grammaticalization paths for Chapter 10, which takes a diachronic perspective on the topic. For this reason, we will not address now the etymology of the signs under exam, except for some crucial information needed to understand the sign functioning or the relations with other signs that are close in meaning and/or form.

The chapter is divided in six sections. The following section deals with the constructions expressing the semantic subdomain of volition (§ 6.2). Section 6.3 focuses on the subdomain of what is usually termed as *deontic possibility* or *root possibility*. However, for reasons explained in Chapter 3, we prefer to follow the nomenclature used by van der Auwera and Plungian (1998), namely non-epistemic possibility and, for sake of coherence, non-epistemic necessity, addressed in § 6.4. Sections 6.5 and 6.6 examine, respectively, the expression of the epistemic possibility and necessity. Finally, Section 6.7 provides a discussion based on the research questions 1 to 3 and Section 6.8 presents some final remarks.

6.2 The encoding of volition

As described and justified in chapter 2, volitive modality expresses non-factive values (Bybee, et al., 1994; Jarque, 2017; Palmer, 1986). This is particularly relevant in LSC since constructions formally consist of two types of linguistic elements: the manual and the non-manual component. The non-factive dimension is mainly coded in LSC through the non-manual and its combination with the manual counterpart gives rises to the volitive constructions. In the following subsections, we will deal, first, with the non-manual marking (§ 6.2.1), then with the lexical items used in the construction (§ 6.2.2), and, finally, we will examine the properties of the construction (§ 6.2.3).

6.2.1 Non-manual marking

This pattern of facial features coincides with the pattern in lexical verbs in LSC meaning 'to like' such as AGRADAR. Consider the facial features in Figure 6.1 where the signer is producing AGRADAR in the context of the sentence "Yes, because I like so much the gastronomy, the culture...".



Figure 6.1 Facial component for lexical AGRADAR 'to like' (Webvisual)

As shown, besides the manual component, the lexical item AGRADAR comprises a specific expressive facial pattern that consists of raised eyebrows, open eyes, and raised cheeks. It can include gaze direction towards sky. This facial pattern is also present when the AGRADAR accompanies another predicate and expresses a grammatical meaning, as in Figure 6.2.



Figure 6.2 Facial component for modal AGRADAR 'to like' (Betevé)

Through the following sections, we will focus on the volitive predicates signaling volitive modality. We will include information concerning the facial component, which is, crucially, a compulsory sublexical component of the sign that may spread over the lexical predicate that it accompanies.

6.2.2 Manual marking: volitive predicates

The main exponents of volition in LSC are the predicates AGRADAR 'to like', VOLER 'to want', VENIR.DE.GUST 'to fancy' and ESPERAR 'to hope'. They are related to each other not only because of the proximity in meaning, but also on the basis of the syntactic constructions in which they appear. As explained in Chapter 2, in cognitive linguistics, the knowledge that constitutes the grammar of a language emerges and is organized

through pairings of both meaning and form, referred to as *constructions* (Bybee, 2010; Croft, 2000; Goldberg, 2006; Hopper & Traugott, 1993; Langacker, 1999). Constructions are the basic building blocks of language. Goldberg (2006) defines them as follows:

Any linguistic pattern is recognized as a construction as long as some aspect of its form or function is not strictly predictable from its component parts or from other constructions recognized to exist. In addition, patterns are stored as constructions even if they are fully predictable as long as they occur with sufficient frequency. (Goldberg, 2006, p. 5)

The grammar, thus, consists of a hierarchy of constructions related to each other in taxonomic networks (Goldberg, 2013; Hilpert, 2014). In this chapter, we will argue that the existence in the agent of volitive conditions related with the predicated action can be expressed in LSC, fundamentally, by six constructions. These constructions comprise combinations of a (first-person) personal pronoun, a volitive predicate and a verb or a predication, constituting, thus, a construction with low degree of schematicity and abstraction, called in some approaches a *micro-construction*. In what follows, we will examine the typology of constructions proposed by Traugott (2008), that presents a stratification of constructions, ranging from the lowest to the highest level of abstraction, and that we will use in our discussion of modality in LSC.⁸¹

Traugott (2008) distinguishes four types of constructions: constructs, micro-constructions, meso-constructions and macro-constructions. **Constructs** are individual instantiations of language use. That is, every particular utterance including the predicates AGRADAR 'to like', VOLER 'to want', VENIR.DE.GUST 'to fancy' and ESPERAR 'to hope' and signaling volitive modality is a construct. The commonalities between the constructs that share a specific volitive verb and are produced frequently in the language contribute to the emergence of a generic structure, a micro-construction.

Micro-constructions (or *substantive constructions* or individual construction types) are located on the second level in the hierarchy as "construction whose formal as well as functional and semantic features are fixed" (Traugott, 2008, p. 6). They contain substantive elements (i.e. specific items) and 'slot(s)' that can be filled by various elements. As we will show, the specific volitive predicates in LSC are embedded in micro-

⁸¹ For an exhaustive overview of Construction Grammar and other constructional approaches we refer the reader to the volume edited by Hoffmann and Trousdale (2013).

constructions, which, in turn, give origin to a more abstract construction: a meso-construction.

Meso-constructions represent sets of similar-behaving constructions. They are general constructions in the language, completely schematic since only contains slots, as the LSC volitive construction in (136), which we will illustrate along the section.

(136) [[pronoun/noun]NP VOLITIVE.PREDICATE proposition]

Meso-constructions are linked to micro-constructions capturing, thus, the syntagmatic and paradigmatic dimensions. Finally, **macro-constructions** constitute the highest level, defined by structure and function. The volitive meso-construction is linked to an argument structure construction (a Subject-Predicate Construction) in LSC that may be represented as [subject + verb + proposition].

In our description, we will refer to the socio- and linguistic context relevant for the analysis, since constructions include all the knowledge that language users need to understand and produce utterances: phonology, morphosyntax, semantics and pragmatics. The holistic character of constructions has been commented upon extensively, as in Fried (2008).

Constructions in C[construction] G(grammar) are multidimensional objects that represent generalizations about speakers' linguistic knowledge. As such, they allow for both the gestalt, holistic view of linguistic patterning (unlike formal theories of language) and for keeping track of the internal properties of larger patters (like any other grammatical theory) (Fried, 2008, p. 51)

In what follows, we will examine each verb that may occupy a slot in the volitive meso-construction and we will illustrate them with examples from our corpus.

6.2.2.1 AGRADAR 'to like'

The predicate AGRADAR 'to like' (Figure 6.3) as a lexical item is the main verb in LSC for expressing preferences and likes. Morphosyntactically, it belongs to the category of plain predicates, i.e. it can only take morphemes to express aspect and adverbial meanings as quantifiers, but it includes neither morphemes related to person or number –as deictic

verbs do— nor morphemes related to movement or location – as spatial verbs do (Morales-López, Boldú-Menasanch, Alonso-Rodríguez, Gras-Ferrer, & Rodríguez-González, 2005).



Figure 6.3 AGRADAR 'to like'

Indeed, it is used in the volitive construction to express desire. The example in (137) is taken from a larger conversation about the next year vacation, in which the signer is describing her projects and thinking about vacation plans for the future.

(137) EMS 00:09:31 MS

[SABER-NO]_{neg} p A.VEURE ANY-FUT **PRO.1 VOLER TENIR.GANES** FER MENORCA IX.there

to.know-not let's see year.FUTURE to.want to.fancy to.do Menorca

[MENORCA]_{top} p **PRO.1 AGRADAR** QUINZE DÍA EXTENSIÓ BÉ

Menorca to.like fifteen day extension well

[1 SEMANA]_{top} [PAGAR.PENA NO]_{neg}

week to.be.worth not

'No ho sé. Ja veurem. Voldria, tinc moltes ganes d'anar-hi el proper any a Menorca. Sí a Menorca. M'agradaria passar-hi quinze dies allà. Una setmana no paga la pena.'

'I don't know. We'll see. I'd like to, I really want to go to Menorca next year. Yeah, to Menorca. I'd like to spend fifteen days there. For just a week it is not worth it.'

Crucially for the acceptability of the utterance, AGRADAR is accompanied by the non-manual elements described above in § 6.2.1.

6.2.2.2 VOLER 'to want' and DESITJAR 'to desire'

Also, the predicates VOLER 'to want' (Figure 6.4)⁸² and DESEAR 'to desire' (Figure 6.5) appear in volitive constructions. DESEAR arose by a derivation process from VOLER applying intensifying resources: reduction of speed and increased tension of the manual movement of the sign, tension in the facial elements and pressure of the teeth, as shown in (138), where we have included the previous gesture and the last photogram of the sign to show clearly the change in the facial articulators.



Figure 6.4 VOLER 'to want'



Figure 6.5 DESITJAR 'to desire'

(138) BeTeVé Volcanoes 00:04:18 BF



gest:doncs ----- DESITJAR -----

so

to.desire

'Sí que desitjaria crear una familia.'

'I do desire to create a family.'

As for the movement, VOLER is produced not with a horizontal movement across the torso, as shown in Figure 6.4, but with a diagonal movement. This alternative orientation

⁸² As pointed out in chapter 5, in the signs with a displacement movement, the first hold of the sign is represented by the dotted line whereas the final, with the continuous line. So, the Figure of the sign VOLER should be "read" like this: the movement begins in the contralateral upper torso (the left, in this signer) and ends in the ipsilateral upper torso (the right, in the case).

is documented in the glossary *Mira què dic* (Quijo & Viana, 2007) and we have seen it in the production of some signers.

Morphosyntactically, both are plain-predicate type, i.e. the verbs do not include morphemes referred to the situation agents/experiencers or patients nor to spatial information (Morales-López, et al., 2005).

Not surprisingly, VOLER 'to want', which is the prototypical verb expressing volitive meaning in LSC, is present as the lexical element inserted in a building block of micro-constructions signaling the modal values of wish, willingness and intention. The process of grammaticalization of the prototypical 'want' verb into a volitive construction has been identified in other languages –both as the auxiliary in verbal periphrasis or in a different type of construction, namely Latin (VELLE > VOLERE), Spanish *querer* + infinitive (Fernández Martín, 2015; Yllera, 1980), Catalan *voler* + infinitive (Antolí Martínez, 2015; Schmid, 2012), as well as in other Germanic languages: English *will* (Aijmer, 1985; Bybee, et al., 1994), German *wollen*, Dutch *willen* and Danish *ville* Mortelmans (Mortelmans, Boye, & van der Auwera, 2009).

6.2.2.3 TENIR.GANES 'to fancy'

A fourth verb signaling volition is TENIR.GANES 'to fancy' (Figure 6.6). It is a plain verb, which has an idiosyncratic negation, as described in chapter 7.



Figure 6.6 TENIR.GANES 'to fancy'

An example of its use as a volitive resource is shown in Example (137) above. There is a distinction between TENIR.GANES and VOLER. Whereas the former is used in more restricted contexts, denoting desires and preferences related to personal well-being (food, drinks, social activities, etc.), the latter has a generic use.

(139) FESOCA President's statement 2018/07/30 00:04:03 AC_R

[TAMBÉ]-focus [JUNTA DIRECTIVA]-top PRO.1.PLU

also board

[TENIR.GANES VEURE+1-TROBAR.SE-2]-fac.exp.illusion TOTS.VOSALTRES [I TAMBÉ]-focus

to.fancy see+meet you.all and also

[TOTS.VOSALTRES]-top TENIR.GANES PRO.2-PRO.1 JUNTA NOU IMATGE [QUI]-focus

you.all to.fancy board new imatge who

'També, la junta directiva, nosaltres, desitgem/volem trobar-nos amb tots vosaltres i també vosaltres desitgeu/voleu (trobar-vos) amb nosaltres per conèixer les persones que formen la nova junta.'

'Also, we, the board, would like/want to meet you all and you too would like/want to meet us to know the people that constitute the new board.'

As it can be observed in the frames in (140), corresponding to example (140) above, the non-manual component spreads over the two verbs, the procedural (TENIR.GANES 'to fancy') and the lexical (VEURE+TROBAR.SE 'to meet'): head tilt, raised chin and raised eyebrows.

(140) FESOCA president's statement 2018/07/30 00:04:03 AC_R



JUNTA / JUNTA DIRECTIVA]-top PRO.1.PLU
board



(... JUNTA / ----- TENIR.GANES -----) VEURE+TROBAR.SE]-fac.exp.
 board to.fancy to.see+meet



TROBAR.SE TOTS.VOSALTRES
to.find.yourself you.all

'La junta directiva, nosaltres, tenim ganes de trobar-se amb tots vosaltres.'
 'We, the board, would like/want to meet you all.'

The spreading of the non-manual markers over the lexical verb is an index of the conceptual and syntactic entrenchment between the procedural verb and the lexical verb. The possibility of spreading facial features over the lexical material has been observed also for volitive combinations in LSE (Herrero & Salazar, 2010).

6.2.2.4 ESPERAR 'to hope'

The predicate ESPERAR 'to hope' (Figure 6.7) as a lexical primary meaning denotes both physical permanence in a place till a given condition is met ('to wait'), as well as a mental state ('to hope') (Ferrerons, 2011, vol. 1, p. 400). It is a plain verb.



Figure 6.7 ESPERAR 'to hope'

Note the fragment in (141) where the participants in the conversation are talking about their kids' schooling. At this moment, the informer expresses her wish that the school would improve.

(141) EMS 00:39:43 JMS

PRO.1 **ESPERAR** ANY.FUTUR ESCOLA.JOSEP.PLA ESCOLA DINS CASTELLÀ p **ESPERAR** PROU

to.hope year-FUTURO School.Josep.Pla school inside Spanish to.hope done

'Espero que el proper any hi hagi (classes de) castellà a l'Escola Josep Pla.'

'I hope that next year there will be Spanish courses in the Josep Pla school.'

The construction with **ESPERAR** signals that the completion of the situation expressed by the main predicate does not depend on the issuer, but it is strongly desired.

6.2.2.5 **PENSAR 'to think'**

The cognitive predicate **PENSAR 'to think'** (Figure 6.8) is used, besides the lexical meaning of cognitive activity, mainly with an epistemic value, as dealt in subsection 6.5.2. Morphologically, it belongs to the category of plain predicates.



Figure 6.8 PENSAR 'to think'

However, **PENSAR** expresses desire in counterfactual constructions as in (142) and (143). In these two sentences, the informant is describing her childhood dreams about

her profession. The use of PENSAR locates the volitive mental state in the past and stresses its lack of completion.

(142) EES 00:01:44 ES

PRO.1 **PENSAR** FUTUR TREBALL MAGNÍFIC-INTENS p FINAL [RES.DE.RES]-neg

to.think future to.work amazing end nothing

'Pensava que tindria una feina excel·lent. I, al final, res de res!'

'I thought I would have an amazing job. But, in the end, nothing like that!'

(143) EES 00:04:44 ES

PRO.1 **PENSAR AGRADAR** SECRETARIA+ESCRIURE.MÀQUINA p PRO.1 AGRADAR SÍ

to.think to.like secretary to.type to.like yes

'Jo pensava, m'hagués agradat, treballar de secretària. Sí, m'hagués agradat.'

'I thought, I would have liked, to work as a secretary. Yeah, I would have liked it.'

In (143), the signer, when comparing her projects and wishes as a kid with her present situation, uses the predicate PENSAR as a synonym of AGRADAR. Another sign with a similar meaning is TANT.DE.BÓ 'to wish'.

6.2.2.6 TANT.DE.BÓ 'I wish'

The sign TANT.DE.BÓ 'I wish' (Figure 6.9) is one of the main mechanisms expressing desire in LSC. It is interesting to highlight that we have glossed this sign making reference to the sign's oral component (also referred as *mouthing*), the Spanish word *ojalá* ('I wish').



Figure 6.9 TANT.DE.BO 'I wish'

The arm movement follows the rhythm of the mouthing producing a rising spiral, parallel to vocal productions, as shown in the pictures in (144).

As illustrated in (144), it functions semantically and syntactically as the volitive predicates described above (VOLER 'to want', AGRADAR 'to like', ESPERAR 'to hope' and VENIR.DE.GUST 'to fancy'). Consider the example in (145), where the signer expresses her wish to keep working in the family laundry.

(145) EMS 00:03:50 MS

Int.: BUGADERIA PER.A PRO.2 [EXEMPLE]lean HAVER.DE 2 GERMA TOTS.DOS p

laundry/dry cleaning for example have.to brother PRO2-EXCL

PRO.1 SABER.NO p PRO.2 INTERESSAR CONTINUAR BUGADERIA O (interrupció)

to.know-not to.be.interested to.continue laundry/dry.cleaning or

Resp.: HAVER.DE [DIR SÍ] p PRO.1 **TANT.DE.BÓ** PRO.1 p

have.to to.say yes I.wish

PRO.1 **AGRADAR** CONTINUAR PRO.1 gest.uf

to.like to.continue

Int.: 'La bugaderia per a tu, per exemple. O entre els dos germans. No sé. A tu t'interessa continuar amb la bugaderia o... (interrupció).'

Resp.: 'Hauria. Diria que sí. Per mi, tant de bo. A mi m'agradaria continuar'

Int.: 'The laundry/dry cleaning for you, for example. Or for the two brothers. I don't know. Are you interested in going on with the laundry or ... (interruption).'

Resp.: 'I should. I would say yes. I wish. I'd like to go on (really).'

Crucially, its morphosyntactic behavior coincides neither with Spanish *ojalá* nor with the Catalan equivalent *tant de bo*, even though the users produce these words with the oral component. We will devote further attention to its possible origin in Chapter 10, where we suggest several factors in its emergence.

6.2.3 Volitive constructions

Through the previous sections, we have addressed the main characteristics of the verbs encoding volitive meanings in LSC. As explained earlier, these verbs are inserted in volitive micro-constructions, whose grouping originates a meso-construction. The existence of these constructions is related to our conception of language change and the

building of a linguistic system. To this respect, our analysis adopts, also, the assumptions and terminology from Constructionalization Theory and Diachronic Construction Grammar (Barðdal, Smirnova, Sommerer, & Gildea, 2015; Bybee, 2010; Garachana, 2015; Hilpert, 2014; Hopper & Traugott, 1993; E. C. Traugott & Trousdale, 2013).

Constructions are the outcome and the source of several processes of language organization. In Chapter 2, we explained that language resources emerge through routines and that several mechanisms are at work. The basic hypothesis is that change in grammatical organization is articulated as a gradual conventionalization of patterns that include, integrated as a whole, morphosemantic structure, syntactic function, communicative function and lexical meaning form (Fried, 2008). This process of articulation may include grammaticalization and constructionalization. In the former, a lexical element or a grammatical element in a context acquires a (more) grammatical function, whereas in the latter the whole set of elements develops a grammatical function (Bybee, 2008, 2011; Garachana, 2015, 2017b).

There are also formal changes. In the instances analyzed, we observe the presence of the first-person pronoun, in general formally reduced and/or fused with the volitive modal. Thus, we frequently observe the assimilation of the personal pronoun in the volitive verb: instead of producing the first-person pronoun with a close handshape and extended index, the shape is assimilated with the shape of the following sign and the sign presents a reduced movement. This has been annotated in the examples with a letter coding the handshape in parenthesis attached to the pronoun.

In the case of volition, the proposed meso-construction presents specific properties. The prosody of the construction (encoded, essentially, by facial expression and head movement) refers to the lack of actuality, i.e. desire, and is expressed formally by the facial component: brow raising, open eyes, and, occasionally, the gaze directed toward a high point, away from the interlocutor.

Regarding the morphosyntactic properties, the modal volitive verb, unlike when it functions as a lexical verb, does not admit aspectual morphemes (durative, frequentative or iterative). Syntactically and with respect to the structuring and ordering of the elements, we observe that the modal construction is located in sentence initial position with the following ordering [PRO.1 MODAL.GRAM verb/proposition].

We can observe also a preferably performative use, even with descriptive finality, where the signer assumes the perspective of the agent he refers to, as if enacting the dialogue that had place. We illustrate this use in the fragment in example (146).

(146) EJG 00:24:00 JG

PRO.3I DIRECTOR CA:director<[**VOLER TENIR.GANES** ESTUDIAR MÉS UN-ANY] >p

director to.want to.fancy to.study more one-year

CA:fill<[FATAL DOS-ANY / PROU]-exp.facial:desagrat p [ESTUDIAR UNIVERSITAT]-t [NO]-neg p

son awful two-year enough dislike to.study university not

ESTUDIAR TEATRE FORMAL

to.study theater formal

Lit. 'El director li va dir: "Voldries, t'agradaria, estudiar un any més". (Ell va respondre): "Fatal! Amb dos anys, n'hi ha prou". No volia estudiar en la universitat. (Volia) estudiar teatre de manera oficial.'

Lit. 'The director told her: "Would you like, would feel like, studying one more year?". (He answered): "No way! Two years is enough". I didn't want to study at university. I wanted to study theater in an official way.'

Semantically, the mesoconstruction is characterized by referring to a non-factive situation that can be hypothetical, conditional, supposed, etc. This is especially relevant since the signer is not expressing what he/she likes, desires or thinks about something –this would correspond to a lexical use– but what he/she would like, desire or think. In other words, the irrealis component is the semantic core common to all these microconstructions. In this sense, the grammaticalization happens by a process of expansion and constructionalization (Hopper & Traugott, 1993; E. C. Traugott & Dasher, 2002).

In addition, they share a basic volitive meaning, although of different degree and with different nuances: desire, predisposition and intention. This is evident when two of the predicates appear in a row, expressing a harmonic scale, as in (137), (143) or (146) or in two consecutive sentences, as in (145). More specifically, we have identified the following combinations: VOLER+TENIR.GANES, PENSAR+ESPERAR, PENSAR+AGRADAR, AGRADAR+PENSAR and ESPERAR+PROJECTAR.

Furthermore, the modal can appear as the only element of a proposition, as an answer to a question, or as a parenthetical, after the clause.

In short, volitive grammatical constructions in LSC include information relative to the syntactic distribution, the semantic content, phonology and lexical items. The linguistic material that is grammaticized is not a specific lexical unit, rather it is a unit within, or even better jointly with, a very prominent prosodic context (facial expression), a precise combination of morphosyntactic and discursive elements (Bybee, et al., 1994; Langacker, 1990a). It is a grammaticization process without reanalysis, where what changes is the semantic status of a construction that goes from expressing a realis content to express an irrealis content. We believe that they constitute recurrent pattern abstractions elaborated on the basis of chains of multimodal communicative elements of the language in use in social interactions (Wilcox & Xavier, 2013).

6.3 The encoding of non-epistemic possibility

In this dissertation, non-epistemic modality corresponds to the category traditionally labeled as *deontic modality* or *root modality*. We refer the reader to Chapter 2 for a discussion on the several terms used in the literature and our position with respect to this issue. The non-epistemic subdomain includes possibility and necessity.

In this Section we will focus on non-epistemic possibility and we will begin with the subdomain of participant-internal possibility.

6.3.1 Participant-internal possibility: mental and physical ability

This subdomain corresponds approximately to the labels *dynamic modality* (Palmer, 1986; Perkins, 1983), *facultative modality* (Goossens, 1985), *inherent modality* (Hengeveld, 1989) or *participant-inherent dynamic modality* (Nuyts, 2006). This category expresses capabilities, abilities and potentials which are fully inherent to the first-argument participant. We will address, firstly, the sign PODER 'can', since it is the most frequent and signals the whole constellation of possibility values. Other than PODER, participant internal subdomain is rendered by expressions such as SABER, SABER.DOMINAR, SER.CAPAÇ, TENIR.HABILITAT, and the compound PODER+SER.CAPAÇ.

6.3.1.1 PODER 'can'

The modal notion of possibility in LSC is expressed predominantly with the form PODER (Figure 6.10). According to Morales et al. (2005), PODER is a plain predicate.



Figure 6.10 PODER 'can'

It has no lexical function and only accompanies verbs or propositions. It covers all the semantic domain of possibility, but it is used in different constructional schemas. Not surprisingly, when PODER expresses epistemic functions it exhibits differences in movement properties as well as in the non-manual component. This will be the focus of Section 6.5.1.

PODER is, in classical terms, a polysemic sign since it is used to express participant internal ability (mental and physical ability, capability, etc.) and participant external possibility, both root possibility and deontic possibility, including uses that could be called "advice" or opinion. It appears, thus, in constructions with values related with the domain of participant-internal possibility. It refers to capabilities, abilities or potentials that depend inherently and totally on the participant or the first argument (van der Auwera & Plungian, 1998). We illustrate this use with example (147).

(147) EJG 00:06:26 JG

[PRO.1 AMO ASSUMIR ELECTRICISTA]-top [**PODER** PRO.1]-nod p

boss to.hire electrician can

HAVER.DE(2h) [PRO.1 AMO ASSUMIR]-cond OBRER CARNET

to.have.to boss to.hire worker certificate

'Jo podria treballar com a electricista sent-ne l'amo. Però si assumís ser-ne l'amo, hauria de contractar un treballador amb carnet.'

'I could work as an electrician and be the boss. But if I'd take the responsibility of being the boss, I should hire a certified electrician.'

In (147), the signer is relating to the interviewer his ability to switch to a new job as an electrician. Specifically, the interviewer has asked the interviewer whether he could work again as an electrician, his previous profession. He answers affirmatively, provided that he could work together with an accredited professional that could carry out those tasks that he cannot do because of his back injury.

From the syntactic perspective, note that the proposition referring to capability is in the topic part of the sentence and the modal appears in the comment. This structure corresponds to the primary constructional schema.

PODER also expresses root possibility, such as in fragments (148) and (149). In (148) the interviewer asks the interviewee to imagine a hypothetical situation: imagine that you had a deaf child, what university degree would you like your child to take?

(148) EJG 00:09:24 JMS

PERÒ PRO.1 DIR [SI PRO.2 FILL SORD **PODER ESTUDIAR** ACCEDIR I **PODER ENTRAR**

but to.say if son deaf can to.study to.access and can to.entry

UNIVERSITAT]-cond p [PRO.2 QUÈ PENSAR]-p p PRO.3 [SI ENTRAR UNIVERSITAT]-cond

university what to.think if to.entry university

AGRADAR PRO.3 FILL SORD gest.eh [ESTUDIAR QUÈ]-p p [EXEMPLE]-p

to.like son deaf to.study what example

'Però, per exemple, si el teu fill, que fos sord, pogués estudiar i accedir a la universitat, ¿què en pensaries? Si pogués entrar-hi, un fill teu que fos sord, ¿què t'agradaria que estudiés?'

'But, for example, if your son, if he were deaf, could study and attend university, what would you think? If he could attend it, a son of yours that were deaf, what would you like him to study?'

In the formulation of the question, the interviewer uses PODER not referring to the hypothetical child's internal capacities, but to the fact that the context, determined by bilingual education where LSC is the primary language, makes it possible to be successful

in the studies. In the following example, it is the very same interview that justifies why he is working as a shoemaker.

(149) EJG 00:04:43 JG

[PRO.1 PENSAR PRO.1 SABATER PRO.1]-top [NO]-neg p [SABATER NO]-neg p

to.think shoemaker shoemaker not shoemaker not

PASSAR.TEMPS p PRO.1 ÚLTIM ANY MIG FER PRO.1 <AC: BLC: "considerar l'oferta de feines"

time.passing last year half to.do to consider the job offers

PER.A VIURE HAVER.DE <AC: CLC:"considerar l'oferta de feines"> p

to to.live to.have.to to consider the job offers

OBJECTIU SABATER RÀPID PER.A **PODER VIURE** RES.MÉS

aim shoemaker quick to can to.live nothing.more

'No havia pensat en fer de sabater. (Però) el temps va anar passant i durant l'últim any i mig he estat considerant l'oferta de treballs. Em vaig decidir pel de sabater ràpid per poder sobreviure. Res més.'

'I hadn't thought about being a shoemaker. (But) time was passing by and in the last year and a half I was looking at the job offers. I decided quickly for the shoemaker option so that I could survive. Nothing more than that.'

In his argumentation, he uses **PODER VIVIR** 'can live' to refer to the fact that it is the money earned with this job that guarantees his living conditions. Thus, once more, reference is made to the source of potency for the realization of a situation.

In addition, **PODER** with deontic function is used by the interviewer "granting permit" to the interviewee to ask for more questions, as exemplified in (150).

(150) EES 00:20:08 JMS

PRO.2 **PODER** IDEA AFEGIR p PRO.2 2-PREGUNTAR-1 p PRO.1 [1-PREGUNTAR-2-ASP.iter]-2m p

can idea to.add to.ask to.ask

TAMBÉ 2-PREGUNTAR-1

also to.ask

'Tu pots afegir-hi més idees. Pregunta'm. Jo ja t'he estat preguntant. Pregunta'm, tu també.'

'You can add more ideas. Ask me questions. I have already asked you questions. Ask me questions, you too.'

In this case, PODER is used as a courtesy resource and, therefore, its use in intersubjective in nature.

6.3.1.2 SABER 'to know'

LSC disposes of two verbs, glossed as SABER 'to know' (Figure 6.11) and SABER.DOMINAR 'to know, master' (Figure 6.12) to express internal abilities and capabilities which are fully inherent to the first-argument participant. While the former expresses the more general meaning, the latter refers to some ability of the participant, namely that he has a good mastery of that skill.



Figure 6.11 SABER 'to know'



Figure 6.12 SABER.DOMINAR 'to know, master'

SABER.DOMINAR is a sign derived from SABER. The lexicalization process consists in applying, to the verb citation form, the morphological pattern to express perfective aspect. Phonetically, the perfective pattern consists of a sharp and shorter movement in comparison with the citation form. We discuss this process more extensively in Chapter 9, paying attention to the interaction between modality and aspect.

Note the example in (151), where the respondent is explaining her trips to Switzerland during the summer vacation. The interviewer asks her whether she can communicate with people there, and to this question, she answers talking about the situation when she goes to a restaurant.

(151) EES 00:10:55 ES

PRO.1 CARTA PORTAR HAVER.DE p [NO]-neg [**PODER**]-nod p

menú to.bring to.have.to no can

[PERFECTE]-top [NO]-neg p FER.MÍMICA p [PRO.1 **SABER**]-nod [PRO.1 **SER.CAPAÇ**]-nod

perfect no to.mimic to.know to.be.able

'M'han de portar la carta. Sí que en soc capaç. És clar que no perfectament. Faig mímica, però sí que en soc capaç.'

'They have to bring me the menu. I can. Of course, not perfectly. I mimic, but, yes, I can, I'm able to.'

In (151), the participant explains that, although she does not understand the local language (meaning, in this fragment, the German language), she can nevertheless communicate. Observe how she uses the three verbs that express dynamic possibility: **PODER**, **SABER** and **SER.CAPAÇ**. Interestingly, **SABER** and **SER.CAPAÇ** are used on a scale of lesser to greater control. We will now turn our attention to the sign **SER.CAPAÇ**.

6.3.1.3 **SER.CAPAÇ** 'to be able to'

SER.CAPAÇ 'to be able to' (Figure 6.13) is a plain verb according to Morales et al. (2005). It does not function as a lexical verb, but only as a modal marker that signals intellectual and physical ability, but also root possibility (in Bybee's et al. 1994, sense). While **SABER** is used in neutral context, **SER.CAPAÇ** signals a strong commitment concerning the ability.



Figure 6.13 **SER.CAPAÇ** 'to be able to'

Example (152) is taken from a larger conversation about 'food likes and dislikes'. The signer is describing food that usually people find disgusting, but she does not mind.

(152) EES 00:31:34 ES

Int.: AL.REVÉS MENJAR TOTHOM FÀSTIC p PRO.2 MENJAR **SER.CAPAÇ** PRO.2

on.the.contrary eat everybody disgust eat be.able

Resp.: MORRO SABER.NO p PROVAR NO p [PORC]-top MENJAR **SER.CAPAÇ**

porc.cheeks know-NEG taste not pig eat be.able

Int.: 'I a l'inrevés, menjar que a tots els faci fàstic i tu siguis capaç de menjar-ne?'

Resp.: 'El morro no ho sé. No ho he provat. El porc, sí que ho puc menjar.'

Int.: 'And on the contrary, any food that everybody finds disgusting and that you are able to eat?'

Resp.: Pork cheeks, I don't know. I haven't tried that. Pork, I can have it.'

As shown in (152), **SER.CAPAÇ** is used in contexts with an assertive value, stressing the positive belief of been able to accomplish the situation. Therefore, it has a shading of surprise, of opposition to other people's beliefs, because the agent is not considered able or it is very difficult or complex to achieve the referred situation. Hence, this sign has an intersubjective value.

6.3.1.4 **TENIR.HABILITAT 'to be skilled'**

We have glossed the third sign with dynamic value as **TENIR.HABILITAT** 'to be skilled' (Figure 6.14). Morphosyntactically, it is a plain predicate.



Figure 6.14 **TENIR.HABILITAT** 'to be skilled'

Unlike the predicate discussed above, TENIR.HABILITAT describes the participant's inherent abilities in the completion of the situation denoted by the lexical verb or proposition. That is, it stresses strong inherent facility to develop the ability, as illustrated in (153) with respect to language competence.

(153) Webvisual The girl that didn't use to say hello 00:06:32 IC_R

IX.ella SIGNE.NOM TENIR.HABILITAT CATALÀ p [CASTELLÀ]-top MÉS.O.MENYS p

name.sign to.have.skill Catalan Spanish more.or.less

[CATALÀ] TENIR.HABILITAT

Catalan to.have.skill

'Ella té gran habilitat amb el català, amb el castellà no tant. El català, el domina.'

'She's very skilled in Catalan, not so much in Spanish. Catalan, she masters it.'

Indeed, its phonological properties, such as not been an anchored verb or been able to modify the fingers movement simultaneously to the arms movement, allow the signers to modify the movement qualities in order to express strong ability, expertise, skillful, etc.

6.3.2 Participant-external possibility: root possibility

Root possibility covers abilities/potentials and needs/necessities which are determined by the local circumstances of that participant (called *participant-imposed dynamic* by Nuyts, 2006, p. 3) and a potential or a necessity/inevitability inherent in the situation described in the clause as a whole (called *situational (dynamic) modality* by Nuyts, 2006, p. 4). Consider (149), repeated here for convenience as (154), where the signer is explaining the reasons and the situation that led him to start working as a shoemaker.

(154) EJG 00:04:43 JG

[PENSAR PRO.1 SABATER PRO.1]-top [NO]-hs p [SABATER NO]-hs p

to.think shoemaker not shoemaker no

PASSAR.TEMPS p PRO.1 ÚLTIM ANY MIG FER PRO.1 BLC:"considerar.oferta.de.treballs"

time.going-by last year half do looking.job.offers

PER.A VIURE HAVER.DE CLC:"considerar.oferta.de.treballs" p

for live must looking.job.offers

OBJECTIU SABATER RÀPID PER.A **PODER** VIURE RES.MÉS

goal shoemaker quick to can live nothing.more

'No hi havia pensat en fer de sabater. (Però) el temps va anar passant i durant l'últim any i mig he estat considerant l'oferta de treballs. Em vaig decidir pel de sabater ràpid per poder sobreviure. Res més.'

'I hadn't thought about being a shoemaker. (But) time was passing by and in the last year and a half I was looking at the job offers. I decided quickly for the shoemaker option to be able to make a living. Nothing more than that.'

Similarly, in (155), after explaining that when she was young she could not study for different reasons, the informer points out that if working and family conditions allowed it, she would be willing to study.

(155) EMS 00:22:28 MS

PRO.1 CANVIAR.IDEA **PODER** ESTUDIAR p

change.mind can study

PRO.1 ESFORÇAR p PRO.1 **SER.CAPAÇ** PRO.1

struggle/make effort be.able

'He canviat d'idea. Si pogués estudiar, m'esforçaria i seria capaç.'

'I changed my mind. If I could study, I would make an effort and I would be able'.

6.3.2.1 **PODER+SER.CAPAÇ 'can+to be able'**

This verb is a compound made of the composites PODER and SER.CAPAÇ. In chapter 10 we will refer to the phonological processes in LSC lexicalization by compounding and the phonetic/phonological changes experimented by the composites.

Like PODER and SER.CAPAÇ on their own, the compound is used to signal internal and external conditions enabling the accomplishment of the situation, as shown in (156). The informer is talking about her two kids and the interviewer asks her whether she would go for a third kid if the economic situation was favorable.

(156) EMS 00:08:22 JMS

Int.: [EXEMPLE SI LOTERIA GUANYAR GRAN.QUANTITAT]-cond [PODER TERCER]solapat //

example if lottery win great.amount can/may third

Resp.: PODER+SER.CAPAÇ UN MÉS p PODER+SER.CAPAÇ UN MÉS PROU

can+capacity *one more* *can+capacity* *one more enough*

Int.: 'I si guanyessis molts diners a la loteria, seria possible un tercer (fill)?'

Resp.: 'Podria un (fill) més, podria però només un més.'

Int.: 'And if you would win a lot of money at the lottery, would you go for a third (kid)?'

Resp.: 'I could have one more, but not more than that.'

The respondent answers using PODER+SER.CAPAÇ expressing root possibility, thus signaling that the context, a better economic situation, would make it possible to rise a third kid. The use of this possibility marker profiles that the potential force resides in external conditions, presupposing the internal ones.

Besides PODER –the most neutral—and PODER+SER.CAPAÇ -the marked element-, root possibility can be encoded also with the adjective predicate SER.FÀCIL. We will discuss this sign in detail in § 6.5.3 concerning epistemic possibility.

6.3.3 Participant-external possibility: deontic possibility

Deontic possibility does not include only the traditionally defined values, i.e. permission and obligation (Palmer, 1986; van der Auwera & Plungian, 1998; Verstraete, 2005), but, also, an indication of the degree of moral desirability of the state of affairs expressed in the utterance, typically, but not necessarily, on behalf of the issuer (Nuyts, 2006, p. 4). The main resources for expressing deontic possibility in LSC, other than PODER, are PERMETRE and CEDIR. We present also the sign ACONSELLAR since it may be used as a polite construction for expressing deontic possibility and, in ironic discourse, it may even signal deontic necessity.

6.3.3.1 PERMETRE 'to allow'

PERMETRE 'to allow' is a verb formally and semantically related to the adjective predicate SER.LLIURE (Figure 6.15) or the nominal sign LLIBERTAT ('freedom'). The main formal difference affects the parameter of movement. SER.LLIURE exhibits a longer movement

along the vertical axis. In PERMETRE the hands do not change location and the movement consists in a flexion of the wrist (Figure 6.16).



Figure 6.15 SER.LLIURE 'to be free'



Figure 6.16 PERMETRE 'to allow'

PERMETRE may be used as equivalent to the English/Catalan items *authorize/autoritzar, allow/permetre, grant/concedir*, etc. The permission is exemplified by (157). The informer mentions to her interviewer the possibility of renting a boat to sail along the Menorca coasts, avoiding in this way the difficulty of accessing to some beaches because of the cliffs.

(157) EMS 00:10:18 JMS

PRO.1(B) SABER.NO p ARA IX.allà PROBLEMA-PLU p

to.know.not now IX.there problem

VAIXELL PERMETRE (CL.costa/PRED.MOV.navegar.per.la.costa) p

boat to.allow coast navigate.along.the.coast

[EXEMPLE PLATJA PENYASEGAT DIFÍCIL]-cond p VAIXELL ACCEDIR SER.CAPAÇ

exemple beach cliff boat difficult boat to.access to.be.able

Lit. 'No ho sé (si) ara hi ha problemes. Als vaixells se'ls permet navegar per tota la costa (de Menorca). Si és difícil arribar a les platges dels penya-segats, els vaixells poden accedir.'

Lit. 'I don't know whether there are problems now. Boats are allowed along all coast (in Menorca). If it is difficult to arrive to the beaches with cliffs, the boats can make it.'

From the morphosyntactic perspective, PERMETRE is undergoing a grammaticization process. While some signers produce it always as a plain verb, according to the classification proposed in Morales *et al.* (2005) –i.e. it has always to be accompanied by

the agentivity marker (also called *agreement marker*)– other signers use it with the deictic-type pattern. In the latter case, the verb may change its hand orientation to code the semantic roles of agent and patient/recipient.

This use is illustrated in the excerpt in (158). It corresponds to a fragment of an article of the Statute of Catalonia (*Estatut de Catalunya*), in the version elaborated in LSC by the Catalonia Deaf Federation. The signer is explaining the competencies that the Catalan Government will assume according to the Statute. In this fragment, the signer assumes the role of the Government, as beneficiary of the competencies and she modifies the orientation of the canonical form of the sign to express this semantic-pragmatic function.

(158) Visual guide of the Statute of Catalonia VTS_01_2 M (00:22:20)



COMPETÈNCIA
competence



MÉS
more



ASSUMIR
assume



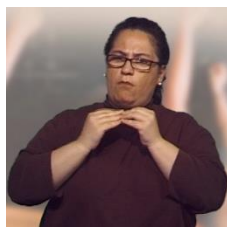
IGUAL
same



3-PERMETRE-1
allow



VOLER
want



FER
do



[QUIN]-focus
which



[EXEMPLE]-top
example



QUIN
which



CARÀCTER

character



ESPECÍFIC

specific



CONDICIÓ-PLU

condition



IGUAL

same



HABITATGE

housing



A.GUST

at ease



'Aquestes competències permeten intervenir, per exemple, en aspectes com les condicions d'habitabilitat.'

'These competencies give the right to intervene, for instance, in aspects such as living conditions.'

PERMETRE also reflects a conception of modality in terms of barriers and forces (Johnson, 1987; Langacker, 1990b; Sweetser, 1982, 1990; Talmy, 1988). The formal link between the signs for 'freedom' and 'permission' shows a conceptualization of permission in terms of an agent, the Antagonist –the source of potency in Talmy's description— that removes a barrier that stops the Agonist –the target of potency— from moving toward an action. This explicitness may also be observed with regard to the marker A.LA.FORÇA 'to compel by force' (§ 6.4.3.1) and to CEDIR, focus of next section.

When describing modality in LSE, Herrero and Salazar (2006) address the homonym form of PERMETRE, with the same lexical and modal meaning. They stress that it functions as a permission modal only when it is located in final position. They remark on the difference with the LSE *Sp.* AUTORIZAR 'to authorize' form, that –they claim— is derived from LIBRE 'free'. See (159).

(159) LSE (Herrero & Salazar, 2010, p. 25)

Sp. AQUÍ TU FUMAR LIBRE

here you to.smoke free

Sp. 'Puedes fumar aquí.' /Cat. 'Pots fumar aquí.'

'You may smoke here.'

According to Herrero and Salazar (2010), PODER and LIBRE are not interchangeable in all contexts. PODER, as a deontic verb, is used only as a marker of inherent modality, while LIBRE expresses inherent as well as objective deontic modality. These differences in value correspond to differences in scope.

6.3.3.2 CEDIR 'to grant permission'

The last deontic marker is CEDIR 'to grant permission' (Figure 6.17). In his dictionary, Ferrerons (2011) describes it in the entry *consenter* ('to grant permission'). Among the possible Catalan equivalent words, he mentions *atorgar* ('grant'), *condescendir* ('condescend'), *tolerar* ('tolerate'), and *transigir* ('relent') (2011, p. 269).



Figure 6.17 CEDIR 'to grant permission'

The sign CEDIR belongs to the *plain-type verbs with deictic value* (Morales-López, et al., 2005). The signer is assigned the agent function and can modify slightly the body orientation and the direction of the movement of the verb to direct it toward a syntactic or discursive locus. This locus will correspond to the beneficiary of the action, which is either physically present or is referred to anaphorically and arbitrarily in the signing space. Example (160) displays the use of this sign in the context of the relationship between the informant and her son and how sometimes the adult, after denying several times a demand from the son, allows it.

(160) EES 00:18:07 ES

A.COPS OBEIR p MÉS OBEIR p SÍ p A.COPS DESOBEIR p

sometimes to.obey more to.obey yes sometimes to.disobey

DEPENDRE(según) PRO.1 NEGAR FINS 3-VÈNCER-1 p gest.uff PRO.1 **CONCEDIR-3** p

depend on to.refuse until to.win to.grant.permission

IX.ara ALTRE.COP NO p HAVER.DE(2h) BUSCAR COL·LABORAR UNA.MICA gest.controlar

now again not must to.search to.cooperate a.little gesture: to.control

PAU gest.controlar gest.uff

peace gesture: to.control pff

'A vegades m'obeeix, més m'obeeix. Sí. A vegades em desobeeix. Depèn. Jo em vaig oposant fins que aconseguix guanyar-me'. Jo cedeixo. Ara, un altre cop no. Cal que busqui una mica la col·laboració. Que hi hagi pau. Però uf!'

'Sometimes he obeys me, more often he does. Yes. Sometimes he doesn't. It depends. I resist/refuse till he gets me'. I give up. Now, not another time. He should be cooperative. There must be peace. But, pff!'

6.3.3.3 ACONSELLAR 'to advise'

The last sign addressed signaling deontic values is ACONSELLAR 'to advise' (Figure 6.18). It belongs to the plain-type verbs with deictic value (Morales-López, et al., 2005).



Figure 6.18 ACONSELLAR 'to advise'

It refers to the situation of giving someone useful information or telling what the agent thinks the receiver should do. The example is given in (161), where the interviewer asks the respondent about what recommendations he would give in a hypothetical situation where his son was deaf instead of hearing. And, confronted with the lack of answer, the interviewer suggests an answer to his own question.

(161) EJG 00:08:01 JMS_R

Int.: PERÒ [EXEMPLE (IX.fill / SORD)]-cond p [OIENT NO]neg p [EXEMPLE SORD I) SITUACIÓ

but example son deaf hearing not example deaf and situation

IGUAL PRO.2 ESTUDIAR SER NO(2h) p UNIVERSITAT [NO(2h)]-neg p SITUACIÓ IGUAL

same study to.be not university not situation same

[IGUAL]-inten p CARÀCTER IGUAL p PRO.2 [ACONSELLAR-3 QUÈ PRO.3I]-q p

same character same to.advise what

[FUTUR TREBALLAR IX.futur]-top [PRO.2 ACONSELLAR-3a QUÈ]-q

future to.work future to.advice what

Resp.: gest.corp.:incertesa PRO.1 MIRAR gest.fac:riure [PODER APARTAR] p

uncertainty to.look.at to.smile may

[MÓN SORD]-top [ARA]-top IGUAL APROXIMADAMENT HAVER.HI IX HAVER.HI p

world deaf now same approximately to.there.be to.there.be

[PRO.1 MIRAR- **ACONSELLAR** TREBALLAR]-top [HAVER.HI.NO]-neg

look.at to.advise to.work to.there.be.not

palm.up.gesture: p PRO.1 MIRAR SER.BAIXA.QUALITAT

to.look.at to.be.bad-quality

Int.: PRO.1 CREURE [DIR] TREBALL MOLT p PRO.1 CREURE PRO.2 PODER 2-**ACONSELLAR**-3

to.believe to.say work a.lot to.believe can to.advice

PRO.3I NEN SORD PRO.3I ELECTRICITAT O MECÀNIC PERQUÈ ÈPOCA DEMANDA

child deaf electricity or mechanics because time demand

'Int.: Si (el teu fill) fos sord, no oient, sord, en la mateixa situació, igual com tu que no ets d'estudiar, res d'universitat, en la mateixa situació que tu, el mateix caràcter. Què li aconsellaries? Per al seu futur laboral, què li recomanaries?

Resp.: No sé. El que veig al meu voltant potser ho descartaria... Actualment, en el món sord, ara com jo n'hi ha, n'hi ha. (Però) no veig res per a (poder-li) aconsellar. Tot el que hi ha és de baixa qualitat.

Int.: Jo crec, diuen, que hi ha molta feina. Crec que podries aconsellar-li que (fes d') electricista o de mecànic perquè ara hi ha molta demanda.'

'Int.: If (your son) were deaf, not hearing, deaf, in the same situation, the same studies, the same character. What kind of job would you recommend to him?

Resp.: I don't know. Maybe I would not consider what I see around me. Nowadays, in the deaf world, there are people like me, definitely. (But) I don't see anything I can recommend. Everything is of low quality.

Int.: I believe, they say, that there is a lot of work. I believe that you could advice him to be an electrician or a mechanic, because now there is a lot of demand.'

In (161), ACONSELLAR appears in a descriptive use, but it may be used, also, as a performative to express a weak obligation.

6.4 The encoding of non-epistemic necessity

LSC displays several resources to express values related to the non-epistemic necessity subdomain. Non-manual marking will be the focus of this section.

6.4.1 Non-manual marking

Signers can modify the non-manual component and the tension in movement accompanying modal resources. For instance, facial expression displays brow raising and the head is inclined towards the agent for signaling strong commitment. The degree of tension in both non-manual and manual correlates with the degree of the signer's role in the deontic necessity: the signer's role is strong when the signer associates herself with the source of obligation, whereas it is weak, when she only conveys the source.

Furthermore, the issue of the existence of imperative mood (characterized by the lack of modal manual forms) has been addressed in several signed languages, including LSC (Donati, et al., 2017). The authors described that the command imperatives are marked in two different elements according to the modality function: (i) furrowed brows accompany commands, and (ii) head nod and protruding lips co-appearing with permission imperatives.

In our corpus, we have identified several uses of imperatives in constructed action constructions that are verbatim of orders given by the signer itself in another context or by other people to the signer. Examples are orders from parents to kids, from a boss to a subordinate or from a teacher to a pupil. For instance, in (162) the respondent says that she is very different from her sisters. She illustrates this with examples from school. Whereas her sisters were quiet, she was constantly scolded by the teachers because she was always moving around, and they gave her instructions to sit.

(162) EMS 00:27:55 MS

VEURE PRO-3-INCL SER.DIFERENT p ESCOLA MESTRE 3-RENYAR-3 PRO.DUAL.EXCL POC p
to.see to.be.different school teacher to.scold a.little

PRO.1 3-RENYAR-1-ASP.HAB p CULPA ESTAR.NERVIÓS (CL.pupitre-LOC.situat.al centre /
to.scold reason to.be.nervous desk located.at.center

CL.cames.de.persona-MOURE-desplaçant-se a altres taules o caminant al voltant) p
person.legs move to other desks or walking around the desk

MESTRE CA:mestre <SEU> p PRO.1 ESTAR.NERVIÓS (CL.pupitre-LOC.situat.al centre /
teacher sit.down to.be.nervous desk located.at.center

CL.cames.de.persona-MOURE-desplaçant-se a altres taules o caminant al voltant) p
person.legs move to other desks or walking around the desk

[PRO.DUAL.EXCL]-top [no]-neg p VEURE SER.DIFERENT PRO-3-INCL
not to.see to.be.different

'Es veu que som diferents les tres. A l'escola, la mestra les renyava poc. A mi em renyaven constantment perquè estava nerviosa i m'aixecava i anava a altres taules o caminava al voltant. La mestra em deia: "Seu!". Estava nerviosa i m'aixecava i anava a altres taules o caminava al voltant. A elles, no. Es veu que som diferents.'

'Apparently, the three of us are different. At school, the teacher rarely scolded them. I was scolded constantly because I was nervous, and I was getting up and walking up to the other desks or I walked around. The teacher told me: "Sit down!" I used to be nervous and get up and walk to the other desks or walk around. They, they were not scolded. Apparently, we are different.'

The predicate SEURE 'to seat down' displays formal differences compared with the citation form: it is characterized by a longer movement, initiated at the height of the signer's head and not, as usual, at the chest's height, and it is produced with higher

tension. Also, the facial expression shows more tension: raised eyebrows, head's forward and eye gaze directed to the receiver.

The next section will focus on the manual resources for the expression of non-epistemic necessity as follows: (i) (mental and physical) internal necessity, (ii) root necessity and, finally, (iii) deontic necessity.

6.4.2 Participant-internal necessity: mental and physical necessity

As expected, participant internal necessity is less common in the data (See Shaffer, 2002). We did find examples of interlocutors asserting their need to communicate or to smoke, imposing rules or restrictions on themselves ('I have to stay in tonight and do my taxes'), but the majority of examples were advices, where the signer considered himself internal to the situation. We will begin with the description of the marker HAVER.DE, since it is the most frequent and it comprises the whole range of necessity values.

6.4.2.1 HAVER.DE 'have to'

The non-epistemic notions of necessity in LSC are predominantly expressed with the marker HAVER.DE 'have to'. Formally, HAVER.DE is a one-handed sign, but it can be produced two-handed to express more intensity, as shown in Figure 6.19.



Figure 6.19 HAVER.DE(2h) 'have to'

The two forms are illustrated in the following fragment (163). It belongs to the narration of an anecdote experienced by one of the informants in a camp for deaf people after breaking her arm. The signer uses a two-handed form to express strong root necessity

(the contextual necessity of sleeping in a tent) and physical necessity (the need of cutting the vein).

(163) EES 00:06:30 ES

PRO.1 DORMIR [ON]-q TENDA p gest.fatal **HAYER.DE(2h)** p IGUAL DORMIR TENDA p

sleep where tent gesture.horrible have.to same sleep tent

MATÍ ANAR p TRENAT p **HAYER.DE** TALLAR p [CLAU]-top ICL"ficar.clau.a.la.clavícula"

morning go bronken have.to cut pin putting the pin in the clavicle

'On podria dormir? Havia de dormir a la tenda. Al matí, vaig anar (a veure el doctor). Estava trencat. Van haver de tallar (la bena) i posar-me un clau a la clavícula.'

'Where could I sleep? I have to sleep in the tent. In the morning, I went (to see the doctor). It was broken. They had cut (the vein) and put a pin in the clavicle.'

In the following excerpt (164), the signer expresses her effort to quit smoking. However, her attempts proved futile because of the internal urge to smoke.

(164) EMS 00:18:16 MS

SORGIR PRO.1 RESPIRAR-AMB.DIFICULTAT DOLOR p MALESTAR.PANXA p

show.up breathe.with.difficulties pain stomach.ache

MALESTAR.RESPIRACIÓ p [PRO.1 CREURE MILLOR TALLAR]-contrafactual p PRO.1 **HAYER.DE** p

pain.breathing believe better quit.smoking have.to

'Em poso a respirar amb dificultat, tinc dolor, malestar a l'estómac. Respiro amb dificultat. Crec que hagués estat millor deixar (de fumar). Ho hauria (d'haver fet).'

'I got some difficulties breathing, I had pain and stomach ache. I felt pain breathing. I thought it would better to quit (smoking). I had to.'

Indeed, HAYER.DE signals root and deontic necessity. These uses will be addressed in the relevant sections.

6.4.2.2 NECESSITAR 'to need'

Another frequent modal marker in LSC is NECESSITAR 'to need' (157). As a lexical item, it denotes 'to be missing', 'to lack', etc. According to Morales et al. (2005), NECESSITAR belongs to the category of plain predicates when referring to things, while to *plain with deictic function* type when make reference to people. That is, the signer may change the

sign's place of articulation and/or the sign's orientation to the locus associated with the person in the signing space to signal the semantic role of theme.



Figure 6.20 NECESSITAR 'to need'

It also can be produced with two hands to express more intensity, as in example (165), where she is talking about her son's reading difficulties and saying that he needs to practice reading more to be able to progress.

(165) EMS 00:37:52 MS

LLEGIR **NECESSITAR**(2h) p PRO.1 CREURE OBJECTIU MÉS, LLEGIR REGULAR

read need believe goal more read regular

'Necessiten llegir. Crec que és l'objectiu prioritari. Llegeixen regular.'

'(They) need to read (more). I think that's the priority. (They) don't read that well.'

6.4.2.3 DEURE 'must'

Participant-internal necessity is also expressed with the sign glossed as DEURE 'must' (Figure 6.21). This sign, usually, is mentioned neither in the dictionaries/glossaries nor in the few works on LSC. We suppose that this lack of recognition can be explained by its semblance with the discourse marker/gesture that expresses big quantity or severity, or by its low frequency. See Chapter 9 for a discussion.



Figure 6.21 DEURE 'must'

As said, DEURE is not used frequently in the signers' community. It is mainly used to signal deontic necessity. We will provide examples of this use in the relevant subsections.

6.4.3 Participant-external necessity: root necessity

Root necessity covers needs/necessities which are determined by the local circumstances of that participant (called *participant-imposed dynamic* by Nuyts, 2006, p. 3) and a necessity/inevitability inherent in the situation described in the clause as a whole (called *situational (dynamic) modality* by Nuyts, 2006, p. 4). In LSC it may be signaled by DEURE, FORÇOSAMENT and SER.LLEI. Consider the example in (166), in which the signer describes the "need" of wearing traditional-school-clothes, as they used to wear when young, as a requirement for attending a party with her old mates from school time.

(166) EES 00:20:23 ES

TOT FOTO [PORTAR]-lean p [FINS BATA]-int/focus **DEURE** ANTIC p BATA

everybody picture to.bring even gown must old dress

'Tothom portarà fotografies. Fins i tot, hem de portar la bata vella. La bata'

'Everybody will bring pictures. We must even wear the old white coat. The white coat'.

This condition is inherent in the situation itself, diffused and not imposed by some deontic or physical source (Bybee, et al., 1994).

6.4.3.1 SER.OBLIGAT.A.LA.FORÇA 'to be compelled by force'

The sign SER.OBLIGAT.A.LA.FORÇA can be roughly translated as 'to be compelled by force' (Figure 6.22). The gloss includes the oral component produced by the signers: "a la fuerza" ('by force'), reproducing the Spanish adverbial locution. Although it has its origin in a verbal sign (a non-lexicalized action consisting in pulling somebody by force), we cannot ascertain its word category with regard to its function signaling root necessity. It is not documented in Ferrerons (2011) nor in any textbook or article on LSC. And the number of occurrences in the corpus does not allow us to establish a pattern of functioning, other than the semantic value.



Figure 6.22 SER.OBLIGAT.A.LA.FORÇA 'to be compelled by force'

It constitutes the most frequent form to convey root necessity, other than HAVER.DE. See, for instance, examples (167) and (168), where the participant is appealing to external conditions that force her to adopt several actions to solve problems or difficulties in her family.

(167) EMS 00:12:44 MS

[FILL O MARIT VENIR-ASP.dist]_cond PRO.1 **SER.OBLIGAT.A.LA.FORÇA** PRIMER SEGON

son or husband to.come 'to be compelled by force' *first second*

CARN PEIX PRO.1 CUINAR p HAVER.HI.NO PRO.1 ICL"un.plat"-PRED.MOV"posar"

meat fish to.cook to.there.be.not one dish serve

'Si els meus fills o marit venen a casa (a dinar), he de (cuinar) un primer i un segon plat. Jo cuino normalment car o peix. Si no hi són, poso un sol plat.'

'If my sons or my husband come home (for lunch), I have to cook a starter and a main dish. I usually cook meat or fish. If they don't, just one course is enough.'

(168) EMS 00:35:06 MS

PRO.1 HAVER.DE TARDA **SER.OBLIGAT.A.LA.FORÇA** AGAFAR [SORD]-altern. [OIENT]-altern.

to.have.to afternoon to be compelled by force' to.take [deaf.person]-altern.[hearing.person]-altern.

ENSENYAR-ASP.cont PER.A LLEGIR O PRO.1 BUSCAR HOME AGAFAR

to.teach to to.read or to.look.for man to.take

'Hauré d'agafar necessàriament algú per les tardes, sord o oïdor, per tal que els ensenyi a llegir, o jo mateixa. Hauré de buscar algú.'

'I'll have to take on necessarily somebody for the afternoon, hearing or deaf, so that he teaches them how to read, or myself. I'll have to look for somebody.'

This marker reflects formally a conception of necessity in terms of force-dynamics (Achard, 1996; Langacker, 1990b; Sweetser, 1982, 1990; Talmy, 1988). In both examples, the signer, in a physical split of herself, literally expresses with her hands an external agent (the *Antagonist* in terms of force dynamics *à la* Talmy) that takes her arms (representing the *Agonist*) and pulls her from a static situation toward action. The obligation is a force opposition between the signer –as the target of potency— and the socio-physical context –the source of potency— that forces her into a new situation.

6.4.3.2 SER.LLEI 'by law'

SER.LLEI 'by law' (Figure 6.23) constitutes an example of the overlap between volition, deontic modality, and epistemic modality. It includes nuances as "sure", "I can't I, and "I desire to (do) it".



Figure 6.23 SER.LLEI 'by law'

In example in (169), the signer uses SER.LLEI to indicate a kind of necessity that has its source in the socio-cultural context and in personal preferences. The example refers to a fragment in the interview where the interlocutors are discussing food preferences.

(169) EJG 00:20:32 JMS

Resp.: PRO.1 CLI:"agafar.amb.forquilla" CLI:"tastar.amb.forquilla" p PODER.NO p IX.altres MOLTS
to.take.with.fork to.taste.with.fork cannot IX.other many

Int.: [PROVAR]-q p HAVER.DE **SER.LLEI** PROVAR

to.try must by.law to.try

Resp.: Puc menjar de tot, excepte els pulmons, que, d'altra banda, tampoc n'hi ha molt a les botigues.

Int.: Els has tastat? Cal tastar-los (els pulmons de vaca).

Resp.: I can eat everything except lungs, that, anyway, you don't find them often in the shops.

Int.: Have you tried them? Everybody should try them (the cow lungs).

An almost identical sign can exist in LSE, but with a difference in the orientation. It is also glossed as LEI 'law' (Herrero & Salazar, 2006). According to Herrero-Blanco and Salazar-Ventura (2006, p. 13) it is a noun, frequently produced with the oral component corresponding to this word in Spanish, that syntactically is placed at the end of the proposition and has a predicational scope. However, we do not consider its LSC homophonous sign a noun for the simple fact that the labial component corresponds to a noun in Spanish. In LSC, the sign SER.LEY is not used as a nominal with the meaning of 'norma jurídica' ('legal norm'), 'conjunt de lleis' ('body of laws') or 'regla universal' ('universal rule') as the sign SER.LLEI (Ferrerons, 2011, p. 567). Also, the sign SER.LLEI appears in the derivative and compound signs of the legal semantic domain⁸³.

⁸³ An exhaustive reading of the Primer Diccionari General i Etimològic resulted in a high number of lexical units created on the bases of LLEI, LEGAL, LEGALITAT, LEGISLACIÓ, LEGÍTIM 'constitución' (LLEI + C), 'estatuto' (LLEI + E), 'lícito' (LLEI + PERMETRE),

6.4.4 Participant-external necessity: deontic necessity

Values related to deontic participant-external necessity, such as obligation, can be expressed with the general necessity marker HAVER.DE. Consider the example in (170), in which the signer explains a strategy to his interlocutor to feel more confident if she would become an LSC instructor.

(170) EMS 00:23:08 JMS

PRO.2 ENSENYAR LLENGUA.SIGNES p PRO.3I DIR PARAULA p

to.teach sign.language to.say word

CA:profe.a.alumne <[PARAULA PRO.1 COMPETENCIA/RESPONSABILITAT NO] p

instructor to student word competence/responsibility not

PRO.3I DICCIONARI MIRAR **HAVER.DE** >

dictionary to.look.at must

'Tu ensenyas llengua de signes. Si cap (alumne) et demana una paraula, tu li respos:
"No és de la meva competència. Tu has de mirar el diccionari".'

'You're teaching sign language. If some student asks you how to say a word, you answer: "This is not my duty. You have to look it up in the dictionary".'

Other than HAVER.DE, LSC displays several specific predicates, namely MANAR.CANÓ, OBLIGAR, and REQUERIR, that will be the focus of the following sections.

6.4.4.1 OBLIGAR 'to force'

The next predicate is OBLIGAR 'to force'. It is documented in Ferrerons (2011)'s dictionary. From a morphosyntactic perspective, OBLIGAR is a regular deictic predicate (Morales-López, et al., 2005). This means that the signer may change hand and movement orientation to code the semantic functions of agent and patient of the obligation situation. See, for instance, Figure 6.24. The dominant hand is oriented towards the interlocutor signaling that she is the receiver of the order. In contrast, in Figure 6.25, hand orientation indexes the signer, and thus the order recipient.



Figure 6.24 1-OBLIGAR-2 'I force you'



Figure 6.25 2-OBLIGAR-1 'you force me'

However, the use of these morphosyntactic patterns is not straightforward. In LSC, as well as in other sign languages, the signer adopts the agent's role and produces a morphosyntactic pattern that corresponds to the first-person agent, as in (171).

(171) EJG 00:10:24 JMS

Int.: [EXEMPLE CAP 1-OBLIGAR-2 TREBALLAR]-cond SITUACIÓ ÈPOCA POLÍTICA,

example boss to.order to.work context period politics

1-OBLIGAR-2 DEURE PARLAR ANGLÈS p HAVER.DE gesture: *question* [FER(1h)]-q

to.oblige must to.speak English have.to to.do

Resp.: ACEPTAR(1h) []-nod [3-OBLIGAR-1]-cond [PRO.1 ACEPTAR]-nod

to.accept to.order to.accept

Int.: 'Si el teu cap t'obligués a treballar, per la situació i el moment polític, t'obligués haguessis de parlar en anglès, què faries?'

Resp.: 'Ho acceptaria. Sí. Si m'obligués, ho acceptaria.'

Int.: 'If your boss required, because of the situation and the political conjunction, you to speak in English, if you had to, what would you do?'

Resp.: 'I would accept. (Yes). If he requested me to, I would accept'.

OBLIGAR is used in asymmetrical relations between agents and patients (e.g. parents vs. siblings, boss vs. employees), but also among peers, in the sense of feeling compelled to conduct an action, morally or mentally. Examples in the data base include: writing a

book because there are more deaf writers, visiting a place on holiday because everybody travelling to that country does, etc.

In Ferrerons (2011b, p. 589)'s dictionary and in the resource *Mira què dic* there appears a sign similar to OBLIGAR, glossed as MANAR. The difference lies in the fact that it is produced only with the only-dominant-sign and the movement is more reduced. We have not included it in this thesis, since we have not identified any occurrence in our corpus.

6.4.4.2 MANAR.CANÓ 'to order'

MANAR.CANÓ 'to order' is formally similar to OBLIGAR as it is a two-handed sign and it has the same parameters that determine its handshape, hand orientation and place of articulation (Figure 6.26). However, it differs in movement. Whereas OBLIGAR shows a location movement and it is oriented to the recipient of the action, MANAR.CANÓ cannot change hand or movement orientation. Morphosyntactically, then, it is a plain predicate (Morales-López, et al., 2005). On the other hand, it shows a movement that reproduces the recoil of a gun or a canon when shooting. This movement is also present in the signs CANÓ 'cannon' and CANONADA 'cannon shot (with a ball)' as described in Ferrerons (2011).



Figure 6.26 MANAR.CANÓ 'to order'

This predicate is used to express deontic obligation, especially in non-agentive constructions. Note example (172), a fragment of the interview about the holidays in Switzerland. The interviewer asks the respondent about the places one must visit in this country.

(172) EES 00:11:53 JMS

[PRO.2 ANAR SUÏSSA]-TOP MÉS HAVER.DE VISITAR HAVER.DE [QUÈ]-q

to.go Switzerland more have.to to.visit have.to what

UN SENSE IGUAL p UN HAVER.DE++ **MANAR.CANÓ** HAVER.DE VISITAR

one without same one have.to to.order have.to to.visit

'Quan vas a Suïssa, què cal visitar? Alguna cosa única/especial? Quelcom que calgui, que s'hagi de visitar?'

'When you go to Switzerland, what are you supposed to visit? Something unique...
What do you have to visit? What must you visit?'

The signer inserts **MANAR.CANÓ** between two occurrences of **HAYER.DE**, the unmarked and generic necessity marker, to reinforce the obligation. **MANAR.CANÓ** conveys a pragmatically increased force, since it invokes the military domain. The hold and tension in the movement and the later release reproduces the force of a gun or a cannon when shooting. This element shows a double iconic mapping (metonymic and metaphoric): metonymic in that the muscular result stands for the cause and metaphoric because the degree of the bodily force maps onto the degree of the conceptual obligation. (See also Jarque (2005), Wilcox, Wilcox and Jarque (2003) for a description concerning other domains).

6.4.4.3 **REQUERIR 'to require'**

The last sign denoting deontic necessity is **REQUERIR 'to require'** (Figure 6.27). Formally, the manual part is accompanied by mouthing that may be represented as /lo lo lo/. Some informants report that the mouthing has its origin in the Spanish adverb *solo* ('only').



Figure 6.27 REQUERIR 'to require'

This marker expresses a requirement for the completion of the situation expressed in the proposition.

6.5 The encoding of epistemic possibility

This section deals with the constructions expressing epistemic modality, i.e. the linguistic expression of the evaluation of the probability that a given situation took/is taking/will take place in the context of a given possible world (Lyons, 1977; Nuyts, 2000; Palmer, 1986). The signer uses these constructions to refer both to his own mental states as to the others', showing a highly subjective component.

We will follow a binary classification, for practical purposes and easiness of distribution, following Halliday (1970) and van der Auwera and Plungian (1988), which distinguish two subtypes: probability (epistemic possibility) and certainty (epistemic necessity). However, as LSC data will show, epistemic modality is more adequately conceptualized in terms of a semantic scale that ranges from potentiality to certainty, includes a neutral or agnostic stance, and with intermediary stages on the positive and negative sides of the scale (Boye, 2006; Bybee, et al., 1994; Nuyts, 2001). The neutral or agnostic stance corresponds to simple assertion, with zero marking, whereby a statement without any modal encoding is interpreted as a valid statement.

Epistemic possibility signals the potentiality of the situation referred to in the main verb or proposition (Bybee & Fleischman, 1995a; Nuyts, 2001). In force-dynamics terms, expressions of epistemic possibility situate the process within the potential reality, unlike

epistemic necessity, that situates it in projected reality (Achard, 1996; Mortelmans, 2002; Talmy, 1988).

Epistemic possibility has many manual exponents in LSC, notably the marker PODER ‘can/may’ (§ 6.5.1), the mental predicates CREURE ‘believe’, PENSAR ‘think’, DUBTAR.1 ‘to hesitate’, DUBTAR.2 ‘to doubt’, DUBTAR.3 ‘to doubt.3’, INTERROGAR.SE ‘to wonder’ INVENTAR ‘to invent’ and SEMBLAR ‘to seem’ (§ 6.5.2); the adjective predicate SER.FÀCIL ‘to be easy’ (§ 6.5.3); and other linguistic elements, such as PER.SI.DE.CAS ‘just in case’, DEPENDRE ‘to depend on’ and A.VEURE ‘let’s see’ (§ 6.5.4). We have not included negative polarity items, such as SABER.NO ‘not to know’ nor SER.DIFÍCIL ‘to be difficult’, which will be the focus of chapter 7 on negation.

6.5.1 Modal PODER.EPIST ‘may’

In Section 6.3.1.1 we discussed the use of PODER coding non-epistemic values and we commented that it may signal also epistemic nuances, the focus of this subsection. Since the use of PODER as an epistemic marker requires different manual and non-manual marking —both the position and movement of the shoulders, and especially, facial expression— we have decided to gloss it as PODER.EPIST to distinguish it from PODER signaling a non-epistemic value. Another important difference relies in the construction in which it is inserted. The expression of lack of confidence in the truth of the proposition with the sign PODER.EPIST instantiates the constructional schema [MODAL [propositional content]_{modal scope}].

The numerous productions of PODER to PODER.EPIST in our corpus can be located along a semantic continuum from more commitment (the participant-internal and participant-external notions) to less commitment (epistemic values), the sign loses phonetic strength in its realization, it is produced more slowly and with a longer duration. In addition, the shoulders can exhibit an up-movement and the head is tilted forward, reproducing the gesture that the hearing community uses to express lack of commitment (Shaffer, et al., 2011). The main facial features are raised eyebrows with a frown, as illustrated in Figure 6.28.



Figure 6.28 PODER.EPIST 'may'

Consider the example in (173), where the respondent builds a hypothetical context using a conditional clause, followed by the epistemic construction with PODER.EPIST.

(173) LSC (Shaffer, Jarque & Wilcox, 2011, p. 35)

[SI MENT+ACORD-ASP.exhaustive PAÍS.BASC TOT.TERRITORI]-cond

if mind+agree-ASP.exhaustive Basque.Country all.territory

[PODER.EPIST INDEPENDÈNCIA ESPANYA]-epis

may independence Spain

'Si tothom en el País Basc estigués d'acord, (aleshores) seria possible la independència d'Espanya.'

'If all the people in the Basque Country agreed, (then) independence from Spain would be possible.'

Also, in (174), the signer expresses lack of certainty about the function of the nail by using the sign PODER.EPIST. And he hints at a possible reason for the reappearance of his pain in the shoulders.

(174) EES 00:06:47 ES

VEURE PASSAR.TEMPS p JUST/BÉ p [PODER IX.espatlla CLAU CLS:"fer.un.mica.de.mal"]-epis

to.see time.to.go.by okay may IX. shoulder nail to.hurt.a.bit

[PODER.EPIST UN-ANY FORT AGUANTAR NO]-epis p

may 1-year strong to.resist not

'Sembla que anava passant el temps. Tot (estava) bé. Potser que el clau em fes una mica de mal. Potser (el clau) no va aguantar fort un any.'

'It seems that times was going by. Everything (was) OK. It was possible that the nail hurt a little bit. It was possible that it did not resist for a year.'

When using this construction, the source of potency is implicit and it can, but does not need to, be associated pragmatically with the issuer. In other words, the issuer may be only transmitting a reasoning expressed by somebody else, or just appealing at a social cognitive frame that asserts the way the state of things may or might be. Langacker refers to this concept as a highly abstract force residing in reality's evolutionary momentum (Langacker, 1990b, 1999).

6.5.2 Mental state predicates

The description will be based on the distinction between descriptive and performative uses. While descriptive uses refer to the expressions where the signer expresses an epistemic evaluation about the state of affairs without implying a compromise in the communication act, the performative imply a compromise in the *speech act* (Nuyts, 2000).

Regarding the syntactic properties, mental state predicates appear in two different patterns: as an operator and as an epenthetic construction. In the first construction, the mental predicate is situated at the first position in the clause following the constructional schema in (175). The position concerning the mental predicate may be occupied by the cognitive predicates CREURE 'to believe' and PENSAR 'to think'.

(175) [PRO.1 MENTAL.PREDICATE proposition]

There is no conjunction that introduce the subordinate proposition, but we can observe a short pause between the mental predicate and the complement. We illustrate this construction in relation to present tense in (176) and past tense in (177). In these two sentences, the signer ascribes false believes to third parties. The second pattern can be analyzed as an epistemic adverb (Beijering, 2012), or as a discursive marker.

6.5.2.1 CREURE 'to believe'

The first cognitive predicate to be discussed is CREURE 'to believe' (Figure 6.3), a plain predicate. It is a propositional attitude verb that describes cognitive processes as thoughts, believes, hypothesis, etc.



Figure 6.29 CREURE 'to believe'

Consider the example in (176), where the participants are discussing the profile of a sign language teacher.

(176) EMS 00:25:45 JMS

MOLT **CREURE** PROFESSOR HAVER.DE PRIMER DIR SABER VOCABULARI p

many to.believe instructor have.to first to.say to.know vocabulary

SEGON PERSONA PER.A PODER RESPONDER 3-PREGUNTAR-1 p

second person for can to.answer to.ask

1-EXPLICAR-3 [NO]-neg p TERCER HAVER.DE SER.VALENT p [TAMPOC]nod p

to.explain no third have.to be.brave neither

VOLER+DECIR UN PERSONA(2h) 1-ENSENYAR-3 BASTA

to.mean a person to.teach enough

'Molts creuen que un professor (de llengua de signes) ha de, en primer lloc, saber dir el vocabulari; en segon lloc, ser una persona que respongui quan li pregunten i expliqui. No és així. En tercer lloc, cal que sigui valent. Tampoc és això. Es tracta simplement d'una persona que ensenya, res més.'

'Many people believe that first of all a (sign language) teacher has to be able to tell the vocabulary; secondly, to be a person that answers when asked and that explains. It is not this way. Thirdly, the teacher has to be courageous. It is not this either. The teacher is just a person that teaches, nothing more.'

The signer uses the construction to describe the false beliefs of other people in the present. The same function is illustrated in the fragment (177) with respect to a past situation. In the fragment, the signer is explaining family stories, thus reporting on other's beliefs and assumptions, that later had turned out to be wrong.

(177) EJG 00:03:08 JG_R

CA:món <expressió gestual de sorpresa >p

surprise gestural expression

[MÓN QUEDAR.PLANXAT]-surp CREURE PARE [NO]-neg p [MARE IX.b]-af p

world to.be.blown

to.believe father not

mother

'La gent es va quedar amb un pas de nas. Quina planxa! Creien que (la sordesa venia del meu) pare, però no: (venia de la) mare.'

'People were very surprised. What a blow! They believed (that deafness was coming from my) father, but not: it came from my mother.'

In some productions, closed eyes span over the whole sentence, as we illustrate in (178) where the informer is explaining experiences about which, after some time, she has changed her opinion. Hence, she is attributing herself false beliefs about past situations.

(178) EES 00:14:44 ES

A.COPS p [PRO.1 **CREURE** GUANYAR]-closed.eyes p FINAL NO MAL PRO.1 TAMBÉ p

some.times

to.believe to.win

end no be.wrong

also

'Moltes vegades pensava/creia que jo tenia raó i al final no. Jo també estava equivocada.'

'Many times, I had thought that I was right and in the end that was not the case. I was wrong too.'

Another possible construction is [PRO.1 MENTAL.PRED MODAL]. In this case, the evaluation refers to a previous proposition that reproduces in direct style the words of another person, as illustrated in (179). The signer explains personal experiences about the institution where later she would start working.

(179) EES 00:00:50 ES

PRO.1 RECORDAR PASSAT.díctic SER.PETIT PRO.1 ANAR BANC p AVI

remember PAST to.be.little to.go bank grandfather

CLI: "anar.agafada.de.la.seva.mà" CA:avi<PRO.2 TREBALLAR BANC IX.allí> p

holding.hands.with.my.grandfather grandfather to.work bank IX.there

PRO.1 CREURE SER.IMPOSSIBLE p SORD [NO]-neg p

to.believe to.be.impossible deaf no

'Jo recordo de petita que quan anava al banc agafada de la mà de l'avi. Ell em deia: "Tu treballaràs allà". Jo pensava/creia que era impossible. Els sords no podien.'

'I remember that when I was a child a used to go to the bank holding hands with my grandfather. He used to tell me: "You will work there". I thought that it was impossible. Deaf people could not do it.'

Note the complexity observed in the process to contrast the two mental states and the mechanisms used by the interlocutors to show the opposition between them as, for instance, the order of presentation, the perspective (shown lexically or by a role shift), stylistic resources, non-manual markers and facial expressions, etc.

6.5.2.2 PENSAR 'to think'

The mental predicate PENSAR 'to think' (Figure 6.30) is a plain predicate. As, CREURE 'to think', it is a propositional attitude verb that describes cognitive processes as thoughts, believes, hypothesis, etc.



Figure 6.30 PENSAR 'to think'

As described above, it is used prototypically in the construction reported in (175), where there is a combination of only one referential entity –a personal subject– and an object with the form of a predicate or a clause, as illustrated in (180).

(180) EMS 00:05:07 MS

[OSCA IX.allà]-top PRO.1 PENSAR JA FER.FRED-INTENS gest:uff

Osca IX.there to.think already to.be.cold gesture:a.lot

'I think it is already cold in Osca'.

Besides coding epistemic possibility, this construction is used to express opinion in interaction with a hedge function, i.e. to smooth a strong commitment to a fact without imposing or affect the interlocutor's image. This double functionality has been pointed out for equivalent predicates in other languages, such as *I think* in English (E. C. Traugott, 1989), *Yo pienso que o (eso) creo* in Spanish (de Saeger, 2007), or *Je crois* ('I believe') or *Je pense* ('I think') in French (Willems & Blanche-Benveniste, 2014).

Indeed, the collocation [(PRO.1) PENSAR] appears in our data as a parenthetical construction. Regarding the prosody, it is marked with pause boundaries shown with a marked position and movement of the head, as well as a shift in facial expression signaling lack of confidence, equivalent to the prosody markers in spoken discourse (Dehé & Wichmann, 2010). Its function is to modify, add to, or comment on the current discourse (Bolinger, 1989; Dehé & Kavalova, 2007; Dehé & Wichmann, 2010; Jespersen, 1924).

The proposition in (181) illustrates the appearance of the parenthetical fragment in final position. The interviewer asks the respondent about the reasons why she did not study after secondary school.

(181) EMS 00:02:16 MS

Int.: [INFERMERIA PERMETRE]-cond CULPA ENTITAT ESTUDIAR SER.DIFÍCIL

nursery to.allow because entity to.study to.be.difficult

Resp.: ESTUDIAR DIFÍCIL [PRO.1 PENSAR]-forward lean

to.study to.be.difficult to.think

Int.: 'Si els sords podien estudiar infermeria, (aleshores) va ser degut a que era difícil.'

Resp.: 'És difícil estudiar, penso.'

Int.: 'If deaf people could study nursery, (then) it was because it was difficult.'

Resp.: 'It is difficult to study, I think.'

In our view, [PRO.1 PENSAR], as a parenthetical, it is best explained as a discourse marker, and thus, an instance of pragmaticalization. Research on spoken languages, mainly English, shows opposing views on the issue. While some researchers consider *I think*, and similar constructions, as epistemic adverbials (Aijmer, 1985, 1997), other have been treated it as having a textual or pragmatic function.⁸⁴ We will come back to this issue in the Discussion chapter.

6.5.2.3 DUBTAR.INDECISIÓ 'to hesitate'

Other than CREURE and PENSAR epistemic possibility is conveyed in LSC by the predicates of doubt: DUBTAR.INDECISIÓ and DUBTAR.INCERTESA. In the former, the dominant hand is located on the non-dominant, producing a to-and-fro movement (Figure 6.31).

⁸⁴ See Degand and Evers-Vermeul (2015) for a comprehensive state of the art on the issue.



Figure 6.31 DUBTAR.INDECISIÓ 'to hesitate'

As a lexical meaning, DUBTAR.INDECISIÓ denotes hesitation between two (or more) alternative options. The hand movement reproduces iconically the mental state of vacillation, as illustrated in example (182). The interviewer asked the respondent whether she would prefer a boy or a girl, in case she had a third child. The respondent answered using this form.

(182) EMS 00:08:26 MS

Int.: [SER.SEGUR]-q [DONA HOME]-alternatives [QUE]-q

to.be.sure woman men what

Resp.: [SABER-NO]-neg p gest.incertesa PRO.1(Q) **DUBTAR.INDECISIÓ** [SABER-NO]-neg

to.know-not to.doubt know-not

Int.: 'Segura, una nena. I si és un nen, què?'

Resp.: 'No ho sé. Què n'he de saber! No ho sé.'

Int.: 'Sure, a girl. What if it is a boy?'

Resp.: 'I don't know. I've no idea! I don't know.'

Indeed, this predicates profiles that the mental state depends on the agent preferences and options. It contrasts, a second use of the predicate signals that the source of lack of certainty is external to the agent, as in (183). In the example, the participant is expressing her concerns about her son's lack of reading abilities. Also, she points out that it seems that all the kids show low reading competence, judging by other parents' comments.

(183) EMS 00:36:37 MS

VEURE CONCORDAR p PRO.1 UNA.MICA DUBTAR.INDECISIÓ PRO.1

to.see to.agree a.bit to.doubt

'Es veu que hi estem d'acord (els pares). Jo tinc els meus dubtes'.

'Apparently, we (the parents) agree on this. I doubt it'.

In this example, using DUBTAR.INDECISIÓ, the signer expresses lack of certainty about which is her son's reading level, his classmates' level as well as how is the teaching concerning that issue.

Furthermore, DUBTAR.INDECISIÓ is used also as a nominal in the colloconstruction [SENTIR DUBTAR.INDECISIÓ]. In (184) the signer is expressing his indecision about what was better, whether a BlackBerry cellphone or a Nokia.

(184) Webvisual 10-09-2010 (BlackBerry or Nokia?)

BLACKBERRY CÒMODE COMUNITAT SORDA p [PRO.2.PLU CREURE SER.SEGUR(2h)]-q

Blackberry to.be.useful community deaf to.believe to.be.sure

gesture:doubt PRO.1 HAVER.HI SENTIR DUBTAR.INDECISIÓ

gesture: doubt to.there.be to.feel to.doubt

'El BlackBerry és molt còmode per a la Comunitat Sorda. (Però) n'esteu segurs? Jo tinc els meus dubtes.'

'The BlackBerry is very useful for the Deaf Community. (But) are you sure about this? I doubt it.'

From a cognitive linguistics perspective, the sign DUBTAR.INDECISIÓ mirrors several conceptual metaphors: THE MIND IS THE BODY, and COGNITIVE ACTIVITY IS MOVEMENT. It constitutes an evident embodiment conceptualization of the situation of indecision between two (or more) options (Lakoff, 1987; Lakoff & Johnson, 1999) by means of a conceptual creation process involving similarity in visual imagery and/or similarity among relations established in the physical and the mental domain—*imagic* iconicity in Peirce's sense (1994).

6.5.2.4 DUBTAR.INCERTESA 'to doubt (uncertainty)'

The second verb denoting doubt is DUBTAR.INCERTESA 'to doubt (uncertainty)' (Figure 6.32). This predicate expresses uncertainty, but the reason is located in external circumstances or other agents.



Figure 6.32 DUBTAR.INCERTESA 'to doubt (uncertainty)'

Consider the piece of discourse in (185). The participants are talking about the next party with former mates of the deaf school. The interviewer asks for the interviewee's opinion about who she thinks will attend the party.

(185) EES 00:21:34 ES_R

Int.: PRO.2 VEURE TOCAR.AMBIENT p [QUI (VENIR).esq]-q

to.see to.touch.ambience who to.come

Resp.: uncertainty facial.exp [DE.MOMENT]-top claro [CERECUSOR]-top p

for.the.time.being deaf.club.name

[ARA]-top PRO.1 MIRAR-RECIPROC SER.SEGUR CERECUSOR

now to.meet be.sure deaf.club.name

ANAR SER.SEGUR p [FORA]-top PRO.1(B) SABER.NO palm.up p

to.go be.sure outside to.know-not totally

CA:signant< [PRO.1 1-AVISAR-3]-nod> CA:amics<[]-nod >p

signer to.tell friends

[ACOSTAR.DATA]-top CA:amics<[PODER.NO IX.això IX.allò PRO.1]-neg >

to.approach.date friends cannot IX.this IX.that

PRO.1 VEURE-ASP.ITERATIVE p PRO.1 EX AMIC NOM.AMIGA UFF p MATEIX SIS ANY p

let's see friend six year

CA:signant< [PRO.1 1-AVISAR-3]-nod> CA:amiga<[sí ANAR]-nod >p

signer to.tell friend yes to.go

[ACOSTAR.SE.DATA]-top SER.SEGUR CA:deaf<[PODER.NO]-neg > p

to.approach.date be.sure cannot

[ARA]-top [BARCELONA CERECUSOR MIRAR.REC]-top ANAR SER.SEGUR PRO.1 MIRAR.REC

now Barcelona deaf.club.name to.meet to.see to.go to.be.sure

[FORA]-top [PRO.1 DUBTAR.INCERTESA ACABAR]-neg

outside to.doubt

Int.: Lit. Què et sembla? Qui hi anirà?

Resp.: 'De moment, per ara, segur que hi va gent de CERECUSOR. Sembla que és segur que vagi de CERECUSOR. D'altres (associacions), no ho sé. Ara tothom diu que sí. Però a mida que s'acosti la data, segur que alguns diuen que no hi van. Ho he vist moltes vegades. Amb una amiga fa sis anys. Li vaig dir i em vas respondre que sí que hi aniria. Però a mida que s'acosta la data segur que diu que no pot. De CERECUSOR, de Barcelona, es veu que hi van segur. Em sembla que d'altres (associacions)... no ho tinc clar.'

Int.: Lit. What is your impression? Will he go?

Resp.: 'For the time being, right now, people from (the deaf club) CERECUSOR will go for sure. It seems that from CERECUSOR there'll be people for sure. From other (associations), I don't know. Now everybody says that they will go. But, as the day comes closer, some will surely say that they do not go. I've seen this occurring many times. With a friend, six years ago. I told her and she answered that she will go. But, as the day gets closer, for sure she will say that she cannot. From CERECUSOR, the one in Barcelona, it looks certain that they'll go. As for the other (associations)... it's not clear to me.'

Some LSC instructors differentiate between DUBTAR.INDECISIÓ and DUBTAR.INCERTESA in relation to their meaning. While DUBTAR.INDECISIÓ establishes the doubt between two options, indicating the signer indecision, DUBTAR.INCERTESA indicates uncertainty. Sometimes, both appear in a row. In this case, the signer expresses his lack of decision about the choice of a proposal and he indicates the cause of the doubt as an external factor. For example, confronted with the proposal to go on

an excursion the next day, the signer would use the first followed by then the second expressing uncertainty over the weather conditions. However, our data do not confirm this contrast.

6.5.2.5 DUBTAR.vell 'to doubt (old)'

Some deaf people who have attended the school for the deaf in Tortosa mention a sign used for the expression of doubt (Figure 6.33) (I. Codorniu, p. c.). We were not able to observe its use, neither in our corpus nor in the participant observation. We mention it in our work to document its existence.



Figure 6.33 DUBTAR(vell) 'to doubt (old)'

According to a few informants, this sign was used to express indecision when choosing an option, as shown in (186).

(186) IC_EE

[DEMÀ DIUMENGE]-top [TOCAR FAMÍLIA CONVIDAR-ASP.DISTRIBUTIU]

tomorrow Sunday to.be.scheduled family to.invite

ALESHORES QUÈ DUBTAR(vell) [ARRÒS+PAELLA]-opt

then what to.doubt paella

'Demà és diumenge. Vindrà la família a dinar a casa. Aleshores, no sé si fer una paella d'arròs o...'

'Tomorrow it is Sunday. The family will come and have lunch at our place. So, I'm not sure whether I should prepare a paella or...'

6.5.2.6 INTERROGAR.SE 'to wonder'

A fourth sign signaling uncertainty in LSC is INTERROGAR.SE 'to wonder'. It reproduces the shape of the question marks in written Spanish (Figure 6.34).



Figure 6.34 INTERROGAR.SE 'to wonder'

Consider the fragment of discourse reproduced in (187), where the signer is expressing his concerns and doubts about the reliability of the informants and the studies of facial expression in sign language.

(187) Webvisual, LSC Seminar 2018 00:18:33 SF

VOLER+DIR A.PARTIR.D'ARA TREBALL PRO.DUAL.INCL DELFINA TREBALLAR OBJECTIU

to.mean from.now.on to.work person.name to.work goal

EXPRESSIÓ.FACIAL AMB PERSONA-PLU NEUTRA p

facial.expression with person neutral

(CL.persona-MOV.venir.i.marxar-ASP.ITE / CL.persona-MOV.venir.i.marxar-ASP.ITE) p

go.and.leave

go.and.leave

[PROBLEMA QUÈ]-focus p

problem what

[(CL.persona-MOV.venir.i.marxar-ASP.ITE / CL.persona-MOV.venir.i.marxar-ASP.ITE)]

go.and.leave

go.and.leave

IX.cl.persona PERFECTE EXPRESSIÓ.FACIAL NEUTRAL p DEIXAR NET/HONEST p

person perfect facial.expression neutral to.leave to.be.honest

A.VEGADES 3-CÀMERA.GRAVAR-1 p EXPRESSIÓ.FACIAL 3-OBLIGAR-1 p

sometime to.viderecord facial.expression to-force

EXPRESSIÓ.FACIAL CANVIAR-ASP.ITER p [ANALITZAR A.PARTIR.D'ARA]-top

facial.expression

to.change

to.analyze

from.now.on

[ESTUDIAR CONFIANÇA FIABILITAT]-top PRO.1 **INTERROGAR.SE** p

study confidence reliability to.wonder

HAVER.DE PERSONA-PLU INFORMAR SIGNAR 3-CÀMERA.ENREGISTRAR-1 1-IGNORAR-3

have.to people to.inform to.sign to.viderecord to.ignore

'Vol dir que a partir d'ara nosaltres dos treballarem per aquest objectiu: l'expressió facial amb persones neutrals. Amb informants. Però quin és el problema? Que els informants es mostren naturals en l'expressió facial, són sincers. Però a vegades quan hi ha una càmera enregistrant-te, et sents obligat i canvies l'expressió facial. A partir d'ara ho analitzarem. Jo tinc els meus dubtes sobre la fiabilitat i confiança en l'estudi. Cal que siguin persones els informants que ignorin la càmera quan els enregistren.'

'It means that, from now on, the two of us will work with this goal in mind: the facial expression with neutral people. With the informers. But what is the problem? That the informers' facial expression is natural, they are sincere. But, sometimes, when there is a camera taping you, you feel pressed and change your facial expression. From now on, we will analyze this. I have my doubts about the reliability and confidence on studies. The informers have to be people that ignore the camera when they are taping them'.

Actually, LSC users can also produce a two-handed variant for expressing emphasis, even replacing the 1-bend-handshape for a 5-bend-handshape to reinforce the degree of doubt. Both formal changes are instances of conceptual metaphor and diagrammatic iconicity, as described in chapter 2 (Wilcox, 2004; Wilcox, et al., 2003).

6.5.2.7 **INVENTAR** 'to invent'

A different item belonging to the semantic domain of non-factuality is **INVENTAR** 'to invent' (Figure 6.35). As a lexical predicate, it means to invent, to create. But, it can be used in discourse to create a non-factive window in the discourse. In this case, it functions similarly to the expressions: 'let's say', 'for instance', 'let's imagine', etc.



Figure 6.35 **INVENTAR** 'to invent'

It is used to refer to a scenario or to consider purely hypothetical or theoretical situations or alternatives, i.e. possible alternative worlds in the sense of Coates (1990).

6.5.2.8 SEMBLAR 'to seem'

The last cognitive predicate addressed is SEMBLAR 'to seem' (Figure 6.25). This sign has as its source in the noun CARA 'face' (See chapter 10).



Figure 6.36 SEMBLAR 'to seem'

SEMBLAR 'to seem' signals lack of certainty, as in example in (188), in which the participant does not recall the specific date of a theatre play.

(188) EJG 00:24:59 JG

TOCAR FUTUR.PROPER [SEMBLAR NOVEMBRE]elev.cell [SER.SEGUR(2h)] AVISAR-3

be.scheduled near.future to.seem November be.sure to.inform

SIGNAR DE INTÈRPRET SIGNAR PER.A SORD p UNA.MICA NEN-PL DE ESCOLA

to.sign of interpreter to.sign for deaf a.bit child of school

ANAR-ASP.distrib p APART GRUP DE TEATRE

to.go other.than group of theater

'Aviat, em sembla que al novembre... quan ho sàpiga segur avisaré una intèrpret de llengua de signes per a fer la interpretació per als sords, també poden anar les escoles, a més del grup de teatre.'

'Shortly, I think in November... when I'll be sure I'll call a sign language interpreter to interpret for the deaf people, they can also go to the schools, not just the theater group.'

SEMBLAR functions, also, as an evidential marker. This use will be examined in chapter 8 that deals with the expression of evidentiality in LSC. Also, we will address some uses in combination with the sign OMBRA 'shadow'.

6.5.3 Adjective predicates: SER.FÀCIL 'to be easy'

Epistemic possibility may also be expressed in LSC using constructions with adjective predicates. In this chapter, we will discuss SER.FÀCIL 'to be easy' and in chapter 7 (concerning modality and negation) we will deal with SER.DIFÍCIL 'be difficult'.

The main use of FÀCIL 'to be easy' (Figure 6.37) in LSC is as a predicate adjective expressing qualities such as 'not hard' or 'not requiring great labor or effort'. In chapter 10 we will provide of some examples that illustrate the grammaticalization process.



Figure 6.37 SER.FÀCIL 'to be easy'

In our corpus, we have identified uses of the predicate adjective that are not referring to ease or facility for completing an action by a specific agent, but to the possibility that something without an explicit agent happens. Consider (189). It refers to the episode about the concern over reading competence. The interviewer establishes a parallelism between the reading ability and a foreign language competence. He insists in the argument that to develop the reading ability it is necessary to read frequently as happens with a second language. In this context, he points out the following:

(189) EMS 00:37:24 JMS

[SI NO]-cond [APAGAR]-nod p [SER.FÀCIL DESAPARÈIXER]-nod

if not to.turn.off to.be.easy to.desapair

'Si no (s'utilitza), s'apaga. És fàcil perdre (la llengua).'

'If you don't (use it), it fades off. It is easy to lose (the language).'

The signer expresses the possibility of “losing” the language if it is not used. We refer the reader, again, to Chapter 10 on grammaticalization for a cognitive explanation of the emergence of the modal reading.

6.5.4 Other markers

The last section addressing epistemic possibility deals with three markers used in signed discourse as a parentheticals: PER.SI.DE.CAS, DEPENDRE and A.VEURE.

6.5.4.1 PER.SI.DE.CAS ‘just in case’

The marker PER.SI.DE.CAS ‘just in case’ (Figure 6.38) marks the situation referred to as potential.



Figure 6.38 PER.SI.DE.CAS ‘just in case’

It is used in contexts in which the agent anticipates a solution to a negative or potential conflicting situation or is considering all the possible scenarios. The example in (190) belongs to the episode about vacation in the Pyrenees and in Switzerland. The participants are discussing the possibility of having bad weather during the two last weeks in August, as it seems to happen usually in the Pyrenees. This is the answer to the question whether the signer will bring his umbrella.

(190) EES 00:24:06 ES

PRO.1 VEURE ÚLTIMES.DUES.SEMANA IX.aquí BARCELONA ZONA HAVER.HI p

to.see last.two.weeks IX.here Barcelona zone to.there.be

[IX.allí SUÏSSA]-top [SABER-NO]-neg p [ABRIC]-top HAVER.DE p [PARAIGÜES]-top

IX.there Suisse to.know-not coat have.to umbrella

TAMBÉ [PER.SI.DE.CAS]-incert c PRO.1 MENT PREPARAT

also just.in.case

mind to.be.ready

'Jo veig que les dues últimes setmanes plou a Barcelona. Allà, a Suïssa, no ho sé. He de (portar) l'abric. El paraigües, també per si de cas. Ja ho tinc previst.'

'I know that the last two weeks it rains in Barcelona. There, In Switzerland, I don't know. I have (to bring) the raincoat. And the umbrella too, just in case. I've already thought about this.'

The signer refers to the possibility of rain in Switzerland, when she will be there on vacation. This sign also appears in the frog stories, produced by the boy, concerning the possibility of the frog being hidden on the tree. In all these cases, it expresses a low probability of occurrence of the mentioned situation, but the signer considers that is more beneficial to take in consideration the potential fact and, thus, to act accordingly.

6.5.4.2 DEPENDRE 'to depend on'

The sign DEPENDRE 'depend on' (Figure 6.39) is used mainly to express eventuality. It is equivalent to 'as the case may be'. It is accompanied by the oralization *según* meaning 'depending on' in Spanish.



Figure 6.39 DEPENDRE 'to depend on'

In some productions, it expresses uncertainty about a situation named by the main verb, or even different perspectives or opinions about a situation concerning its factuality, or lack thereof, by the participants in discourse. See example (191). It corresponds to the episode where the interviewee expresses her fears about working as a language teacher, specifically when she is talking about the potential commentaries and criticism by the

students in class. In the fragment, the participants are confronting their views on this issue.

(191) EES 00:19:16 ES

PRO.1 PENSAR COMPLETAR p [AGRADAR NO]-neg [PRO.1 SABER-NO]-neg [DEPENDRE]-inc

to.think to.add to.like not to.know-not to.depend.on

[SABER-NO]-neg

to.know-not

'Li dono voltes i no m'agrada. No sé. Depèn. No sé.'

'I keep thinking about it and I don't like it. I don't know. It depends. I don't know.'

Using the sign *DEPENDRE*, the participant expresses her belief that it is a possibility that the students make comments on her, a situation that makes her uncomfortable, even if her interlocutor disagrees.

6.5.4.3 A.VEURE 'let's see'

The next construction, glossed as *A.VEURE* 'let's see' (Figure 6.40), is a compound/collocation consisting of the verb *VEURE* ('to see') and a gesture/marker from the palm-up family (Both discussed in chapter 10).



Figure 6.40 *A.VEURE* 'let's see'

This sign expresses a combination of subjectivity and possibility. It may be considered an instance of the interface between volition and epistemic possibility when expressing a desire in the future, as shown in (192).

(192) EES 00:11:25 ES

[EXEMPLE ANAR TELEFÈRIC]-top [PODER SER.GRATUÏT]-pos p PRO.1 PENSAR p

example to.go tramway may to.be.free to.think

A.VEURE 3-DONAR-3 MENYS SORD O(2h) A.VEURE p

let's.see to.give less deaf or let's.see

ANAR CULTURA MENYS o SER.GRATUÏT **A.VEURE** SORD 3-DONAR-1 p

to.go culture less or be.free let's.see deaf to.give

[SÍ.O.NO]-alternative [SABER-NO]-neg p [SUÏSSA]-top [PRO.1 SABER-NO]-neg

yes.or.not to.know-not Switzerland to.know-not

'Per exemple, anar en telefèric potser que sigui gratuït, penso. A veure si costa menys a les persones sordes. A veure quan hi vagi. Fets culturals que costin menys o siguin gratuïts per als sords. A veure que tal. No ho sé com serà, no ho sé.'

'For example, maybe going with the aerial tram is free, I think. I wonder whether it is cheaper for deaf people. I'll check it when I'll go. Cultural happenings that are cheaper or free for deaf people. I'll check when I go. I don't know how it will be, I don't know.'

This sign was used by all the signers retelling the Frog Story with regard to the bowl in the tree episode. Indeed, it is used when the signer expresses her fears and worries about a situation in the (near or distant) future since she believes that the situation denoted in the proposition may become a reality. However, depending on the characteristics of facial expression, it can be used to contrast somebody else's opinion about some situation or promise for the future denoting irony or skepticism.

6.6 The encoding of epistemic necessity

Epistemic modality applies to assertions and indicates a strong commitment to the content of the proposition (Bybee, et al., 1994; Jarque, 2017; Palmer, 2001).

6.6.1 Non-manual marking

The unmarked case indicates total commitment and in LSC is signaled through non-manual components, mainly with a nod head movement and tensed facial expression with furrowed brows. However, a marked construction, produced manually, is used when the signer wants or feels the need to confront or defend her opinion, or mark her stance.

We will illustrate this with an excerpt from a statement by the President of the Catalan Federation of Deaf People before the summer holidays, where he reviews the activity conducted by the board (193). After explaining that for the last two months the board had hold meetings with the main public and private entities related with the goals of the FESOCA, he assesses these meetings expressing a total compromise with the information. The statement is addressed to the Deaf community, two months after the election.

(193) FESOCA *President's statement* 2018/07/30 00:02:07 AC_R



a. [IX.aquestes.reunions]-top IGUAL (REUNIÓ / HAVER.HI IX.reunions)

these.meetings *same* *meeting to.take.place* *meetings*



b. -----COMPRENDRE-RECIPROCAL-ASP.ITERATIVE -----

to.understand.each.other.in.the.several.meetings



c. HAVER.HI

IGUAL

PARLAR

to.take.place

same

to.speak



d. -----COMPRENDRE-RECIPROC -----

to.understand.each.other



-----SER.PERFECTE(2h) -----

-----VOLER+DIR -----

to.be.perfect

to.mean



ESPERAR

A.PARTIR.D.ARA

TRANSFORMAR

to.expect

from.now

to.transform



VEURE.VERITAT

VERITAT

to.be

real



PRACTICAR

SER.VERITAT

to.practice

to.be.real



(SER.VERITAT/IX.això)

to.be.real *this*

‘(En aquestes reunions) ens vam entendre, vam estar parlant i ens vam entendre perfectament. Vol dir que espero que a partir d’ara (les demandes) es converteixin en realitat, en fets de veritat.’

‘(In these meetings) we understood each other, we talked and we understood each other perfectly. I mean, I hope that since now on (the requests) will become a reality, true deeds.’

6.6.2 Manual marking: SER.SEGUR 'to be sure'

Besides non-manual marking, LSC displays a manual marker that encodes epistemic necessity. It is formally related to the non-epistemic necessity marker HAVER.DE in terms of handshape, location and movement. However, LSC signers use different mouthing: *debe* (from Spanish, equivalent to 'must') for non-epistemic functions and *seguro* (from Spanish, equivalent to 'sure') for epistemic functions. For this reason, we have glossed them differently. We work under the assumption that the primary function of language is to convey information and that formal distinctions convey semantic or pragmatic distinctions (Croft, 1991; Goldberg, 1995; Lakoff, 1987; Langacker, 1987).

Certainty may be expressed by the manual sign glossed as SEGUR 'sure' (Figure 6.41). It can be strengthened by a facial expression and tension in the movement that act as intensifiers. As explained, this sign is formally related to HAVER.DE 'must', but it may be produced also with one up-down movement, besides the repetitive movement.



Figure 6.41 SER.SEGUR 'to be sure'

In the example in (194) the signer asserts that her sister, her parents, and her brother will help with a party to be organized by former students of the residential school for the deaf. Her facial expression conveys absolute confidence, and it is mandatory (Shaffer, et al., 2011).

(194) EES 00:21:52 ES_R

[PRO.1 GERMÀ.germana PRO.1 PARES]-top **SER.SEGUR** ANAR p

brother_sister *parents* *be.sure* *to.go*

[PRO.1 GERMÀ]-top TAMBÉ **SER.SEGUR** ANAR p PRO.1 **SER.SEGUR**

brother *also* *be.sure* *to.go* *be.sure*

'Estic segura que la meva germana i els meus pares hi aniran. També, estic segura que el meu germà hi anirà. Estic segura.'

'I'm sure my sister and my parents will go. Also, I'm sure my brother will go. I'm positive about that.'

In fragment (194), the marker is used preverbally and with zero anaphora, whereas in (195) the lexical verb appears in topic position and in (196) as a parenthetical.

(195) EES 00:11:59 ES_R

Resp.: [HAVER.DE]-intens p [MENJAR]-top **SER.SEGUR** FONDUE

have.to to.eat be.sure fondue

Int.: [SER.SEGUR]-q

be.sure

Resp.: FORMATGE FORN HAVER.DE(2h) PRO.1 p

cheese oven have.to

SER.CONEGUT(fama) SER(2h) p [ALTRES]-top palm.up.gesture: nothing p

to.be.known to.be others nothing

[MUNTANYA TELEFÈRIC]-top SER.EXCEL·LENT p

mountain aerial.tram to.be.excellent

COVA GEL p COVA CLS: "entrar.a.la.cova" SÍ p gest.res.més c

cave ice cave get.into.the.cave yes gesture: nothing else

Resp.: 'Què cal? Jo he de menjar una fondue.

Int.: Segur?

Resp.: Formatge fos. És molt conegut. La resta de coses? El telefèric per pujar a la muntanya és genial. També entrar a la cova de gel, sí. Res més.'

Resp.: 'What is a must? I have to eat a (cheese) fondue.

Int.: Sure?

Resp.: Melted cheese. This is a well-known thing. What about other things? The aerial tram to go up the mountain is great. To get into the ice cave, yes. Nothing else.'

(196) EMS 00:14:23 MS

MAL PRO.1 DESVIAR p SABER PRO.1 p **SER.SEGUR** exp.fac.fatal

bad to.stray to.know be.sure horrible

'Malament. No (el) seguiria(=un programa de bona alimentacio). Ho sé. N'estic segura. (Qué malament).'

'That's so bad. (He) will not follow (=a healthy feeding program). I know it. I'm positive. (That's so bad).'

SER.SEGUR also may be used to question others' opinions, as in example (197), where the participant is discussing the possibility of going on vacation during the month of July. It is produced jointly with the non-facial marking for polar questions (head forward and raised eyebrows).

(197) EMS 00:05:45 ES

Int.: [EXEMPLE SI DONAR-2 PERMÍS MES JULIOL]-cond [PRO.2 MARXAR PEL/DETALL PROU]-q

example if to.give leave month July to.leave detail enough

Resp.: MARIT PRO.3I AGOST PER.SEMPRE

husband August always

Int.: [**SER.SEGUR**(2h)]-q

to.be.sure

Int.: '(I) si et donessin permís durant el mes de juliol. Marxaries?

Resp.: (Però) el meu marit sempre té les vacances a l'agost.

Int.: N'estàs del tot segura?

Int.: '(And) if they gave you a leave during the month of July, would you go away?

Resp.: (But) my husband has always his holidays in August.

Int.: Are you absolutely sure of this?'

Example (197) also illustrates that it is possible to produce the marker SER.SEGUR with the non-dominant hand. In this case, it is not the product of assimilation by the non-dominant hand with the previous or the following since it appears by itself. Instead, it marks skepticism and request for confirmation, as corroborated by the fact that it is accompanied by a facial expression and tense movement of both articulators being, thus, an instance of diagrammatic iconicity.

Epistemic modals 'have certainty' and 'certain, correct' in Brazilian SL (LIBRAS) also use the F-handshape (Ferreira Brito, 1990, 1995). The same holds for LIS (Gianfreda,

Volterra, & Zuczkowski, 2014). We will refer to these commonalities in chapter 10 and 12 with regard to their grammaticalization/pragmaticalization.

6.7 Findings and research questions

In previous sections, we examined modal resources in LSC that represent conventionalized multidimensional pairings of form and meaning and can therefore be treated as a construction type in the sense of constructionist approaches to language, namely Cognitive Grammar (Langacker, 1987, 1991, 2002a, 2013) or Construction Grammar (Goldberg, 2006). In this section, we will present a summary and we will provide the answers to the research questions as formulated at the beginning of the chapter. The section is organized as follows: Section 6.7.1 is devoted to a discussion about the items and constructions examined with respect to the semantic dimension; the semantic dimension and the establishment of possible semantic scales is addressed in § 6.7.2; then we examine the syntactic distribution (§ 6.7.3).

6.7.1 Research question 1: Modal resources

This section will focus on the repertoire of modal resources, contrasting the modal functions developed. The first constructions dealt with the expression of volition. We identified that the volitive predicates are used within a mesoconstruction and we discussed in detail the differences between the constructions with respect to the semantic values expressed.

Concerning the forms that express necessity values, a summary is given in Table 6.1. We follow the values proposed by Bybee et al. (1994, p. 256), and examined in Chapter 3.

Table 6.1 Intraparadigmatic variability in the volition domain

LSC modal forms	Modal values		
	Desire	Willingness	Intention
AGRADAR	√	-	-
DESITJAR	√	√	-
ESPERAR	√	-	-
PENSAR	√	√	√
TANT.DE.BO	√	√	-
TENIR.GANES	√	√	-
VOLER	√	√	√

The distribution of volitive values in Table 6.1 shows the variability among these elements. Regarding the expression of the possibility domain, Table 6.2 summarizes the main findings.

Table 6.2 Intraparadigmatic variability in the possibility domain

LSC modal forms	Modal values			
	Participant-internal possibility	Root possibility	Deontic possibility	Epistemic possibility
CEDIR	-	-	√	-
PERMETRE	-	-	√	-
PODER	√	√	√	-
PODER.EPIST	-	-	-	√
PODER+SER.CAPAÇ	√	√	-	-
SABER	√	-	-	-
SABER.DOMINAR	√	-	-	-
SER.CAPAÇ	√	√	-	-
SER.FÀCIL	√	√	-	√
TENIR.HABILITAT	√	√	-	-

In Table 6.2, we have not included the linguistic elements that only express epistemic possibility, such as the mental predicates CREURE 'believe', DUBTAR.1 'to hesitate', DUBTAR.2 'to doubt', DUBTAR.3 'to doubt.3', INTERROGAR.SE 'to wonder', INVENTAR 'to invent' and SEMBLAR 'to seem'; the adjective predicate SER.FÀCIL 'to be easy'; and other linguistic elements, such as PER.SI.DE.CAS 'just in case', DEPENDRE 'to depend' and A.VEURE 'let's see'. The forms that express necessity values are summarized in Table 6.3.

Table 6.3 Intraparadigmatic variability in the necessity domain

LSC modal forms	Modal values			
	Participant-internal necessity	Root necessity	Deontic necessity	Epistemic necessity
DEURE	√	√	√	-
FORÇAR	√	√	√	-
HAYER.DE	√	√	√	-
MANAR.CANÓ	-	-	√	-
OBLIGAR	√	√	√	-
SER.LLEI	√	√	√	-
SER.NECESSARY	√	√	√	-
SER.SEGUR	-	-	-	√

Data from Table 6.3 shows that there is not overlap between expressions of epistemic and non-epistemic necessity in LSC, except for the link between HAYER.DE and SER.SEGUR, unlike in most modality studies on European languages (Palmer, 1986; Sweetser, 1982; van der Auwera & Plungian, 1998). These findings support the caution, expressed by van der Auwera and Amman (2005), against overgeneralizing this European tendency.

Also, the fact that polysemy in LSC necessity modal elements is reduced to non-epistemic modals has important consequences for positing developmental paths, as conducted in grammaticalizations and typological studies (Bybee, et al., 1994; van der Auwera &

Plungian, 1998). Also, it is interesting to note that prototypical deontic modals (OBLIGAR and SER.LLEI) may signal participant-internal necessity values, something that suggests surprising developmental paths. We will discuss the implications of this data in Chapter 10 and 12.

The constellation of linguistic resources that express modal meanings is composed of markers, mental state predicates, and predicate adjectives, which have undergone a grammaticalization process in different degrees. The analysis of the data discussed throughout the chapter reveals that some LSC modals exhibit polysemy. The polysemy will be crucial, since it will allow us to make inferences about the diachronic development of these grammatical signs. We will come back to this issue in Chapter 9. Indeed, the apparent polysemy is an indication of degree of grammaticalization. In other words, signs that exhibit polysemy are candidates to be characterized as fully-fledge (or prototypical) modals. Hansen and de Haan (2009) defined modals in the following terms:

A fully-fledged modal is a polyfunctional, syntactically autonomous expression of modality which shows a certain degree of grammaticalisation. 'Polyfunctional' is understood as covering a domain within the semantic space of modality. A fully-fledged modal functions as an operator on the predicational and/or the propositional level of the clause. (Hansen & de Haan, 2009, p. 512)

Hansen and de Haan (2009, p. 513) postulate that modals constitute a sort of a focal point on a grammaticalization chain, which does not go in the direction of the emergence of inflectional markers. Prototypical modals in LSC are, mainly, the pairs PODER 'can'/PODER.EPIST 'may' and HAVER.DE 'must'/SER.SEGUR 'to be sure'. Taking as a pair are highly polyfunctional since they cover all the functions in three domains. Hansen & de Haan (2009, p. 514) consider polyfunctionality as a crucial feature distinguishing a modal from a lexical element. In Chapter 10 we examine whether the criteria to ascertain their modal status are met.

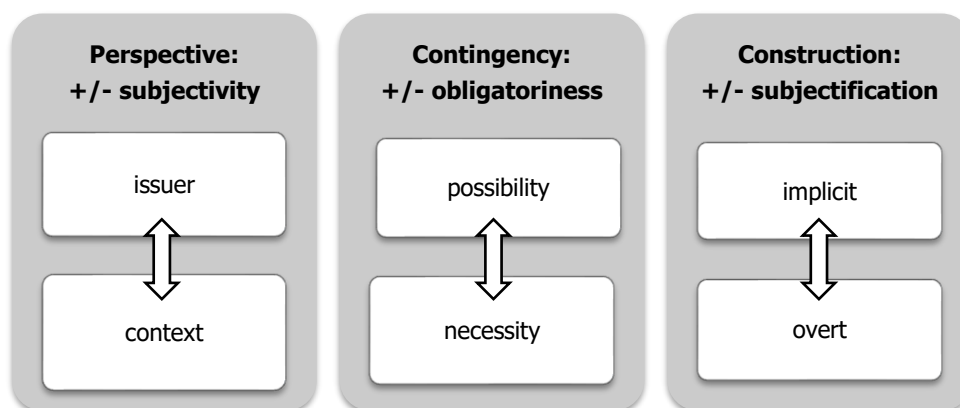
Moreover, the semantic space of modality in LSC is a gradient category with prototypical and peripheral instances in every domain (Cf. Besters-Dilger et al. (2009) for Slavonic languages). It seems that PODER constitutes the prototypical element of the category in the possibility domain, and HAVER.DE in the necessity domain. However, we think that it is better to analyze the use of those modals inserted in specific constructions. This is particular relevant in signed languages, since the non-manual component (mainly facial

expression and head movements) are equivalent to prosody elements in spoken languages, and constitute crucial elements in the construction (Shaffer & Janzen, 2016; Wilcox & Shaffer, 2018). This will be the focus of Subsection 6.7.3 dedicated to RQ 3 on syntactic distribution.

6.7.2 Research question 2: Semantic dimension

This section will focus on the semantic dimension of modal resources, proposing relations among the values as for instance the semantic scales that shape a semantic network.

Throughout the chapter we have described modal elements making reference to three parameters: the perspective from where the modal source comes, the degree of contingency and the overt presence of the source. We define modality in LSC as a perspectivization phenomenon of non-discrete nature, an expression of the signer's conceptualization of the situation based on the context of utterance and on the signer's relationship with the interlocutor and the conceptualized scene. Accordingly, we propose a model to describe the modality domain, which emphasizes the scalar nature of the proposed parameters: perspective (subject-internal ↔ external/context), contingency (possibility ↔ necessity) and conceptualization (implicit ↔ explicit), all of which are construed as bipolar continua. See Graphic 6.1. Support is also provided for the relevance of using the notions of deixis and perspective in describing modality.



Graphic 6.1 Parameters forming the modality domain in LSC

The parameter **perspective** refers to the continuum along the poles that establish that modal evaluation (i.e. the modal force) is issued from the maximal point of view of the

subject in contraposition to the extreme pole where the source is located in the social context. The values may be located in the continuum subjectivity-objectivity in Lyons (Lyons, 1977, 1982) or Traugott's sense of subjectivity (E. C. Traugott, 1995), following also the French tradition (Benveniste, 1971 [1958]). It is in line with Achard (1996)'s cognitive description of French modals. It allows us to distinguish the 'permission' senses of PODER: the signer's role is strong when the signer associates herself with the locus of potency (the source of permission), whereas it is weak, when she only conveys the source of obligation.

The second parameter, **contingency**, makes reference to the possibility-necessity continuum, i.e. to the axis that establishes the value from the potential to mandatory character of the situation evaluated according to classical and functional descriptions (Benveniste, 1971 [1958]; Bybee & Fleischman, 1995b; Halliday, 1970; Lyons, 1977; Palmer, 1986; van der Auwera & Plungian, 1998).

The last parameter, **conceptualization**, stems from Cognitive Grammar approaches to modality (Langacker, 1985, 2006; Mortelmans, 2010). It is related to the implicit or explicit involvement of the source of evaluation, i.e. the diffuse or identifiable character of the conceptualizer. It corresponds to the concept of subjectivity *à la* Langacker. As explained in Chapter 11, according to Langacker's description, an entity is subjectively construed to the extent that it remains offstage and unmentioned, whereas it is objectively construed insofar as it is the explicit focus of attention.

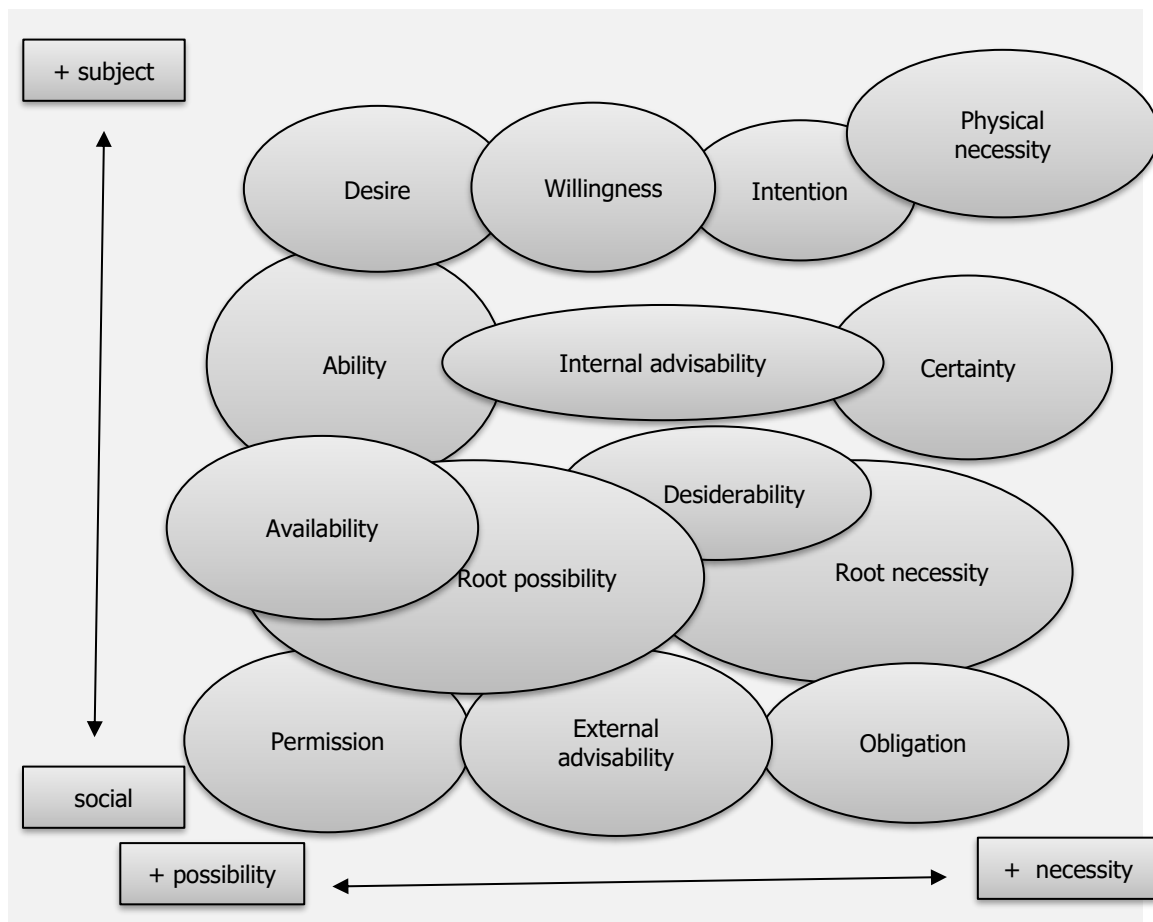
The third parameter allows us to differentiate between the epistemic values of the following constructions: [PODER.EPIST proposition] and [PRO.1 DUBTAR proposition]. In the former, the source of potency meaning is not identified, whereas in the latter it is associated with the subject. It differs with respect to the first parameter (perspective) in the sense that in [PODER.EPIST proposition] the source is not associated with the subject, but only with the signer. In force-dynamic terms, and according to Langacker, the evaluation may be based on a certain conceptualization of reality. As Mortelmans (2010) explains, in Langacker's view,

it is not so much the force of evidence which pushes the speaker toward a certain conclusion, but rather the highly abstract force residing in reality's evolutionary momentum, that is, reality's constant evolution based on (the speaker's conception of) its structure. (Mortelmans, 2010, p. 874)

The different interaction between the three parameters allows us to distinguish the different values in the deontic subcategory. Thus, advisability would be defined as [+subjectivity, +/- necessity, and +/-overt]. In the modality literature, the inclusion or not of speaker's subjectivity in deontic modality has been controversial (Goossens, 1985). We will address this issue in chapter 11 (on grounding) and 12 (Discussion).

This characterization gives origin to the modality semantic map of Graphic 6.2. The semantic map is plotted on the basis of the data analyzed in Chapter 6 and 7. We draw it having in mind the following distinctions:

- (i) It does not explicitly depict connections between modal meanings through lines but the similarities between meanings are represented by spatial adjacency.
- (ii) The circles are not intended to be semantic closed-categories, rather they are fuzzy categories that overlap with other proximal categories, showing indeterminacy and gradience.



Graphic 6.2 LSC modal semantic map

It corresponds to the 'classical' semantic map (Narrog & van der Auwera, 2011; van der Auwera, 2008), but with the difference that it is a synchronic map resulting from the grammar patterning, mainly, by means of grammaticalization, constructionalization and pragmaticalization, as discussed in Chapter 10. It should be complemented with the position of the LSC linguistic markers in the corresponding semantic location. These semantic scales, although, may be modified in the discourse pragmatics by means of modifications in the suprasegmental elements, such as the configuration of the facial expression and the tension and speed of the manual movements. This is also the case for LIS (Gianfreda, et al., 2014) and LSE (Iglesias, 2006a, 2006b).

Moreover, the semantic values of the map can be aligned or connected by several gradual scales. From a theoretical perspective, it implies a gradience conception of the modality domain and a view advocating for categories with prototypical and peripheral values for the several values. The ordering is based on the modal values expressed in the discourse fragments studied. We have also taken into account the combination of several modal forms in discourse signaling a harmonic path, usually from an inferior to a superior degree of the modal notions of volition, possibility and necessity, both with positive and negative polarity –as described in chapter 7 for the combinations of negative modals.

In (198), we posit a gradual scale of volitive values from desire to intention.

(198) Semantic scale for volitive values in LSC

AGRADAR 'to like' > ESPERAR 'to expect' > DESITJAR 'to desire' > TANT.DE.BO 'I wish' > TENIR.GANES 'to fancy' > VOLER 'to want' > PENSAR 'to think'

In (199), we propose a gradual scale of participant-external necessity values from less to higher degree of obligation.

(199) LSC modals semantic scale for participant-external values in LSC

HAYER.DE 'must' > FORÇOSAMENT > DEURE > OBLIGAR.CANÓ > SER.LLEI

According to Boye (2016), epistemic modality covers meanings "arranged along a scale which goes from high epistemic support for a proposition over neutral epistemic support to high epistemic support for the negative counterpart of a proposition" (2016, p. 117). We have organized the LSC epistemic scale based on the subjective to the objective axis. In other words, we have arranged the epistemic elements starting from the elements

that tend to be based more on signer's personal knowledge to those being based more on common sense in the linguistic context. The semantic scale is given in (200).

(200) knowledge, certainty, epistemic necessity, probability, likelihood, uncertainty, epistemic possibility, doubts, unlikelihood, epistemic impossibility

In (201), we trace the gradual scale of LSC modal forms going from absolute certainty via degrees of probability to fairly neutral possibility.

(201) LSC modals semantic scale from certainty to possibility in LSC

SABER 'to know' > SABER.DOMINAR 'to know/dominate' > VERITAT.1 'to be truth' > VERITAT.2 'to be truth' > SER.SEGUR 'sure' > HAVER.DE 'must' > DUBTE HAVER.HI.NO 'nothing to be done' > SER.FÁCIL 'to be easy' > PENSAR 'to think' > CREURE 'to believe' > SEMBLAR 'seem' > PODER.EPIST 'may' > DEPENDRE 'to depend on' > DUBTAR.INDECISIÓ 'to doubt (indecision)' > DUBTE.INCERTESA 'to doubt (uncertainty)'

This scale continues further on the negative side, via improbability of the state of affairs to absolute certainty, as will be examined in Chapter 7 on negation.

We argued for a gradual view of modality based on the possibility of aligning modal forms in a semantic scale as well as the possibility of including negative meanings, as discussed in several works (Boye, 2006; Ferreira Brito, 1990; Nuyts, 2001). This view on modality is controversial for logic approaches and formal semanticists, which considers modality in terms of closed-contained categories (Cf. Kratzer, 1978).

In conclusion, the characterization of the modal domain in LSC exhibits the following features (202):

(202) Semantic space of modality in LSC

- (i) It comprises the categories traditionally associated with the modality as a semantic or grammatical category (possibility and necessity).
- (ii) It also includes volition – as in Narrog (2005b) and Jespersen (1924), but unlike Li (2004) and other proposals.
- (iii) It includes, in a natural way, some values of difficult classification, e.g. desirability or advisability, that may be situated halfway between possibility and modalized necessity, with a high subjective component.
- (iv) It acknowledges and distinguishes the two types of subjectivity considered crucial in the conceptualization of situation: subjectivity as perspective –i.e. the expression of self and the representation of an interlocutor's point of view

in discourse (Benveniste, 1971 [1958]; Lyons, 1982) and as a type of conceptualization in which the source is diffuse (Langacker, 1985).

The description presented in (202) has to be completed after examining the possible interaction with the other functional/semantic categories, namely, negation, evidentiality and aspect.

6.7.3 Research question 3: Syntactic distribution

This section addresses the syntactic distribution of modal elements. It comprises the following issues: (i) whether verb+verb constructions expressing modal meanings constitute verbal periphrasis; (ii) whether modal elements show preference for specific locations in the clause; (iii) whether they appear in superclausal structure and (iv) whether modals are used in parenthetical structures.

6.7.3.1 Syntactic distribution: Verbal periphrasis and LSC

With respect to the first question, the notion of verbal periphrasis has generated a broad debate within the linguistic studies. For instance, Haspelmath (2000) stresses how difficult it is to apply the concept of periphrasis because of the number of meanings it covers. In some traditions, this notion is central and has been studied since a long time, and yet it is still the object of a heated debate among the specialists. This is the situation, for instance, in the Hispanic studies (Garachana, 2017a). The traditional, and most commonly accepted, definition is given in (203), as Garachana (2017a) reproduces.

(203) Traditional characterization of verbal periphrasis:

Una perífrasis es una combinación de dos formas verbales una de las cuales (el verbo auxiliar) se ha gramaticalizado, de modo que únicamente expresa valores gramaticales, mientras que la otra (en forma no personal, el verbo auxiliado) funciona como núcleo semántico y se encarga de la subcategorización de los argumentos. Estas construcciones verbales constituyen una única predicación y expresan un significado único, que puede ser modal (perífrasis modales), temporal o aspectual (perífrasis tempoaspectuales) (Garachana, 2017a).⁸⁵

Indeed, specific criteria have been determined for a verbal construction to be considered a verbal periphrasis, as for Spanish⁸⁶. However, most of these proposals take into

⁸⁵ "A periphrasis is a combination of two verbal forms, one of which (the auxiliary verb) has been grammaticalized, so that it only expresses grammatical values, while the other (the non-auxiliary verb, in impersonal form) functions as semantic nucleus and subcategorizes the arguments. These verbal constructions constitute a single predication and express a unique meaning, which may be modal (modal periphrasis), temporal or aspectual (temporal-aspectual periphrasis)" (Garachana, 2017a).

⁸⁶ (41) Garachana (2017a) lists the traditional periphrastic syntactic criteria for Spanish as follows: "(i) combinación con verbos meteorológicos; (ii) la conmutación por otros elementos; (iii) la selección semántica del sujeto por parte del verbo

consideration, as a key component of the definition, the morphological status of the function verb i.e. finite form (for the function verb) versus the non-finite form (for the lexical verb). Note, for instance, the above definition in (203) and the one provided by Anderson (2013) in (204).

(204) Anderson (2013)'s The Prototypical Verbal Periphrasis

- (i) It consists of a finite function verb plus a non-finite lexical verb.
- (ii) The function verb governs the lexical verb.
- (iii) The construction enhances the paradigmatic resources of verbs, particularly the finite paradigm; specifically:
 - (a) the function verb requires its complement to express certain terms of morphological categories
 - (b) the combination of terms in (a) is one missing from the potential maximal paradigm of the finite lexical verb
- (iv) The function verb is otherwise categorially empty.

The characterization of verbal periphrasis as in (203) and (204) grants to verbal morphology a key role. A type of definition based on morphological properties (finite vs. non-finite forms) excludes potential candidates in languages with less morphology or *irregular morphology*⁸⁷. LSC and other signed languages exhibit morphological elements in the verb but not following the same pattern as Romance or Anglo-Germanic languages. The main differences are listed in (205).

(205) Morphosyntactic characteristics of LSC

- (i) Not all verbs may exhibit the same morphological categories. Morales et al. (2005) classified LSC verbs into three categories according to the type of information, other than the lexical content, that may be included morphologically: deictic (agent and/or patient), movement and location (properties of actions) and plain verbs (nor agent/patient nor actions).
- (ii) Aspect is the only grammatical category expressed morphologically that apparently can be expressed in all the verbs, but it is not obligatory as a

auxiliado; (iv) la selección de complementos del verbo internos al grupo verbal; (v) la subida de clíticos; (vi) La formación de la pasiva perifrástica y de la pasiva con *se*; (vii) La formación de las estructuras ecuacionales o perífrasis de relativo; (viii) no selección del verbo auxiliado; (viii) el orden de palabras y (ix) otras pruebas sintácticas".

⁸⁷ We use the term *irregular morphology* to refer, provisionally, to those languages, as for instance signed Languages, where some categories or groups of elements from a category (e.g. verbs of movement and location), display a large amount of morphemes, whereas other have basically none (e.g. plain verbs).

category in Bybee (1985)'s sense and it is closer to derivation than to inflection (See Chapter 9).

- (iii) Even when there is the possibility of including morphology according to the specific verb type, the potential morphemes are not mandatory. Research on Auslan (de Beuzeville, Johnston, & Schembri, 2009) has shown that "spatial modification of verbs in Auslan is far from obligatory, even for the marking of object/undergoer arguments" (2009, p. 53). The authors interpret this data as evidence supporting the hypothesis that spatial markings in verbs are still in the process of grammaticalization.

The differences in (205), besides being related with the process of language construction and evolution, are linked also to the properties derived from the mode of expression and reception of signed languages. In other words, the characteristics of articulators, the role of space and the interaction with gesture introduce in sign languages studies difficulties that cannot be easily solved with the categories of spoken linguistics. One of the authors of the cited research on Auslan summarizes the situation in the following way:

It is as yet unclear if all of the phenomena of sign language morphology can be properly dealt with as 'linguistic', narrowly defined. Insofar as it may contribute to the redefinition of what is 'language' or what is properly 'linguistic', the short history of the study of signed languages belies its relative importance to linguistics. (Johnston, 2006, p. 327)

Putting it simple, in LSC it is difficult to establish a clear-cut division between finite and non-finite forms due to the properties of the signed modality as well as the state of the current research knowledge on LSC morphosyntax in real discourse. These characteristics mean that the theoretical construct of verbal periphrasis is not adequate for the study of sign language modality.

Besides, even assuming a more restricted definition of periphrasis, the difficulties do not disappear. Garachana (2017a) argues against the adequacy of the above notions and criteria since they do not cover all the cases of verbal combinations that function similarly and prefers to define three parameters as basic for the inclusion within the category, namely (i) that the verbal set expresses a unitary procedural meaning, (ii) that the subcategorization depends on the entire construction and (iii) that no element of the periphrasis can be swapped by another.

Again, this definition imposes important restrictions since the data from LSC shows all kinds of utterances with zero-anaphora both in information structure constructions as well as in argument structure ones. If we apply Garachana's three-criterion definition, some LSC constructions discussed in this chapter may be characterized as verbal periphrasis in an incipient stage of grammaticalization. This is the case of PODER + verb –examples (148) and (154), CREURE + verb –example (178), or SER.IMPOSSIBLE + verb–example (179). (See also Chapter 10).

However, the characterization as verbal periphrasis is not adequate since it does not account for the pairings as a whole class of verbs used with a certain degree of generality and lexical abstraction. We believe that it is better to analyze them in terms of *constructions* of different schematicity that combine with others in order to produce and comprehend the content of interaction. Combinations of verbs may constitute a “pairing of some sort of syntactic representation with some sort of semantic representation” (Goldberg, 2006) or a “conventional symbolic unit” (Croft, 2005, p. 274). We will address this issue in the following section on syntactic distribution as well as in the Discussion chapter.

6.7.3.2 Syntactic distribution: Constructions

LSC modal forms appear in different type of constructions, including those related to information structure –following Lambrecht (1994)'s terminology- as well as argument structure constructions. A summary of the syntactic distribution of modal forms in declarative sentences with information structure constructions is given in Table 6.4. A question mark signals that it has not been documented in the corpus.

Table 6.4 Distribution of modal elements in declarative information structures

Elements and distribution	Examples volition	Examples non-epistemic	Examples Epistemic
[proposition with modal]-top (subject) affirmative.adverbial	(138)(144)	√	√
[proposition without modal]-top (subject) modal (subject)	(144)	(147)(152)(153)	(187)
[verb]-top modal object	?	?	(195)
[object]-top (subject) verb modal	?	(152)	?
[modal verb/(be.verb)object]-top	?	?	(188)(192)

We have included information structure constructions for two different reasons. First, from a theoretical point of view, we agree with those scholars that stress the need and usefulness of starting the examination of grammatical phenomena at the level of text or discourse (Chafe, 1980; Kuningas, 2007; Lambrecht, 1990, 1994; Leino, 2013; Morales-López, Reigosa, & Bobillo, 2012a, 2012b). As argued by Leino (2013):

Information structure is, thus, an element of sentence grammar, supplementary to morphosyntax and semantics. It is concerned with the manner in which the message is conveyed, or with the question as to why the speaker makes the particular syntactic and semantic choices and uses the particular expression types rather than some other ones [...] (Leino, 2013, p. 333)

Also, scholars from constructionist approaches examine constructions of different degree of specificity. Information structure constructions are, thus, highly schematic constructions (Goldberg, 2013; Langacker, 2013).

Second, it is important to include information structure constructions in the research on grammatical expression in a sign language since several works stressed their key role in language configuration. An important avenue for sign languages research has been their typological classification. A group of researchers has argued that sign languages are topic-prominent languages (Janzen, 1998; McIntire, 1982; Morales-López, et al., 2012a, 2012b), according to the typology proposed in the seminal work by Li and Thompson (1976).

Adopting the perspective that information structure is an integral part of the language system, we can overcome the discussion about the adscription to one option or the other until research on large sign language corpora allow researchers to expand our knowledge with reliable data. See for example a recent survey on constituent order from 42 sign languages by Napoli and Sutton-Spence (2014).

In Table 6.5, we distinguish full clauses (i.e. utterances with overt expression of all the argument structure constituents) from zero-anaphora clauses (i.e. utterances in which one (o more) argument constituent is missing and are recovered through inferencing). The former clauses include topic-comment constructions and syntactic constituency ordering.

Table 6.5 Distribution of modal elements in declarative argument structure constructions

Sub-type	Elements and distribution	Examples Volition	Examples non-epistemic	Examples Epistemic
full clause	subject verb (object) modal	?	(170)	?
	subject modal verb/proposition	(137)(137) (139) (141) (142)(143) (145)	(148)(148)(150) (155)(157)(158) (168)(171)(176) (176)(176) (153)(161)	(178)(179)(180) (194)(194)(194) (161)(164)(165) (176)
	(without subject) modal verb/proposition	(146)	(149)(157)(158) (172)	(189)(177)(188)
	modal [(subject) verb]	√	(147)	(173)(174)(174)
	(without subject) verb modal	?	(165)	?
	object modal verb	?	(172)	?
zero anaphora	[proposition with lexical.verb] p [subject modal]	(145)	(151)(151)(160) (164)	(182)(194)(195) (181)(182)(185)
	[proposition with lexical.verb] p [subject modal subject]	?	(155)	(183)(196)
	[proposition with lexical.verb] p [subject object modal]	?	?	?
	[proposition with lexical.verb] p object [modal]	?	(195)	?
	[proposition with lexical.verb] p [modal object]	?	(156)	(186)
	[proposition with lexical.verb] p [subject modal object]	?	(167)	?
	[proposition with object] p [modal verb]	?	(163)	?
	[proposition with object] p [modal]	?	(163)	(196)

The data in Table 6.4 and Table 6.5 show the schematic constructions in which the modal elements are inserted in our data. A general summary is given in (206).

(206) Syntactic distribution of LSC modal elements

- (i) Modal elements are inserted both in information structure and argument structure constructions, as well as in parentheticals.
- (ii) Informative structure constructions comprise metalinguistic constructions, grammaticalized topics and topicalization (or left dislocation) of lexical verb and object.
- (iii) The argument structure construction [subject **modal** verb/proposition] is the most frequent for the three subdomains (volitive, non-epistemic and epistemic).
- (iv) Elements signaling subjective values à la Langacker (PODER, PERMETRE, OBLIGAR.A.LA.FORÇA) appear in impersonal-like constructions in which the modal is located in initial-clause position.
- (v) As for the volitive values and objective epistemic evaluations, the markers tend to appear in meso-constructions consisting of the first-person pronoun followed first by the volitive/cognitive predicate and then by a lexical verb or a proposition.
- (vi) Non-epistemic values (ability, root and deontic values) can be expressed in topic-comment construction, the propositional content being in the topic and the modal, in the comment.
- (vii) On the other hand, other constructions adopt a more syntax-oriented structure based on syntactic-argument constituents. Globally, modal elements with non-epistemic functions tend to appear in syntactic-argumental construction with the ordering: [subject modal verb/proposition].
- (viii) Modal elements appear in zero-anaphora utterances (i.e. without the lexical verb, that it is inferred on the basis on the information delivered in the previous sentences), especially for expressing non-epistemic values.
- (ix) Cognitive verbs expressing epistemic possibility are inserted in argument structure constructions, e.g. [PRO.1 + functional.verb + lexical verb/proposition].
- (x) Epistemic PODER appears in topic-comment-like constructions with the modal in the topic and the proposition in the comment.
- (xi) Some forms appear in parenthetic structures behaving as adverbs (according to those defending secondary grammaticalization) or as discourse markers (according to those arguing in favor of pragmaticalization (or discursivization). This is the case of PODER, PENSAR and CREURE. When

used in parenthetic structures, they tend to appear by themselves (i.e. with no overt reference to first person singular pronoun), at the right periphery of the clause and with its own prosodic contour.

Finally, we also have looked for combinations of the three subdomains of modality under scrutiny. In the corpus we have identified the following distribution (207).

(207) Combination of elements from different subdomains

- (i) [volitive [non-epistemic]
- (ii) [epistemic [non-epistemic]]

An example of volitive construction with scope over a non-epistemic one is given in (208). In the fragment, the signer is explaining the must-dos in a holiday trip to Switzerland.

(208) EES 00:12:17 ES

I [TAMBE]-focus MARIT [AGRADAR]-vol PODER COMPRAR RELLOTGE p

and also husband to.like can to.buy clock

FUSTA CASETA OCELL CLS: "ocell.sortint.del.rellotge.de.paret"

wood little.house bird bird going out from the wall clock

'I tambe, al (meu) marit li agradaria poder comprar un rellotge, d'aquells d'una caseta de fusta que surt el cucut.'

'Also, my husband would like to have the possibility of buying a clock, those with a little wooden house and the cuckoo that comes out.'

In conclusion, the linguistic expression of modality in LSC functions at different syntactic levels and uses a variety of syntactic constructions: at the micro-syntactic level, it is expressed by elements inside the verbal phrase; at the intermediate clausal level, by complements taking predicates; and, finally, at the macro-syntactic level, by topic-comment, paratactic structures and sentence parentheticals, taking the whole sentence under its scope.

The lack of research on LSC syntactic constructions does not allow us to contrast the distribution of modal elements with other syntactic constructions, as it has been done for spoken languages, e.g. on English (González-García, 2014; Scheibman, 2002;

Thompson & Mulac, 1991), French (Willems & Blanche-Benveniste, 2014), Spanish (González-García, 2014).

6.8 Final remarks

In this chapter, we investigated the expression of modal meanings in Catalan Sign Language. We have built a small-scale corpus of LSC natural discourse that includes text of diverse typology: dialogical (interviews), narrative (tales), expository (news) and argumentative texts (video-blogs). We combined a top-down and a bottom-up approach to the analysis (Cf. de Haan, 2009). We started with the semantic map of modality developed by van der Auwera and Plungian (1998), and modified following Li (2004) and Narrog (2005a, 2005b), as discussed in Chapter 3. Subsequently, we made a list of LSC morphemes as potential candidates to express modal meanings. We proceeded with the individual morphemes in order to determine the meaning range of these individual markers. We did so exhaustively, identifying every possible meaning of a given morpheme taking into account the socio-cultural and linguistic context. The main findings with respect to the research goal 1 are listed from (209) to (211).

(209) Main findings related with **RQ 1**: the expression of modality in LSC

- (i) The examined modal devices in LSC represent conventionalized multidimensional pairings of form and meaning and can, therefore, be treated as a construction type in the sense of Cognitive Grammar (Langacker, 1987, 1991, 2002b, 2013) and Construction Grammar (Goldberg, 2006).
- (ii) The constructions dealt with concern the expression of volition, possibility and necessity, being volition an important dimension in LSC modality domain.

(210) Main findings related with **RQ 2**: the semantic space of modality

- (i) The epistemic modals are clearly more grammaticalized than the non-epistemic ones. Indeed, the epistemic modal constructions function on the higher level of the proposition as one of the means through which the signer specifies her attitude towards the proposition, making the distinction between epistemic and non-epistemic modality relevant for LSC.

- (ii) Modality in LSC can be conceptualized as a semantic space structured in a semantic network with multiple connections.
 - (iii) LSC modal expression can be located along semantic scales on the basis of encoded values.
- (211) Main findings related with **RQ 3**: syntactic distribution of modal elements
- (i) The traditional definition of verbal periphrasis, such as the applied to Romance languages, is not adequate for verb+verb combinations in LSC, because of the importance given to the morphology. The concept of grammatical construction accounts better for the regularities.
 - (ii) Modal elements are inserted in information structure constructions (topic-comment) and in argument structure constructions as well as parenthetical elements.
 - (iii) We identified micro-constructions and a meso-constructions fulfilling volitive, non-epistemic and epistemic functions.

The description is clearly only a first step. A complete characterization of the modal elements in LSC demands more than the current level of knowledge of the language permits. There are no phonological studies on the basis of which we could determine the occurrence of phonetic reduction, as for instance in English. The same holds for syntactic order fixation. In Chapter 7 we will complete the description by examining the interaction of modal elements and values with negation and in Chapter 12 we will discuss some of the LSC findings and we will contrast them with modality studies in other languages.

Chapter 7. The interaction of modality with other semantic domains: negation

7.1 Introduction

This chapter focusses on the results related with the **research goal 2**, i.e. it examines the interaction of modal meanings and forms with other grammatical/functional categories or semantic domains in LSC, specifically with negation. To attain this goal, we have addressed the research questions (RQ) specified in chapter 4, and reproduced in (212):

(212) Research questions addressed in chapter 7

RQ 4. How are the main LSC modal constructions with positive polarity negated?

RQ 5. Are there negative modals in LSC? Which modal functions do they accomplish? Which properties do these constructions exhibit?

RQ 6. Which syntactic distribution do negative modal constructions exhibit? Are there combinations of negative modality markers? Do they express negative agreement? Do they show negative concord?

The interaction of modality and negation constitutes an area of high interest, especially --as pointed out by Squartini (2016)-- when in some descriptions the definition of modality is based on negative terms such as *non-factuality* (Kiefer, 1997; Narrog, 2005) or *lack of factivity* (Lyons, 1977), as mentioned in chapter 3. However, there is agreement in considering the two semantic domains as different grammatical categories that can interact and that display potentially overlapping semantic areas.

For instance, regarding counterfactuality: "the fictitious creation of a possible world which does not correspond to the actual world and therefore is 'contrary to fact'" (Squartini, 2016, p. 64). Another area of interaction corresponds to the Aristotelian Square of Oppositions where possibility and necessity turn out to be logically "interdefinable" by means of negative operators with different scopes" (Horn, 1989; Horn & Kato, 2000; van der Auwera, 2001). (See Chapter 3).

Relevant work from typological perspective on spoken languages has been written by Dahl (1979, 2010), Payne (1985), Horn (1989, 2010), Horn and Kato (2000), de Haan (1997, 2006), van der Auwera (1998), inter alia. The research has stressed the following crucial issues regarding the interaction between modality and negation on spoken languages (213):

(213) Interaction between modality and polarity

- (i) its meaning, concerning cognitive and lexical semantics
- (ii) the distribution of modals and negative markers
- (iii) double negation
- (iv) negative agreement
- (v) the identification of the source for negative elements: contractions (univerbation), suppletive forms, etc.

Concerning signed languages, just a few studies have addressed the interaction of modality and negation (Pfau & Quer, 2007; Shaffer, 2002). Previous literature has pointed out, as a modality-specific issue, the interaction between the manual and the non-manual component (Pfau & Quer, 2007; Quer & Boldu-Menasanch, 2006). This chapter aims to discuss the interaction between modality and negation categories in LSC but setting previously the stage addressing general issues on negation. Methodologically, we will use the *Questionnaire for Describing the Negation System of a Language* (Miestamo, 2016) together with the spoken typological literature (Miestamo, 2007, 2017), and the signed typological study (Zeshan, 2004).

The chapter is structured as follows. In Section 7.2, we dwell on the resources for negation in LSC. Next, Section 7.3 addresses the negation of the volition subdomain of modality. Following this, Section 7.4 presents the resources for the negation of the possibility semantic values, whereas 7.5 deals with necessity. Section 7.6 focuses on negation and epistemic possibility and 7.7 on negation and epistemic necessity. Section 7.8 provides a global discussion based on the research questions 7 to 10 and Section 7.9 presents some final remarks.

7.2 The encoding of negation in LSC

This section is about the semantics and syntax of negation in LSC. Semantic and syntactic accounts for individual sign languages have been proposed, among others, for ASL (Baker-Shenk & Cokely, 1980; Liddell, 1980; Woodward & Desantis, 1977), BSL (Deuchar, 1984, 1987; Sutton-Spence & Woll, 1999), Chinese SL (Yang, 2005; Yang & Fischer, 2002), Japanese SL (Morgan, 2006), LSF (Moody, Vourc'h, Girod, & Benelhocine, 1983; Rondal, Henrot, & Charlier, 1986; Woodward & Desantis, 1977), DGS (Pfau &

Quer, 2007), Sign Language of the Netherlands (Coerts, 1990, 1992), LSE (Herrero, 2009; Moriyon, Ruiz, & González, 2004; Rodríguez González, 1992), etc.

From a typological perspective, the work coordinated by Zeshan (Zeshan, 2004, 2006) is very relevant. See also Quer (2012) for an overview. Data from these studies reveal that there is interesting cross-linguistic variation, with respect either with the form, the position or the use of the manual markers that may differ from sign language to sign language or with the form (side-to-side headshake or head-tilt) and distribution (scope) of the non-manual marker (from obligatory only in the manual marker since the entire verb phrase) (Pfau, 2016; Quer, 2012; Zeshan, 2006).

Indeed, the grammar of negation in LSC has been described in some previous studies (Pfau & Quer, 2007; Quer & Boldu-Menasanch, 2006). We will distinguish, on the basis of the typological literature, the following types of negation: clausal negation (standard negation, negation in non-declaratives and negation in non-main clauses) and non-clausal negation (negative replies, negative indefinitives and quantifiers, and negative derivation). Due to the great variation concerning the terminology used in the area, we will discuss the basic terms when we introduce them.

Our focus will be mainly on standard negation and constituent negation. For instance, standard negation refers to the linguistic context where “the scope of the negation is the entire clause, the clause is a declarative, its main predicate is a verb, and the negative strategy is a general (productive) one” (van der Auwera, 2010, p. 73). Constituent negation refers to devices that negate constituents of clauses.

First, four types of resources for negation may be distinguished in LSC, as listed in (214).

(214) Types of resources for negation in LSC

- (i) **General negators**, e.g. the manual negator NO ‘not’.
- (ii) **Emphatic negators**, e.g. NO.RES ‘nothing’
- (iii) **Specific negative constructions**, e.g. negative locative-existential markers such as HAVER.HI.NO ‘there not be’.
- (iv) **Negative derivation**, e.g. the predicate SABER-NO ‘not to know’ created by the lexicalization of SABER ‘to know’ and NO ‘not’ by the so-called process *negative incorporation*.

In the following sections we will discuss and give examples of the resources listed in (214). This content is relevant to our purposes since the negation of modal values includes both negative modal-specific and non-specific constructions.

7.2.1 General negators

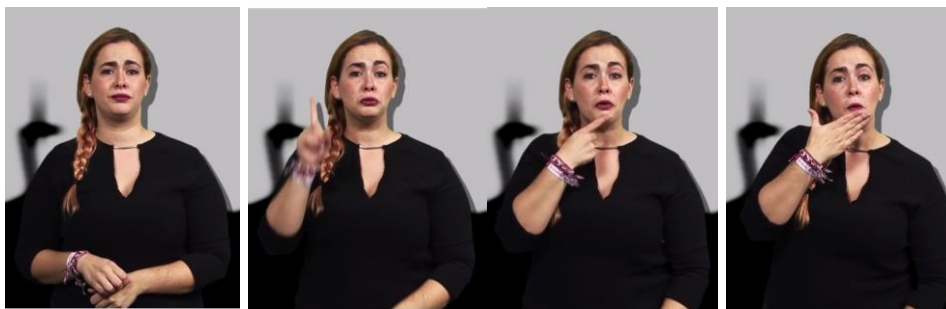
Negation in LSC can be marked in two ways: manually and non-manually. Manual negation refers to signs produced with the hands and arms, and non-manual marking, to articulators other than the hands: face, head and torso, particularly.

7.2.1.1 Non-manual negation in LSC

With respect to non-manual marking, in LSC, the non-manual negative marker consists of a side-to-side headshake and specific facial expressions, such as furrowed brows, the corners of the mouth down or a wrinkled nose. This negative marker can be the only indicator of negation in a sentence: it can appear as free-standing element or can be co-articulated with the manual signs. Indeed, it can be co-articulated with negative manual marker(s).

With regard the use of a free-standing negative side-to-side headshake, consider the examples in (215), a fragment from the Deaf Manifesto 2016, referred in Chapter 1.

(215) Deaf Manifesto 2016⁸⁸

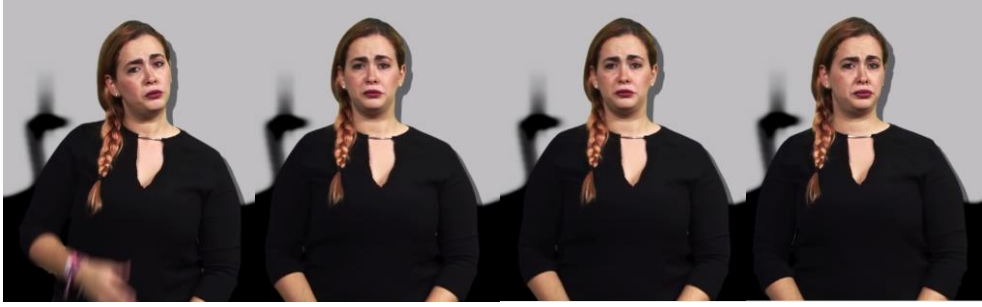


a.

[SORD
deaf

MUD]-top
mut

⁸⁸ https://www.youtube.com/watch?v=sbsI_5dDA2o



b. [

]-neg



c. [DISCAPACITAT

PÈRDUA.AUDICIÓ]-top

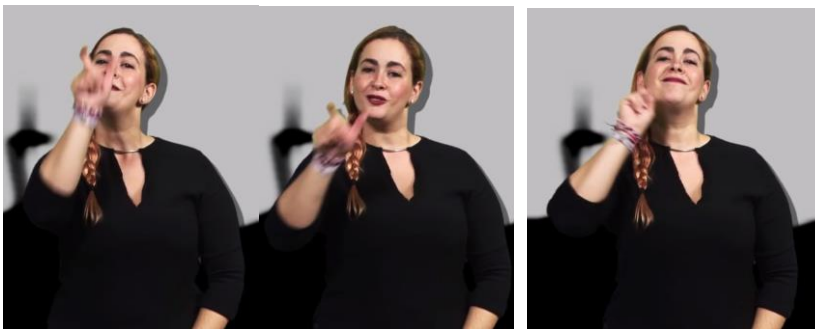
disabled

audition.loss



TAMPOC

neither



d.

PERSONA-PLU

SORD

person-PLU

deaf

Lit. Sordmuts? No. Deficients auditius? Tampoc. Persones Sordes!
 'Ni sordmuts ni deficients auditius: Som Persones Sordes.'

Lit. Are deaf-amb-dumb? No. Hearing disaible? Neither. We are (just) Deaf People.
 'We are neither deaf-mute nor hard of hearing, just Deaf People.'

As we observe in (215), an instance of structure with contrastive topics, the utterance is organized as two parallel negated topic-comment structures followed by a declarative. First, in (215)(a), the signer produces the first topicalized constituent [SORD MUT] ('deaf mute'), marked prosodically with eyebrow raising and syntactically with the ordering of elements. This topic is followed by the non-manual negative marker, as shown in (215) (b).

Secondly, she produces the second topicalized constituent, (215)(c), followed by the negative marker TAMPOC 'neither', as shown in (215)(d). The formal realization of TAMPOCO includes a manual component and a non-manual component, consisting of the headshake movement. This head movement (side-to-side or half headshake) is mandatory and it is considered part of the sublexical structure of the sign, since it is produced even as an isolated sign with a metalinguistic function. This head movement appears in all the negative signs in LSC, namely PROHIBIR 'to prohibit', PODER.NO 'cannot', FALTAR+NO 'need not', among others, as we will show in the following sections.

Concerning the co-articulation of the negative non-manual marker with the manual sign string, consider the example in (216). The interviewer asked the respondent whether being a shoemaker is a good life-lasting job and whether he is confident that he can make a living for long time.

(216) EJG 00:05:10 JG

[NO]-neg/fac.exp.disaproval []-neg/fac.exp.disaproval [JA TARD]-intens p

not (not) already late

ARA MÓN SABATES USAR MINVAR-ASP.GRADUAL p

now world shoes use being.reduced

[UN DOS DE SABATES COMPRAR CAR PELL]-top [GUANYAR]-nod []-nod p

one two of shoes buy expensive leather to.gain (yes)

[[SABATES NORMAL]-top]-exp.fac.of disapproval []-neg

shoes average (not)

[DE LLENÇAR.DEIXALLES] O [ARREGLAR DINERS ECONÒMIC PER.A GUANYAR

of to.throw.away.garbage or to.fix money cheap for to.gain

[EXEMPLE HORA SER SER.CAR]-cond [IX]-neg p LLENÇAR.DEIXALLES p

example hour to.be to.be.expensive (not) to.throw.away.garbage

ARREGLAR ECONÒMIC RÀPID ECONÒMIC

to.fix cheap fast cheap

PER.A PRO.3.PLU CA:clients<mirar sabata i dir VALER.PENA> IX.ara GUANYAR p

for clientes look.at shoe and to.say to.be.worth to.gain

[PRO.1 FINS.ARA]-top [PER.A.SEMPRE]-top NO(2h)

until.now for.always not

'No. Ja faig tard. En el món ja s'està reduint l'ús de les sabates. Sí que es guanya si compren un o dos (parells) de sabates cares i bones. Si es tracta de sabates normals, (no paga la pena). Les llencen a les deixalles o s'arreglen a bon preu. Si es cobra l'hora cara, les llencen. Ha de ser econòmic perquè els clients pensin que valgui la pena. No és una feina per a sempre.'

'No. It is too late. Nowadays the use of shoes is going down. You make some money if they buy one or two pairs of expensive and leather shoes. But if they are regular shoes, (there is no point). They throw them away or fix them at a low price. If you charge on an hourly basis, they throw them away. It has to be very cheap so that the customers consider it worth doing it. It is not a job that is going to last forever.'

The signer produces a conditional construction in which the apodosis consists of a manual pointing sign (IX) and non-manual negation, i.e. side-to-side headshake and furrowed brows, with the corners of the mouth down and a wrinkled nose.

This marking is considered linguistic, even it formally coincides with a negative affect gestural expression in Mediterranean culture as well as in LSC, as shown in (217), where the signers are discussing about old signs, specific from the *Escola Municipal de Sords* and that are not used anymore in the Catalanian Deaf community. The interviewer signals that they should be registered in a database for preservation.

(217) EJG 00:27:56 JMS

[LLÀSTIMA]neg [LLÀSTIMA]neg HAVER.DE A.PARTIR.D'ARA BASE COM FILL IX.teu

pity pity must from.now database as son IX.yours

INFORMAR ESCRIURE PERQUÈ AGRADAR MOLT INTERESSAR ANTIC

inform write because to.like very to.be.interested old

'Quina pena, quina pena! Cal que facis una base de dades a partir d'ara.'

'What a pity, what a pity! You need to create a data base from now on.'

A critical breakthrough was the discovery that manual signs in most sign languages are often coupled with facial expressions and head movements which are not affective but rather have a grammatical function. Evidence for ascertain their grammatical status comes from different sources: descriptive studies, acquisition studies and experimental neurolinguistics research. Jarque (2016) notes that crosslinguistically eyebrow raising constitutes the main marker for the expression of questions, topic, conditionals, relatives and focus constructions. See also reviews for question marking by Zeshan and for negative marking by Zeshan (2004).

With regard to developmental studies, Anderson and Reilly (1997) report that the affective use of facial expressions is acquired by L1 signers relatively early, at year one, while the grammatical uses of facial expressions come much later, at nearly two years. Stemming from the fact that there is no uniform presence of a headshake in children's performance throughout the different stages of development, the researchers conclude that, "communicative and grammatical headshakes are mediated by two separate systems" (1997, p. 425). Consequently, the negative headshake is properly linguistic.

On the other hand, evidence from neurolinguistics studies notes a difference in the processing of linguistic and non-linguistic facial expressions. As described in Chapter 1, spoken and signed languages share prototypical left hemisphere specialization in the brain, and this is the case for the linguistic facial expressions while affective facial expressions are processed by the right hemisphere left (Corina, 1989; Corina & Spotswood, 2012).

However, in some contexts, we lack diagnostic tests to distinguish whether it corresponds to a linguistic or a gestural element, such as when it follows a negative manual and non-manual cluster – as in (218) – or when it is produced simultaneously

with the spoken negative adverb *no* ('not') – as in (219) –, or when it is the only answer to a question – as in (220).

(218) EJG 00:11:53 JG

[PRO.1 OLORAR A.PROP INDEPENDÈNCIA]-top [NO]neg []neg

smell near independence not

'Jo crec que no està a prop la independència.'

'I don't believe that we are close to independence.'

Another type of non-manual marking consists of using mouthing from spoken language, such as the vocalization of the Catalan/Spanish negative adverb *no*, as shown in (219).

(219) EMS 00:12:28 MS

Int.: [EXEMPLE PRO.2 CASA PRO.2 SOL]-cond [CUINAR PODER SENSE]-q(av.esp)

example home alone to.cook can without

Resp.: [nooo]-neg PRO.1(Q) MENJAR HAVER.DE PRO.1

to. eat have.to

Int.: 'Si estiguessis sola a casa, podries passar sense cuinar?'

Resp.: 'No, he de menjar (bé).'

Int.: 'If you were alone at home, could you survive without cooking?'

Resp.: 'No, I have to eat (well).'

This resource, a contact phenomenon, has been attested in Israel SL, which presents the mouthing /o ('no, not') (Meir, 2004).

(220) EES 00:00:18 JMS

Int.: PRO.2 IX.aquí SENTIR JUST/BÉ TRANQUIL BÉ]-q

IX.here feel okay calm well

Resp.: NORMAL>

okay

Int.: COMENÇAR [TENIR.PACIÈNCIA]-q [NO]-q

begin patience no

Resp.: []-neg

Int.: [CALOR]-top [NO]-neg

be.hot no

Resp.: [NO]-neg

no

Int.: Estàs és? Tranquil·la? Bé?

Resp.: Bé, bé.

Int.: Comencem. Et sents com obligada? No, oi?

Int.: (moviment del cap de banda a banda expressant negació)

Resp.: Tens calor? No?

Int.: No.

Int.: Are you all right? Comfortable? OK?

Resp.: OK, OK.

Int.: At the beginning you felt like you had to do it? Didn't you?

Resp.: (negation movement)

Int.: Is it too warm? No?

Resp.: No.

This phenomenon has been reported also in Chinese SL (Yang, 2005; Yang & Fischer, 2002) and New Zealand SL (McKee, 2006), or as a tag question after an affirmative sentence in Flemish SL (VGT) (van Herreweghe & Vermeerbergen, 2006). The non-manual marking alone coarticulated with other constituents in the clause has been reported for some sign languages, namely ASL, LIBRAS – Brazilian SL— (Arrotéia, 2005), Finnish SL (Savolainen, 2006), German SL (Pfau & Quer, 2007), Indopakistani SL (Zeshan, 2000), but is ruled out in others where negation requires the presence of a manual negator.

This second group of languages comprises both urban sign languages, such as Hong Kong SL (Tang, 2006), Inuit SL (Schuit, 2013), Italian SL, Japanese SL or Jordanian SL (Hendriks, 2007) and village sign languages, such as Kata Kolok (Marsaja, 2008). Other

than the non-manual marker, the main element for marking negation in LSC is the manual sign NO 'not', which is the focus of the next section.

7.2.1.2 Manual negation in LSC

Concerning manual negation, NO 'not' (Figure 7.1) is the main negator in LSC (Quer & Boldu-Menasanch, 2006). This marker is produced with the 1-handshape with palm orientation facing towards the interlocutor and a lateral wrist movement, that can be emphasized with a lateral oscillation of the forearm, thus obtaining a displacement on both sides of the hand. The manual component of the sign is accompanied simultaneously by the side-to-side headshake referred above. This head movement belongs to the form, that is to the phonological subunit, and, thus, it is not a prosodic element with a syntactic function.



Figure 7.1 NO 'not'

In LSC, the main negative construction has a compositional structure: it combines a manual negative marker (NO, NO.RES, etc.) with the lexical verb – either in the citation form or with the morphology according to the verb type (See Morales et al. 2005 for the characterization of LSC verb typology)— or with larger syntactic constructions, such as nominal phrase or a sentence in topic position. In the corpus, we find mainly the syntactic patterns listed in (221).

(221) Negative constructions in LSC with the negator NO 'not'

- (i) Clause negation: [proposition]-top negator
- (ii) Clause negation: [NP]-top NP negator VP
- (iii) Constituent negation: negator predicate
- (iv) Constituent negation: NP verb negator

In (222), we illustrate the negative construction consisting of a constituent or a proposition with topic marking (i.e. raised eyebrows and head forward) followed by the negator NO, following the pattern (221)(a). The fragment corresponds to the episode about the trip to Switzerland. The interviewer asked whether the interviewee can understand people when on holiday in Switzerland.

(222) EES 00:10:27 ES

exp.fac.inc. MENJAR PRO.1 SABER+NO SIGNAR p [PRO.1 SER.CAPAÇ p PRO.1 SER.CAPAÇ]m.sec

to.eat *know+not sign* *be.able* *be.able*

p palm.up.gesture [1-COMPRENDRE-3 PERFECTE]-top [NO]-neg p MÍMICA HAVER.HI

to.understand *perfect* *not* *to.mimic* *there.be*

HAVER.DE p ASSENYALAR-ASP.distr p

must *to.point*

'No sé (els noms d)els aliments signo. Puc, puc, no comprenc perfectament: he de fer mímica és clar. Assenyalo el que vull.'

'I don't know the names of food, the signs. I can, I can, I don't understand perfectly: I have to mimic, of course. I point at things I want.'

NO is also used for constituent negation. In this function, the data from the corpus show that it may appear preceding or following the predicate. NO precedes the adjectival and nominal predicates – as illustrated in (223)—, but also nominal phrases as in (224).

(223) EES 00:03:16 JMS

[SABER+NO PERQUÈ MOTIU]-top p VOLER+DIR **PRO.3I AMO NO CONTENT** PRO.2.PLU c

to.know+not *why* *reason* *to.mean* *boss not to.be.happy*

'No saps la raó. Vol dir que l'amo no n'estava content.'

'You don't know the reason. It means that the owner wasn't happy.'

In (224), one of the respondents is expressing her surprise when discovering that the daughter does not know facts that her parents consider basic.

(224) EES 00:17:50 ES

MAJOR SER DESPISTAT p **SABER NO COSES** p MENT DUR gest PRO.1 PEGAR gest

elder to.be absent.minded to.know not things mind thick to.beat

'La gran és despistada de mena. No sap coses. Té el cap dur, molt dur.'

'The elder is absent-minded. She doesn't know anything. She's thick.'

This location has been documented in Swedish Sign Language (Bergman, 1995). The negator NO appears in pre-verbal (225) and post-verbal position (226). In the hypothetical situation that the respondent had not joined the bank La Caixa, the interviewer wonders about possible reasons for not doing so and possible alternative choices.

(225) EES 00:04:34 JMS

PRO.2 [EXEMPLE SI PRO.2 PARTICIPAR/INCORPORAR CAIXA **NO**]-cond p

example if to.participate/incorporate bank.name not

[PODER MOTIU **NO** FER OPOSICIÓ]-ep p [O CAIXA DE OBRIR PER.A SORD]-ep

may reason not to.take.examination or bank.name of to.open for deaf

CL.persones-PRED.MOV.venir **NO** p ALESHORES PRO.2 FER PENSAR

people o.come not then to.do to.think

'Si no t'haguessis incorporat a La Caixa, poder perquè no haguessis fet l'oposició o perquè La Caixa no s'hagués obert (la possibilitat) d'entrada de sords, aleshores què penses que haguessis fet.'

'If you hadn't joined La Caixa, possibly because you had not done the exam or because La Caixa had not been open to the possibility of employing deaf people, what do you think you had done?'

In example (226) below, we see that the interviewer expected the respondent to know the given information.

(226) EJG 00:17:31 JMS

[PRO.2 **SABER NO** MADRID JA(2h) I GALÍCIA NIVEL FP NIVELL FP]-q

to.know not Madrid already and Galicia level vocational.school level vocational.school

'No saps que a Madrid i a Galícia ja (hi ha formació d'intèrprets), nivell d'FP, però, nivell d'FP.'

'You don't know that in Madrid and in Galicia there is already (an interpreter training program), a vocational school, a vocational school.'

As the above examples show, NO can be located in several positions in the clause. More research corpus-based is needed to properly state its position in the potential several constructions, other than topic-comment. The data in our corpus do not corroborate the assertion that because LSC is a basic order SOV, NO tend to be in the last position in the clause (Cf. Quer & Boldú, 2005).

Moreover, there is also a two-handed version of the negative marker NO, as illustrated in (227). In the example, the interviewer asks the participant about which advices would she give to her child if he would have been deaf instead of hearing.

(227) EJG 00:08:01 JMS

- a. [EXEMPLE SORD]-cond [OIENT NO]-neg
example deaf be.hearing not
- b. [EXEMPLE SORD I SITUACIÓ IGUAL/COM PRO.2 **ESTUDIAR IGUAL/COM NO(2h)** p
example deaf and situation same to.study same not
- c. **UNIVERSITAT [NO(2h)]neg** p SITUACIÓ IGUAL [IGUAL]inten CARÀCTER IGUAL p
university not situation same same character same
- d. PRO.2 ACONSELLAR-3 QUÈ PRO.3I p [FUTUR] [TREBALL PRO.3I ACONSELLAR-3 QUÈ]-q
to.advise what future to.work to.advise what

'Si (el teu fill) fos sord, no oient, sord, en la mateixa situació, els mateixos estudis, el mateix caràcter. Què li recomanaries?'

'If (your son) were deaf, not hearing, deaf, and in the same situation, with the same level of studies, the same character, what would you advise him to do?'

We can wonder why the sign is two-handed. Being a hypothetical situation and considering that NO is used in a descriptive and not in a performative context, we consider that the sign is influenced by the two-handed character of previous and following signs in the string: from SITUACIÓ until last IGUAL, all the signs are two-handed.

Whereas NO is used for regular negation, LSC displays other resources for the expression of emphatic negation such as NO.RES.EN.ABSOLUT and ZERO. These signs will be the focus of the following section.

7.2.2 Emphatic negation

Emphatic negation in LSC is mainly coded with the sign NO.RES.EN.ABSOLUT 'absolutely not' and several negators created from the quantifier ZERO 'zero' (Quer & Boldu-Menasanch, 2006), as described in what follows.

7.2.2.1 NO.RES.EN.ABSOLUT 'absolutely not'

The sign NO.RES.EN.ABSOLUT 'absolutely not' expresses emphatic negation. It is equivalent to the Catalan expressions "en absolut" ('not at all') or "de cap de les maneres" ('by no means'), but also denotes "ningú" ('nobody') or "no-res" ('nothing'). In Quer and Boldú-Meseguer (Quer & Boldu-Menasanch, 2006), it is glossed as NO-RES2. It is produced with hand circular movements varying in size according the degree of emphasis (Figure 7.2). It may include the oral component of clenched teeth.



Figure 7.2 NO.RES.EN.ABSOLUT 'absolutely not'

Observe example (228). The interviewer enquires about the job that he would have possibly had if there had not being any opening at his current place of work.

(228) EES 00:04:50 ES

PRO.1(Q) PENSAR AGRADAR ESCRIURE+SECRETARIA p PRO.1 AGRADAR p

to.think to.like to.write.secretary to.like

[JA ANAR]-re ENTITAT.BANESTO [ABANS.díctic IX SORD MODA SORD]-incís (re/hm) p

already to.go name.entity before deaf fashion deaf

1-AVISAR-3 MAMA CA:mama<[PER.SI.DE.CAS]> CA:signant>[nod ANAR]

to.call mom mom just.in.case signer to.go

PRO.1 DOCUMENTS CURRÍCULUM p

documents curriculum

[PRO.1(B) ANAR 3-AGAFAR-1 **RES.EN.ABSOLUT**]-neg [palm.up gesture]-nod p

to.go to.select absolutely not

[EXEMPLE ALTRE]-cond PRO.1 SECRETARIA ESCRIURE.MAQUINA.mecanografia DEPARTAMENT p

example other secretary to.typewrite mecanography departament

PRO.1 AGRADAR

to.like

'Penso que m'agradaria treballar de secretaria. M'agrada. Ja havia portat el currículum a Banesto, un lloc freqüent per als sords abans. M'havia avisat la (meva) mare: "Per si un cas". "Sí"— vaig pensar. Però no em van agafar. Per exemple, si (hagués de treballar) en un altre lloc, m'agradaria en un departament fent tasques d'oficina.'

'I believe that I'd like to work as a secretary. I'd like that. I had already brought my CV at name.entity, something that used to be very common among deaf people. My mom had told me: "Just in case". "Yes". But they didn't hire me. For instance, if (I had to work) in another place, I would like to work in a department and have secretary duties.'

In (228), the interviewer performs the negation using the marker NO.RES.EN.ABSOLUT, thus emphasizing her reaction to the fact that she hadn't been hired despite the fact that many deaf people worked there.

7.2.2.2 NO.RES 'nothing'

NO.RES 'nothing' is produced with short lateral movements of the hand at the wrist joint accompanied by a mouth gesture consisting in showing the tip of the tongue between the teeth (Figure 7.3).



Figure 7.3 NO.RES 'nothing'

In the corpus, it is used for standard negation and constituent negation. For an example of the latter use, see (229) where the respondent is answering to the question whether the informant will be able to practice basketball or swimming if she quits smoking. Note that, in this example, the signer produces the one-handed version.

(229) EMS 00:19:22 MS

Int.: [PODER ALTRE.COP ESPORT]-q [BÀSQUET NATACIÓ]-top [PODER]-q

can again to.practice.sport basketball swimming can

Resp.: [BÀSQUET]-top/fac.exp.denial SER.DIFÍCIL p

basquetball to.be.difficult

HAYER.HI.NO-ASP.DUR(2h) QUI [PRO.1 PARTICIPAR] **NO.RES(1h)**

there.be.not who to.participate nothing

[NATACIÓ]-top PRO.1 CREURE SER.CAPAÇ

swimming to.believe to.be.able

'Bàsquet es difícil (perquè) no hi ha amb qui o on formar part. Natació, sí que podria.'
'Playing basketball is difficult (because) there is no team that you can join. As for swimming, that would be possible.'

In addition, NO.RES functions as an aspectual marker, expressing the negation of perfective, the negative counterpart of JA 'already', equivalent to the expression 'not yet'. Consider example (230), where the respondent is narrating a family story about his sister's birth.

(230) EJG 00:02:38 -00:03:08 JG

[PASSAR.TEMPS 13-ANY_desv.mirada]-top QUEDAR.SE.EMBARASSADA **NO.RES** p

time.go.by 13 year *be.pregnant* *nothing*

[FINAL]-top [FUNCIONAR]-alt [ERROR]-alt CA:món <gestural exp. "És igual"> p

at.the.end *work.out* *accident* *"It doesn't matter"*

EMBARASSADA GERMÀ+DONA p

be.pregnant *sister*

'Havia anat passant el temps... Tretze anys i no s'havia quedat embarassada! Al final, no se sap si volent o un accident..., es va quedar embarassada de la meva germana.'

'Time had gone by... thirteen years without getting pregnant. Finally, maybe willingly or by accident, she was pregnant and carried by sister.'

The signer uses NO.RES to emphasize the fact that the mother did not become pregnant as it was expected back in those times. This use is akin to aspectual uses in the sense that it is stressed that there is no change of state or situation toward one that is "desirable" or "socially expected". The expression of aspect and the negation of aspectual values in LSC will be discussed in depth in Chapter 9.

7.2.2.3 ZERO 'zero', ZERO.NEG 'zero.neg' and ZERO.sense 'zero without'

LSC displays three different markers created from the sign ZERO 'zero' for conveying negation. One of them is one-handed and formally identical to the numerical sign. We will refer to it with the same gloss: ZERO 'zero'. See example in (231) where it is used to express null quantity.

(231) Webvisual The girl that didn't use to say hello 00:05:54 AC_R



IX.inici

COMENÇAR

IGUAL/COM

ZERO

beginning

to.begin

same/as

zero



FINS.A

FI

IX.llibre

until

end

book

'Des de l'inici, des de zero, fins al final, el llibre [...]'

'From the beginning, from zero until the end, the book [...]'

ZERO is a negative quantifier (Quer & Boldu-Menasanch, 2006), as illustrated in (232), where the participants are discussing which country has more influence and power in Europe. They disagree, one mentioning Germany and the other, France. The interviewer suggests it is Germany and provides economic and cultural reasons, such as the number of countries in Europe where German is spoken.

(232) EJG 00:14:55 JMS

Int.: I PRO.1 1-PREGUNTAR-3 p

and

to.ask

[EUROPA.1 EUROPA.ZONA]-top IDIOMA-PLU SER.MÉS.EXTENS [ON]-q

Europe

language

to.be.more.spread where

Resp.: (desviar mirada) ALEMÀNIA(alemán)

German

Int.: [palm-up gesture searching an agreement]-nod:veus

(See)

Resp.: [IX]- nod

(you are right)

Int.: ÀUSTRIA p SUÏSSA CANTÓ p

Austria Switzerland Canton

Resp.: nod TENIR.RAÓ PRO.2

to.be.right

Int.: POLÒNIA REGIÓ p PAÏSSOS.BAIXOS IDIOMA SER.SEMBLANT

Poland region The.Netherlands language to.be.similar

Resp.: nod

(yes)

Int.: [ANGLÈS]-top MÓN UFF(1h)

English world a.lot

Resp.: gesture.uff nod EUROPA []-nod

a.lot Europe

Int.: EUROPA ANGLÈS [ZERO(1h_left)]-neg

Europe English zero

Resp.: TENIR.RAÓ(1h) PRO.2

to.be.right

Int.: AL.REVÉS FRANÇA [ZERO(1h_left)]-neg palm.up.gesture(aleshores)

on.the.contrary France zero (so)

Resp.: PODER PRO.2 TENIR.RAÓ

maybe to.be.right

Int.: [palm.up]-epist

(maybe)

Int.: A més, et faig una pregunta. De les llengües d'Europa, quina és la que es parla a més països.

Resp.: (desviar mirada) L'alemany.

Int.: (Veus).

Resp.: (Sí).

Int.: A Àustria, a un cantó de Suïssa...

Resp.: (Sí) Tens raó.

Int.: A una part de Polònia. El Neerlandès s'assembla força..

Resp.: (Sí).

Int.: I l'anglès, sí que es parla a molts països del món.

Resp.: (Sí) molts, (però) a Europa.

Int.: A l'Eurozona no es parla enlloc.

Resp.: Tens raó.

Int.: A França, enlloc. (Aleshores)

Resp.: Potser tens raó.

Int.: (Potser).

Int.: Moreover, I ask you a question. Of all European languages, which one is spoken in more countries?

Resp.: (averting the gaze) German.

Int.: (See?).

Resp.: (Yes).

Int.: In Austria, in a Swiss Canton...

Resp.: (Yes) You are right.

Int.: In an area of Poland. Dutch is very similar.

Resp.: (Yes).

Int.: And English, it is really spoken in many countries around the world.

Resp.: (Yes), a lot (but) in Europe...

Int.: In the eurozone, it is not spoken.

Resp.: You are right.

Int.: In France, nowhere. (Therefore)

Resp.: Maybe you are right.

Int.: (Maybe).

As shown, the signer uses the sign ZERO to refer to the number of countries of the Eurozone where English is spoken. ZERO may be used both for countable and uncountable entities, but also for situations (actions, processes and states).

The second –glossed as ZERO.2 ‘zero.2’ – is used for emphatic negation. It is a two-handed sign produced with a horizontal movement on the lateral signing space where the arms, initially crossed, are displaced thus exchanging their position, as shown in Figure 7.4.



Figure 7.4 ZERO.2 ‘zero’

The two-handed version (ZERO.2) implies a higher emphasis, as in (233).

(233) Betevé Volcanoes 00:03:40 BF_R



[EXEMPLE

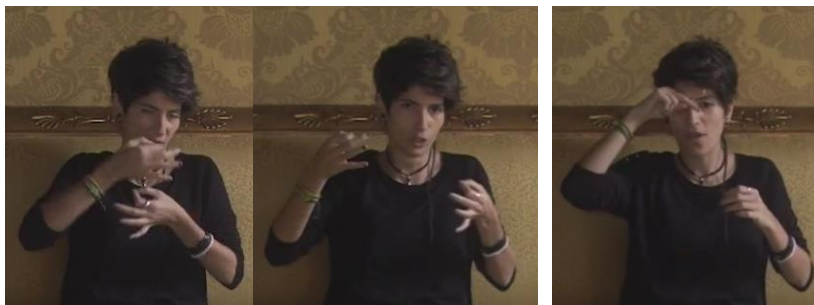
PASSAT.LLUNYÀ]-top

gest:meravellós

example

remote.past

gesture:fantastic



SER.PERFECTE

[PREOCUPACIONS]-top

to.be.perfect

worries



ZERO.2

zero.2

palm.up.gesture

'at all'

'El passat llunyà va ser meravellós... perfecte (perquè) no tenia preocupacions.'
 'The distant past was perfect... because I had no worries.'

The third marker, that we will gloss as ZERO.sense 'without' (since it is produced mostly with the mouthing /sin/ 'without' in Spanish), is used to express constituent negation. Consider the following excerpt in (234) where the participant is expressing her desire to create a family in the future.

(234) Betevé Volcanoes 00:04:14 BF_R



AMB

with

PARELLA

couple

AGRADAR

to.like



[EXEMPLE

ZERO.SENSE]-cond

gest:no.passa.res

example

zero.without

gesture: it is ok

'M'agradaria (tenir fills) amb una parella. Si fos sense, no passaria res.'

'I'd like (to have kids) with a partner. But if it were by myself, it would be alright.'

Other sign languages display negative signs created from this numerical concept. For instance, in LIU, when producing the sign ZERO (Figure 7.5) the dominant hand with the zero-handshape is approaching and touching the non-dominant with five-handshape (Hendriks, 2007). Also, in TİD there is a sign glossed as HIÇ 'at all', but with the mouthing of zero in Turkish ("sıfır"). See Figure 7.6 (Gökgöz, 2011).



Figure 7.5 LIU ZERO (Hendriks, 2007)



Figure 7.6 TİD HIÇ 'at all' (Gökgöz, 2011)

According to Quer and Boldú-Menasanch (2006), besides NO.RES and ZERO, LSC displays other emphatic negative markers that combine with specific predicates, among others, RES 'nothing', GENS.NI.MICA 'not even a bit', NI.AIXÍ 'not even', and DE.RES 'not at all'. RES combines with FER 'to do', MENJAR 'to eat', TREBALLAR 'to work', PREPARAR 'to prepare', among others, whereas GENS.NI.MICA accompanies, mainly, AJUDAR 'to help', DORMIR 'to sleep' and ENTENDRE 'to understand'; NI.AIXÍ goes with AJUDAR 'to help' and DONAR.DINERS 'to give money' and DE.RES only with AGRADAR 'to like' .

7.2.3 Idiosyncratic negation in LSC

Some semantic notions are negated with specific negative markers, such as HAVER.HI.NO 'to there be not' and NO.RES 'nothing', exhibiting, thus, asymmetry.

7.2.3.1 HAVER.HI.NO 'to there be not'

The negation of existence has a suppletive marker of its own, glossed as HAVER.HI.NO 'to there be not' (Figure 7.7). It may be also produced with both hands, to express emphasis or as a result of phonotactics, when it appears between two-handed signs in the signed flow/chain. In the corpus, it appears with a single closing movement or a series of flexion movements.



Figure 7.7 HAVER.HI.NO 'to there be not'

See example (235), corresponding to an episode of a broken arm and the visit to the doctor.

(235) EES 00:08:42 ES

[TREBALLAR PRO.1 QUÈ]-q(el.cap) CA:es<MECANOGRAFIAR> p

to.work what to.typewrite

[[ah,ah]exp.fac. PROBLEMA HAVER.HI.NO]el.cap p CA:doctor <CREURE PES CAIXA> p

problema to.there.be.not to.think weigh box

CA:signant<[NO] PROU

signer not enough

'Em pregunta: De què treballes? Sóc administrativa —li responc. Ah —em diu— aleshores no hi ha cap problema. Creia que (treballaves) amb caixes que pesaven. No, res més.'

'He asks me: what's your job? I'm a secretary — I answer. Ah —he says— then there is no problem. I thought you (worked) moving heavy boxes. No, nothing else.'

In turn, this suppletive form is used as a negative marker for specific verbs such as MIRAR 'to look at' or VEURE 'to see' as shown in (236).

(236) EJG 00:08:20 JG

PRO.1 VEURE PODER ALTRE.TEMA p MÓN SORD ARA IGUAL/COM APROXIMADAMENT

to.see may other.topic world deaf now same roughly

HAYER.HI IX HAYER.HI p PRO.1 VEURE ACONSELLAR TREBALL **HAYER.HI.NO** c

to.there.be to.there.be to.see to.advice to.work to.there.be.not

'Jo veig que potser hi ha una altra raó. En el col·lectiu de persones sordes ara n'hi ha. Jo veig, consello perquè treball (en general) no n'hi ha.'

'I believe that there is maybe another reason. Among Deaf people there is one now. I believe so, I advise, because (in general) there is no work.'

LSE shows a similar negative marker for existence (Herrero, 2009; Moriyon, et al., 2004; Rodríguez González, 1992). Suppletive existential negative verbs have been documented for spoken languages, such as Turkish or Russian (Dahl, 2010). Croft (1991), in the negative-existential cycle, proposes the reanalysis of negative existentials as verbal negators. In LSC, HAYER.HI.NO is a low-frequency pattern for the negation of a reduced cluster of verbs, i.e. the cycle has not been completed.

In LSC it is reasonable to consider the double form for existential predicates since both have their origin in gestural communication. The positive form HAYER.HI 'to there be' is a lexicalized item similar in form to the deictic gesture produced with the index finger – quite common in the Mediterranean culture according to Payrató (2013)—, while the negative to the gesture expressing lack of something (Payrató, 2014). See chapter 10 for a discussion on the grammaticalization of gestures for expressing negation.

7.2.3.2 Negative idiosyncratic verbs

A few verbs have a negative polarity form derived through an idiosyncratic process consisting mainly in a change of the facial expression. This is observed, for instance, in AGRADAR ('to like') and TENIR.GANES ('to fancy'). The negative forms show the displeasure facial expression with elements such furrowed brows, tongue tip stretched out or the release of air from the mouth. Syntactically they are not accompanied by the standard negator.

7.2.4 Negative derivation: negative incorporation

Lastly, besides using a separate negator to negate a clause or a constituent, LSC includes also a manual negation strategy used for a reduced set of predicates. The predicates are, among others, AGRADAR 'to like', VEURE 'to see/to meet', FALTAR 'to lack', and VOLER 'to want' (Quer & Boldu-Menasanch, 2006). Each one has a negative polarity counterpart that is the result of the formal and semantic lexicalization of the combination of the positive polarity verb and the general negator NO 'not'. Diachronically, it corresponds to the univerbation process (Brinton & Traugott, 2005; Givón, 1971). An example is given in (237).

(237) EES 00:19:11 ES_R

IX.baix.sord SORD PODER p

deaf deaf can

SORD gest:desafortunadament MOLT COSES [PODER.NO-ASP.distributive]-neg p

deaf unfortunately a.lot things cannot

(Un.llista / PRO.1 [MÉS HAVER.HI.NO]-neg) p

one there.s.nothing.to.do

[PRO.1 IX.alt.cap TREBALL **AGRADAR^NO**]-neg]-cond p SER.IGUAL

boss work to.like not must

'Els sords poden (fer algunes coses). (Malauradament) els sords no poden (fer) moltes coses. U, jo no puc fer res. Si el cap (em proposa) una feina que no m'agrada (l'he de fer) igual.'

'Deaf people can do some things. Unfortunately, deaf people cannot (do) a lot of things. I can't do anything. If the boss (suggests) I do a job I don't like, I have to (do it) anyway.'

The signer produces jointly the two signs AGRADAR and NO in a reduced lexicalized form, similar to the phonological process in LSC compounding showing intra-signer and inter-signer variability in the degree of formal fusion (Bosch-Baliarda, 2005; Jarque et al., 2012). AGRADAR is shorter in length, i.e. there is no pause in the chin location as the positive version, but only a quick contact with the chin. Right after, handshape adopts the NO handshape value and begins the negative movement without reaching the neutral space location, as in the citation form. This reduced form produced by cliticization is

glossed as AGRADAR^NO since the sign NO is still identifiable (Quer & Boldu-Menasanch, 2006).

Other signs, although, show an advanced stage of formal lexicalization and the NO is barely recognizable. Observe, for instance, the two productions of the predicate SABER 'to know' in (238): SABER and SABER-NO.

(238) Webvisual The girl that didn't use to say hello 00:05:44 AC_R



a. IX. INICI PRO.1(B)

beginning



b. SABER-NO SER

to.know-not

to.be



c. DOS-SOL FINS.A FINAL

two.alone

until

end



d. HAVER.HI MÉS EQUIP
 to.there.be *more* *team*



e. (EQUIP / IX.dins) SABER PRO.2
 team *inside* *to.know*

Lit. 'Des de l'inici, no sé si estàveu les dues soles fins al final o si hi havia algú més a l'equip. Sé que estaves tu.'

Lit. 'From the beginning, I don't know whether the two of you were alone till the end or there was somebody more in the team. I know that you were there.'

As shown in (238)(b) the negative form SABER-NO differs from the positive SABER in (238)(e) in the hand and head movement. Whereas SABER shows two circular movements under the chin, the negative displays the pronation movement that results from the displacement from the location under the chin to the neutral space, to attain the orientation of the negator NO. Also, it includes a semi-lateral head movement, as other negative signs such as PODER.NO or SER.IMPOSSIBLE.

This strategy, initially described for ASL and LSF, has been termed *negative incorporation* (Woodward & Desantis, 1977). In ASL this phenomenon has been described for the predicates KNOW, WANT, LIKE, HAVE and GOOD. These predicates are negated through a reversal of hand(s) orientation.

Whereas Woodward and Desantis (1977) analyzed it as a phonological assimilation ('NOT assimilates location and handshape to that of the preceding verb sign and loses

its movement”, p. 385), Deuchar (1987) considers it an inflectional process in ASL, BSL and LSF. Stemming from the fact that negation is not an obligatory category in the verb, it seems to us more reasonable to see the negator as the results of a cliticization process of a free marker, in the sense described for Dryer (Dryer, 1988) for spoken languages and, thus, considering it to form part of the derivational morphology of the verb, along the lines of what Payne (Payne, 1985) says about morphological negation.

While the expression of negation is one of the few phenomena that has received a considerable amount of attention in sign language studies, this is not the case for its interaction with modality, existing just a few pieces of research. In the next sections, we will focus on the interaction of these two domains in LSC. Our description will as follows: volition (§ 7.3), possibility (§ 7.4) and necessity (§ 7.5).

7.3 The encoding of negation and volition

The interaction of modality and negation in spoken languages has received a considerable amount of attention from the typological perspective, as pointed out in the introduction. One of the crucial issues is the two possibilities in the scope of negation and the resources available in the language, as well as the existence of specific modal negators (de Haan, 1997; van der Auwera, 2001; van der Auwera & Plungian, 1998).

With respect to scope, negation comprises two types: **external negation** and **internal negation**. In **external negation**, the negation has scope over modality, as in the Italian sentence *Gianni non deve andare a Roma* ('Gianni needn't go to Rome'), notated as [NEG [MOD[p]]] (de Haan, 1997, p. 20). In narrow scope **internal negation**, on the other hand, the scope of negation is only over the core argument and the action, i.e. with negation in the scope of modality *Gianni deve non andare a Roma* ('Gianni mustn't go to Rome'), notated as [MOD[NEG[p]]]. We will make a distinction between epistemic and non-epistemic, although "they are both capable of having scope over and being in the scope of negation" (de Haan, 1997, p. 20).

In the following sections, we will focus on the interaction of negation and volition, an area less studied than possibility/necessity or epistemic/non-epistemic modality in spoken languages, and without previous research in signed languages, except scarce references to specific modal signs (Shaffer & Janzen, 2016; P. P. Wilcox & Wilcox, 1995).

Negation of volitive meanings includes regular negative construction (§ 7.3.1), idiosyncratic negative constructions (§ 7.3.2.) and negative derivation (§ 7.3.3).

7.3.1 Regular negative construction

Most of the volitive predicates described in previous chapter 6 (AGRADAR 'to like', VOLER 'to want', ESPERAR 'to expect' and PENSAR 'to think') show external negation, that is, they are negated with the regular negator NO 'not' with scope over the modal. See examples with several constructions: (239) topic-comment construction with the general negator in the comment and (240) showing zero anaphora: the lexical verb ESTUDIAR ('to study').

(239) EES 00:26:04 ES_R

[PRO.1 **AGRADAR** ESFORÇAR ESTUDIAR]-top [PRO.1 **NO**]-neg

to.like to.make.effort to.study not

'No m'agrada esforçar-me per estudiar.'

'I don't like to make an effort to study.'

(240) EES 00:26:56 ES_R

VEURE IX.ara SEGON.segona VEURE ANGLÈS **VOLER** [**NO**]-neg

to.see now second to.see English want no

'Sembla que la segona, sembla que no vol (estudiar) anglès.'

'It looks like it is the second one, it seems that she does not want (to study) English.'

In our corpus, we have observed both the production of the lexicalized volitive negator (with inter-signer variability in the formal fusion) as well as the use of regular negator.

7.3.2 Idiosyncratic modal negator: TENIR.GANES.NO 'not to fancy'

As we discussed in Section 7.2.3.2, some lexical verbs have a related form derived through a change in facial expression and head movement (negative headshake). This is the case of TENIR.GANES 'to fancy', also when it expresses procedural meaning.

The construction with the predicate TENIR.GANES 'to fancy' –discussed in Chapter 6— has a negative form, glossed as TENIR.GANES.NO 'not to fancy' (Figure 7.8), which has been created as a modification of the positive polarity verb by changing facial expression (puffed cheeks, air puff, and mouths protruding) expressing dislike, besides the negative headshake. The word NO is united to TENIR.GANES by a point and not a slash (-) or a circumflex accent (^) since it is neither product of the formal combination with NO nor an identifiable bound negative morpheme in the language.



Figure 7.8 TENIR.GANES.NO 'not to fancy'

Example (241) refers to the episode of the broken arm. The signer describes her worries when attending the activities organized by the deaf club, where there is plenty of people. Her memories about how her arm was broken warns her against going to acts with a lot of people.

(241) EES 00:08:04:01 ES

COPS.a.vecas TENIR.GANES MARXAR p COPS **TENIR.GANES.NO** p POR p

sometimes to.fancy leave sometimes not.to.fancy to.be.afraid

TENIR.PRESENT IX.espatlla p ANTERIORMENT.anaf.enrere COPS PRO.1 POR

to.have.in.mind shoulder before-ANAPHORIC.TIME.LINE sometimes to.be.afraid

'A vegades tinc ganes d'anar-hi. A vegades no em ve de gust. Tinc por. Tinc molt present (la qüestió de) l'espatlla. He tingut por moltes vegades.'

'Sometimes I feel like going. Sometimes I don't. I'm afraid. I'm very conscious of the problem at my shoulder. I've been afraid many times.'

This strategy consists in marking the lexical item with a cluster of elements from facial expression that accompanied speech and express negative values: frowning, squinted

eyes, nose wrinkling, tongue protruding and lips spread, pursed or with the corners down (Quer, 2012, p. 327). Interestingly, in LIBRAS (Brazilian SL) it corresponds to the obligatory grammatical marker of negation, and not the headshake, which it can co-occur (Arrotéia, 2005).

7.3.3 Negative derivation: AGRADAR^NO and QUERER^NO

As discussed in § 7.2.4, the negative polarity version of AGRADAR is formed by cliticization of the standard negator NO, glossed as AGRADAR^NO 'not to like'. Formally, however, it differs from the negative lexical verb in the facial expression. It does not show the displeasure facial expression elements such as tongue out or the release of air from the mouth, i.e. it is a more neutral expression. Considerer example (242), that corresponds to the beginning of the interview and where the interviewer is "giving instructions" to the participant about his attitude.

(242) EJG 00:00:53 JMS

PRO.2 ESTAR.TRANQUIL p PRO.2 SIGNAR EXPRESSAR.LLIURAMENT p

to.relax to.sign to.express.freely

PRO.3a.esq **AGRADAR^NO** TENIR.CAP p PRO.2 IGUAL SIGNAR PER.A AFAVORIR PRO.3a.esq

to.like not to.have.in.mind like to.sign to to.favour

Lit. 'Tu estigues tranquil. Signa lliurament. Ella vol no pensar com signes.'

'Tu estigues tranquil. Signa lliurament. Ella vol que no pensis com signes.'

'Just relax. Sign freely. She doesn't want you to think about how you are signing.'

Semantically, the use of AGRADAR^NO in (242), however, displays indeterminacy. It may be interpreted with wide or narrow scope, i.e. as "to not like/want to have in mind the camera" or "to like/want not to have in mind the camera". However, in the case of VOLER^NO, the negative polarity item of VOLER in example (245) activates only a wide reading. In it, the interviewer asks why the respondent did not want to be a sign language instructor.

(243) EMS 00:22:02 JMS_R

(PRO.IX / NECESSITAR CLAR) p [PRO.2 PROFESSOR LLENGUA.SIGNES]-top

this need clear teacher sign.language

[PRO.2 MATRICULAR]-top (UN.enum / [VOLER^NO]-neg O [PODER.NO^NO]-neg)

to.enroll one to.want not or can't not

[CULPA NERVIS]-q/loc.esq [CULPA MANDRA ESTUDIAR]-q/loc.dta

fault nerves fault laziness to.study

'Necessito que m'ho expliquis més clarament. Tu no volies matricular-te o no podies? Era pels nervis? Et feia mandra estudiar?'

'I need (you) to make it clear. You didn't want to register (in a program) to become a sign language instructor, or you weren't able, because of anxiety or because you were too lazy to study.'

Other volitive verbs that may show cliticization of NO, in the route to univerbation, are DESITJAR ('to desire') and ESPERAR ('to expect'). We have not identified instances of the negation of TANT.DE.BÓ 'I wish'.

7.4 The encoding of negation and non-epistemic possibility

This section addresses the negation in the possibility domain. We will introduce the negation of non-epistemic possibility –participant-internal (§ 7.4.1.1), root possibility (§ 7.4.2), deontic possibility (§ 7.4.3) – and finally the epistemic negations (§ 7.6).

7.4.1 Negation of participant-internal possibility meanings

LSC displays sentential negation of ordinary participant-internal possibility markers such as SER.CAPAÇ 'to be able to'. But also, some participant-internal markers have a specific negative form. The focus of next section will be on the sign PODER.NO 'cannot', since it may be used to negate the whole constellation of possibility values.

7.4.1.1 PODER.NO 'cannot'

PODER.NO 'cannot' constitutes the main possibility negator (Figure 7.9). It exhibits a head lateral movement, mandatory when produced, and thus it constitutes a sublexical

part of the sign. This head movement does not spread its scope to other signs in the sentence.



Figure 7.9 PODER.NO 'cannot'

It may be used to negate the whole constellation of values in the possibility domain: participant internal (ability), root possibility, deontic possibility, and epistemic possibility. In (244) we report an instance of lacking internal possibility, in this case referring to the inability of eating some parts of the pork.

(244) EMS 00:11:32 MS_R

HAYER.HI POTES PORC p ORELLES p

to.there.be feet pork ears

[(IX.morro / MORRO)]-top(fur.brows blink) IGUAL PRO.1 [**PODER.NO** p PRO.1 PROU]-neg p

snout snout same cannot enough

[TRIPA ETC]-top(fur.brows) [PRO.1(5) **PODER.NO** palm.up.gesture:totalment(1h)]-neg

intestines etc. cannot totally

'Hi ha les potes de porc, les orelles, el morro... No puc (menjar-ne). La tripa, coses així, no puc, res de res.'

'There is pork feet, ears and snout... I can't eat this. Intestines, things like that, I can't, no way.'

We have observed a tendency when referring to situations in the past, whereby the signers employ PODER.NO followed by the general negative marker NO 'not'. See example (245), where the interviewer asks why the respondent did not want to be a sign language instructor.

(245) EMS 00:22:02 JMS_R

(PRO.IX / NECESSITAR CLAR) p [PRO.2 PROFESSOR LLENGUA.SIGNES]-top

this need clear teacher sign.language

[PRO.2 MATRICULAR]-top (UN.enum / [VOLER^NO]-neg O [PODER.NO^NO]-neg)

to.enroll one to.want not or can't not

[CULPA NERVIS]-q/loc.esq [CULPA MANDRA ESTUDIAR]-q/loc.dta

fault nerves fault laziness to.study

'Necessito que m'ho expliquis més clarament. Tu no volies matricular-te o no podies? Era pels nervis? Et feia mandra estudiar?'

'I need (you) to make it clear. You didn't want to register (in a program) to become a sign language instructor, or you weren't able, because of anxiety or because you were too lazy to study.'

PODER.NO occupies post-verbal or final-clause position. However, in the fragment of one of the interviews it appears located pre-verbally. We reproduce the excerpt in (246). In this fragment, the interviewer asks the interviewee about the future of her sons and about their studies. She answers expressing total uncertainty.

(246) EMS 00:32:37 MS- EMS 00:32:45 JMS

Int.: [TEMA ESTUDIS] p PRO.2 PENSAR p PRO.2 FILL ELLS.DOS VEURE FUTUR IX.futur

topic studies to.think son they.two to.see future future

ESTUDIAR QUÈ]-q BILINGÜISME p [PRO.3ls (CRÉIXER/CRÉIXER)]-top

to.study what bilingualism to.grow.up to.grow.up

[FER.CAMÍ(2h)]-q [ON]-q [FER.CAMÍ(2h)]-q

to.progress where to.progress

Resp.: [gest.cap.:incertesa]-neg PODER.NO(N) MAI 1-DIR-2 p PODER.NO(L) 1-DIR-2 p

head.gesture:uncertainty cannot never to.say cannot to.say

[FUTUR]-top [BÉ]-q [MALAMENT]-q [gest.corp.:incertesa]-neg

future to.be.good to.be.bad body.gesture:uncertainty

Int.: [NO]-neg [CARÀCTER]-top [NO]-neg p 3-ENSENYAR-3

not character not to.teach

Resp.: [ESTUDIAR FUTUR]-top gest.incertesa p PRO.1 CREURE PODER MILLOR 3-A-1

to.study future to.believe may better more.than

3-A-1 p PRO.3 VEURE PROGRESSAR p PRO.1 CREURE SER.SEGUR MILLOR 3-A-1 p

more.than to.see to.progress to.believe be.sure better more.than

[]-neg gest.corp.incertesa [FUTUR]-top PRO.1(B) gest.corp.incertesa p

body.gest:uncertainty future body.gest:uncertainty

[PODER.NO DIR PRO.1]-neg

cannot to.say

Int.: Sobre els estudis... Que creus? Com veus el futur dels teus dos fills? Què estudiaran? (Ara estudien amb) el bilingüisme, creixeran...Cap a on aniran?

Resp.:No es pot dir mai. No es pot dir. El futur? (Anirà) bé? (Anirà) malament? (No ho sé).

Int.: No em refereixo al caràcter, sinó al estudis.

Resp.: Els estudis en el futur? (No sé). Penso que poden ser millors que els meus. Veig que progressen. Crec que segur que seran millor que els meus. El futur? (No sé). No es pot dir.

Int.: About their studies... What do you think? How do you see the future of your sons? What will they study? (Now they study) in a bilingual setting, they will grow... What direction will they take?

Resp: You can never know. You can't say. The future? (Will it go) well? (Will it go) bad? I don't know.

Int.: I wasn't referring to their character, but their studies.

Resp.: The studies in the future? (I don't know). I believe that they can be better than mine. I see that they make progress. I believe that for sure they will be better than mine. The future? (I don't know). You can't say anything.

The respondent manifests three times her uncertainty with the expression [PODER.NO DIR]. We argue, however, that this are not genuine LSC expressions, rather they are coloconstructions based on calquing of sentences expressing unpredictability in Spanish (*No se puede decir* 'You can't tell') or Catalan (No es pot dir 'You can't tell'). Two facts support this view. Firstly, PODER.NO is not produced with the handshape corresponding to the citation form (5 closing to A), but with the handshape from the following sign. Second, the meaning and the production style sound like a popular refrain or stereotyped comment.

There is no such form in sign languages from the same family, either in LIS, LIBRAS or LSE. The main possibility negative modal in LSC is formally similar to the positive, except for the head side-to-side movement and the repetitive manual movements (Herrero, 2009; Moriyon, et al., 2004; Rodríguez González, 1992).

PODER.NO could be a suppletive form (Pfau & Quer, 2007) or it could have been created by univerbation, due to formal fusion of the combination of PODER and HAVER.HI.NO. In chapter 9 we discuss these possibilities.

7.4.1.2 SABER-NO 'not to know'

SABER-NO 'not to know' (Figure 7.10) is a cliticized form of SABER 'to know' –discussed in chapter 6— and the main negative form NO 'not'.



Figure 7.10 SABER-NO 'not to know'

This marker signals lack of ability, both mental and physical. Example in (247) comes from the fragment, where the interviewee explains why she is not working as an LSC professor.

(247) EMS 00:22:36 MS

[3-PREGUNTAR-1]-cond p [**SABER-NO**]-cond p

to.ask

to.know-not

1-DIR-3 SENTIR.RIDÍCUL p PARTICIPAR PROFESSOR PRO.1

to.say to.make.fool.of.myself to.participate instructor

'(Els alumnes) poden preguntar-me i si no sé (com) respondre... Faria el ridícul. Els professors (han de) respondre.'

'(Students) can ask me questions and if I don't know (how) to answer... I would make a fool of myself. Teachers (have to) answer.'

Indeed, the negative predicate SABER-NO may present a two-handed version, as an intensifier, as shown in (248) where the interviewee is reacting to the interviewer's proposal of working as sign language teacher.

(248) EMS 00:24:05 MS

SER.DIFÍCIL PRO.1 p CLS:5 "grup.gran.persones.al.meu.voltant" p PRO.1(5) **SABER-NO(2h5)**

to.be.difficult

"large.group.of.people.around.me"

to.know-not

'És difícil. Tot un grup de persones al meu voltant. No sé.'

'It is difficult. A whole group of people around me. I don't know.'

Also, we have documented the use of the marker NO for negating the perfective form of the predicate SABER, glossed as SABER.DOMINAR 'to know.master', as illustrated in (249).

(249) EES 00:36:60 ES

PRO.1 MIRAR SABER.DOMINAR [NO]-not

to.look.at to.know.master not

'Veig que no ho domina.'

'I see he is does not grasp it thoroughly.'

With respect to emphatic negation, two negators can be used to express lack of ability: ZERO 'zero' and SABER.ZERO 'know zero', to which will turn our attention in the next section.

7.4.1.3 ZERO 'zero'

The negative marker ZERO 'zero', as described in section 7.2.2 (Figure 7.4), can be used to refer to the lack of ability, as in the example (250).

(250) EMS 00:39:20 MS

[ESCRIURE]-top UFF p MARIT **ZERO** p PRO.1 NO ENSENYAR-3 p CA:signer <[SER.IMPOSSIBLE]p

to.write husband zero not to.teach to.be.impossible

<[SER.IMPOSSIBLE PRO.1]>

to.be.impossible

'Escriure? El (meu) marit no en sap gens. I jo no li (puc) ensenyar. Impossible!

'Writing? (My) husband has no clue. And I cannot teach him. It's impossible!

Out of context, the sentence in (250) can also be interpreted as "My husband does not write at all" or "My husband has not written at all" as an emphatic quantifier. The modal interpretation of this example is determined by pragmatic factors. One other factor that favors this modal interpretation is the existence of a negative predicate formally and semantically related: SABER.ZERO 'to know zero'.

7.4.1.4 SABER.ZERO 'to know zero'

The form SABER.ZERO 'to know zero' (Figure 7.11) is produced locating the O-handshape –which represents a zero, similar to the sign previously discussed ZERO.



Figure 7.11 SABER-ZERO 'to know zero'

Note the example in (251). The interviewer solicits the opinion about the fact that in pre-service interpreter training there are both students with a good command of LSC (because they have deaf parents) and students that have no idea of it.

(251) EJG 00:18:02 JMS_R

Int.: COMENÇAR (B-handshape-remains/IX.beginning) DIR [NORMAL ESTUDIAR DOS DOS+ANY]

to.begin there say regular.bases to.study two two year

Resp.: (nodhead)

(yes)

Int.: (B-handshake-remains/IX.després.2.anys) ACABAR p [ALUMNE IX.grup.d'alumnes]-top

after.2.years to.finish student students.group

MIRAR IX.alumnes [QUÈ]-q

to.look.at students what

Resp.: [FUTUR 2-ANY]-q

future year

Int.: ESTUDIAR p DIR [INS.CONSELL.DE.CENT]-top ESTUDIAR MATRICULAR ANAR.PARAL·LEL

to.study to.say secondary.school.name to.study to.enroll to.go.in.parallel

(grup.anar.esq / IX.alumnes.esq) SIGNAR [**SABER.ZERO(mov.horit)**]-neg **ZERO**

to.sign to.know-zero zero

Resp.: [palm.up.gesture:nothing]-neg

Int.: IGUAL/COM UN ESTUDIAR FP BATXILLERAT p

same one to.study vocational.training baccalaureate

Resp.: [SABER-NO]-neg

to.know-not

Int.: DIVUIT CA:student.1 <[PRO.1 METGE]> p CA:student.2 <[AGRADAR PRO.1 INTÈRPRET]>

eighteen doctor to.like interpreter

'Int.: Quan comencin, diuen que els estudis de forma regular seran dos anys.

Resp.: (D'acord).

Int.: Després de dos anys, quan acabin, què en penses?

Resp.: Als dos anys?

Int.: Estudiaran, diuen, al INS Consell de Cent. Els que es matriculin estudiaran conjuntament els que (saben) signar i els que no en saben, que.

Resp.: (Res).

Int.: Serà com un que estudia Formació Professional o Batxillerat.

Resp.: No ho sabia.

Int: Als divuit (anys) que diuen "Jo metge", igual "Jo vull ser intèrpret".'

'Int.: Quan comencin, diuen que els estudis de forma regular seran dos anys.

Resp.: (D'acord).

Int.: After two years, when they finish, what do you think?

Resp.: After two years?

Int.: They say they will study at secondary.school.name. All those that enroll, they will study together, those that know how to sign and those that do not, what.

Resp.: (Nothing).

Int.: It will be like studying at a vocational school or doing a baccaulaureate.

Resp.: I didn't know it.

Int: When they are 18, just as they say "Me, a doctor! they say "I want to be an interpreter".

The participant produces the predicate SABER.ZERO changing the movement parameter. The sign shows a displacement movement along the forehead –and not a static location as in the citation form— that corresponds to the plurality of the students and their distribution, previously signed in the neutral space with an index moving along the horizontal axis on the left on top of the handshape for the plural classifier. The final stage of the sign is produced in the neutral space, similarly to the form for expressing the quantifier ZERO, as described above in § 7.2.2.3.

This predicate refers to mental and physical ability. It has been created through a compounding process, possible initiated as a syntactic combination of MENT 'mind' and ZERO 'zero', meaning 'there is nothing in the mind', via the conceptual metaphors MIND IS A CONTAINER and IDEAS ARE OBJECTS IN EXISTENCE, already described for LSC (Jarque, 2005; Jarque, et al., 2012).

7.4.2 Negation of root possibility

Root possibility may be negated using the general negator NO 'not' (Figure 7.1), both with scope over the lexical verb and the possibility modal or through a topic-comment construction, in which the negative marker functions as the comment. See (252) and (253) for examples.

(252) EES 00:36:59 ES

[PER DONA SOL FUTUR **PODER** TREBALLAR TINTORERIA]-top [**NO**]-neg

for woman alone future can to.work dry.cleaner not

'Una dona sola no pot treballar en la tintoreria.'

'A woman cannot work alone in a dry cleaner.'

(253) EJG 00:23:51 JG

[ESTUDIAR SER.FÀCIL]-top [NO]-neg [**SER.DIFÍCIL**] p

to.study to.be.easy not to.be.difficult

'No és fàcil estudiar. És difícil.'

'It is not easy to study. It is difficult.'

With respect to modal-specific elements, the main negator is PODER.NO 'cannot'. Consider the example in (254), where the signer quotes other people's discourse through constructed action/dialogue expressing lack of availability for attending the party with the former classmates from the deaf school.

(254) EES 00:21:21 ES

[PRO.1(Q) 1-AVISAR-3]-nod CA:amics <[BCL:afirman]

to.call friends nodding

ACOSTAR.DATA CA:amics <[[**PODER.NO_a**]-neg IX.això IX.allò]> PRO.1 VEURE-ASP.iterative

to.approach friends cannot this that to.see

'Vaig parlar amb ells (i) tots deien que sí (que anirien a la celebració). A mida que s'acostava la data, deien que no podia per això o per allò. Ho he vist moltes vegades.'

'I talked with them (and) everybody was saying they would (go to the celebration). As the date neared, they said they couldn't for one reason or another. I've seen this many times.'

Another negative predicate signaling lack of availability is the sign SER.DIFÍCIL 'to be difficult', already shown in (253).

7.4.2.1 SER.DIFÍCIL 'to be difficult'

The sign SER.DIFÍCIL 'to difficult' (Figure 7.12) is a predicative adjective that expresses that some action cannot be done easily or readily, that it requires much labor or skill.



Figure 7.12 SER.DIFÍCIL 'to be difficult'

It may be employed to code negative root possibility. Consider the example in (255) taken from the episode on quitting smoking. The participant answers the interviewer's question about the possibility of playing basketball or practicing swimming if she could quit smoking.

(255) EMS 00:19:18 MS

Int.: BÀSQUET NATACIÓ p [PODER]-q c

basketball swimming can

Resp.: [BÀSQUET]-top **SER.DIFÍCIL** p HAVER.HI.NO-ASP.DIST.EXHAUSTIVE QUI p

basketball to.be.difficult to.there.be.not who

[PRO.1 PARTICIPAR]-top NO.RES p [NATACIÓ]-top PRO.1 CREURE SER.CAPAÇ

to.enroll nothing swimming to.think to.be.able

Int.: '(I) bàsquet? Natació? Podries?'

Resp.: 'Bàsquet és difícil (perquè) no hi ha amb qui o on formar part (d'un equip). Natació, sí que podria.'

Int.: 'Basketball? Swimming? Could you?'

Resp.: '(Playing) basketball is difficult because there is nobody to play with or anywhere to enroll. I think I could swim.'

Although the question addresses explicitly participant-internal capabilities, the answer makes reference to external conditions that do not enable the accomplishment of the action. However, we consider that it is a case of indeterminacy between root modality and denial of epistemic possibility.

7.4.3 Negation of deontic possibility

The negation of deontic possibility comprises not only prohibitions (e.g. negative imperatives) but also advices or admonitions (warnings) (de Haan, 1997, 2006; van der Auwera & Plungian, 1998). It refers to the appeal of the issuer to the receiver not to do something or not to be in a certain state (van der Auwera, 2010). It comprises, among others, the vetative, evitative, cessative, admonitive, and anti-precativ values. In LSC, the main prohibitive constructions include a description of the denial of permission and performatives, that is, negative imperatives. The negative modals, other than PODER.NO 'cannot', are: NO 'not', NO! 'don't', NEGAR 'to deny' and MAI 'never'. PODER.NO is the most frequent negator for deontic possibility. Again, we have observed a tendency when referring to situations in the past, according to which the signers employ the two negative markers as a collocation: PODER.NO^NO, as in (256).

(256) EMS 00:02:12 JMS

PRO.1 DUBTE.IND PODER ABANS.dict ÈPOCA SORD **PODER.NO^NO** p

to.doubt can/may before period deaf cannot+not

[INFERMERA PERMETRE]-top CULPA PARAULA/ENTITAT ESTUDIAR SER.DIFÍCIL

nurse to.allow fault word/entity to.study to.be.difficult

'Jo dubto. És possible que abans, en aquell moment, els sords no podien. Els permetien (estudiar) infermeria, (aleshores) va ser degut a que era difícil.'

'I doubt. It is possible that before, at that time, the deaf could not. They allowed (to study) nursing, (then) was it because it was difficult?'

NO 'not' is documented in the corpus both with performative and descriptive uses. The performative uses are produced in the context of constructed action, i.e. in verbatim reproduction or reenactment of signers' or other people's discourse. (See chapter 8 on evidentiality for an extensive discussion of constructed action). In example (257) the

interviewer describes how her daughter scolds her so that she will quit smoking and what her answer was.

(257) EMS 00:19:30 MS_R

PAU(fill) GRAN 1-AVISAR-3 CA:fill<[FUMAR NO]-neg> CA:mare < [FUMAR NO]-neg

son.sign.name eldest to.call son to.smoke not mother to.smoke not

PRO.1(B) SABER p DESPRÉS PRO.1 PROU p PRO.1 SABER > p

to.know later enough to.know

DESPRÉS COMPRAR ESTAR.NERVIÓS p CA:mare < PRO.1 SABER >

later to.buy to.get.nervous mother to.know

'En Pau, el gran, em diu: "No s'ha de fumar!". "No s'ha de fumar" – li dic. "Ja ho sé. Més endavant ho deixaré. Ja ho sé". Després quan en compro, es posa nerviós. "Ja ho sé"—li dic.'

'Pau, the older son, tells me: "One should not smoke!". "One should not smoke!" I tell him, I know that. Later, I'll quit. I know it. Then when I buy (tobacco), he gets nervous. "I know it" I tell him.'

Also, it may appear in topic-comment constructions, as in (258). This fragment is taken from an episode where the informant gives a list of rules/limits that he expects her children to respect. In the example, she is reproducing via a constructed action/dialogue some of the rules, such as not opening the door.

(258) EES 00:17:06 ES

1-AVISAR-3 CA:signant [TOCAR NO]-imperative p [EXEMPLE TIMBRE PICAR.PORTA]-top

to.let.know signer to.touch not example bell to.knock.on.door

[PORTA OBRIR.PORTA IX.fill]-top PRO.1 [NO]-neg gest.palm.up.evident

door to.open.door son not

'Jo els he avisat: "No ho feu". Si sona el timbre, no deixo que obrin la porta.'

'I told them: "Don't do it". If the bell rings, they are not allowed to open the door.'

One may expect that the informant would have explained the rules in indirect discourse. However, she explains them reenacting the scene with the kids. The issuer is in a way "reperforming" the original speech act by herself at an earlier time. As pointed out by Chafe (Chafe, 1980), the borders between direct and indirect speech reporting are very fuzzy. But, for signed languages, direct discourse constitutes the unmarked linguistic

resource to “describe” events. The reader is referred to the chapter on evidentiality for a deeper discussion on the issue.

With respect to descriptive uses, see example (259), where the participant narrates his belief before getting a job at a bank.

(259) EES 00:00:51 ES_R

PRO.1 RECORDAR PASSAT PETIT [PRO.1 ANAR LA.CAIXA]-top

to.remember past small to.go bank.name

AVI CA:avi <CLC:“anar.agafada.de.la.mà.de.l’avi”

grandfather grandfather anar.agafada.de.la.mà.de.l’avi

[PRO.2 TREBALLAR IX.allí LA.CAIXA]>p

to.work there bank.name

PRO.1 CREURE [SER.IMPOSSIBLE]-neg p SORD [NO]-neg

to.believe to.be.impossible deaf not

‘Recordo quan era petita i anava de la mà del meu avi a La Caixa. Ell em deia: “Tu treballaràs allà”. ‘Treballar jo a La caixa? Jo creia que era impossible. Els sords no podien.’

‘I remember when I was a child and went to La Caixa with my grandfather. He told me: “You will work there”. ‘Me, working at the Bank La Caixa? I thought it was impossible. Deaf people were not allowed to work there.’

Without context, the last example may trigger also a root inability reading. In fact, the interpretation of the denial of permission by the hearing society –“motivated” by the lack of audition– appears in several fragments through the interviews and the description of life episodes, such as the discussion on sailing in Menorca in chapter 6 or examples (237) or (256) below.

7.4.3.1 NO! ‘don’t’

In the negative marker NO! ‘don’t’, the index finger produces a single tensed and wide movement, resulting in a displacement of the hand from the elbow joint (Figure 7.13), unlike in the standard negative marker NO ‘not’, where the index finger is stretched out and displays a short right-to-left repeated movement (Figure 7.1). Also, it is non-manually marked with furrowed brows.



Figure 7.13 NO! 'don't'

Instances of negative imperative with the marker NO! 'don't' are given in (260), where the first occurrence corresponds to the citation form, while the second is bimanual, as a result, probably, of assimilation to the two-handed character of the previous sign (CUINAR 'to cook'), i.e. because of syntactic phonotactics.

(260) EES 00:17:100 ES_R

(U / [PICAR.PORTA]-top NO!) [CUINAR]-top NO(2h)! palm.up.gesture:òbviament p

to.knock.on.the.door not! to.cook not obviously

[ALTRES]-top gest:no.importa

others it.doesn't.matter

'Una: si piquen a la porta, no (obrir). Cuinar, no... obviament. Altres? cap problema.'

'One: if they know on the door, don't open. Cooking, no ... obviously. Other (situations)? No problem.'

On the other hand, NOT! 'don't' shows gradience, a type of indeterminacy described by Coates (1983), because, depending on the tension in the arm movement, the facial expression and the head movement, it may signal a stronger prohibition, i.e. a negative necessity.

7.4.3.2 NEGAR 'to deny'

NEGAR 'to deny' expresses meanings equivalent to 'refuse', 'reject', 'prohibit', etc. It has been created by the mechanism of lexical fingerspelling, that is the fingerspelled word 'no' taken from spoken language has been lexicalized to become a lexical sign (Battison, 2003 [1978]; Thumann, 2012; Valli, Lucas, & Mulrooney, 2005). Later, and through a process of grammaticalization and analogy to other similar verbs, it has acquired the

morphosyntactic pattern of regular-type deictic verbs, following the verbal system category proposed by Morales et al., (2005). See the palm orientation and movement direction in Figure 7.14.



Figure 7.14 NEGAR 'to deny'

Handshape and movement orientation signal the agent and the patient of the action. In the case of Figure 7.14, palm-orientation faces the signer, who is interpreted as the action's patient. Thus, it is equivalent to '(He/she/they) told me no/denied me x/prohibited x'.

NEGAR functions as a prohibitive modal, lexically marked with furrowed brows and a movement that is proportionally quick and tense depending on the degree of the intensity in the prohibition. In the example in (261) – from the episode about the rules the informant imposes to her kids—, the signer produces with her non-dominant hand the index signaling the receiver/patient of the prohibitions (her kids) and with the dominant, the sign NEGAR with hand orientation coding the agent and the patient.

(261) EES 00:16:58 JMS

PRO.2 IGUAL/COM HAVER.DE CONDICIONS 1-OBLIGAR-3 PRO.3 [NEN-PLU]loc:a

same must conditions to.obligate child

(PRO.3_LOC:a / **NEGAR-3**) FER (PRO.3.loc:a/[**PODER.NO_b**]n [**NO**]n) HAVER PRO.2]q

to.negate to.do cannot not must

'Has imposat alguna regla als (teus) nens? Quelcom que no poguessin fer?'

'Have you established some rule for your children? Something they couldn't do?'

NEGAR tends to be used in social contexts where the participants display social asymmetry, i.e. where one of them (an entity or a person) is conceived as having power, authority over the other, as for instance parents over their children, a boss over his/her

employee, a government institution over the citizens. Indeed, this asymmetry is iconically represented by the different height at which the participants are situated in the space, namely in a higher vs. a lower position. This is an instance of diagrammatic iconicity.

7.4.3.3 MAI 'never'

MAI 'never' (Figure 7.15) is a negative marker expressing either that a situation did not occur in the past or that it will not occur in the future. It may function as a negative imperative.



Figure 7.15 MAI 'never'

A performative use, close to a negative imperative, is given in (262), where one of the participants gives instructions about the strategies of a sign language professor.

(262) EMS 00:23:39 JMS

[MAI]-neg p [PRO.2 1-DIR-3] [PROFESSOR]p [NO INTÈRPRET]nod

never say instructor no interpreter

PRO.2 [PARAULA / IX.paraula QUÈ]-q PREGUNTAR PROFESSOR PERSONA INTERPRETACIÓ

word IX.word what to.ask instructor person interpreting

'Mai. Tu has de dir que ets un professor, no un intèrpret. Si no coneixen la paraula digues: "Pregunteu al professor d'interpretació".'

'Never. You have to say that you are a teacher, not an interpreter. If they don't know a word, say: "Ask the interpretation teacher".'

In ASL, NEVER is analyzed as a negative modal because it is in complementary distribution with both NOT and modal verbs (Wood, 1999). The non-epistemic semantic

scale continues in the necessity axis with the prohibitive markers PROHIBIR and SER.IMPOSSIBLE (§ 7.5.3).

7.5 The encoding of negation and non-epistemic necessity

The negation of non-epistemic necessity meanings includes the standard negative construction as well as the use of specific negative markers. In the first case, the negative marker NO 'not' is used having in its scope the proposition expressing necessity.

(263) EES 00:17:18 ES

[EXEMPLE]-cond [TELÈFON]-top DEPENDRE[según]. [TELÈFON]-top INVENTAR PUBLICITAT

example phone depend.on phone make.up advertising

COMPLETAR[más-más-más] TELÈFON SER.DIFÍCIL TALLAR RES.MÉS p

to.complete phone to.be.difficult to.cut that's.it

[HAVER.DE TELÈFON]-top [NO]-neg

must phone not

'El telèfon, depèn. M'ho invento. Si és publicitat i demés? És complicat... Penjo. Cal el telèfon (per a ells)? No.'

'On the phone, it depends. I make up something. If they are advertising and stuff? It is difficult... I hang up. Do they need the phone? No.'

In (263), the issuer signs first the obligation necessity marker HAVER.DE 'have to', then the situation (TELÈFON 'phone'), and finally the negation. Besides the negation of the positive modal, LSC displays specific negators for necessity values, as we will discuss now.

7.5.1 Negation of participant-internal necessity

The specific markers for the negation of participant-internal necessity functions are SER.IMPOSSIBLE 'to be impossible', SER.INÚTIL 'to be useless' and NECESSITAR-NO 'need not'.

7.5.1.1 SER.IMPOSSIBLE 'to be impossible'

SER.IMPOSSIBLE 'to be impossible' (Figure 7.16) covers all the negative necessity functions, both participant-internal and participant-external necessity (root impossibility and prohibition), and epistemic functions. Examples are given throughout the specific values in the specific sections.



Figure 7.16 SER.IMPOSSIBLE 'to be impossible'

As far as the expression of inability, note the example in (264), in which the interviewer asks whether when the interviewee goes on vacation to Switzerland she can communicate with the locals. The informant explains how she solved a communication problem in a restaurant.

(264) EES 00:10:41 ES

[PRO.1 RECORDAR FER.MOLT.TEMPS.díctic SUÏSSA ANAR]-elev.cell p

to.remember long.time.ago Switzerland to.go

PRO.1 RECORDAR NO PRIMERA.VEGADA NO p

to.remember not first.time not

[PRO.1 IX.ara PRÒXIM.díctic (PRO.1 QUART)mà.esq. gest.eh]-elev.cell gest:s'aparta.els.cabells

now next fourth to.move.away.the.hair

PRO.1 MENJAR CL:"portar.plat.a.taula" p [SER.IMPOSSIBLE]-neg p

to.eat bring dish to.be.impossible

CA:resp.<[PRO.1 SEGUIR.CARTA] PARLAR ALEMANY p

to.read.menu to.speak German

SEGUIR.CARTA [IMPOSSIBLE]-neg p PRO.1 CA:signant <[gest:"que.faug"]> p

to.read.menu to.be.impossible signer What can I do?

PRO.1 MIRAR[loc] SER IX.plat.veí p

to.look.at to.be dish

PRO.1 CA:resp.<[1-AVISAR-3] [IX.plat.vei] [PRO.1 UN]

call plate.nearby.person one

CA:cambrer<[exp.fac.comprendre CLB:prendre.nota]>

waiter to.understand to.take.note

Lit. 'Recordo ja fa temps a Suïssa, no era la primera vegada. Ja (hi havia estat). Ara la pròxima ja serà la quarta. Em porten el plat a taula i era impossible llegir la carta: estava tota en alemany. Llegir la carta? Impossible! Què faig? Miro el plat (d'una taula al costat) i hi havia (el que volia). Vaig avisar (el cambrer) i li vaig assenyalar que volia un d'allò mateix. El cambrer em va entendre i en va prendre nota.'

'Recordo ja fa temps a Suïssa, no era la primera vegada. Ja (hi havia estat). Ara la pròxima ja serà la quarta. Em porten el plat a taula i era impossible llegir la carta: estava tota en alemany. Impossible llegir la carta! Què faig? Miro el plat (d'una taula al costat) i hi havia (el que volia). Vaig avisar (el cambrer) i li vaig assenyalar que volia un allò mateix. El cambrer em va entendre i va prendre nota.'

'I remember, sometime ago in Switzerland, it wasn't the first time. (I had) already (been there). The next time will be the fourth. They bring me a plate at the table and it was impossible to read the menu: it was all in German. Impossible to read! What do I do? I look at the dish (on the nearby table) and there was (what I wanted). I called (the waiter) and I showed him that I wanted that same dish. The waiter understood me and took note.'

Besides mental inability, it is used also for physical inability. Consider the example in (265), where the signer is asked what is it that she cannot eat.

(265) EES 00:30:44 ES

Int.: PRO.2 MENJAR **PODER.NO-INTENS** [QUÈ]-q p MENJAR PODER.NO

to.eat cannot what to.eat cannot

Resp.: PÈSOLS VERD p PÈSOLS MENJAR [**SER.IMPOSSIBLE**]-neg p PROU p PODER.NO p

pea green pea to.eat to.be.impossible enough cannot

RECORDAR TOTA.VIDA PODER.NO PROU.seguretat

to.remember whole.life can.not enough

Int.: 'Què és el que no pots menjar de cap de les maneres? Que no pots menjar?'

Resp.: 'Els pèsols verds. M'és impossible menjar pèsols! No puc. Me'n recordo que des de sempre no n'he pogut.'

Int.: 'What is it that you can't possibly eat? That you can't eat?'

Resp.: 'Green peas. It is impossible for me to eat green peas! I can't. I remember that I have never been able to.'

As this example illustrates, PODER.NO, as well as IMPOSSIBLE, can be modified to express higher intensity stopping momentarily the sign movement when it begins, just when the head is oriented laterally. After this hold, which is produced with tension in the manual and non-manual components (facial expression), both main articulators –the head and the arm(s)— are released and complete the movement. Similar formal characteristics have been described in ASL for a morpheme expressing a higher degree of intensity in adjective predicates and showing iconic motivation (S. Wilcox, 2004).

7.5.1.2 SER.INÚTIL 'to be useless'

Another marker is the sign SER.INÚTIL 'to be useless' (Figure 7.17). We submit that it was created from the above sign SER.IMPOSIBLE, substituting the A-handshape with the letter I, via a process known as initialization, as we discuss in depth in chapter 10.



Figure 7.17 SER.INÚTIL 'to be useless'

SER.INÚTIL signals the lack of participant-internal and root necessity. See an instance in (266), from the episode on smoking, where the issuer describes the difficulties she faced trying to quit.

(266) EMS 15:17 MS

[TENIR.GANES]superposat ABANDONAR gest.uff p **SER.INÚTIL**

to.fancy *to. quit* *gesture: to.be.useless*

'Volia deixar (de fumar)... (però) ha estat del tot impossible.'

'I wanted to quit smoking... (but) it was absolutely impossible.'

The use of SER.INÚTIL implies that the signer had tried hard (or for a long time) to accomplish the intended situation.

7.5.1.3 NECESSITAR.NO 'need not'

The last sign that we discuss in this section is NECESSITAR-NO 'need not' (Figure 7.18). It expresses the negation of internal necessity. It has been created by cliticization from the sign NECESSITAR 'to need' –examined in chapter 6— and the negative marker NO 'not'.



Figure 7.18 NECESSITAR-NO 'need not'

This negative marker signals lack of mental, physical or general necessity. This negator is also used for root necessity, as discussed in next section.

7.5.2 Negation of root necessity

The negation of root necessity is expressed in LSC with the markers NECESSITAR-NO 'not need', SER.IMPOSSIBLE 'to be impossible' and SER.INÚTIL 'to be useless'. (267) is an excerpt in which the interviewer asks the respondent to explain with more details why he considers that the deaf community in Spain has progressed.

(267) EJG 00:16:41 JG_R

[]-nod ESPANYA PROGRESSAR MÉS p

Spain to.progress more

[ABANS]-top IGUAL PRO.1 PETIT SER.DIFERENT palm.up:totalment p PROGRESSAR p

before same be.small be.different totally to.progress

[EUROPA ZONA.pla.vert.]-top FORT ORALISME p FORT ORALISME p

Europe zone to.be.strong oralism to.be.strong oralism

JA [TRANSFORMAR TRANSFORMAR TRANSFORMAR]-loc.vert.pla.:Europa p

already to.transform to.transform to.transform Europe

VEURE [DIR MÓN] CA:món<[VEURE AVANÇAR]-nod> p

to.see to.say world world to.see to.progress

[ESTATS.UNITS]-top [NO]-neg SER.IGUAL-ASP.DUR p

United.States not to.be.as.usual

[(IX.esq:Estats.Units /) ESTATS.UNITS]-top p gest:fregar.se.mans p IX.esq:Estats.Units

United States United States rubbing.hands United States

[PER.A IX.dta:Europa TEMA APRENDRE]-top

for Europe topic to.learn

ESTATS.UNITS PAPER 3esq-DONAR.PAPERS-ASP.DUR-3dta p

United.States documents to.give.documents

IGUAL UNA.MICA PRO.1 PRO.1.PLU 3dta-TAFANEJAR-3esq ESTAT.UNITS IX.esq.Estats.Units p

same a.little to.nose.around United.States United.States

3.dta-INVESTIGAR-ASP.DUR-3esq p [PERÒ]-focus

to.investigate but

[EXEMPLE [IX.tot.dreta ORALISME]-loc:Europa]-cond

example oralism Europe

[3.dta-INVESTIGAR-3esq]-top [**FALTAR.NO NO**]-neg]-loc:Estats.Units IX.esq.Estats.Units p

to.investigate to.need-not United.States United.States

JA IX.tot.dreta [AVANÇAR]-loc:Europa p

already all to.progress Europe

IX.esq.Estats.Units ESTATS.UNITS JA (AVANÇAT.MÉS / AVANÇAT.MENYS) EXPERIÈNCIA

United.States United.States already to.be.advanced.respect.Europe to.have.experience

3dta-DEMANAR-3eq [INVESTIGAR]-loc:Estats.Units p ESTATS.UNITS 3esq-DONAR.PAPERS-3dta

to.ask to.investigate United.States United.States to.give.papers

palm.up.gesture: UN PUNT palm.up.gesture:ep

one issue

'A Espanya, (la Comunitat Sorda) ha avançat molt. Abans, quan jo era petit, era molt diferent. Ha progressat molt. A tota Europa l'oralisme era molt fort, molt fort. Ha canviat molt a tota Europa. Es veu. La gent ho diu que s'ha avançat molt. Estats Units, no, segueix com sempre. Estats Units li ha proporcionat a Europa la informació sobre per aprendre. Ha estat com si Europa tafanegés el que ha fet Estats Units, l'investigués. Però si tot hagués estat oralisme en Europa no seria necessari investigar què fa Estats Units. Tota Europa ha avançat. Estats Units està més avançada i ja comptava amb l'experiència. Europa li ha demanat a Estats Units la investigació i aquesta li ha donat la informació. Ha estat un dels factors.'

'In Spain, (the Deaf Community) has progressed a lot. Earlier, when I was a child, it was very different. It has progressed a lot. In the entire Europe oralism was very strong, very strong. Things have changed a lot in the whole Europe. You can see it. People say that there has been a great progress. In the United States, no, it is as always. The United States has offered Europe information about sign language. It has been as if Europe was nosing around to see what the United States did, as if it researched it. All of Europe has progressed. The United States is more advanced and could already count on some experience. Europe has asked the United States and they gave information. This has been one of the factors.'

Regarding SER.IMPOSSIBLE, consider (268), where the interviewer is answering the question of what is most important in his life and stressing that you cannot give up working.

(268) EES 00:18:42 ES

[UN DEIXAR [SER.IMPOSSIBLE]-neg]-top p TREBALL p SER.IMPORTANT p

one to.leave to.be.impossible job to.be.important

[NO]-cond DIVERTIR.SE p SORTIR HAVER.HI.NO

not to.have.fun to.hang.out there.be.not

'Lit. Una cosa que és impossible de deixar: la feina. Si no n'hi ha, no hi ha diversió o sortides.'

'La feina és impossible de deixar. Si no n'hi ha, no hi ha diversió o sortides.'

'Lit. One thing that is impossible to leave: a job. If there is none, there is no fun, no outings.'

'It is impossible to leave your job. If you don't have a job, there is no fun, no outings.'

In (268), SER.IMPOSSIBLE appears in a descriptive use in the topic element, since it reproduces a previous question.

7.5.3 Negation of deontic necessity

Prototypically the negation of deontic necessity corresponds to the semantic notion of prohibition. It can be conveyed in LSC through the sentential negator NO, but also through the negation of obligation predicates, as in (269).

(269) EES 00:37:29 ES

PRO.1 VOLER TREBALL ALTRE p PRO.3I MÉS LLIURE p **3-OBLIGAR-1 NO**

want work other more free oblige no

'Vull un altre treball. Un més lliure. Que no m'obligui tant.'

'I want another job. A freer one. That does not restrain me.'

The sentential pattern with the negative marker NO may have a necessity reading when it is produced with a strong tension in the manual sign movement and with the facial expression. The effect is not pragmatic at all, so it deserves the label of 'prohibitive marker' (See van der Auwera, 2010c). In LSC there is a main prohibitive marker that is different from the one used in the positive form.

7.5.3.1 PROHIBIR 'to prohibit'

The sign glossed as PROHIBIR 'to prohibit' (Figure 7.19) includes the manual component (an extended index finger and a single large sideward movement in front of the signer) and a non-manual consisting of marked facial expression, head movement as well as tension in the body.



Figure 7.19 PROHIBIR 'to prohibit'

Example (270) illustrates the descriptive use of PROHIBIR. The example comes from a fragment where the participant refers to the prohibition of using Catalan at school.

(270) EMS 00:39:07 MS

SABER-NO p ESCOLA HAVER.HI.NO p CATALÀ **PROHIBIR(2h)** p

to.know.not school to.there.be.not Catalan prohibite

HAVER.HI.NO-ASP.dur

to.there.be.not

'No saps –em diu ell. Jo li faig: "Abans a l'escola no n'hi havia. El català estava prohibit. No n'hi havia".'

'You don't know –he tells me. I say: "Once, there was no Catalan in school. Catalan was forbidden. There was no (Catalan)".'

In the example, the signer produces the sign PROHIBIR bimanually. Since the previous and the following sign are one-handed, bimanuality cannot be the product of phonetic pre-severation of the feature [+ two-handed]. The addition of the non-dominant hand signals stronger denial of permission, being a case of diagrammatic iconicity.

Due to the text typology in the corpus, there are just a few examples of this syntactic element. Syntactic prohibitives in LSC seem to prefer a clause-final position, as negation in LSC described for the spoken languages typology (Dahl, 1979; Dryer, 1988; Jespersen, 1917).

7.6 The encoding of negation and epistemic possibility

The negation of epistemic meanings includes the general negative construction and the use of specific negative markers. In the first case, the negative marker NO 'not' is used

in combination with the ordinary mental predicates described in the previous chapter 6. Example (271) is an excerpt of the episode on vacation in the mountains in Osca. The interviewer asked about possible problems that could arise.

(271) EMS 00:04:35 MS

exp.fac.incertesa PRO.1 **PENSAR NO** PERQUÈ ANY-PASSAT JA

to.think not because year-PAST already

CLP.grup.persones.gran-PRED.MOV.anar p PROBLEMA [HAVER.HI.NO(2m)]-neg

large.group.of.people-GO problema to.there.be.not

'Crec que no perquè l'any passat ja vam anar (de vacances) un grup gran i no va haver-hi problemes.'

'I don't believe so, because last year we already went (on holiday) with a big group and there was no problem.'

The signer answers employing the construction with the pronoun and the cognitive predicate followed by the negation. Indeed, this construction is used parenthetically, as illustrated in (272). The signer keeps commenting on her future vacation in Osca and attempts a weather forecast when asked whether it will be cold.

(272) EMS 00:05:08 MS

[OSCA IX.there]-top PRO.1(Q) **PENSAR JA** FRED-INTENS IX.allà gest.força p

Osca IX.there to.think already to.be.cold there gesture:a.lot

[NIT]-top IX.there gest.bastant p [MATINADA MIGDIA INTERVAL.de.matí.a.midgia]-top

night there gesture:a.lot morning midday interval.from.morning.to.midday

PRO.1 **PENSAR NO**

to.think not

'A Osca, penso que ja hi fa molt de fred. Sobretot a la nit. Entre el matí i el migdia, no crec.'

'I think it is already cold in Osca. Especially during the night. From morning to midday, I don't think so.'

Another construction expressing lack of epistemic possibility or uncertainty includes the predicate **ESPERAR** 'to expect', as example in (273).

(273) EJG 00:27:09 JG

PRO.2 DIR SETEMBRE FP(=formació professional) INTÈRPRET OFICIAL p **PRO.1 NO ESPERAR**

say September vocational.training interpreting official no to.expect

'Lit. Tu dius que al setembre (s'iniciaran els estudis) reglats de FP d'interpretació. Jo no ho espero.'

'Lit. You say that the interpretation vocational (program will start) in September. I don't expect that (will happen).'

The performative negation of CREURE 'to believe' may be used for situations in the past as in (278) below and in the future as in (274).

(274) EES 00:39:11 ES

[PER.A FUTUR]-top [**PRO.1 CREURE NO**]-neg

for future to.believe not

'De cara al futur, jo crec que no.'

'As for the future, I don't think so.'

In the last examples, the head movement spreads over the whole comment, beginning when producing the first personal pronoun. Indeed, it appears in topic-comment constructions, where the cognitive predicate is located in the topic and the general negator, in the comment as in (275), in which the participant makes a weather forecast.

(275) EES 00:23:03 ES

TEMPS.ATM IX.allà HAVER.DE PLOURE HAVER.HI p

weather IX.there must rain there.be

[CREURE CADA DIA]-top [**NO**]-neg p mov.cap.af c

to.believe every day not

'Segur que hi haurà pluges, (però) no crec que cada dia.'

'For sure there will be rain, (but) I don't think every day.'

When it refers to false believes in the past, the negation can be in a descriptive style or in a demonstration style with constructed action/dialogue, as in (276).

(276) EES 00:14:44 ES

MOLTS.COPS p CA:signer <[PRO.1 CREURE GUANYAR]> p FINAL NO MALAMENT PRO.1 TAMBÉ

many.times *to.believe to.win* *in.the.end not to.be.wrong* *too*

Lit. 'Moltes vegades jo feia "Crec que guanyo". Al final, no, m'he equivocat jo també.'
'Moltes vegades creia que guanyava i al final no. Jo també m'equivocava.'

Lit. 'Many times I would go: "I think I win". At the end, no, me too wrong.'

'Many times, I thought I was going to win and, in the end, I didn't. I made mistakes too.'

Example (276) also illustrates how a type of contrafactual construction is formed in LSC: the signer locates the situation in time or under the condition required, expresses the situation that could have been true but was not with constructed action, followed by the factual proposition. Formally, the signer produces the construction [PRO.1 CREURE + proposition] with the facial expression of commitment, sometimes with eye gaze towards an undetermined location in a lateral upper position, and, later the eye gaze is back to the interlocutor for describing the "real situation".

7.6.1 **CREURE^NO 'not to believe' and CREURE-NO! 'not to believe (strongly)'**

In the corpus, there appear two different negative modals derived from CREURE ('to believe'). On the one hand, LSC users produce the sign CREURE^NO 'not to believe', as a cliticized form resulting from the combination of CREURE –discussed in chapter 6— and the standard negator NO. It signals negation of epistemic possibility, as in (277), where the interviewer questions one of the people participating in the situation described by the respondent.

(277) EES 00:02:12 JMS_R

ESPERAR p [SIGNE.NOM]-top [CREURE^NO]-neg p

to.wait *name.sign* *believe not*

'Espera! El Signe.nom, no crec.'

'Wait! Name.sign, I don't believe.'

In the resultant sign in (277) both composites show a change in their location: CREURE is displaced to the ipsilateral side of the front and the negator is not produced in the neutral space as in the citation form, but in the frontal plane close to the ipsilateral side of the forehead. However, the signer in (278) produces CREURE^NO in the frontal axis, also, but in the location close to the middle of the forehead. This variation in location is an indication that the formal lexicalization process is in progress.

(278) EJG 00:26:24 JG_R

[ESCOLA TANCAR PER.A INTEGRACIÓ OIENT]-top [PRO.1 CREURE^NO]-neg p

school to.close for integration to.believe not

'Jo no crec que tanquessin l'escola (de sords) (pensant en) la integració amb els oïdors.'

'I don't think they closed the (deaf) school because they were concerned with integration with hearing.'

On the other hand, signers also display the negative modal CREURE-NO! 'not to believe (strongly)' as a cliticized form of the lexical verb CREURE and the negative marker NO! 'don't' (Figure 7.20).

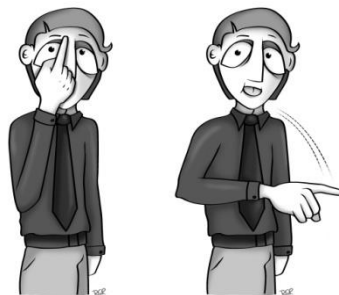


Figure 7.20 CREURE-NO! 'not to believe'

This second cliticized form expresses a stronger lack of epistemic commitment. An example is given in (279), a fragment of an extended discussion on the possible revival of Nazism in Europe. For the whole linguistic context, we refer the reader to example (281).

(279) EJG 00:15:11 JG_R

[CREAR EUROPA]-top [CREURE-NO!]-neg p [SER.IMPOSSIBLE]-neg p

to.appear Europe not.to.believe to.be.impossible

Lit. '(Però) retornar (el Nazisme) a Europa, no crec. És impossible!'

Lit. '(But) reappearing (Nazism) in Europe, that I don't believe. It is impossible!'

CREURE-NO! 'not to believe' constitutes an instance of a lexicalization of the combination of a modal and a negation where the modal has scope over negation [MOD[NEG[P]]], i.e. narrow scope, as described for spoken languages (de Haan, 1997; van der Auwera, 2001).

7.6.2 SABER.NO 'not to know'

The negative modal SABER.NO 'not to know' (Figure 7.10 above) is used, other than for the negation of internal ability, as a marker of epistemic modality. Example (280) is a fragment where the participants in the interview are considering other possible work positions for the interviewee. The interviewer suggests hypothetical situations.

(280) EES 00:05:33 ES

Int.: [EXEMPLE ALTRA EMPRESA 3-ESCOLLIR-2]-cond p [3-DONAR-2 MÉS/AMUNT]-q

example other company to.choose to.give more

Resp.: [**SABER-NO**]-neg p PODER.EPIS p [MÉS/AMUNT]-enum p [EXCEL·LENT]-enum p

to.know-not may more/higher to.be.excellent

[HORA MENYS]-enum gest.saber.no [**SABER-NO**]-neg p

hour less gesture:uncertainty to.know-not

[JUBILACIÓ EDAT AVANÇAR]-top PODER p PRO.1 (SÍ/SÍ) p

retirement age to.accelerate can yes/yes

[FUTUR]-top [**SABER-NO**]-neg

future to.know.not

Int.: '(Y) si una altra empresa et seleccionés i el sou fos més elevat?

Resp.: No sé. És possible. Que em pagués més, seria excel·lent, menys hores. No sé. Si avancés l'edat de la jubilació. És possible. Sí, sí. El futur, no ho sé.'

Int.: '(And) what if another company selected you and the salary was higher?

Resp.: I don't know. It is possible. That they pay me more, that would be excellent, less hours. I don't know. If it would accelerate the retirement age. It is possible. Yes, yes. The future, I don't know.'

In the sequence, the participant is expressing her uncertainty about the future. It is not lack of knowledge or indecision, but uncertainty about not been able to control her decisions.

7.6.3 SER.DIFÍCIL 'to be difficult'

The last negative construction for epistemic possibility is SER.DIFÍCIL 'to be difficult', above Figure 7.12. Besides being used as an predicate adjective and a negative marker for root possibility, signers employ it to signal lack of possibility that the situation denoted by the verb or the proposition would happen. See example in (281), where the interviewer is asking to the interviewee whether she believes that Germany could turn again to Nazism. The signer justifies his answer, claiming that it is impossible that Nazism would resurge in Europe.

(281) EJG 00:15:09 JG_R

Int.: [PRO.2 PENSAR ALEMÀNIA IX.allí ALTRE.COP NAZISME CREAM]-q

think Germany IX.there again Nazism appear

Resp.: [NO]-neg [SER.IMPOSSIBLE(1h)]-neg SER.IMPOSSIBLE(1h)]-neg p [SER.IMPOSSIBLE]-neg p

not be.impossible be.impossible be.impossible

[palm.up.gest.res.a.fer]-neg [gest.res.a.fer]-neg p

palm.up.gesture: inability palm.up.gesture: inability

Int.: [SER.SEGUR]-q

to.be.sure

Resp.: [PER.A EUROPA]-top [PER.A IX.allí]-top NAZISME **SER.DIFÍCIL(cuesta)**

for Europe for there Nazism to.be.difficult

[EUROPA]-top CA:Europa <palm.up gest. res de res>

Europe does not want

[INDEPENDENT ESTAT.PETIT]-top BÉ p

independent small.state good

[CREAR EUROPA]-top [CREURE-NO!]-neg p [SER.IMPOSSIBLE]-neg p

to.appear Europe

to.believe.not.be

to.be.impossible

Int.: 'Penses que a Alemanya tornarà a ressorgir el nazisme?

Resp.: No. És impossible, impossible. Impossible. (De cap manera!)

Int. Estàs segur?

Resp.: En Europa, és molt difícil (que passi). Europa no en vol saber res. En estats petits independents, podria. Que reaparegués en Europa, no crec. Impossible!'

Int.: 'Do you think that in Germany there will be a revival of Nazism?

Resp.: No. It is impossible, impossible. Impossible. (No way!)

Int.: Are you sure?

Resp.: In Europe, it is very difficult (to happen). Europe doesn't want to know anything about it. In small countries, it could happen. But reappearing in Europe, that I don't believe. It is impossible!'

In example (281), the signer produces SER.DIFÍCIL with the mouthing /cuesta/ ('it costs, its takes effort'), borrowed from Spanish. In the corpus, we have identified this mouthing as well as the mouthing /difícil/ ('difficult, hard'). It remains for future research to uncover differences in modal meaning vehiculated by the differences in the form entail, and whether these mouthings constitute a mandatory component in the sublexical structural of the sign SER.DIFÍCIL.

On the other hand, the excerpt in (281) is interesting because it illustrates the combination of epistemic modal negators of different degree of intensity, ranging from the lack of possibility to strong impossibility.

7.7 The encoding of negation and epistemic necessity

The negation of epistemic meanings includes the general negative construction and the use of specific negative markers. In the first case, the negative marker NO is used having in its scope a proposition with topic marking (raised eyebrows) including the ordinary epistemic necessity markers, as for instance SER.SEGUR (282). In this fragment, participants are discussing the political regression of Austria after the extreme right party received more votes at the elections and its conflicts with the European Union.

(282) EJG 00:15:47 JG_R

[A.VEURE ÀUSTRIA UNIÓ.EUROPA DEIXAR]-questioning(furrowed.brows) p

let's.see Austria European.Union to.leave

DEIXAR SER.DIFÍCIL(cuesta)

to.leave to.be.difficult

[**SER.SEGUR** DEIXAR]-top [**NO**]-neg [PER.QUÈ]-q

be.sure to.leave not

'Ja veurem si Àustria deixa la Unió Europea. És difícil deixar-la. Segur que no marxarà. Per què?'

'We'll see whether Austria will leave the European Union. It is difficult to leave it. Certainly, they will not leave. Why?'

The main prohibitive modal for the expression of epistemic necessity is the marker SER.IMPOSSIBLE, as illustrated in (283). The interviewer asks the respondent about the possible revival of Nazism in Europe, after the recent news about the surge of the extreme right movements and violence in Europe.

(283) EJG 00:15:04:02 JG

Int.: [PRO.2 PENSAR ALEMÀNIA IX.allí ALTRE.COP NAZISME APARÈIXER]-q(re)

to.think Germany there again Nazism to.show.up

Resp.: [NO]-neg [**SER.IMPOSSIBLE**(1h)]-neg [**SER.IMPOSSIBLE**(1h)]-neg p

not to.be.impossible to.be.impossible

[**SER.IMPOSSIBLE**]-neg p [gest.res.a.fer]-neg a [gest.res.a.fer]-neg

to.be.impossible gesture:inability (nothing.to.do) (nothing.to.do)

Int.: [SEGUR]-q(re)

sure

Resp.: [PER.A EUROPA]-top PER.A IX.allí [NAZISME]-top SER.DIFÍCIL(cuesta) p

for Europe for there Nazism to.be.difficult

[EUROPA PROU] ESTAT.PETIT INDEPENDENT CREAM p

Europe enough independent appear

EUROPA [NO]-neg [SER.IMPOSSIBLE]-neg

Europe not to.be.impossible

Int.: Creus que en Alemanya tornarà a aparèixer el nazisme?

Resp.: No, no. És impossible, impossible. Impossible. (De cap manera!).

Int.: N'estàs segur?

Resp.: És molt difícil que el nazisme torni.

Int.: Do you think that in Germany there will be a revival of Nazism?

Resp.: No, no. It is impossible, impossible. Impossible. (No way!).

Int.: Are you sure?

Resp.: It is very difficult that Nazim will come back.

The participant answers, first, with the general negator NO 'not', expressing negative epistemic possibility and continues expressing necessity, giving more strength to the negation by repeating the sign and increasing the tension of the movement. On the other hand, whereas in the citation form it is a two-handed sign, in the first three occurrences in (283) it is produced only with the dominant, and that is why we glossed as IMPOSSIBLE(1h). Weak drop –i.e. the fact that the non-dominant hand, in this case the left one, “disappears” in the production of the sign (Battison, 2003 [1978]; Padden & Perlmutter, 1987) – has been identified across sign languages although there is variation on the types of signs that can undergo it (Perniss, Pfau, & Steinbach, 2007). In the case under exam, hand-drop may be caused by the influence of the sign NO, which is one-handed. It would be a case of perseverance, as described for other sign languages.

7.8 Findings and research questions

In sum, LSC displays a great diversity of negative resources that interact with modal forms and meanings in complex ways. In this section, we will answer the specific research questions addressed in this chapter, i.e. we present a summary of the cognitive and lexical semantics of these forms, the distribution of negation, the interaction between manual and non-manual markers, double negation, negative agreement, and possible sources for the forms: contractions (univerbation), suppletive forms, etc.

7.8.1 Research question 4: Negation of positive modals markers

Throughout the chapter we have described how modal values are negated both by means of LSC-standard negators as well as with modal-specific resources. Table 7.1 presents a summary of the negation of modal values observed in our corpus⁸⁹. It comprises both wide and narrow scope, also called external and internal negation, as described at the beginning of Section 7.3 (de Haan, 1997; van der Auwera, 2011b). **External negation** is notated as [NEG (MOD[p])] and **internal negation** as [MOD[NEG[p]]]. We will specify epistemic (E) and non-epistemic (NE) in the table, although “they are both capable of having scope over and being in the scope of negation” (de Haan, 1997, p. 20).

Table 7.1 Negation of modal values in LSC

	Modal logic notational convention	Linguistic notational convention	Modal negators	Positive modals	
a	$\neg v p$	[NEG [VOL[p]]]	-	AGRADAR VOLER TENIR.GANES ESPERAR PENSAR	in: [M V]-top NEG [V]-top M NEG
b	$v \neg p$	[VOL[NEG[p]]]	-	AGRADAR VOLER TENIR.GANES ESPERAR PENSAR	+ [NEG prop]
c	$\neg v p \& v \neg p$	[NEG [VOL[p]]] [VOL[NEG[p]]]	AGRADAR^NO VOLER^NO DESITJAR^NO TENIR.GANES.NO		
d	$\neg \square p$	[NEG [NEC[p]]]	SER.IMPOSSIBLE (NE/E) SER.INÚTIL (NE) NECESSITAR-NO (NE) NEGAR (NE) NO (NE) NO! (NE)	HAYER.DE OBLIGAR NECESSITAR DEURE SER.LLEY	in: [M V]-top NEG [V]-top M NEG
e	$\square \neg p$	[NEC[NEG[p]]]	-	HAYER.DE OBLIGAR NECESSITAR DEURE SER.LLEY	+ [NEG prop]

⁸⁹ Legend: \diamond possibility, \square necessity, \neg negation, \rightarrow entailment, E epistemic, NE non-epistemic, [NEG prop] negative proposition. We have added v for volition.

	Modal logic notational convention	Linguistic notational convention	Modal negators	Positive modals	
f	$\neg \square p \ \& \ \square \neg p$	[NEG [NEC[p]]] [NEC[NEG[p]]]	-		
g	$\neg \diamond p$	[NEG [POS [p]]]	CREURE [^] NO (E) CREURE-NO! (E) PODER.NO (NE/E) SABER-NO (NE/E) SABER+ZERO (NE) SER.DIFÍCIL (NE/E) ZERO (NE)		
h	$\diamond \neg p$	[POS [NEG [p]]]	-	CEDIR CREURE PENSAR PERMETRE PODER PODER.CAPACITAT SABER SABER.DOMINAR SER.CAPAÇ SER.FÀCIL TENIR.HABILITAT	+ [NEG prop]
i	$\neg \diamond p \ \& \ \diamond \neg p$	[NEG [POS[p]]] [POS [NEG [p]]]	-		

As for the column of modal negators, we have included both the suppletive forms (SER.IMPOSSIBLE, SER.INÚTIL, etc.) and the derived forms. The derived forms tend to be the product of the formal lexicalization of the combination of the positive modal verb and the standard negator (NO 'not') and formally are subjected to wide individual and style variation in the lexicalization continuum.

Similar phonological processes have been described in detail by Bosch-Baliarda (2005) with regard to LSC compounds. In some of the forms –glossed with the circumflex accent (^)— the standard negator is still easily recognizable. We consider that in the lexicalization process they are half way between totally lexicalized modal negators such as FALTAR-NO and SABER-NO and their syntactic combination as two independent signs. In other word, the verbs with modal meanings can be situated along a continuum from less to more grammaticalized, as in (284).

(284) Formal lexicalization of modal negators

—————→

- formal fusion

+ formal fusion

AGRADAR^NO

CREURE-NO!

PODER.NO

CREURE^NO

FALTAR-NO

VOLER^NO

SABER-NO

In the column on the negation of positive modals markers, we have included the constructions in which they appear with the non-modal negator. In most cases, the negator is the standard sign NO 'not', but in a few instances may be the existential negator HAVER.HI.NO 'there be not' described in § 7.2.3.1, as for instance with SER.NECESSARI. As for emphatic negators, addressed in § 7.2.2, their combination with modal verbs is an open question. Also, we have not found any occurrence of TANT.DE.BÓ and negation, either with non-manual elements nor with the standard NO.

We have noted that the scope of negation is determined not only by the placement of NO 'not', as in above (242), but also for the type of construction. External negation is favoured by topic-comment constructions, where the whole proposition including the modal element is marked by brow raising followed by the comment consisting of NO, as in (285) that expresses the denial of willingness in the past.

(285) EJG 00:04:43 JG_R

[PRO.1 PENSAR PRO.1 SABATER PRO.1]-top [NO]-neg p [SABATER NO]-neg p

to.think shoemaker

shoemaker

not

shoemaker not

'No havia pensat en fer de sabater.'

'I hadn't thought about being a shoemaker.'

The use in a topic-comment construction forces to produce them in different clauses as independent elements, whereas a constituent ordering leads to phonetic proximity in the sign string and favors their use in the fusion construction. On the other hand, pragmatic factors, such as emphasis, may favour the use of discourse structures, mainly topic-comment, topicalization or focus. We will provide details on these constructions in § 7.8.3 when discussing syntactic distribution of modals and negation. Moreover, despite

the existence of lexicalized negative modals (§ 7.8.1), there are instances of standard negators modifying modal values, as well as accompanying them expressing negative agreement (§ 7.8.3). Finally, the implications for typological theory regarding the negation of modal lexemes will be addressed in the Discussion chapter.

7.8.2 Research question 5: Negative modals in LSC

As described in previous section and summarized in Table 7.1, LSC employs lexemes that are specialized for negative modality, as research has shown for spoken languages (de Haan, 1997; Horn, 1989, 2010; van der Auwera, 2011a). Table 7.2 presents a summary of the negative volition semantic values.

Table 7.2 Intraparadigmatic variability in the negative volition markers in LSC

LSC modal forms	Volition values		
	Desire	Willingness	Intention
AGRADAR-NO	√	√	-
DESITJAR-NO	√	√	-
VOLER-NO	√	√	√
TENIR.GANES.NO	√	√	-

Table 7.3 presents a summary of the possibility semantic values that the LSC negative modals, described along the chapter, may convey.

Table 7.3 Intraparadigmatic variability in the negative possibility markers in LSC

LSC modal forms	Modal subdomains			
	Participant-internal	Root possibility	Deontic possibility	epistemic possibility
CREURE^NO	-	-	-	√
CREURE-NO!	-	-	-	√
NEGAR	-	-	√	-
NO!	-	-	√	√
PODER.NO	√	√	√	√
SABER-NO	√	-	-	√
SER.DIFÍCIL	√	√	-	√
SABER+ZERO	√	-	-	-

The negative particles NO 'not' and PODER.NO 'cannot' cover the whole semantic subdomain of possibility whereas SABER-NO 'to know-not', CREURE-NO! 'to believe not be' and SER.DIFÍCIL 'to be difficult' are specialized for semantic nuances.

As for the network of semantic values, in chapter 6, we proposed a semantic scale for certainty to possibility. This scale continues further on the negative side, via improbability of the state of affairs to absolute certainty that it is not real (286).

(286) Semantic scale from lack of possibility to absolute lack of certainty in LSC

> SABER.NO 'to ignore' > PENSAR^NO 'to think not' > CREURE-NO 'to believe-not' > SER.DIFÍCIL 'to be difficult' > PODER.NO 'may.not' > MAI 'never' > IMPOSSIBLE 'impossible'

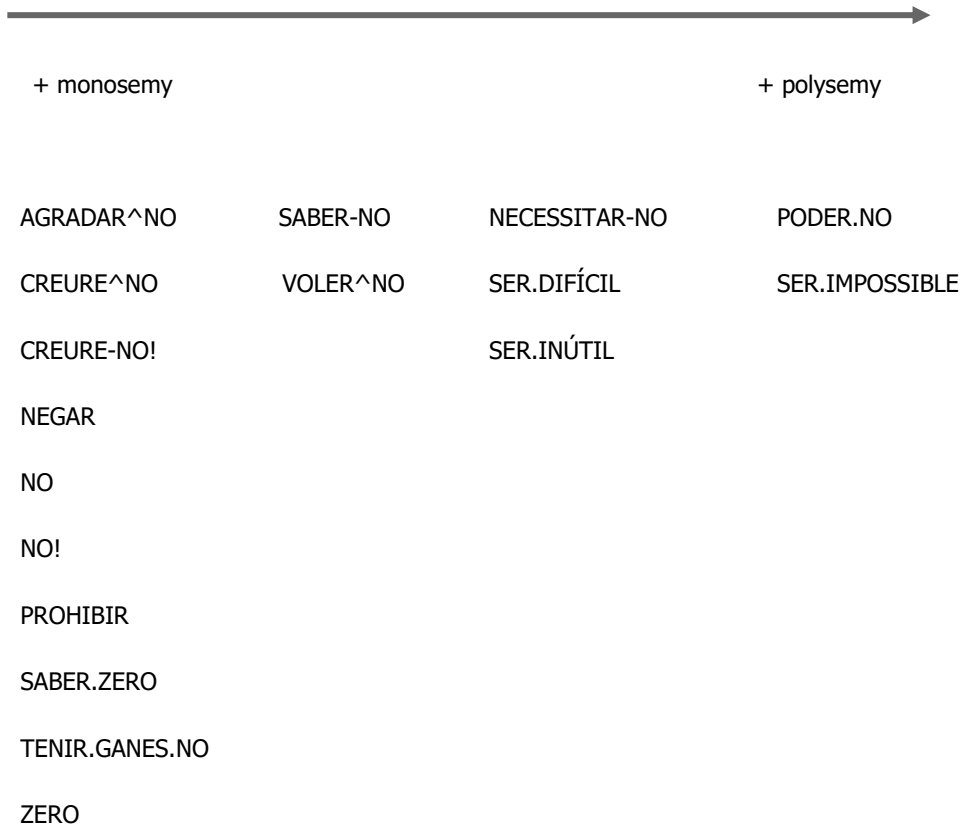
Table 7.4. presents a summary of the necessity semantic values that the LSC negative modals may convey.

Table 7.4 Intraparadigmatic variability in the necessity domain and negation

LSC modal forms	Modal subdomains			
	Participant-internal	Root possibility	Deontic possibility	epistemic possibility
SER.IMPOSSIBLE	√	√	√	√
SER.INÚTIL	√	√	√	-
NECESSITAR-NO	√	√	-	-
PROHIBIR	-	-	√	-

In Table 7.4, the negative marker SER.IMPOSSIBLE covers the semantic subdomain of necessity, whereas SER.INÚTIL 'to be useless', NECESSITAR-NO 'not to need', and PROHIBIR 'to prohibit' are specialized for semantic nuances. Therefore, negative modals can be situated along a continuum from less to more grammaticalized, as in (287).

(287) Semantic values of modal negators



Taken as a whole, less grammaticalized modals correspond to the negative constructions that convey only one single modal meaning whereas the more grammaticalized are PODER.NO and SER.IMPOSSIBLE, which show high polysemy.

Regarding formal properties, the analysis of phonetic processes included in the compound description by Bosch-Baliarda (2005) and Jarque et al. (2012) allows us to situate them along a continuum from less to more grammaticalized: CREURE^NO, PENSAR^NO > NECESSITAR-NO > SABER.NO (Table 7.5).

Table 7.5 Contrast of phonetic processes according to LSC negators

Phonetic processes	Modal negators			
	CREURE^NO	PENSAR^NO	NECESSITAR-NO	SABER.NO
(i) movement deletion in composite 1	+	+	+	+
(ii) movement insertion with internal movement between the two composites	-	-	+	+
(iii) non-dominant hand	NA	NA	NA	NA

Phonetic processes	Modal negatots			
	CREURE^NO	PENSAR^NO	NECESSITAR-NO	SABER.NO
(iv) non-dominant deletion	NA	NA	NA	NA
(v) regressive assimilation of handshape: selected fingers	+/- (= finger)	-	+/- (= finger)	+
(vi) regressive assimilation of handshape: openness degree	-	-	-	-
(vii) progressive assimilation of manual orientation	-	-	+/-	+/-
(viii) progressive assimilation of location	+/-	+/-	+/-	+/-
(ix) progressive assimilation of articulation plane	-	-	-	-

In addition, some studies analyze these changes in the positive forms discussing the linguistic status of the negative hand movement and the headshake movement. A review shows that there is no agreement in the literature. Some scholars analyze it as a clitic – for instance, Zeshan (2003) for Turkish SL, Pfau and Quer (2007) for LSC, while others consider it a suffix. Negative suffixes are documented in Finnish SL (FinSL) and ASL (Zeshan, 2004).

Furthermore, Hendricks (2008, p. 10) argues, on the basis of criteria set forth by Zwicky and Pullum (1983, p. 503), that in LIU this form behaves more like a suffix. In Table 7.6 we contrast these criteria with LSC data.

Table 7.6 Criteria for distinguishing clitics and suffixes

Zwicky & Pullum (1983, p.503) criteria	LSC	Justification for LSC
Clitics exhibit a low degree of selection with respect to their hosts, while affixes exhibit a high degree of selection with respect to their stems.	+ C	It combines with more than one word category: verbs (SABER) and adjective predicates (FÁCIL).
Arbitrary gaps in the set of combinations are more characteristic of affixed words than of clitic groups.	+ S	It only applies to a few verbs and adjectives.
Morphophonological idiosyncrasies are more characteristic of affixed words than of clitic groups.	+C	The final form depends more on the verb than the suffix.
Semantic idiosyncrasies are more characteristic of affixed words than of clitic groups.	+C	Semantic meaning is not changed but negated.

Zwicky & Pullum (1983, p.503) criteria	LSC	Justification for LSC
Syntactic rules can affect words, but cannot affect clitic groups.	?	There is not enough research to refute or support it.
Clitics can attach to material already containing clitics, but affixes cannot.	?	There is not enough research to research to refute or support it.

Our analysis does not agree with Hendricks for LIU and, on the other hand, it is not exempt of problems. We will discuss the linguistic status of the negative hand movement and the implications for typological theory regarding modal lexemes that are specialized for combining with negation in the Discussion chapter.

7.8.3 Research question 6: Syntactic distribution

This research question comprises two different issues. On the one hand, it is about the constructions in which negative modals or positive modals and their negator appear, their position and their scope (§ 7.8.3.1). The second issue, on the other hand, is related with the occurrence of epistemic and non-epistemic modals in a sentence when one (or both) are negated, as well as the combination of two negative modals and whether it results in double negation or negative agreement (§ 7.8.3.2).

7.8.3.1 Research question 6: Constructions

As for the distribution of negative modality, we have identified several constructions in declarative sentences, i.e. sentences that are neither questions nor imperatives. Among them, there are instances of performative uses and descriptive uses that may be interpreted also as performative for the participants in the interaction. A summary is given in Table 7.7. The content is organized differentiating constructions based on topic-comment and those based on syntactic constituent ordering, because of the importance of the former type in LSC, as argued in Chapter 6. The use of the topic-comment structures in LSC may respond to a dialogical discourse structure, such as the answer to a question or to stress a particular information (i.e. topicalization), but also to the neutral organization of discourse flow (i.e. topic grammaticalized), as discussed, among others, for ASL (Janzen, 1999) and LSE (Morales-López, Reigosa, & Bobillo, 2012).

The second division is based on: (i) the presence in the sentence of both the lexical verb and the modal –we will refer to it as full clause– or (ii) the formal absence of the modal or the lexical verb – i.e. zero anaphora. Zero anaphora consists of the omission of an element (or the use of a gap), in a phrase or clause, that has an anaphoric function. The interlocutor is referred back in the discourse to an expression (modal or lexical verb) that supplies the information necessary for interpreting the gap. The parenthesis signals that the subject may be optional, and the last column provides examples previously appeared in the chapter. Other codes are: p = pause, main = main sentence, sub = subordinate sentence.

Table 7.7 Syntactic distribution of modality and negation in declaratives

Type	Subtype	Elements and distribution	Examples
topic – comment	full clause	[(subject) modal lexical.verb]-top (subject) standard.negator	(239) (252)(282)
		[(subject) lexical.verb]-top (subject) modal.negator	(247) (250)
	zero anaphora	[subject]-top modal.negator	(277)
		[NP object]-top (subject) modal.negator	(244) (255)
syntactic ordering constituency	full clause	[(subject) lexical.verb modal.negator]	(251)
		[(subject) modal.negator lexical.verb]	(246)
	zero anaphora	[(subject) modal lexical.verb] p [modal.negator]	(241)
		[(subject) modal lexical.verb] p [standard.negator]	(283)
		[(subject) lexical.verb.1]main [(subject) lexical.verb.2 standard.negator]sub]	(240)(249)
		[(subject) lexical.verb]main [(subject) modal.negator]sub]	(256)
		[(subject) lexical.verb] p [...] (subject) modal.negator	(248) (250) (253) (254)
		[(subject) lexical.verb] p [...] (subject) standard.negator modal	(273)

With respect to topic-comment, we have observed both the negation with a modal negator or with the standard negator. In both cases, the negator is placed in final position. In the table, we make reference only to aboutness topics, where topics show maximal marking by syntactic-prosodic means (sentence-initial position, a nonmanual feature consisting of eyes widened and eyebrow raising) and they are followed by a pause plus the comment (Jarque, 2016; Jarque, Massone, Fernández-Viader, & Bosch-Baliarda, 2007).

As for argument structure constructions, we have identified both the modal negator in pre- and post-verbal positions. However, the global picture offered in Table 7.7 and the number of occurrences of post-verbal position suggest that pre-verbal position is a product of calquing from spoken languages. This has been argued in § 7.4.1.1 with respect to PODER.NO ('cannot') in example (246).

On the other hand, in the corpus, we have not identified occurrences of the orderings listed in (288).

(288) Distribution not identified in the corpus

- (i) (subject) lexical.verb modal standard.negator
- (ii) [(subject) lexical.verb]-top (subject) modal.negator general.negator

As (288) shows, the negated modals in LSC tend to appear in clause-final position, unlike the generic negation, where negation of constituents of adjectival predicates allows pre-predicate position. This is also the case for the two signed languages where negation of modal notions has been studied extensively: ASL (Shaffer, 2000, 2002) and TSL (Lin & Chang, 2011). If we compared with the syntactic position of negative modals, it follows the general tendency for negation to occupy clause-final position, as observed in Zeshan (2004)'s typological study. Negative particles in sign languages "have a preference for post-predicate or clause-final position" (2004, p. 52). But, it also allows for pre-predicate negative particles as other Western sign languages, and unlike in non-Western sign languages such as Jordanian SL – or LIU – (Hendricks, 2008). We will come back to this issue in the discussion chapter.

Regarding the distribution of negative modality in questions, we have identified the constructions listed in (289), and illustrated by example (245) above.

(289) Syntactic distribution of negation and modality in interrogatives

- (i) [proposition]-top (agent/subject) **modal.verb** general.negator
- (ii) [proposition with lexical.verb]-top (agent/subject) **modal.negator**
standard.negator

The distribution in (289) coincides with the declaratives. It is important to point out that constituent order in LSC interrogatives differs from declarative sentences only in content questions. Polar questions are generally marked only by nonmanual articulators, such as eyebrow raising and a forward head nod. Also, they may display a pragmatically marked polar interrogative construction formed by a declarative clause (or an interrogative) followed by a question marker (YES.NOT) (Jarque, 2016). In content questions, the interrogative sign is placed in final-clause position. On the other hand, the number of questions in our corpus is small compared with the number of declaratives.

As for negative imperatives, as shown in (257), we have identified, in the data from our corpus, the structures listed in (290).

(290) Syntactic distribution of negation and modality in imperatives

- (i) [lexical.verb **standard.negator**]-tension
- (ii) [lexical.verb **modal.negator**]-tension

Also for imperatives, the standard and the modal negator in LSC appear in clause-final position, as it happens in the few sign languages studied: LIS (Donati et al., 2017), LIU (Hendricks, 2007).

The second issue addressed in this section refers to the interaction between two (or more) modal constructions. In our corpus we have observed the combinations represented in (291).

(291) Combinations of constructions from diverse modal subdomains

- (i) [epistemic [negative.non-epistemic]]
- (ii) [[negative.non-epistemic]-top negative.modal]

7.8.3.2 Research question 6: Modals combination

Concerning the combination of epistemic and non-epistemic constructions, we have identified, in the corpus, epistemic modals with scope over participant-internal and participant-external (root and deontic) modal constructions. Consider, for instance, the example in (292) where the signer describes her expectations before the examination to get a job at La Caixa and mentions its result.

(292) EES 00:01:22 ES

PRO.1 EXAMEN TRIBUNAL OPOSICIÓ [GUANYAR LA.CAIXA]-focus p

exam admission_board exam to.win bank.name

gest.increible AVI CA:avi <[IL·LUSIÓ ABRAÇAR] > p PRO.1 CREURE [SER.IMPOSSIBLE]-neg p

amazing grandfather grandfather be.happy to.hug to.believe to.be.impossible

SER.CAPAÇ p I DIRECTOR CA:director <gest.sorpresa gest.uff >

to.be.able and director director "what a surprise"

'Vaig aprovar l'examen d'oposició a La Caixa. L'avi estava molt content i em va fer una forta abraçada. Creia que era impossible, però en vaig ser capaç.'

'I passed the selection exam at La Caixa. Grandpa was very happy and he gave me a strong hug. I thought it would be impossible, but I managed to do it.'

The negation of mental ability (to pass the test) is included over the scope of the possibility epistemic construction [PRO.1 CREURE]. Indeed, example (293) illustrates the scope of the necessity epistemic marker SER.SEGUR 'to be sure' over negative root possibility; (294) epistemic possibility [POR.1 PENSAR] over lack of root possibility, and (295), epistemic possibility [PRO.1 CREURE] over lack of permission (denial of deontic possibility).

(293) EES 00:21:30 ES

[ACOSTAR.SE.DATA]-top **SER.SEGUR [PODER.NO]**-neg

date.approaching sure cannot

'Quan s'acosti la data, segur que diuen: "No puc".'

'When the date approaches, (I'm) sure they say: "I can't".'

(294) EMS 00:03:57 MS

PRO.1 MOLT SER.DIFÍCIL PRO.1 p PRO.1(Q) PENSAR MOLT SER.DIFÍCIL gest.resignation

very to.be.difficult to.think very to.be.difficult

'Per a mi és molt difícil. Jo penso que és molt difícil.'

'For me it is very difficult. I think it is very difficult.'

(295) EES 00:00:50 ES

PRO.1 CREURE [SER.IMPOSSIBLE]-neg p SORD [NO]-neg

to.believe to.be.impossible deaf not

'Treballar jo a La caixa? Jo creia que era impossible. Els sords no podien.'

'Me, working at the Bank La Caixa? I thought it was impossible. Deaf people were not able to do it.'

Examples (292) to (295) show that there is no change of the word order because of the combination of epistemic and non-epistemic modals with negation.

The combination of two modal negators, as pointed out in chapter 3 and at the beginning of this chapter, may result crosslinguistically into two different kinds of linguistic phenomena: double negation or negative agreement. The phenomenon of **double negation** refers to the use of two negative markers having different grammatical and semantic functions (Li, 2004; Lyons, 1977), as in the English example in (296), which may be identified as: Mod + Neg + Neg + V.

(296) English (Lyons, 1977)

It needn't not be raining.

In our corpus, we have identified instances of double negation with topic-comment structures. They are exemplified in (297), where the participants are discussing the existence of food that they cannot eat.

(297) EJG 00:20:46 JG

[PODER.NO]-top HAVER.HI.NO p [AGRADAR MÉS AGRADAR MENYS] SÍ p

cannot there.be.not to.like more to.like less yes

'Que no pugui? No n'hi ha (que no pugui menjar). Hi ha coses que m'agraden més i coses que m'agraden menys.'

'That I can't? There's nothing (that I can't eat). There are things that I like more and things that I like less.'

Other than in topic-comment constructions, we have not identified combinations of two negators yielding a positive interpretation. On the other hand, we have found instances of **negative concord**, also referred as **concord of negatives** (Jespersen, 1922), **negation concord** (Mathesius, 1938), and **negative agreement** i.e. "the co-occurrence of more than one negative element in the same clause with the interpretation of a single instance of negation" (Zanuttini, 1997, p. 9), such as (298).

(298) EMS 00:22:08 JMS_R

Int.: (left) PRO.2 / NECESSITAR CLAR p PRO.2 PROFESSOR LLENGUA.SIGNES

need be.clear instructor sign.language

[PRO.2 MATRICULAR VOLER NO]-neg (BOIA.1 / O [PODER.NO^NO]-neg)

to.enroll to.want not one or cannot not

[CULPA NERVIS]-q [CULPA MANDRA ESTUDIAR]-q

fault nerves fault laziness to.study

Resp.: NO p PRO.1 NERVIS palm.up.gesture:home

not nervous

Int.: 'Falta clarificar (el que dius): no t'apuntaries a fer de professora de llengua de signes per què no vols? O per què no pots? Perquè et poses nerviosa? Perquè et fa mandra estudiar?

Resp.: No. Era perquè em poso nerviosa.'

Int.: 'You need to clarify (what you say): you would not sign up to be a sign language instructor because you don't want to? Or because you can't? Because you get nervous? Or because you don't feel like studying?

Resp.: 'I didn't take it into account. It was not the case that I could not study. I was interested but I was lazy'.

In the example in (298), the signer produces PRO.1 PODER.NO^NO, signaling a negative meaning, unlike double negation that would be interpreted as positive. In signed languages, two types of concord have been proposed (Pfau & Quer, 2007; Quer, 2012):

- (i) between the non-manual component and the negative manual sign
- (ii) between two negative signs that are both manual.

In our data, we have found both types. Negative concord between the non-manual component and a negative manual sign does not include head movement when it is a sublexical parameter, such as in the signs PODER.NO or SER.IMPOSSIBLE.

As far as the combination of two manual negators, we have noted three kinds of combinations. One type refers to the combination of a negator which is a lexicalization product of the fusion of the positive sign (cliticized negator) and the general (or basic) negator NO 'not'. This is the case, for instance of NECESSITAR.NO and SABER.NO. This is the case in (299), where the negative modal NECESSITAR-NO 'need not' is followed by NO 'not'.

(299) EJG 00:16:41 JG

[EXEMPLE [IX.tot ORALISME]loc:Europe]-cond

example all oralism Europe

[IX.Estats.Units [**NECESSITAR-NO NO**]neg]loc:USA

United.States need.not not

'Si hagués oralisme (en tots els països) en Europa, no serien necessaris els Estats Units.'

'If there was oralism (in all the countries) in Europe, the United States would not be necessary.'

Note in the fragment in (299), that the two negative elements appearing in a sentence yield, however, an interpretation that contains only one negation. This type of duplication has been attested also in Jordanian SL (LIU) (Hendriks, 2007).

A second type of combination consist of a negator, not product of a cliticization, followed by the basic negator NO. This is the case of PODER.NO –examples (261) and (298)— and TENIR.GANES.NO, as in (300), where the interviewer is enquiring about the reason why the respondent does not like to study English.

(300) EES 00:26:08 ES_R

[NO]-top [PERQUÈ PODER.NO O TENIR.GANES.NO NO]-q

not because cannot or be.fancy.no not

'No. Perquè no pots o perquè no tens ganes (d'estudiar anglès).'

'No. Because you can't or because you don't feel like (studying English).'

This combination is similar to the first in the sense that both negators have the same meaning, i.e. none of them expresses a higher degree of denial of the situation. We interpreted that, in these two types of combinations, the presence of the standard negator is used to reinforce the first negation and it has an iconic motivation, in the line of the proposal advanced by De Cuypere (2007).

In our corpus, we have found, also, examples of combination of a third type, in which there are two (or more) negators with a different quantificational value. This sequence is characterized by the order of the negators: it starts with the lower and ending with the higher, as exemplified in (301), where an epistemic possibility is negated. The example reports the reaction to the interviewer's question about whether the interviewee would like to have a third child in case they could have enough money.

(301) EMS 00:08:26 MS

INT.: [SEGUR DONA]-q [HOME QUÈ]-q

sure woman man what

MS: SABER.NO p gest.incertesa PRO.1(Q) **DUBTAR.IND SABER.NO**

know-NEG gesture:uncertainty to.doubt.ind to.know-not

Int.: Segura, una nena. I si és un nen, què?

Resp.: No ho sé. Què sé jo! No ho sé.

Int.: I'm positive, a girl. And what if it is a boy?

MS: I don't know. How could I know! I don't know.

Similar to the previous example, where the second sign expresses a higher degree of negation, negative concord may also result in a combination of a standard negative modal and an emphatic negator, as for instance ZERO.

As pointed out, the phenomenon of negative concord between manual negators has been reported for several sign languages, mainly on ASL (Wood, 1999), LIBRAS (Arrotéia, 2005), LIU (Hendriks, 2007), but others -such as German SL (Pfau & Quer, 2007)- do not display it. However, it differs from the typology of negative concord for spoken languages as described by van der Auwera and Alsenoy (2016).

The use of NO to emphasize the negation of a negative sentence has been pointed out for several sign languages. We have not found instances of the use of standard negator accompanying topic-comment constructions with the modal negator in the comment, as in (302).

(302) [proposition with lexical.verb]-top (subject) modal.negator **general.negator**

This is a reason, we argue, to consider the standard negator accompanying modal negators as a reinforcement. Since in a topic-comment construction the comment adds the relevant information, there is no need to reinforce it.

7.9 Final remarks

This chapter has provided a preliminary study of the resources for the expression of negation in LSC, with a special focus on the interaction with the semantic space of modality. LSC combines the use of the standard negative mechanism for negation in the language with the use of specific manual markers to express negative modal meanings. For this reason, we have addressed the description of the general negative resources. The main findings with respect to the interaction of modality and negation in LSC are listed in (303)-(305).

(303) Main findings related with **RQ 4**: the negation of modal values with general resources

- (i) LSC displays several resources for negating the entire proposition, constituents in the sentence or a particular sign in the clause.
- (ii) Both standard negation and, in the case of negation of modal meanings, non-manual markers (facial expressions, head and body movements) are crucial at different linguistic levels, conveying lexical –being part of the sign phonology— and grammatical information, that is displayed morphologically

through the process of negative incorporation or syntactically through free markers.

(304) Main findings related with **RQ 5**: the existence of negative markers

- (i) LSC exhibits elements specialized for negative modal notions but not in all cases. Some accomplish several modals notions, whereas others are restricted to specific modal values.
- (ii) Regarding deontic meanings, however, there is a preference for the prohibitive markers and there is no construction of negation of positive commands (or negation of imperative), following the general crosslinguistic tendency (See van der Auwera 2010c).
- (iii) Indeed, some negative markers have their origin in the contraction of the positive counterpart and the sentential negative marker showing processes of cliticization and univerbation: PODER.NO, NECESSITAR-NO and SABER-NO.
- (iv) Some modal negators constitute instances of diagrammatic iconicity: NO!(2h), NECESSITAR-NO, SABER-NO, etc.
- (v) Deaf signers use resources situated at different points in the grammaticalization continuum. For instance, the negation of cognitive terms such as CREURE o SABER may be expressed with the independent negative marker or with the incorporation of negation in the predicate showing varying degrees of fusion.

(305) Main findings related with **RQ 6**: syntactic distribution

- (i) Negative modals tend to occupy a clause-final position, i.e. typologically LSC fits the pattern of a non-Western sign language.
- (ii) LSC adopts several topic-comment structures in combination with negative elements in the comment.
- (iii) The combination of epistemic and non-epistemic elements adopts mainly the structure [EPIST [NON-EPIST]]
- (iv) Negative modals are used in topic-comment and syntactic constructions with zero anaphora.
- (v) We have not found in our corpus combinations of negative modal markers showing double negation except for the context of topic-comment.

- (vi) Some combinations of negative modal markers express negative agreement. We observe negative agreement between manual and non-manual (such as NO and the spreading of the side-to-side head movement along several signs in the clause), and manual + manual, such as PODER.NO + NO.
- (vii) Some combinations of negative modal markers expressing negative agreement are ordered in a raising sequence, showing serial negation.

In conclusion, this chapter has widened our understanding of the grammatical properties of negative manual and non-manual markers and the interaction with modality, but it calls for further confirmation based on a larger corpus of data, which might include language variation. In particular, more research is needed on the production of non-manual resources as well as informative structure and discourse constructions (topic-comment, topicalization, focus) in comparison to syntactic constituents ordering for the expression of negative modality values.

Throughout the chapter, we have addressed the main issues usually included in the study of the interaction of modality and negation, since Aristotle's philosophical work *De Interpretatione*. In Chapter 12 we will contrast the expression of negation and modality in LSC with the resources from other sign languages. The comparison will complement our study, but it will also pose new challenges and questions, specifically with regard to the combination of manual and non-manual resources and the role of gesture.

Chapter 8. The interaction of modality with other semantic domains: evidentiality

8.1 Introduction

This chapter⁹⁰ focusses on the results related with **research goal 2**, i.e. it examines the interaction of modal meanings and forms with other grammatical/functional categories or semantic spaces in LSC, specifically evidentiality. To attain this goal, we have addressed the research questions (RQ), as specified in chapter 4, and reproduced in (306):

(306) Research questions addressed in chapter 8

RQ 7. Which are the main constructions signaling evidential meanings in LSC?

RQ 8. Which are the sources for evidential markers?

RQ 9. Do modality and evidentiality constitute separate grammatical categories in LSC?

This chapter provides a description of the linguistic realization of evidential functions in Catalan Sign Language (LSC), an almost unexplored area in the signed language literature. Our point of departure is that evidentiality constitutes a semantic domain realized by several types of linguistic devices across languages. It is, thus, an instance of a *cross-linguistic gram type* in terms of Bybee & Dahl (1989), Bybee et al. (1994) and Tournadre (2014), or a *functional category* in terms of Cornillie (2009). To use Cornillie's (2009) words, evidentiality is a "functional category that refers to the perceptual and/or epistemological basis for making a speech act" (p. 45). Thus, semantically, we regard evidentiality as a multidimensional contextual category (Lampert & Lampert, 2010), adopting a notional definition in terms of 'source-of-knowledge'. Following Bermúdez (2005), evidentiality includes three different dimensions, as in (307):

(307) Multidimensional status of evidentiality

- (i) the epistemological (the modes of knowing),
- (ii) the locus of the information source (internal vs. external), and
- (iii) the status of knowledge vis-à-vis the subjectivity-intersubjective axis (unshared vs. shared information).

The **epistemological dimension** refers to the epistemological basis for a statement: the type of access to information or mode of knowing (usually referred to in the literature

⁹⁰ Portions of this chapter, related with the constructions whose source is a direct discourse expression, are published in Jarque and Pascual (2015).

as *source of information*). This constitutes the focus of the vast majority of studies on evidentiality. The mode of knowing is defined as the process leading to the acquisition of the information, i.e. directly visual, indirectly through inferences, reports, etc. The type of information access may be an axis with cognitive and sensorial poles. Take the Catalan examples in (308):

(308) Jarque and Pascual (2015, p. 421)

(a) Vol ploure.

Lit. 'It wants to rain.'

'It looks like it's about to rain'.

(b) Plou.

Lit. 'It rains.'

'It's raining'

(c) Diria que plou.

Lit. 'I would say that it rains'

'It looks like it's raining'.

In (308)(a) the utterer has cognitive access to the information, through inference, from the color, shape and amount of clouds that they could observe since -in their words "We came back right on time from our walk"; in (308)(b), the addresser has direct access to the information as witnessed by his/her statement "Hurry up, I'm getting all wet". By contrast, (308)(c) is ambiguous, but it has preferably an inferential reading: it can either mean that the utterer has seen, for instance, something that directly indicates that it is raining (water drops on the window glass or people coming in with wet umbrellas) or a subtler indication, for instance hearing a soft sound of water falling. The aspectual verbal periphrasis *voler* + infinitive, saturated with the infinitives *ploure* o *caure*, assumed an epistemic/evidential function in modern Catalan (Antolí Martínez, 2015b). Across spoken languages, the distinction between direct and indirect experience accounts for the diverse distributional patterns of lexical items as opposed to grammatical forms (Squartini, 2008).

The second dimension, **the type of information source**, refers to the locus where the information is acquired. This dimension has two values: 1. subject-internal, when the addresser has directly seen, or heard the information expressed in the utterance; 2. external with respect to the utterer, when he or she has not directly experienced the information but has rather learnt about it from another source (Bermúdez, 2005; Squartini, 2008). Compare the Catalan examples in (309)(a) and (309)(b):

(309) Jarque and Pascual (2015, p. 422)

(a) He vist que plou.

Lit. 'I have seen that it rains.'

'I have seen that it's raining.'

(b) Es veu que plou.

Lit. 'One sees that it rains.'

'I learnt it is raining.'

In (309)(a) the addresser expresses visual access to the event described, whereas in (309)(b), the reporting information is presented as originating from somebody else.

Finally, **the shared vs. unshared status of evidence** is expressed by some scholars as the continuum between the universal and exclusive access to information poles (Bermúdez 2005) or dimensions, to use the term used in the subjectivity and intersubjectivity literature (Cornillie, 2007a, 2007b). Consider the Catalan examples in (310):

(310) Jarque and Pascual (2015, p. 422)

(a) Se sap que l'agost plou als Pirineus.

Lit. 'It is known that it rains in the Pyrenees in August.'

(b) Sé/Sento que no vindran.

Lit. 'I know/feel that they will not come.'

'I feel they are not coming.'

In (310)(a) the clause with generic reference reports information that is well-known among the Catalan population (folklore evidentiality, in Willet's 1988 terminology). By contrast, in (310)(b) the utterer reports information whose source is a personal feeling (endophoric evidentiality). Thus, in (310)(a) the window of attention belongs to background knowledge shared by a community, whereas in (310)(b) it refers to the utterer.

The shared vs. unshared status of evidence is usually not taken into account in most studies of evidentiality –but see Frawley (1992), Mushin (2001), Cornillie (2007a), Squartini (2008) and Tantucci (2013). Evidentiality involves deixis and perspective, since it presents the source of evidence, as directly experienced by the addresser or presented by someone else. It, thus, expresses the addresser's viewpoint and is based on the enunciation context, and on the relation between addresser, addressee, and conceptualized scene (Bermúdez, 2005; de Haan, 2005; Mushin, 2001).

Formally, evidentiality may be expressed, as shown in chapter 3, through several resources, namely an obligatory inflection, suffixes, clitics, particles, grammatical morphemes that acquire evidential meanings, adverbs, adverbial constructions, adjectives, verbal-periphrastic expressions, bigger sentential constructions, or even discourse constructions. The formal expression of evidential values constitutes a largely unexplored area in the signed language literature. It has only been examined briefly in American Sign Language (Shaffer, 2012; S. Wilcox & Shaffer, 2018) and Italian Sign Language (Mazzoni, 2009).

In this chapter, we will provide a description of the linguistic resources used for expressing grammatical values of evidentiality in LSC. LSC does not have any grammatical category fully grammaticalized, as it occurs in most of the signed languages studied until present. Some grammatical meanings are coded morphologically – such as aspect and person – but most of them are expressed periphrastically in Bybee et al. (1994)'s terms. Assuming that lexicon and grammar constitute a continuum, we will be mostly concerned with the so-called "lexical expression of evidentially" – Cf. Aikhenvald (2004) and Plungian (2001, 2010).

However, we will defend the inadequacy of this terminology and we will argue that they constitute constructions. These lexical items take as a scope a proposition and not a state-of-affairs. Following Boye (2010), we will distinguish state-of-affairs from propositions (or "propositional content"). Thus, since the evidential items take scope semantically over a proposition, we will consider the whole as a construction.

This position clearly differs from the view that considers evidentially as an exclusively grammatical, obligatory category of a language – Cf. Aikhenvald (2004) — and is based on recent discussions on the necessity of considering grammatical categories from a wider and functional perspective, especially in the case of evidentiality. See Cornillie (2007a), Squartini (2007), and Wiemer & Stathi (2010) for arguments in favour of this approach.

We approach evidentiality from a combined onomasiological and semasiological perspective. Starting from evidential semantic values or functions, we search for linguistic devices showing that function in LSC, as adopted in earlier studies of other languages (Bermúdez, 2005; Simon-Vandenberghe & Aijmer, 2007; Squartini, 2007, 2008).

The chapter deals with the possible set of semantic parameters that could characterize evidentiality as a universal-linguistic grammatical category, such the ones included in prominent works as Willett (1988), Aikhenvald (2004), Plungian (2010), and described extensively earlier in chapter 3, but without accepting a priori a classificational taxonomy of evidential values for LSC. Our assumption is that the semantic space of evidentiality can be characterized and visualized as the interacting dimensions indicated in (307), rather than as close-class categories in taxonomical Aristotelian-style.

Evidential values comprise direct and indirect access to information. Direct access refers to any means of obtaining information that presuppose a direct perception of a situation by the signers and/or a direct participation of the interlocutors in a situation (Plungian, 2010). We will consider three types: a direct perception through the senses (*sensorial evidence*), direct perception through feeling (*endophoric evidence*) and through the participation in the situation (*experiential evidence*).

Indirect experience in LSC includes non-personal access (reportative evidentiality), as well as personal access in the form of the results of a situation (inference evidentiality). Reportative evidentiality presupposes that the signer, talking about a situation, bases his/her utterance on the information of another person, because he/she did not have access to the situation or indications thereof. Inference evidentiality includes reports based on cognitive processes of inferencing by means of contextual hints or by means of general knowledge.

For the sake of readability, the chapter is organized in the following way. In Section 8.2., we will address the coding of direct evidentiality in LSC: sensorial evidence (§ 8.3), endophoric evidence (§ 8.3) and experiential values (§ 8.4). Section 8.5 deals with indirect subtypes related to mediated evidence, comprising quotatives (§ 8.5.1), reportatives (§ 8.5.2), and folklore (§ 8.5.3). The encoding of inference is addressed in § 8.6: specific (§ 8.6.1) and generic values (§ 8.6.2). The following sections present a brief discussion of the area of evidentiality in LSC based on the research questions 7 to 9: evidential constructions in LSC (§ 8.7.1), followed by an examination on the possible sources for the evidential grams (§ 8.7.2) and the potential interface with modality (§ 8.7.3). Finally, Section 8.8 presents some final remarks.

8.2 The encoding of sensorial evidence

Sensorial evidential constructions indicate that the utterer knows about the situation through a sense (Bermúdez, 2005; Willett, 1988). Concerning LSC, it does not display a generic sensorial evidence marker, including or excluding visual evidence (Cf. Aikhenvald, 2004). Moreover, it shows several constructions with respect to several modes of sensory access.

8.2.1 Visual evidence

The main constructions expressing direct visual evidence in LSC include the predicates glossed as MIRAR 'to look at' and VEURE 'to see'.

8.2.1.1 MIRAR 'to look at'

MIRAR 'to look at' constitutes one of the main predicates specifying source of information in LSC (Figure 8.1). Not surprisingly, the visual domain is considered by deaf people the most important channel to access knowledge.



Figure 8.1 MIRAR 'to look at'

Morphosyntactically, MIRAR belongs to the category of deictic regular verbs (Morales-López, Boldú-Menasanch, Alonso-Rodríguez, Gras-Ferrer, & Rodríguez-González, 2005) or, according to Liddell (2003)'s denomination, *indicating verbs*. The verb form can be modified in all possible directions (from the signer to the interlocutor, from the interlocutor to the signer, from the other interlocutors to the signer, etc.). Consequently, all participants can be agents (i.e. subjects) or recipients of the action (i.e. objects); this way, the start of the sign direction or orientation indexicalizes who is the agent, and the end of the direction who is the beneficiary/recipient or goal (Morales-López, et al., 2005). In other words, these verbs combine the iconic with the indexical nature so that, on top

of the iconic predicative information, they activate the meaning related with the agent (physical or conceptual) location.

In this section, we will examine only MIRAR when signaling **direct evidence**. But, as we will show in Section 8.6, it also conveys inference. Consider the examples in (311) and (312). Both are extracted from a fragment of the interviews when the participants are talking about schooling and the interviewee states her opinion about her son's academic achievements. Specifically, the issuer is explaining her opinion about her son's way of reading, which is different from the teacher's point of view.

(311) EMS 00:34:20 MS

PRO.1 **MIRAR** LLEGIR REGULAR p PROFESSOR CA:professora<[NO]-neg **MIRAR** ESCOLA

to.look.at to.read regular teacher teacher not to.look.at school

[BÉ]-intens> PRO.3I 3-DIR-1/IX.professora /CA:professora<[BE]intens>

good to.say teacher teacher good

PRO.1 **MIRAR** LLEGIR COMPRENDRE [NO]-neg

to.look.at to.read to.understand not

Lit. 'Jo veig que llegeix regular. (En canvi), la mestra diu: "No, no. Jo veig que a l'escola ho fa be". (Però) jo veig que no entén quan llegeix.'

'Jo veig que llegeix regular. En canvi, la mestra diu que a l'escola ho fa bé. Però jo veig que quan llegeix no entén.'

Lit. 'I see that he reads so so. (On the other hand), the teacher says: "No, no. I see that at school he does it well". (But) I see that he does not understand when he reads.'

'I see that he does not read fluently. (On the other hand), the teacher says that at school he does it well. (But) I see that he does not understand when he reads.'

In the above example, the signer draws on her personal experience to substantiate her dissatisfaction with her son's lack of reading skills, displaying a stark contrast with the teacher's opinion. She is not simply describing the situation, rather she is providing evidence on which her statement is based, its perceptual basis, stressing the reliability and the validity of the information because she is the source of knowledge. These epistemological values belong to the realm of evidentiality. Consider, also, example (312).

(312) EMS 00:34:06 MS (MS 8:01:38)

[CL.MANIP.llapis-MOV.IMIT.escriure.amb.lletra lligada]-top SABER SABER

to.write.in.cursive *to.know to.know*

PRO.1 **MIRAR** CL.MANIP.llapis-MOV.IMIT.escriure.amb.lletra.lligada

to.look.at *to.write.in.cursive*

PERFECTE PERFECTE PERFECTE

to.be.perfect to.be.perfect to.be.perfect

'Sap escriure amb lletra lligada. Jo he vist que escriu amb lletra lligada perfectament.'

'He knows how to write in cursive. I have seen that he writes perfectly in cursive.'

Similarly, in the example (312), the signer is expressing total responsibility for the source of the information, and not merely describing a situation in the past. MIRAR takes as scope the whole proposition. Thus, we will consider [PRO MIRAR proposition] an evidential construction signaling the locus where the information is acquired (external) and the mode of knowing (visual). At the same time, in both examples, the conceptualizer is coding total epistemic commitment through her facial expression, also called *facial grammar* by Wilcox and Shaffer (2018), and through the manner of movement of the manual signs. The second main predicate in a construction signaling sensory access to information is VEURE 'to see', and it will be the focus of next section.

8.2.1.2 VEURE 'to see'

VEURE 'to see' is a simple predicate (Figure 8.2) that in its neutral formulation includes principally predicative information (Morales et al., 2005). That is, VEURE does not change its movement or orientation to code morphologically the semantics functions of agent and/or the patient/theme, as happens with MIRAR. The signer may modify its movement in order to cover grammatical aspect (i.e. durative aspect) or its facial characteristics for expressing adverbial information on the action (i.e. attitude).



Figure 8.2 VEURE 'to see'

VEURE 'to see' can be used in constructions where the issuer, instead of describing a visual experience per se, is using the verb as a resource to express an opinion, as illustrate in (313).

(313) EJG 00:08:28 JG

PRO.1 MIRAR PARE+MARE SORD p [FILL SORD]-top p

look.at father+ mother deaf son/daughter deaf

[TREBALLAR EXCEL·LENT]-top **VEURE** [HAVER.HI.NO]-neg

work excellent to.see to.there.be-not

Lit. 'Jo veure pares sords amb fills sords que tinguin una bona feina? No n'he vist.'

'Jo no he vist que hi hagi pares sords amb fills sords que tinguin una bona feina.'

Lit. 'I have been looking deaf parents, with deaf children? having a good job? (I) saw not.'

'I have not seen deaf parents with deaf children that have a good job.'

As example (313) illustrates, VEURE exhibits a specific pattern for negation. The negative constructions with this verb do not include the general negative adverb NO 'not' (See chapter 7 for a description of negation strategies in LSC). Instead, it is followed by the negative form of the existential predicate HAVER.HI.NO.

8.2.2 Olfactive evidence: OLORAR 'to smell'

Another predicate that may express a sensorial access to information through the senses in LSC is OLORAR 'to smell' (olfactive access) (Figure 8.3).



Figure 8.3 OLORAR 'to smell'

In (314), the participant is narrating a story in which the protagonist tried hard to eliminate his dog's fleas.

(314) Birds' source 00:03:22 JMV_R

CASUALITAT PARES VENIR CASA CA:pares <[**OLORAR** IX.zona]-fac.exp.estranyesa>

by.chance parents to.come home parents to.smell

DIR.2 CA:pares <PRO.2 RENTAR.CAP PRO.2> p CA:signer <SÍ> p

say parents to.wash.head yes

CA:pares < [PRO.2 **OLORAR** NO AIGUARRÀS]-neg/q] **OLORAR** FORT p

parents to.smell not tupertine to.smell strong

CA:signer <PRO.1 SABER SÍ PERQUÈ IX RUIXAR.GOS PERQUÈ XX 3-PRESIONAR-1 PUÇA p

to.know yes because to.pour dog because to.press fleas

PRO.1 ESFORÇAR MÀXIM PER DESAPARÈIXER p

to.try hard for to.disappear

CA:pares < [RUIXAR.GOS COM]-q p CA:signer <PRO.1 RUIXAR.COS.TOTALMENT

parents to.pour dog how signer to.pour.on..the.whole.body

IGUAL SER L-O-C-I-O-N TOT.EL.COS fac.exp RES.MÉS> CA:pares <NO(2h)-INTENS>

like to.be lotion all.over.the.body that's.it parents don't

CA:signer <PRO.3 VEÍ DAVANT 3-DIR.2-1 p PRO.3 CAÇADOR >

signer neighbour in.front say hunter

CA:pares <fac.exp. "Entenc" NO SER IX POSAR.LOCIO 2 O 3 GOTA PROU DE CUL p MOLT NO >

parents I see no to.be to.pour.lotion two or three drop enough of butt a.lot not

PRO.1 CA:signer < DESENCAIXAT p OSTRES >

gosh *damn*

'Per casualitat, van arribar a casa els meus pares i em van dir:

- No sents una olor d'aiguarràs? Se sent molt fort.
- Sí, ja ho sé. Em vam pressionar perquè el ruixés per les puces. M'he esforçat al màxim perquè desapareguessin.
- Però, com ho has fet?— em van preguntar.
- Doncs, he posat la loció per tot el cos—vaig respondre.
- Nooooo!!!— van fer.
- M'ho va dir el veí del davant, que és caçador.
- No, amb 2 o 3 gotes al cul és suficient. Molt, no!
- Apa! Ostres!—vaig fer jo.'

'By chance, my parents arrived at home and told me:

- Doesn't it smell of turpentine? There is a strong smell.
- Yes, I know. He pushed me to pour (the turpentine) on it because of the fleas. I've tried hard to make them disappear.
- But, how did you do it?— they asked me.
- Well, I put the lotion on the whole body—I answered.
- Nooooo!!!— they went.
- It is the front door neighbour that told me that, he is a hunter.
- No, with two or three drops on the butt is enough. A lot, no!
- Gosh! Damn!— I went.'

However, OLORAR 'to smell' is more frequently used with an inferential function than expressing direct evidence, and this use will be addressed in Section 8.6.1. In addition, TOCAR may be used to refer to direct access to information but not through the specific sense of touch, but as general participation in an event, called *experiential evidence*. This will be one of the focus in next section.

Throughout this section, we have examined several verbal constructions expressing direct evidential values. According to some authors, they should be considered as evidential resources since they apparently do not meet the secondariness status, as described in Anderson (1986) or Boye and Harder (2009), because in MIRAR or VEURE the action of seeing or watching is prominent (Cf. Cornillie, 2015). However, a close look

at the discourse functions of MIRAR and VEURE in examples (311) and (312) above show the following discourse functions (315):

(315) Discourse functions of MIRAR and VEURE

- (i) Their main function is to add “a justification for a factual claim which is available to the person making that claim”, that is Anderson’s (1986, pp. 274-275) first criteria for evidentials.
- (ii) They “are not themselves the main predication of the clause, but are rather a specification added to a factual claim about something else”, as the second property by Anderson.
- (iii) The verbal constructions “have the indication of evidence as their primary meaning, not only as a pragmatic inference”, that is Anderson’s (1986) third criteria.

Possibly, the persistence of the original meaning of these verbs, that do not undergo a desemantization or an expansion process, bears on the fact that equivalent constructions in other languages do not appear in the inventory of evidential constructions and periphrases. Nevertheless, we believe that the predominant criterion must be its function in the discourse. In other words, these constructions do not add details to a situation, but rather they offer an informative perspective on the principal sentence (Cornillie, 2016).

8.3 The encoding of endophoric values

This section deals with the constructions expressing endophoric and experiential values. Whereas endophoric evidence refers to the situation in which the signer describes entities not accessible through the senses such as desires, intentions and mental states, experiential evidence signals that the conceptualizer has experienced the event or situation as a whole (Bermúdez, 2005).

Endophoric evidence involves a situation in which the locus of knowledge is internal, the status privative, and the source is not directly accessible through the senses. Examples are desires, intentions, and mental states in general. These are cases in which the addresser adduces direct evidence, but where sensorial access is not possible

(Bermúdez, 2005; Plungian, 2001; Tournadre, 1996). Endophoric evidence is not included in classical evidentiality taxonomies, as in Willet (1988) and some scholars do not consider it to be a form with an exclusively evidential value, but rather an extension of it (Aikhenvald, 2004).

In LSC, three constructions may be used to indicate endophoric evidence: SENTIR.AL.COR 'to feel at the heart', 1-AVISAR-1 'to call oneself' and SENTIR.AL.COS 'to feel at the body'.

8.3.1 SENTIR. AL.COR 'to feel at the heart'

The predicate SENTIR.AL.COR 'to feel at the heart' (Figure 8.4) is used for the semantic domain of feelings and emotions, such as sadness, happiness, etc., whereas SENTIR.AL.COS (Figure 8.7) corresponds to body states, such as when a person is sick, cold, etc. (J.M. Segimon p.c, I. Codorniu, p.c.). Another predicate related with the feeling domain is glossed as SENTIR.EMOCIÓ and means 'emotion', 'feeling' (Figure 8.5).



Figure 8.4 SENTIR.AL.COR 'to feel at heart'



Figure 8.5 SENTIR.EMOCIÓ 'to feel emotion'

SENTIR.AL.COR has its origin in two conceptual metaphors THE HEART IS THE LOCUS OF EMOTIONS and THE HEART IS AN OBJECT and FEELINGS ARE OBJECTS (Jarque, 2005). SENTIR.EMOCIÓ has its origin in the fact of making somebody's hair stand on end and it instantiates the metonymy THE EFFECT FOR THE CAUSE (Jarque et al., 2012).

8.3.2 1-AVISAR-1 'to call oneself'

The lexical source for this evidential form is the predicate AVISAR 'to call', meaning *to call, to ask, to warn, to inform*, etc. See, for instance, example (346) meaning *to ask*. AVISAR belongs to the category of regular deictic predicates, following the typology provided by Morales et al. (2005), as described previously for MIRAR (§ 8.2.1.1). It corresponds to an indicating verb in Liddell's (2003) typology for ASL. It may be used to encode mediated evidence, as it will be discussed in Section 8.5, when it refers to something to be said (or warned...) by somebody and it adopts a morphosyntactic pattern that reflects the conversational structure. In addition, AVISAR is employed to encode endophoric evidential values when it is used in a morphosyntactic reflexive pattern, glossed as 1-AVISAR-1 'to call oneself', in which the verb has a first-person morpheme indicating the agent and a first-person morpheme signaling the patient of the action (Figure 8.6).



Figure 8.6 1-AVISAR-1 'to call oneself'

This is to say that the signer's own body stands both for the agent and the patient, or, alternatively, for a 'part' of the experiencing signer (mainly the heart or the mind), which metonymically stand for the whole individual. This function is illustrated by example (316). This fragment appears embedded in a piece of discourse, from an LSC literary contest, in which the narrating signer engages in a debate with herself about her attitude and behavior towards a wide range of world problems, from the environment and animal cruelty to drug addiction and wildfires. The discourse starts with the signer's will to contribute to a better world, and then proceeds to discuss eleven individual world problems, like abandoning pets.

(316) CM08 MP 00:01:29 VV

PERSONA-PLU VOLER ABANDONAR LOC:center-to-left ANIMAL p CA:persona < [...] MIRAR

person want abandon animal person look.at
 MARXAR loc: center.to.right CAMINAR>MENT [CANVIAR]loc:ment-1 CA:ment<NO NO NO>
leave walk mind change not not not
 CA:persona <SENTIR.AL.COS 1-MIRAR-3.animal> IX ANIMAL CA:animal<TRIST> [...]
person feel.at.the.body look.at animal sad

Lit. 'Hi ha persones que volen abandonar els animals. [...] Fan mitja volta i marxen. La ment canvia d'idea i m'avisa. Em diu: "No ho facis! No ho facis! No ho facis!". Sento que l'he de mirar [a l'animal] i el veig molt trist.'

Lit. 'Some people want to abandon animals. [...] They turn around and leave. My/Their mind reconsiders it and warns me/them. And it tells me/them: "Don't do it! Don't do it! Don't do it!". I/They feel I/they have to look at it [the pet] and it looks very sad.'

Observe that the signer uses the third person to refer to the perpetrators of a behavior she disapproves of. As they become aware of their actions, the signer takes their perspective. This is accomplished splitting the self (see, e.g., Fauconnier & Turner, 2002) into the whole thinking person and the sole mind. The latter warns the former, telling them/her not to leave the pet behind.

The signer addresses eleven issues, discussing each of them in three parts:

- (i) the signer assumes the perspective of the perpetrators of the reproachable behavior and enacts a description of the nature of the problem;
- (ii) the signer/individual realizes the negative consequences of the behavior and changes the attitude; and,
- (iii) finally, the signer describes the positive outcome due to the change of attitude.

However, there are some variations of the discourse structure of each sequence. In particular, there are three kinds of formal expressions used to report the perpetrator/narrator's awareness. First, example (316), discussed above (and other fragments in that signer's discourse), illustrates the conceptual split self that allows the inner voice/mind to address in direct discourse the thinker, through a constructed action/dialogue/thought without an overt introductory framing structure.

Example (317) illustrates the second strategy. The 1-AVISAR-1 construction ‘to call/warn oneself’, ascribed to one’s mind, warns the thinker against the behavior expressed by the mentioned direct discourse. This strategy can be observed also in the fragments condemning alcohol abuse, wild flower picking, and the overconsumption of water.

(317) CM08 MP 00:03:00 VV

BOSC PERSONA IGNORAR p FUMAR ACABAR.CIGARRETA BURILLA.LLENÇAR p CALAR.FOC

forest person ignore smoke finish.smoke to.butt.cigarette set.fire

VEURE RIURE p MENT CANVIAR.IDEA AVISAR.1-INSISTENT CA:ment<NO(2h) NO(2h) NO(2h) p

see laugh mind to.change.mind to.call insistently not not not

BOSC SALUT> p PERSONA NECESSITA OLORAR RESPIRAR PODER VIURE CONTINUAR

forest Health person need smell breath can live keep

Lit. ‘Hi ha persones que no tenen cura del bosc. Fumen i quan acaben la cigarreta la llencen al bosc. Riuen mentre veuen com es cala foc. (Però) la ment canvia d’idea i em diu: “No ho facis! No ho facis! No ho facis!” El bosc ha d’estar sa. Les persones necessitem respirar per poder viure.’

Lit. ‘Some people disrespect the forest. They smoke, finish, and throw away the cigarette butt and set fire to the forest. They see it and laugh. Their/my mind changes. (The mind) calls them insistently: “Don’t! Don’t! Don’t!”. The forest means health, people need to smell and breath to keep on living.’

The third strategy involves the use of a verb of emotion, like SENTIR.AL.COS ‘to feel in the body’, followed by direct discourse. We will focus on this PREDICATE in the following section.

8.3.3 SENTIR.AL.COS ‘to feel at the body’

The predicate SENTIR.AL.COS ‘to feel at the body’ (Figure 8.7) is a simple predicate (Morales-López, et al., 2005). Semantically, this sign conveys feelings and states. Indeed, it can be used as an evidential strategy expressing that the signer is the source or the experiencer of the situation named by the verb or the proposition.



Figure 8.7 SENTIR.AL.COS 'to feel at the body'

This strategy appears in the fragment on abandoning pets in (316) above, and in (318) below, where the signer discusses ill-treatment of the elderly and other citizens.

(318) CM08 MP 00:04:00 VV

[...] PEGAR-ASP.INCOATIU SENTIR.AL.COS 1-MIRAR.1 CANVIAR.IDEA CA:mind<NO NO NO>

abuse to.feel.at.body look.at to.change.mind not not not

[...] SENTIR.AL.COS CA:mind<NO NO NO>

to.feel.at.body not not not

Lit. '[...] Estan apunt per abusar verbalment (de la gent gran) quan senten, es miren a si mateixos i (aleshores) canvien d'idea. "No! No!". Ells senten: "No! No! No!".'

Lit. '[...] (They) are about to verbally abuse (the elderly) when they have a feeling, they looked at themselves and (then) they change their mind. "Don't, don't". They feel "Don't, don't".'

In the last example, the signer combines the two strategies related to an endophoric source of information. The signer's own body is considered as the patient. Both constructions have a non-volitional component, since they are used to express the lack of intentionality of the action performed by the signer or the mental/emotional state he/she experiences. This construction can occur with predicates that express internal states, such as AGRADAR 'to like', or ATRAURE 'to feel attracted to'.

In above (318) SENTIR.AL.COS profiles clearly the conceptualizer's personal experience. The source is totally internal to the agent and the information is privative, in Bermúdez's (2005) terms. This is even stressed by closing signer's eyes. However, some uses of this predicate seem to be closer to an inferential process. Consider, for instance, the example in (319). The signer has been explaining how he sees the future of Catalonia within the

European Union. After expressing that the European countries will go through a process of fusion ending in a federal state similar to the United States of America, the interviewer explains the parallelism and asks which of the two countries would have more influence in the future European state, similar to the influence of New York in the East Coast and California in the West Coast.

(319) EJG 00:13:42 JMS

[PRO.2 **SENTIR.COS.2** IGUAL VEURE(2h) ZONA FUTUR HAVER.HI UN PAÍS

to.feel.in.body same to.look.at zone future to.there.be one country

PODER MANAR IMPORTANT]q p gesture: palm.up.esperant.resposta p

can to.lead important gesture: palm up waiting for answer

IGUAL ESTATS.UNITS ZONA NOVA.YORK ZONA.EST p

same United.States zone New.York east.coast

CALIFÒRNIA ZONA.OEST ZONA CONÈIXER gest.demanda

California west.coast zone to.know gesture: asking an answer

'Veus en el futur un país més important, que mani? Com (per exemple) igual que en els Estats Units està Nova York en la costa est i Califòrnia en la costa oest.'

'Do you see in the future a more important country, one that leads. Like (for example) in the United States there is New York on the East Coast and California on the West Coast.'

In this context, the interviewer is asking for a personal opinion on the subject of geopolitics. Therefore, this use will be located in a middle position in the source of information continuum, where the conceptualizer profiles an access to the information that is personal but, at the same time, is based on recent news and on his long-life experience.

8.3.4 **SABER 'to know'**

The last endophoric element is the verb SABER 'to know', already described in chapter 6 when expressing ability. This verb can be used also to cover endophoric values, as illustrated in (320).

(320) EMS 00:06:33 MS

SABER PER.SEMPRE DURANT-ANY PRO.1 VACANCES MAI p SEMBLAR.OMBRA

to.know for.ever year.round holidays never to.seem

'Ja sé que mai tinc vacances durant l'any. (Tot i que) ho sembla.'

'I am aware/know that I have never holidays during the year. (However) it looks like I have.'

In (320) the signer adduces herself as the source of knowledge that contradicts the facts: although she is on vacation from her work, as a mother, she ends up working the whole year.

8.4 The encoding of experiential values

Experiential markers referred to the cases "in which the speakers themselves are participants of the situation which they speak about: they do not know about a situation because they observed it or perceived it in any way, but because they are directly involved in it" (Plungian, 2010, p. 34). They are known also as *participatory markers* (Plungian, 2010). Other denominations used in the literature are *performative*, *personal agency*, or *constative*. In LSC, two predicates are used with this evidential function: TOCAR 'to touch' and PRESENCIAR 'to be there'.

8.4.1 TOCAR 'to touch'

The predicate TOCAR 'to touch' (Figure 8.8) has a lexical meaning similar to 'taking place in + time/location', 'to happen', 'to be scheduled', etc.



Figure 8.8 TOCAR 'to touch'

However, consider example (321), a fragment of the institutional message that the president of the Catalan Federation of Deaf People addresses to its members, right at the beginning of the holidays, to wish them a nice summer and to tell them about the steps taken by the entity after the recent changes in the board.

(321) FESOCA President's statement 2018/07/30 00:00:22 AC

IX.ara AGRADAR INFORMAR UNA.MICA ABANS.ANAFÒRIC IGUAL/COM TEMA ESTIU p

now to.like to.inform a.little before same topic summer

AVUI **TOCAR** MOLT MOLT CALOR p FORT p

today to.touch a.lot a.lot heat strong

[VOLER+DIR]-focus PRO.2.PLU TENIR.GANES MARXAR IGUAL/COM TEMA VACANCES p

to.wish.to.say to,fancy to.leave same topic holidays

PRO.1 VOLER ABANS.ANAFÒRIC INFORMAR CONCLUSIONS

to.want before to.inform conclusions

'Voldria donar-vos unes informacions, (però) abans amb relació a l'estiu, avui fa molta, moltíssima calor. Tots vosaltres ja teniu ganes d'iniciar les vacances. Abans voldria donar-vos unes informacions generals.'

'I would like to give you some information, (but) before that and speaking about the summer, (I will say that) today it is very, very hot. All of you already feel like starting the holidays. Before that, I would like to give you some general information.'

The signer is using the predicate TOCAR 'to touch' to report about the conditions he and the institutional receivers are experiencing regarding the weather. In addition, it may be used to indicate that the signer knows about the situation because he was involved in it or he was a witness. It refers to the process of experiencing it. Consider, for instance, the fragment in (322).

(322) Betevé Volcanoes 00:04:33 BF

[PRO.1 VOLER CREAR FAMÍLIA]-top [SÍ]-nod p

to.want to.create family yes

DEPENDRE SITUACIÓ palm.up.gesture.uncertainty p

to.depend.on situation

[TREBALL]-enum [DINERS]-enum [gesture.indeterminacy]-enum HAVER.HI p

work money to.there.be

DEPENDRE palm.up.gesture.uncertainty p QUAN.FUTUR ESTAR.LLIGADA PARES p

to.depend.on *when.in.the.future* *to.be.tied* *parents*

O ESTAR.LLIGADA p FAMÍLIA PODER.NO p DESPLAÇAR p

or *to.be.tied* *family* *cannot* *to.move*

[PRO.1 SOMIAR]-top [SÍ]-nod p [SER.CAPAÇ FUTUR TOCAR]-top [SÍ]-nod p

to.dream *yes* *to.be.able* *future* *to.touch* *yes*

[EXEMPLE PODER.NO]-cond ADOPTAR gesture.remedy

example *cannot* *to.adopt*

'Sí que m'agradaria crear una família. Però és clar, depèn de la situació en què em trobi, laboral, econòmica... Pot ser que sigui depenent dels meus pares, o d'altres lligams i que no em permetin estar per la família. Però entre els meus somnis sí que un dia vull viure ser mare. I si no pogués, adoptaria.'

'Of course, I'd like to create a family. But, clearly, it depends on the situation I'm in, the job, the economy... I might depend on my parents, or have other responsibilities, and that would not allow me to be thinking about the family. But, among my dreams, I definitely want to live the experience of being a mother. And if I could not, then I would go for an adoption.'

It presupposes direct evidence of some sort, including some value of agency or active participation in the situation referred in the proposition. We will consider this a construction with this kind of evidential value.

In LSC, as in the languages in which it is attested, this construction is more likely to occur with predicates denoting activities and less so with predicates referring to internal states of the subjects (Cf. Plungian, 2010).

8.4.2 PRESENCIAR 'to witness'

A second predicate that may be used in an experiential construction is PRESENCIAR 'to witness' (Figure 8.9). As a lexical item, it refers to the act of standing up in a location.



Figure 8.9 PRESENCIAR 'to witness'

The use of this predicate with an evidential value implies that the signer has direct access to the information reported in the proposition since she has been physically present in the situation. Sometimes it is accompanied by a visual evidential construction. See (323). It is an excerpt from comments raised by the president of the Catalan Deaf People Federation after a talk on deaf mass media in a seminar on LSC.

(323) Webvisual *VII Seminar on LSC* 2018 00:26:01 AC

MITJANS COMUNICACIÓ IX.aquí CONTINGUT SER(1h) FINS.ARA [CATALUNYA IX.aquí]-top

massmedia here contents to.be until Catalonia here

DIFUSIÓ SER.FLUIX p SOCIETAT MIRAR IX.aquí NO(2h) p facial.exp.disaproval

dissemination to.be.weak society to.look.at here not

LSC VEURE HAVER.HI.NO(2h) p IMPORTANT DIFUSIÓ

LSC to.see to.there.be.not to.be.important dissemination

CA:societat<(CL.PLU.eyes-LOOK.AT-ASP.INC/CL.PLU.eyes-LOOK.AT-ASP.INC>VEURE) p

to.look.at to.look.at to.see

[PRO.PLU.1]-top PERSONA SORD SIGNAR-ASP.DUR IGUAL MIRAR SER.INVISIBLE

person deaf to.sign same to.look.at to.be.invisible

[SIGNAR CONTEXT]-top p OIENT CONTEXT VEURE(2h) NO(2h)

to.sign context hearing context to.see not

IX MITJANS COMUNICACIÓ IMPORTANT DIFUSIÓ OBJECTIU

mass.media important dissemination goal

PER.A OIENT VEURE (CL.PLU.eyes-LOOK.AT-ASP.INC / HAVER.HI)

for hearing to.see *to.look.at* *to.there.be*

PRESENCIAR VIURE (CL.sostenir.objecte / LSC HAVER.HI)

to.witness *to.live* *hold.an.object* *LSC to.there.be*

'Aquests continguts en els mitjans de comunicació, aquí a Catalunya, fins ara, la seva difusió ha estat fluixa. La societat no ens mira. No veu l'LSC. És molt important la difusió perquè ens vegin, ens coneguin. Nosaltres, les persones sordes, signem en societat com si fóssim invisibles. Els oients no veuen l'LSC. Els mitjans de comunicació són molt importants per a l'objectiu de la difusió, per tal que els oients vegin que existeix, que experimentin, que visquin que l'LSC existeix.'

'The dissemination of these topics in the mass media, here in Catalonia, has been deficient. Society does not look at us. They do not see LSC. Dissemination is very important so that people can see and know us. We, the deaf people, sign as if we were invisible. Hearing people do not see LSC. Mass media are very important (for their contribution to) dissemination. So that hearing people can see that we exist, so that they can live the experience that LSC exists.'

The signer is expressing a desire and a need: that hearing people live the experience of seeing LSC. That is, he appeals to personal experience as a way to reach conscious knowledge.

Participatory markers are a rarely attested type of evidentials of direct access (Plungian, 2010). However, they are included since Mithun's description in Pomo languages (Mithun, 1999). Next section will address indirect access to the situation.

8.5 The encoding of mediated evidence

Let us now turn to the coding of indirect experience in LSC. It includes non-personal access (reportative evidentiality), as well as personal access in the form of the results of a situation (inference evidentiality). The first presupposes that the signer, talking about a situation, bases their utterance on the information of another person, because he did not have access to the situation nor indications thereof. Instead of adopting the most frequent denomination in the literature (*reportative evidence*), we will adopt Plungian's (2001) general term *mediated evidence*, also used in Lampert & Lampert (2010), since it is a more general term that includes reportative evidentiality as a specific case. The second subcategory of indirect access refers to inferential evidence. It includes reports

based on cognitive processes of inferencing by means of contextual hints or by means of general knowledge.

Mediated evidence (Lampert & Lampert, 2010; Plungian, 2010), most commonly known as *reportative evidence* as previously said, refers to cases in which the locus from where the information is acquired is external to the addresser. As for the epistemological dimension of the status of knowledge, they are located along the continuum between the universal and exclusive access to information poles. The modes of knowing are sensory and they may be varied: visual (in the signed modality and in reading), auditory (in the spoken), tactile (in the tactile signing modality or in reading using Braille), etc.

When discussing *mediated evidence*, the following values can be distinguished, as the prototypical members of the category: (i) quotatives, (ii) reportatives, and (iii) folklore. *Quotatives* (or second-hand evidence) highlight the source, but not unequivocally the type or mode of evidence, whereas *reportatives* (or *hearsay*, or *third-hand evidence*) specify the mode “but remain agnostic about the actual source of evidence called on” (Lampert & Lampert, 2010, p. 311). *Folklore* appear on the universal pole vis-à-vis the dimension of access to information (Bermúdez, 2005). We agree with Plungian (2010, p. 36) that this terminology reflects better than Willet’s the distinction between *second-hand evidence* and *third-hand evidence*.

First, we will focus on the evidential quotative function. The quotative category corresponds to a situation in which the signer was a receptor in the discourse event reported. It tends to be situated in/on the privative pole of the source of information continuum and the mode of access is sensorial. The main construction used to encode this function in LSC is direct discourse, so-called ‘constructed action/dialogue’ in the signed language literature.

8.5.1 Quotative evidential constructions

This category corresponds to the situation where the signer has participated as a receptor in the discourse event reported. The use of reported speech as an evidential strategy, with a biclausal or monoclausal structure, has been described for different spoken languages families, such as Germanic and Romance languages (Clift, 2006; Cruschina & Remberger, 2008; HaBler, 2010; Jäger, 2010). We will examine the main constructions that express this evidential function in LSC. Firstly, we will focus on the

closest equivalent of reported /direct speech in signed language, the so-called *role-shift*. We will refer to it as *constructed action*. Secondly, we will address direct discourse in LSC introduced by several *verba dicenda* predicates with a quotative evidential function, such as EXPLICAR 'to explain' or DIR 'to tell'.

8.5.1.1 Direct discourse in signed languages: Constructed action/dialogue

In the sign language literature, the visual-gestural direct discourse construction used to quote has been identified as *role shift*, *reference shift* or *role switching* (Lillo-Martin, 2012). Scholars from a cognitive/functional perspective prefer the term *constructed action*, since: (i) it refers to a demonstration in the sense of Clark and Gerrig (1990), and (ii) what is set up does not have to equate what actually happened, it is considered an elaboration of it— as described for spoken languages by Tannen (Tannen, 1986, 1988, 1989) and others.

Constructed action has been characterized as “the reporting (usually via a demonstration) of another’s actions” (Quinto-Pozos, 2007b, p. 1288). Constructed action is a grammatical construction and a discourse strategy, used widely in signed languages, in which the signer uses his/her face, head, body, hands, and/or other non-manual cues to represent a referent’s actions, utterances, thoughts, feelings and/or attitudes (Cormier & Smith, 2011; Cormier, Smith, & Zwets, 2013; Ferrara & Johnston, 2012, 2014; Liddell & Metzger, 1998; Metzger, 1995). Liddell and Metzger (1998, p. 672) describe the various types of constructed action, reproduced in Table 8.1.

Table 8.1 Constructed actions

Type of constructed actions	Significance
Articulation of words or signs or emblems	What the character says or thinks
Direction of head and eye gaze	The direction the character is looking toward
Facial expressions of affect, effort, etc.	How the character feels
Gestures of hands and arms	Gestures produced by the character

Metzger (1995) distinguishes between *constructed action* (a signer’s representation of a referent’s actual or perceived actions) and *constructed dialogue* in the sense of Tannen (Tannen, 1986, 1988), that is, a language user’s (re)presentation of a referent’s words. We will consider constructed action as the more abstract phenomenon and constructed

discourse as a subtype or a specific function of it. See also Herrmann and Steinbach (2012), Quinto-Pozos (2007a, 2007b), Cormier, Smith and Zwets (2013), Wilcox and Xavier (2013), as well as Ferrara and Johnston (2014).

As described for other signed languages (Herrmann & Steinbach, 2012; Lillo-Martin, 2012), the formal marking of constructed discourse in LSC may include a constellation of non-manual markers co-articulated with the (re)presented utterance, as summarized in (324) (Frigola & Quer, 2005; Jarque & Pascual, 2016; Quer, 2011):

(324) Constructed action formal marking in LSC

- (i) Eye gaze change towards the locus of the addressee of the quoted utterance, and thus temporal interruption of eye contact with the actual interlocutor.
- (ii) Body lean including a sideward movement of the upper part of the body towards the locus of the quoted individual and a midsagittal body shift towards the locus of the addressee of the reported utterance.
- (iii) Change of head position towards the locus of the addressee of the reported utterance.
- (iv) Facial and bodily expression associated with the individual being quoted conveying affective and attitudinal components.

Further constructed action/dialogue in LSC may be used as evidential strategy to express source of knowledge (Jarque & Pascual, 2016). Consider example (325), from a news webpage addressed to the Catalan signing community, on a demonstration against social exclusion of the deaf. The narrator presents the contradictory report on the number of attendees given by the organizers and the police through a fictive dialogue between the two groups, a mixed viewpoint discourse structure, each speaking 'as one voice' (Jarque & Pascual, 2015, 2016).

(325) Webvisual (*The success of unity*): The Deaf Federation's "voice"



[ORGANITZACIÓ DE FEDERACIÓ.DE.SORDS ENTITAT].top CA:Fed.<1-MIRAR-IX>

organization of deaf.federation entity look



DIRI CA:Fed< COMPTAR APROXIMADAMENT DOS MIL PERSONA-PLU

say count roughly two thousand person



PARTICIPAR MANIFESTACIÓ IX-THERE>

participate.at demonstration there

Lit. 'La Federació de Sords de Catalunya va mirar-la i va dir: "Hem comptat i unes dos mils persones han participat a la manifestació.'

'La Federació de Sords de Catalunya va estimar que havien participat unes dues mil persones a la manifestació.'

Lit. 'The Catalan Federation for the Deaf looked at the demonstration and said: "We count (and) two thousand people participated at our demonstration".

'The Catalan Federation for the Deaf estimated that two thousand people participated in the demonstration.'

(326) Webvisual (*The success of unity*): the police's 'counterclaim'



[PERÒ]advers. [DE GUÀRDIA.URBANA IXz(demonstration) POLICIA IXz]-top

but of police traffic police



CA:policia<1-MIRAR-IX> DIRz CA:policia<[[NO]-neg APROXIMADAMENT MIL

police look(demonstration) say no roughly thousand



CINC CENT UNA.MIQUETA MÉS APROXIMADAMENT>

five hundred a.little more roughly

Lit. 'Però, la Guàrdia Urbana va observar-la i va dir: "No realment, aproximadament mil cinc-centes, (o potser) una miqueta més aproximadament".'

'Tanmateix, la Guàrdia Urbana va indicar que eren aproximadament una mica més d'unes mil cinc-centes persones.'

Lit. 'But, the traffic police looked at it and said: "Not really, roughly one thousand five hundred, (or maybe) a little bit more approximately".'

'However, the traffic police claimed one thousand five hundred, or a little bit more, approximately.'

This piece of news is construed as a narrative in which the perspective of the narrator and the two quoted characters are thoroughly interwoven. After establishing the agent entity, the signer adopts the perspective of the Federation for the Deaf, by shifting his body slightly and producing the verb 'SEE' from a contralateral side. The sign begins from the signer's body and ends at the point in space that corresponds to the deaf demonstration. The body orientation shift thus encodes both subject and object (Morales et al. 2005). This spatial orientation of the verb provides information about the signer taking one of the character's voices. In indirect discourse, the verb would have to include

an intermediate locus to mark the third person reference (i.e. the Federation for the Deaf).

This example illustrates possible variations in the use of the non-manual markers in LSC in order to encode role shift via constructed action. The signer changes his position and bodyshift into the perspective of the two 'reported' entities (i.e. the Deaf Federation and the traffic police), by adjusting his body and head position as well as his eye gaze and facial expression. His eye gaze changes towards the locus of the demonstration rather than towards the locus of the addressee of the quoted utterance, as one may expect.

After assuming the perspective of the Deaf Federation (325), the signer assumes the perspective of the traffic police (326). He does so not only by giving them voice, but also by presenting them as directly confronting the Deaf Federation in a discussion that never took place. In (325), an approximate number of attendees is presented through a fictive discussion between two groups, each giving their estimation 'as one voice' that contradicts the other. By doing so, the signer manages to present both a piece of information and the source where this information comes from. The fictive dialogue set up thus serves the evidential function (Jarque & Pascual, 2015).

Critically, this is not a rhetorical device, like the presentation of a contemporary philosopher as debating with the long-deceased Kant in order to teach philosophy students as in Fauconnier & Turner (2002). Rather, it is an entirely unmarked means of presenting information in LSC. The narrator indicates the source of information upon which his statement is based (see also Aikhenvald, 2004; Chafe & Nichols, 1986). The viewer of the news, through conversational implicature, confers the degree of commitment to the reported information, thereby giving it the epistemic value, that will coincide with the value attributed by the Deaf Federation (Jarque & Pascual, 2015).

Note for instance the example of constructed dialogue in (327), in which the signer answers a question about his thoughts on the future of the Basque Country. The interviewer contrasts his own position on the issue in the past, with his current view. He does so by appealing to the founder of the Catalan Federation for the Deaf, who is long deceased, with whom he no longer agrees on this topic.

(327) EJG 00:11:22 JG

ABANS PRO.1 JOVE CALAFELL PRO.3I CA:Calafell<PAÍS.BASC RECONeixement SEGUR>

before young person.name Basque.Country to.acknowledge sure

IX.País.Basc] CA:adressr<gestural.expression:no saber PRO.1 escoltar.amb.incredulitat>

IX.Basque.Country listen.with.disbelief

PRO.1 IX.ara PRO.1 VEURE PRO.1 CONFIANÇA ABANS PENSAR PAÍS.BASC TENIR.DRET PROPI

Ix.now to.look.at confidence before to.think Basque.Country to.have.the.right own

CULTURA p PROPI POLÍTICA TENIR.DRET p PRO.1 VEURE-ASP. p FINAL PRO.1 VEURE PUNT JA

culture own politics to.have.right to.look.at final to.look.at point already

IX.País.Basc PERDRE IMATGE PRIMER p SEGON PERDRE ACTITUD ESPANYA TOTA.ZONA p

IX.Basque.Country to.lose image first second to.lose attitude Spain all.the.country

TERCER PRO.1 VEURE UNA.MICA INTERÈS DEIXAR FORA

third to.look.at a.bit interest to.leave out

'Abans de jove (sentia) en Calafell que deia: "Cal reconèixer el País Basc". Jo me l'escoltava. Ara jo veig que no li tinc confiança.'

Lit. 'Long ago as a young man (I listened to) mr. Calafell say: "The Basque Country should be acknowledged". Now I observe/look at it [the issue]and I do not believe in it.

'Now I see that I used to trust this could happen. I used to think the Basque country had the right to its own culture, its own politics. I used to look at it attentively. In the end, I see the Basque Country has lost a bit of image, in the first place. In the second place, its attitude towards Spain has worsened. In third place, I've lost interest.'

The narrator explains that he used to agree with mister Calafell's ideas, but that now this is no longer the case. He is not reporting an actual situation of speaking and listening (or refusing to do so), given that the supposed interlocutors are deaf and signers. Moreover, when (327) was produced, mister Calafell had long passed away and hence he could not possibly have been involved in a conversation. But by reporting a non-genuine act of speaking and first listening to it and, later, not listening to it, the narrator describes how he abandoned the political view championed by mister Calafell. His fictive disagreement with the late Calafell is thus a means to express evidentiality (Jarque & Pascual, 2016).

It should also be noted that, although the signer constructs example (327) with the content of a quote, the fragment does not display those aspects of the quote presentation itself (intonation, style, register), as in an actual quotation (Clark & Gerrig, 1990). This might be a way to distinguish quotative evidential constructions from generic ones, as proposed by Jäger (2010).

Direct discourse, or constructed action/dialogue, in LSC maybe framed by different *verba dicenda* predicates, for instance the above discussed AVISAR 'to call' (in Section 8.3), DIR 'to say', DIR-IX 'to tell', DIR.RESPONDRE 'to answer' or EXPLICAR 'to explain'.

8.5.1.2 DIR 'to say'

According to Morales' et al. (2005) typology of LSC, DIR 'to say' (Figure 8.10) is a simple verb. It can thus only add grammatical information that is both internal to the lexical form and related to aspect (imperfective, perfective, etc.), as well as to mode or manner of information (intensity of action, faster or slower quality of movements, etc.).



Figure 8.10 DIR 'to say'

DIR maybe used as a framing device for direct discourse in LSC. Consider the piece of discourse in (328), in which the signer is describing, in fact reenacting, her visit to the doctor where she was told that her arm was broken.

(328) EES 00:07:00 ES

VEURE ANAR RADIOGRAFIA p DIR CA:doctor<TRENCAAT>/CA:interviewed<[PRO.1 TRENCAAT]-q
to.see to.go x-ray to.say broken broken
 >exp.fac.estranYESa p DIR CA:doctor<SER.SEGUR p CL.PROF.braç.esquerre-MOV.IMIT.aixecar>
fac.exp.:surprise to.say to.be.sure left.arm raise.arm

(PRO.1/CA:interviewed<CL.PROF.braç.esquerre-MOV.IMIT.aixecar> SER.CAPAÇ(2h) DIR

left.arm *raise.arm* *to.be.able* *to.say*

CA:doctor<[SER.IMPOSSIBLE]neg>

to.be.impossible

'Resulta que vaig anar a fer-me una radiografia (i el metge) em va dir que tenia (el braç) trencat. "Trencat!" li vaig respondre amb cara d'estranyesa. Em va dir: "N'estic segur. Vinga, aixeca el braç". (Però) jo el vaig poder aixecar i (aleshores) ell em va dir que era (del tot) impossible.'

Lit. 'It so happens; I went to get an x-ray. (And the doctor) told me: "It (your arm) is broken". "Broken?!" [I answered with a facial and corporal expression of surprise]. (He) said: "I'm sure. Come on, raise your arm." (But) I could raise my arm. (And then) he said to me: "(This is) impossible".'

In the explanation about how she found out that her arm was broken, the locus of the source of information is external (i.e. the addressee learnt about her broken arm through the doctor's words); the access to the information is privative (the patient was told by the doctor); and the mode of access is sensorial (through seeing the lip movements of the doctor's spoken words) (Jarque & Pascual, 2015).

8.5.1.3 DIR-IX 'to tell'

DIR-IX⁹¹ 'to tell' (Figure 8.11) belongs to the category of irregular deictic verbs (Morales et al., 2005, p. 464). Formally, the movement always starts from the signer's mouth and ends in the location assigned to the recipient of the action: in the signer's chest if it is first person or a locus in space if it is the second or a third person. If the agent is not the first person, a personal deixis must be included in the sentence in order to express the subject information when it is not possible to recover it from the pragmatic context.

⁹¹ We are using the gloss DIR-IX making reference to the similarities with DIR but focusing on the differences: its ability to code morphologically the action's agent and recipient. In Ferrerons (2011)'s dictionary it is glossed as RESPONDRE.



Figure 8.11 DIR.IX 'to tell'

The use of this verb is illustrated in example (311) above, where the interviewer is reproducing *verbatim* her meeting with her son's teacher.

8.5.1.4 DIR.2 'to tell 2'

DIR.2 'to tell' is formally similar to DIR.IX, except for the handshape and hand orientation. Also, morphologically, it belongs to the same predicate category, of irregular deictic verbs. However, some signers use it as a regular predicate, since in their production the movement begins in the location assigned to the agent (subject) and ends up at the receiver, as show in Figure 8.12.



Figure 8.12 DIR.2 'to tell 2'

EMS 00:34:51 JMS

Int: [PRO.2 3-NOTAR-1 PRO.3 NO LLEGIR]-q p [NO COMPRENDRE]-q

capture not read not understand

Resp.: Palm.up.gesture:doubt MIRAR-AMB.DIFICULTAT TRIGAR CA:signer "Vinga já"

look.at.with.difficulties to.last.for.a.long.time

Int.: TRIGAR

to.last.for.a.long.time

Resp.: nodding

Int.: PROFESSOR 3-DIR.2-2 CA:professor [BE]-q

teacher to.say well

Resp.: CA:professor [BE]-nod

teacher well

Int.: [PRO.2 3-DIR.2-2 CREURE.2]-q

tell.2 to.believe

Resp.: IGUAL/COM BE p SABER

same/as well to.know

Int.: CREURE(creenca) PRO.2 SI+NO

to.believe yes+not

Resp.: DUBTAR.IND PRO.1

to.doubt

Int.: DUBTAR.IND

to.doubt

Resp.: Palm.up.gesture 'més o menys'

more.or.less

Int.: Tu notes que no llegeix, que no comprèn?

Resp.: Es posa a llegir, amb dificultat i triga molt.

Int.: Triga molt.

Resp.: (Sí)

Int.: La professora et va dir que anava bé.

Resp.: Va bé—va dir.

Int: Tu te la creus?

Resp.: Que bé. Que sabia.

Int.: Tu t'ho creus?

Resp.: En tinc dubtes.

Int.: En dubtes?

Resp. Sí.

Int.: Do you see that he does not read, that he does not understand?

Resp.: He starts reading, with difficulties and it takes him a long time.

Int. It takes him a long time.

Resp.: (Yes)

Int.: The teacher told you that he was OK.

Resp.: That he knew.

Int.: Do you believe her?

Resp.: I have my doubts.

Int.: Do you have doubts?

Resp. (More or less).

DIR.2 constitutes the most frequent predicate in LSC for verbatim reporting or for signaling that the source of knowledge is social interaction.

8.5.1.5 DIR.RESPONDRE 'to answer'

Morphologically, DIR.RESPONDRE belongs to the same predicate category as DIR.IX, that is, it is an irregular deictic verb. The start of the sign must be performed from the signer toward the other participants; therefore, in its formulation, the information that is activated is that the signer constitutes the agent of the predicative information (Morales et al., 2005).



Figure 8.13 DIR.RESPONDRE 'to answer'

Semantically, it conveys the following meanings: to say, to answer, to tell, to replicate, etc. Its entry in Ferrerons (2011)'s dictionary corresponds to REPLICAR. It may also be used pragmatically in an arguing or argumentative context.

8.5.1.6 EXPLICAR 'to explain'

The next framing predicate examined is EXPLICAR 'to explain' (Figure 8.14). Morphologically it belongs to the regular deictic predicates (Morales et al., 2005).



Figure 8.14 EXPLICAR 'to explain'

EXPLICAR can be used to signal also the source of knowledge of some content, as illustrated in (329), where the interviewer makes an explicit reference to the act of transmission of a specific content using this predicate.

(329) EJG 00:00:49 JMS

Int.: PRO.3la INTERESSAR TEMA DE VERB CONTINGUT p

to.be.interested topic of verb content

Resp.: []-nod

(yes)

Int.: SABER 3-**EXPLICAR**-2 JA p M-O-D-A-L-I-T-A-T

to.know to.explain already modality

Resp.: []-nod

(yes)

'A ella li interessa el tema del contingut dels verbs. Ja ho saps. Ja t'ho ha explicat: la modalitat.'

'She is interested in the topic of verbs. You know that. She has already explained that to you: modality.'

8.5.1.7 INFORMAR 'to inform'

The last predicate addressed is INFORMAR 'to inform'. Morphosyntactically, it is a regular deictic predicate. It changes hand and movement orientation to code the agent and/or the receiver. For instance, Figure 8.15 illustrates 3-INFORMAR-1, where palm orientation is faced to the signer, the action receiver, and a third person subject is informing the first person.



Figure 8.15 3-INFORMAR-1 'to be informed'

In (330) we reproduce the excerpt that constitutes the linguistic context, where the signer is explaining how she feels being a deaf signer person in a speaking hearing society.

(330) Betevé Volcanoes 00:01:59 BF_R

[EXEMPLE SER-PRO.1 PRO.1 UN/SOL (CL.persona-LOC.estar.sola /

example be-1 alone person to.be.alone

CL.persona-LOC.persones.que.envolten SER.OIENT) I TOT

person to.there.be.people.around to.be.hearing and everybody

ZERO.SENSE 3-INFORMAR-1-ASP.DUR [3-COMPRENDRE-1]-top [NO]-neg

zero.without to.inform to.understand not

'Si jo estigués sola i tota la resta de persones fossin oients i ningú m'hagués donat mai informació, si jo no pogués entendre el món i ningú pogués entendre'm a mi, llavors jo em sentiria incòmoda i trobaria molts impediments.'

'If I were alone and all the rest of people were hearing and nobody had given me ever information, if I could not understand people and nobody could understand me them I would feel very uncomfortable and I would find many hindrances.'

As in the case of the above EXPLICAR, it is used in orality contexts, independently whether the mode is spoken or signed. If the signer wants to specify that the source comes from a written mode, it is necessary to add the sign TEXT.ESCRIT ('written.text) or DOCUMENT ('document'), as in the case of Figure 8.16 INFORMAR TEXT.ESCRIT 'to inform in writing' shown in Figure 1.17 or the nominal PROGRAMA 'program' from the President's text.



Figure 8.16 INFORMAR TEXT.ESCRIT 'to inform in writing'

INFORMAR 'to inform' tends to be used in formal contexts, where there is an asymmetry with respect to the content, in the sense that the agent, but not the receiver, has exclusive access to the information, because of his/her position, job or participation in the event.

The predicates discussed in the above subsection may be used, in addition, in indirect discourse in LSC. When referring to other discourse, the signer does not assume the agent's role, but expresses some detachment.

In this section, we have addressed reportative values that refer to utterances of a concrete person, known as *quotative*. These constructions are opposed to those referring to utterances of a person who is unknown or whose identity is irrelevant. The latter are known as reportative (or hearsay). They will be the focus of the following section.

8.5.2 Reportative constructions

The grammaticalization of evidential constructions with a reportative function from a *verba dicenda* predicate has been documented in a significant number of languages (Travis, 2006; Pietrandrea, 2007; Jäger, 2010, among others). There is further cross-

linguistic evidence of the use of particles and evidential suffices, which are highly grammaticalized from predicates meaning 'to say' (Jäger, 2010).

Several LSC constructions indicate the source of information as well as the recipient in a vague manner. This is the case for several predicates related to the act of 'speaking', namely DIR.SE.QUE 'to be said' and DIR+ESTENDRE 'to spread out' (reportative 'speaking' predicates), as well as with the act of 'listening', namely ESCOLTAR.ORELLA 'to listen by ear' and SENTIR.ORELLA 'to hear by ear'. Obviously, these are calques from the spoken language that is dominant in the larger Catalan hearing community.

8.5.2.1 DIR.SE.QUE 'to be said'

DIR.SE.QUE 'to be said' (Figure 8.17) is derived from the above sign DIR 'to say' (Figure 8.10). Phonologically, it exhibits different features related to the non-manual parameter, namely, shrugging the shoulders, head tilt up and to a side, and raised eyebrows.



Figure 8.17 DIR.SE.QUE 'to be said'

The construction with DIR.SE.QUE 'to be said' expresses that the access may be either restrictive to a group or universal. However, the receiver does not know it. Even though it formally refers to the spoken communication modality, semantically it does not include any reference to the mode of knowing (it may be said, signed, written, etc.).

Note the example in (331), where the signer is narrating her intents to quit smoking. The interviewer asked her if she has tried acupuncture to quit smoking (Jarque & Pascual, 2015).

(331) EMS 00:16:53 MS

[ACUPUNTURA]-top ESTENDRE PER.A EVITAR p **DIR.SE.QUE** FRACÀS TOT RES.MÉS

acupuncture to.widespread for avoid to.be.said failure everything that.all

'Es va estendre l'ús de l'acupuntura per a deixar de fumar. (Tanmateix) es diu que ha estat tot un fracàs.'

'The use of acupuncture to quit smoking is widespread. (But) it is said not to work at all.'

Syntactically, it occupies the initial position in the sentence and semantically it profiles the diffuse source. Consider a second example in (332), that comes from a news portal for the Catalan Deaf community. Several cities compete as candidates for the organization of the Deaf Olympic Games that took place in 2017. Barcelona was one of the candidates, led by the Catalan Deaf People Federation. In the example, reference is made to the fact that in the coming hours they will announce which city will host the games.

(332) Webvisual (The hope of Barcelona 2017 has gone)

DIR.SE. QUE IGUAL APROXIMADAMENTE HORA 11 MEDIA MATÍ JA INFORMAR OFICIAL

to.be.said same around hour half morning already to.inform officially

QUI GUANYAR CIUTAT.seu [ON INFORMACIÓ ON]-focus ROMA CL IX.allí

who win city where information where Rome IX.ther

'Es diu que cap a dos quarts de dotze del matí s'informarà oficialment en Roma sobre quina és la ciutat guanyadora.'

'They say that around eleven thirty in the morning the name of winning city will be officially disclosed in Rome.'

Note in the screenshot (Figure 8.18) the position of the shoulders and the head, that clearly shows distancing from the content of the broadcasted message.



Figure 8.18 DIR.SE.QUE 'to be said' (screenshot, Webvisual)

The upper direction of the head orientation refers to an unspecified source of the information. This matches with observations about the meaning of space in LSC (Barberà, 2014, 2015): the upper direction is linked to unspecified references, and the lower direction, to specific references.

Futhermore, DIR appears in the colloconstruction [MON DIR proposition] (Lit. 'World says proposition') for referring to an unspecified source of information. The proposition is produced in direct style, as a reenactment, via constructed action/discourse, as discussed in § 8.5.1.1. See example in the long excerpt in (333), where the respondent is explaining a family story where he describes the hypothesis people made about the origin of his deafness, whether it was from his father's or his mother's side.

(333) EJG 00:02:38 -00:03:08 JG

EDAT-3 SEGON MARIT PARE SORD IGUAL [PERÒ]-focus [PRO.1 NÉIXER]-topic

age-3 second husband father deaf same but to.be.born

MÓN DIR CA:món<[exp. gestural "és clar" SORD DE FAMILIA PARE IX.esq.ell

world say obviously deaf from family father

NO MIRAR PARE PERQUÈ [PARE GERMÀ+DONA TIA]-top SENTIR MIG p

not to.look.at father because father sister aunt to.hear half

SENTIR MIG p UNA.MICA SENTIR MIG

to.hear half a.little.bit to.hear half

[PRO.1 AVI.abuelo AVI.abuela]-top [PRO.DUAL]-top COSÍ+GERMÀ CASAR p

grandfather grandmother both cousin brother be.married

PARE NÉIXER [SER.OIENT]-af p CAP INFART p

father be.born be.hearing head stroke

AL.FINAL FILL SER.SORD SÍ p PRO.1 FAMILIA PARE IX.esq p

finally son to.be.deaf yes family father

MÓN DIR CA:<assentiment> PARE MORT DEIXAR.DE.BANDA

world say obviously father dead to.be.left.alone

MARE CASAR.SE HOME SEGON NÉIXER GERMÀ DESPRÉS PRO.1 SORD MATEIX(2H)

mother be.married man second to.be.born brother later deaf same

CA:món <expressió gestual de sorpresa >p

surprise gestural expression

[MÓN QUEDAR.PLANXAT]-surp CREURE PARE [NO]-neg p [MARE IX.b]-af p

world to.be.blown believe father not mother

[PASSAR.TEMPS 13-ANY_desv.mirada]-top QUEDAR.SE.EMBARASSADA NO.RES p

time.go.by 13 year be.pregnant nothing

[FINAL]-top [FUNCIONAR]-alt [ERROR]-alt CA:món <gestural exp. "És igual"> p

at.the.end work.out accident "It doesn't matter"

EMBARASSADA GERMÀ+DONA p

be.pregnant sister

NÉIXER MÓN CA:món<gest d'esperança DONA I OIENT DOS>

be.born world world woman and hearing both

NÉIXER DONA SORD [IGUAL]-int. ACABAR

be.born woman deaf same to.finish

FINS (CRÉIXER_left/CRÉIXER_right) (CASAR.SE_left/CASAR.SE_right)

until to.grow.up to.grow.up to.get.married to.get.married

PRO.1 NÉIXER OIENT p GERMÀ OIENT

be.born hearing brother hearing

IX.dreta GERMÀ FILL OIENT p SORD TALLAR.FAMÍLIA(dreta.a.esquerra)

brother son hearing deafness be.cuttet.in-.the.whole.family

'(Quan tenia) tres anys (la meva mare) es va casar amb el segon marit, també sord. Però, quan jo havia nascut, la gent havia dit: "Es sord per la banda del pare". No van pensar res més perquè la germana del meu pare, la tia, hi poc. Hi sentia una mica, una miqueta. El meu avi i l'àvia, que eren cosins germans, es van casar i va néixer el meu pare. Era oient però va tenir un infart cerebral i es va quedar sord. La gent pensava que (la sordesa) venia per la família del pare. (Aleshores), quan el pare va morir van pensar que ja s'havia acabat. La mare es va casar amb el segon marit i va néixer la meva germana. (Però) resulta que també era sorda! La gent es va quedar amb un pam de nas. Quina planxa!! Creien que venia del pare, però no: venia de la mare! Havia anat passant el temps... Tretze anys i no s'havia quedat embarassada! Al final, no se sap si volent o un accident..., es va quedar embarassada de la meva germana. Quan va néixer la gent esperava que fos nena i oient. Va néixer i era dona i sorda. Vam créixer i ens vam casar. Jo vaig tenir fills oients i (també) la meva germana. La sordesa va quedar tallada en les dues bandes de la família.'

'(When I was) three years old, (my mother) got married with her second husband, also a deaf person. But, when I had been born, people had said: "She is deaf because of her father". They did not think about the fact that my father's sister, my aunt, did not hear well. She could hear a little, just a little bit. My grandpa and my grandma, that were first cousins, got married and so my father was born. He was hearing, but he got a cerebral stroke that left him deaf. People thought that (his deafness) came from his father's family. (So), when father died, they thought that it was over. Mother got married with her second husband and my sister was born. (But) it turned out that she was deaf too. People were very surprised. What a blow! They believed it came from the father, but no: it came from the mother! Time had gone by... thirteen years without getting pregnant. Finally, maybe willingly or by accident, she was pregnant and carried by sister. When she was born, people expected her to be a hearing girl. She was born, and she was a girl and deaf. We grew up and we got married. I got hearing sons and my sister too. Deafness disappeared at both sides of the family.'

8.5.2.2 DIR+ESTENDRE 'to spread out'

DIR+ESTENDRE 'to spread out' meaning 'it is well-known that' is a lexical compound made of the above sign DIR 'to say', as described in § 8.5.1.2 (Figure 8.10) and the predicate ESTENDRE 'to spread out', as illustrated in Figure 8.19 and example (331) above.

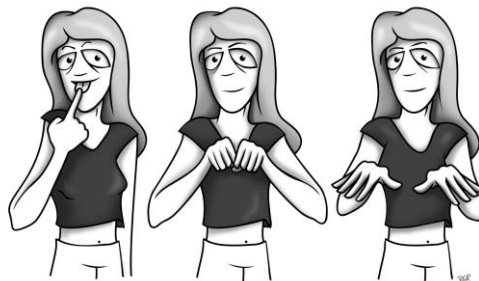


Figure 8.19 DIR+ESTENDRE 'to spread out'

The construction DIR+ESTENDRE signals the fact that the information has been told and spread, that the source is external, and that it has not been specified either whether the mode of knowing was spoken, signed, written, etc. or whether the information had been previously shared between the addresser and addressee.

8.5.2.3 ESCOLTAR.ORELLA 'to listen by ear'

The first reportative 'listening' predicate addressed is ESCOLTAR.ORELLA 'to listen by ear' (Figure 8.20). As a lexical item, it refers to a state of being alert while perceiving through the ear (noise, sounds, words, etc.) or paying attention to what somebody communicates linguistically (Ferrerons, 2011, p. 392). It is formally similar to the gesture for listening documented in several languages (Ascaso, 2015).



Figure 8.20 ESCOLTAR.ORELLA 'to listen by hear'

Signers use it without implying the communication mode, i.e. it is not implied that attention should be paid to sounds. Rather, it refers to a cognitive listening, as in (334), where the respondent talks about her necessity of meeting other deaf people in the deaf association to chat about their life and what happens during the week.

(334) EMS 00:29:36 MS

Int.: VOLER+DIR PRO.2 HAVER.DE HAVER.HI UN ASSOCIACIÓ HAVER.HI PROU p

to.mean must there.be a association there.be enough

Resp. []-nod PRO.1 AGRADAR

to.like

Int.: HAVER.DE

must

Resp.: PER.SEMPRE PRO.1 APASSIONAR.SE SORD SER PRO.1 palm.up.gesture:definitely p

for.ever to.be.passionate deaf to.be

Int.: PRO.2 ANAR CERECURSOR QUÈ(2h) palm.up:questioning

to.go Deaf.association.name what

Resp.: palm.up.gesture:uncertainty SORD SIGNAR-ASP.DUR p OBLIDAR(2h) p

deaf to.sign to.forget

CA:signant sord genèric 1 < [PASSAT DILLUNS+DIMECRES+DIVENDRES]-top [FER]-q > p

generic.deaf.signer past Monday.to.Friday what to.do

CA:signant sord genèric 2 <VAJA! ><[VEURE TELEVISIÓ NOTÍCIES UFF]-fac.exp.surprise>

generic.deaf.signer wow to.see television new wow

SIGNAR <VAJA!> PRO.1 EXPLICAR SÍ COSA+PLU DETALLS p PRO.1 AGRADAR p

to.sign wow to.explain yes things details to.like

Int.: [TEMA]-q

topic

Resp.: PRO.1 **ESCOLTAR-ASP.DISTR.EXHAUSTIVE** AGRADAR IX.això

to.listen to.like this

Int.: [TEMA]-q [SIGNAR PER.A DIALOGAR-ASP.DUR RES.MÉS]-q

topic to.sign for to.dialogue nothing.else

Resp.: SIGNAR-ASP.DUR

to.sign

Int.: DIALOGAR

to.dialogue

Resp.: [SIGNAR PER.A SIGNAR RES.MÉS]-q p PRO.1 AGRADAR

to.sign for to.dialogue nothing.else to.like

Int.: Vol dir que sempre hauria d'haver-hi una associació?

Resp.: A mi m'agradaria.

Int.: Cal?

Resp.: Sempre. M'apassionen els sords.

Int.: Quan vas a CERECUSOR, què (fas)?

Resp.: Els sords signem, ens distraiem. "Què has fet aquesta setmana?" "Vaja. Ah sí?" "Les notícies de la televisió, uff..." "Vaja" Expliquem coses. M'agrada. M'agrada escoltar.

Int.: Signar per conversar... res més.

Resp.: Signar...

Int.: Conversar...

Resp.: Signar per conversar. Res més. M'agrada.

Int.: Do you mean there should always be an association?

Resp.: I'd like that.

Int.: Is it necessary?

Resp.: Always. I'm passionate about deaf people.

Int. : When you go to the Deaf club, what do you do?

Resp.: Deaf people, we sign, we relax. "What have you done this week?" "Wow, really?" "The TV news, pff..." "Damn!" We explain things each other. I like it. I like to listen.

Int.: Signing to chat... just that.

Resp.: Signing...

Int.: Chatting...

Resp.: Signing to chat. That's it. I like it.

When used as an evidential, ESCOLTAR.ORELLA may encode a specific mode of evidence (through the spoken word) and a generic form of communication (through the spoken or signed modality). This polysemy may have emerged through a semantic extension from spoken communication or via a calque from spoken Spanish ("He oído/escuchado que", lit. 'I have heard/listened that'). In both senses, it highlights reception, leaving the source unexpressed. More recently, a derived sign, glossed as ESCOLTAR.ULL 'to listen by eye', has begun to be used to refer exclusively to the signed mode of communication.

8.5.2.4 ESCOLTAR.ULL 'to listen by eye'

ESCOLTAR.ULL 'to listen by eye' has been created through the modification of the location parameter (Figure 8.21): from the location in the ear (listen through the auditory channel) to the location in the eye ("listen through the visual channel") (Ferrerons, 2011).⁹²

⁹²An evidential use of the LSC sign for 'to listen by eye' does not occur in our corpus. It does at this point solely seem to appear as a lexical item.



Figure 8.21 ESCOLTAR.ULL 'to listen by eye'

It appears in the formulaic expression for closing meetings or formal acts such as in the example (335), corresponding to the wording adopted by the president of the Catalan Federation of Deaf People, in his statement before the beginning of the holidays, when he thanked the audience for their attention.

(335) FESOCA President's statement 2018/07/30 00:04:31 AC

[GRÀCIES]-intens PRO.3-PRO.1 **ESCOLTAR.ULL** p

thanks *to.listen.by.eye*

PRO.1 ANIMAR [PRO.2.PLU IGUAL/COM MIRAR(2h) POSITIU CATALUNYA IX] p

to.encourage *as/like* *to.look.at* *positive* *Catalonia*

[FUTUR.IMMEDIAT]-top MILLORAR POSITIU p

next.future *to.be.better* *positive*

GRÀCIES PRO.3-PRO.1 **ESCOLTAR.ULL**

thanks *to.listen.by.eye*

'Moltes gràcies per la vostra atenció. Us animo a mirar en positiu (la situació en) Catalunya. Els propers temps millorarà en positiu. Gràcies per la vostra atenció.'

'Many thanks for your attention. I encourage you to look at (the situation in) Catalonia positively. In the near future, the situation will improve. Thanks for your attention.'

This modification is the product of what Stokoe (1991) referred to as *semantic phonology*. The sublexical units in signed languages may have a meaning of their own and the signers take advantage of this in order to create new lexical items. This may be a consequence of their new awareness as a linguistic community and the resulting empowerment process of defending the values of the Deaf culture (significance of information accessed through the visual modality).

8.5.2.5 SENTIR.ORELLA 'to hear by ear'

A second predicated expressing that the proposition content has been acquired in a perceived piece of discourse is SENTIR.ORELLA 'to hear by ear', meaning 'I was told' (Figure 8.22).



Figure 8.22 SENTIR.ORELLA 'to hear by ear'

See an example of its use in (336) below. The respondent is explaining some recent news on Austria.

(336) EJG 00:15:26 JMS

AHIR **SENTIR.ORELLA** MOVIMENT ÀUSTRIA p PROBLEMA IMPORTANT(2h)

yesterday to.hear.ear movement Austria problem important

Lit. 'Ahir vaig sentir que hi havia problemes importants a Àustria.'

'Ahir vaig sentir/em vaig assabentar que hi havia problemes importants a Àustria.'

Lit. 'Yesterday I heard learn about disturbances in Austria. (There are) important problems.'

'Yesterday I was told/heard/learnt about the disturbances in Austria, there are important problems.'

In example (336), the principal function of SENTIR.ORELLA is to indicate that a proposition has been acquired thanks to the perception of a *speech act* (Jäger, 2010), i.e. a conversation in sign language, a piece of news, etc., but not that the signer had literally heard the information. Moreover, there is a derivate form that includes aspectual meaning, glossed as SENTIR.ASSABENTAR.SE.ORELLA 'to find out by ear'.

8.5.2.6 SENTIR.ASSABENTAR.SE.ORELLA 'to find out by ear'

The form SENTIR.ASSABENTAR.SE.ORELLA 'to find out by ear' (see Figure 8.23) originated from applying a morphological constructional schema in order to lend a perfect aspect to the SENTIR.ORELLA 'to hear by ear' predicate. The perfect aspect refers to the so-called *perfect of recent past* or *hot news* (Bybee, et al., 1994; Comrie, 1976; Dahl, 1985; Givón, 1982). This schema consists of a sharp movement, as an increase in tension and speed respect to the citation form of the predicate (See chapter 9).



Figure 8.23 ASSABENTAR.ORELLA 'to find out by ear'

This predicate may therefore express a combination of evidential and aspectual values ('I heard' or 'I just heard'), equivalent to the expressions "He sentit que" o "M'he assabentat que" in Catalan or "hearing/being told" in English.

(337) Webvisual The girl that does not say hello 00:01:20 AC_R

PRO.2 SABER PRO.1 CIUTAT BARCELONA p

to.know city Barcelona

[ASSABENTAR.ORELLA IX.llibre JA VENDRE-ASP.ITER PRESENTAR-ASP.ITER]- p

to.find.out.ear already to.sell to.present

PRO.1 TROBAR.SE-RECÍPROC NO.RES.ABSOLUT p TEMPS HAVER.HI.NO p

to.meet-eachother absolutely.not time to.there.be.not

PRO.2 JA PRESENTAR IX.a IX.b IX.c PRO.1 HAVER.HI.NO p

already to.present there there there to.there.be.not

'Saps que a Barcelona m'he assabentat que s'ha venut molt el llibre i que s'han fet moltes presentacions però jo he tingut temps d'anar-hi a cap.'

'You know that in Barcelona I have found out that the book sold well and that there have been many presentations, but I didn't have the time to go to any.'

Recently, a new form has emerged after modifying the location parameter of ASSABENTAR.SE.ORELLA 'to find out by ear'. The location in the ear has been replaced by a location in the eye (Figure 8.24), in the same way as ESCOLTAR.ORELLA (Figure 8.20) has been modified and given rise to ESCOLTAR.ULL (Figure 8.21), as described above.

8.5.2.7 ASSABENTAR.SE.ULL 'to find out by eye'

ASSABENTAR.SE.ULL 'to find out by eye' has been created from ASSABENTAR.SE.ORELLA 'to find out by ear'. The original location in the ear has been replaced by a location in the eye, resulting in a new lexical sign closer to a specific channel of information (visual) (Figure 8.24).



Figure 8.24 ASSABENTAR.SE.ORELLA 'to find out by eye'

These predicates, used to express discourse distance, are identified by some authors as *distancing devices* (Jäger, 2010). Referential information on the source of emission remains unspecified. As for the hearing verbs, we consider that no semantic change has occurred, and thus that they constitute a calque from spoken Spanish and/or Catalan.

8.5.3 Folklore

The last mediated evidence value refers to folklore. It refers to the information not coming from a specific source but based on what could be called *folklore* or *popular knowledge* (Bermúdez, 2005; Lazard, 2001; Willett, 1988). It is not included in some descriptions (Plungian, 2001). This value may be expressed in LSC with the above

construction DIR.SE.QUE 'to be said' (8.5.2.1, Figure 8.17), but prototypically it is signalled with SER.CONEGUT 'to be known'.

8.5.3.1 SER.CONEGUT 'to be known'

The lexical SER.CONEGUT 'to be known' (Figure 8.25) is a simple predicate. The sign SER.CONEGUT 'to be known', is a compound consisting of the above sign SENTIR.ORELLA to 'listen by ear' (Figure 8.22) and the sign TOTHOM/QUALSEVOL 'anybody'.



Figure 8.25 SER.CONEGUT 'to be known'

It has its source in the adjectival predicate SER.CONEGUT 'to be known', and in the fact that LSC signers produce the evidential with the mouthing *fama* ('fame'), expressing *be famous*. Consider the example in (338), where the informant is answering to the question about which places have to be visited in Switzerland or what are the best things to do, according to her.

(338) EES 00:11:59 ES

[HAVER.DE]-intens p MENJAR SER.SEGUR FONDEE FORMATGE FORN HAVER.DE(2h) PRO.1 p

have.to to.eat sure fondee cheese oven have.to

SER.CONEGUT.fama SER(2h) p [ALTRES]-top RES p [MUNTANYA TELEFÈRIC]-top

to.be.known to.be others nothing mountain aerial.tram

SER.EXCEL·LENT p COVA GEL p COVA CLS:"entrar.a.la.cova" SÍ p gest.res.més c

to.be.excellent cave ice cave get.into.the.cave yes gesture: nothing else

'Què cal? Jo he de menjar una fondue de formatge fos. És molt conegut. La resta de coses? El telefèric per pujar a la muntanya és genial. També entrar a la cova de gel, sí. Res més.'

'What is a must? I have to eat a cheese fondue. This is a well-known thing. What about other things? The aerial tram to go up the mountain is great. To get into the ice cave, yes. Nothing else.'

Semantically, it conveys a folklore evidential value. It is situated at an intermediate point in the access to information dimension, between the universal and the restricted poles (Bermúdez, 2005). With regard to the subjective-intersubjective axis, it is generally used to refer to a shared information between the addresser and addressee. Consider example (339) below.

(339) EES 00:23:50 ES

DESPRÉS VEURE QUINZE AGOST PLOURE p

later to.see fifteen Augut to.rain

SER.CONEGUT.fama IX.aquí p SECTOR SANT.MARIA.DE.DALT SEMPRE

to.be.known IX.here zone location.name always

Lit. 'Després, es veu, del quinze d'agost plou. Se sap que sempre és així, aquí en la zona de Santa Maria de Dalt.'

'És ben conegut que a la zona de Santa Maria de Dalt sempre plou després del quinze d'agost.'

Lit. 'After seeing August fifteen, it is well known that it rains here in Santa Maria de Dalt always.'

'It is well-known that after August fifteen it always rains here in Santa Maria de Dalt.'

The interviewer had asked about the weather during her vacation. After explaining that she will spend the summer in a foreign country where it rains a lot in July and August, she says that she will be in an area close to the Pyrenees for a while, where it usually rains after the second week in August (Jarque & Pascual, 2015).

Folklore is a type of knowledge that is shared and access to it is guaranteed to all members of a community (Willet, 1988; Lazar, 2001; Bermúdez, 2005). The neutralization of inferences and reports characterizes the SER.CONEGUT 'to be known' construction. It only affects generic circumstances or general knowledge, but not circumstantial inference. Neither Frawley's (1992) nor Aikhenvald's (2004) models of evidentiality can account for this use (Bermúdez, 2005; Squartini, 2008).

8.5.3.2 SABER 'to known'

SABER displays a folklore value when used referred to a third person collective subject, as the pronoun EVERYBODY, or stressing an intersubjective link between the issuer and the communication participants or receiver(s), as in (340). This is an excerpt from the statement by the president of the Catalan Federation of Deaf People just before the summer holidays. After greeting the deaf people and the deaf leaders of the deaf movement, the President informs about the main goal the entity aimed at for the last two months, and he summarizes and evaluates the steps taken by the entity he directs.

(340) FESOCA President's statement 2018/07/30 00:01:31 AC

[JUNTA]-top [JA ESTAR.UNIT FORT]-certainty-nod p

board already to.be.united strong

[IX]-top []-nod PODER FUNCIONAR AVANÇAR

this can to.work to.advance

[PER.A]-focus [SABER]-intersubj JUST/SER ÈPOCA ESTIU IX.ara INTERROMPRE

for to.know to.be period summer now to.break

[MOTIU]-focus VACANCES MARXAR-ITER p

reason holidays to.go.away

[PERÒ]-focus [DESPRÉS SETEMBRE]-top CONTINUACIÓ OCTUBRE NOVEMBRE DESEMBRE

but after September continuation October November December

IX MATEIX PRO.CITAT CONTINUAR DE DOS+MESOS FINS.ARA p PERQUE MOTIU

same mentioned to.continue of two+months until.now because reason

'La Junta està fortament unida per a poder funcionar i avançar. (Però), com ja sabeu, a l'estiu s'interromp l'activitat per les vacances. Però al setembre, durant els mesos d'octubre, novembre i desembre, continuarem l'activitat iniciada els últims dos mesos.'

'The board is very cohesive so that we can work well and progress. (But), as you already know, during the summer there is the holiday break. But in September, and during the months of October, November, and December, we will continue the activity started in the last months.'

The President uses the sign SABER 'to know' and makes reference to information generally shared by the deaf community, namely that when summer starts, the activity of the entity stops till the end of the holidays. The president highlights the steps taken by the entity in the last months and insists on saying that the activity will resume as

soon as the summer holidays come to an end. When producing SABER, he modifies eye gaze, always interrupting the visual “contact”, signaling that it constitutes a comment, a justification shared by the both sides.

8.6 The encoding of inference

Under the general umbrella of inferentiality, a distinction is generally drawn between inference based on external sensory evidence and inference based on a reasoning process based on previous personal experience or general world knowledge (Bermúdez, 2005; Cornillie, 2016; Willett, 1988).

The first type concerns cases where the conceptualizer does not have direct access to the situation referred to in the proposition, but he does pose some physical evidence that allows him to infer what happens, or what happened. The second type indicates that the speaker has inferred the situation in the proposition on the basis of their knowledge of people’s habits or the way the world is (assumed).

This opposition has been referred in the literature as *apparent vs. assumed knowledge* (Barnes, 1984), *inferential vs. expectational* (Schlichter, 1986), *inferred from direct physical evidence and information from general knowledge* (Dickinson, 2000), *synchronic inference vs. retrospective inferences* (Plungian, 2001), or *specific inferences versus generic inference* (based on world knowledge) (Aikhenvald, 2003), or *circumstantial inferences vs. generic inferences* (Squartini, 2008), or *inference vs. deduction* (Bermúdez, 2005), or *inferential and belief* (Cornillie, 2007a).

The second type of personal indirect access is the *reasoning*, also called *retrospective inferences* (Plungian, 2001), and *presumptive value* (Plungian, 2010). It denotes cases where signers “produce an utterance in which they refer to a situation about which they do not know through concrete observed results, but through their knowledge about particular cause-and-effect relations” (Plungian, 2010, p. 30).

The analysis of our data shows that LSC does not distinguish formally between the two types of inference. For this reason, we will discuss the two semantic values with relation to each form.

8.6.1 Specific inference

This function is expressed in LSC by several constructions that include predicates with original lexical meanings from the sensory domain, such as MIRAR 'to look at', VEURE 'to see', OLORAR 'to smell' and CAPTAR 'to capture', but also SEMBLAR 'to seem'.

8.6.1.1 VEURE 'to see'

In section 8.2.1 above, we referred to the predicate VEURE 'to see' (Figure 8.2) when expressing visual direct access to information. Indeed, this verb may be used in constructions with inferential values, such as example (341). In this fragment, the signer is signaling that she has come to the conclusion that her health has got worse when she started smoking.

(341) EMS 00:14:42 MS

PRO.1 **VEURE** EMPITJORAR FUMAR RESPIRAR CANSAR

see get.worst smoke breath to.get.tired

'Jo veig que he empitjorar molt. Al fumar em costa respirar i em canso.'

'I see that I have got worst. Since I smoke I find it difficult to breath and I get tired.'

Compare the use of VEURE in (341) with (342). In this example, the signer is calculating the number of people participating in the summer vacation based on the number of people from the year before.

(342) EMS 00:04:25 MS

PRO.1 **VEURE SEMBLAR** MÍNIM 22 p gest:aproximadament

to.see to.seem minimum gesture:approximately

'Em sembla que un mínim de 22, més o menys.'

'I think at least 22, more or less.'

In this context, the signer does not adduce direct visual evidence, nor an approximate calculation based on contextual elements, but an estimation based on her knowledge. The semantic extension of this verb is grounded in the importance of visual access to acquire knowledge in the signing deaf community. The metaphor KNOWING IS SEEING motivates and structures this meaning-shift to inferential function, as described for other languages (Ibarretxe Antuñano, 1999; Johnson, 1987).

8.6.1.2 OLORAR 'to smell'

As indicated above, three different constructions are related with the smelling sense: OLORAR 'to smell' and SOSPITAR 'to suspect'. The first construction is made with the olfactive predicate OLORAR, formally produced touching the nose (Figure 8.26).



Figure 8.26 OLORAR 'to smell'

As a lexical predicate, OLORAR 'to smell' refers to the action of perceiving through the nose, as in (343), in which the signer describes her difficulties when trying to quit smoking since the deaf club was full of smoke.

(343) EMS 00:17:54 MS

PRO.1 ANAR **OLORAR** CL.fum-PRE.EXIST.hi.ha.a.l.ambient [HIVERN]-top p

to.go smell smell.in.the.air winter

[ESTIU]-top AIRE.FRESC CORRENT.AIRE

summer fresh.air draft

'Hi vaig i sento l'olor (de tabac) a l'ambient, a l'hivern. A l'estiu, hi passa l'aire, el corrent d'aire (ho evita).'

'I go there and I smell (tobacco) in the air, during the winter. During the summer, there is fresh air, the draft (avoids that).'

In addition to this lexical use, it functions as auxiliary in an evidential construction, such as (345), that refers to a discussion among the participants on the *Basque problem*. The participant is answering if the Basque Country could become independent from the Spanish state.

(344) EJG 00:11:53 JG

Int.: [INDEPENDÈNCIA ESPANYA SER.CAPAÇ]-q

independence Spain be.able/may

Resp.: [PRO.1]-topic [OLORAR A.PROP INDEPENDÈNCIA]t [NO]neg []neg

to.smell near independence not

Int.: 'És possible la independència (del País Basc) d'Espanya?'

Resp.: Lit. 'Jo? Nooloro que estigui a prop la independència.'

'No em sembla que estigui a prop la independència (del País Basc).'

Int.: The independence (of the Basque Country) from Spain is possible?'

Resp.: 'It doesn't look like (the Basque Country) is going to be independent'

Ferrerons (2011) includes this meaning in the entry OLORAR with the signs equivalent to 'sospitar' ('to suspect'), 'pronosticar' ('to predict'), 'recelar' ('to distrust'), etc. In the construction [PRO OLORAR proposition], there has been a semantic extension of the verb OLER (Fernández-Jaen, 2012; Fernández Jaén, 2015; Ibarretxe Antuñano, 1999).

8.6.1.3 TOCAR.AMBIENT 'touch in the ambience'

The following construction includes the sign TOCAR.AMBIENT 'to touch in the ambience' (Figure 8.27). The lexical meaning is equivalent to the English words 'atmosphere', 'ambience', 'environment', 'context', etc. The origin of this signs refers to the action of 'touching what is in the air'.



Figure 8.27 TOCAR.AMBIENT 'to touch in the ambience'

When used with evidential functions, TOCAR.AMBIENT appears mostly in combination with OLORAR –very similar to the Spanish expression *o/erse* as examined by Fernández Jaén (2008, 2015)— or with VEURE, as in the following example (345),

(345) EES 00:21:07 JMS

PRO.2 (IX.festa/ **VEURE**) **TOCAR.AMBIENT** p [QUI (VENIR)-esq]-q

party to.see to.touch.ambience who to.come

Lit. Qui veus, toques en l’ambient? Qui vindrà?

Qui et sembla que vindrà?

Lit. What do you see, can you feel it? Who will come?

Who do you think will come?

Phonologically, the combination of both signs can be reduced, exhibiting the formal properties of compounds (Jarque, et al., 2012). This loss of phonological form is illustrated in Figure 8.28.



Figure 8.28 OLORAR+TOCAR.AMBIENT ‘to smell to touch.ambience’

This image comes from a short news section on a webpage addressed to the deaf community in Catalonia. The signer is explaining that it seems that Barcelona is not going to be the city organizing the next Deaf Olympics because of the economic crisis. The newscaster signs OLORAR+TOCAR.AMBIENT to express his beliefs and suspicions based on the commentaries and attitudes of the people participating in the decision meeting.

8.6.1.4 CAPTAR ‘to capture’

LSC also has the marker CAPTAR ‘to capture’ (Figure 8.29). Morphologically it belongs to the regular deictic predicate category (Morales et al., 2005).



Figure 8.29 CAPTAR 'to capture'

As a lexical item, it means 'to guess' as in the fragment in (346), where the participants are talking about possible alternative jobs for the interviewee. The interviewer suggests to the interlocutor the possibility of working as an LSC teacher. The interviewee fears that she will not know how to translate Catalan words into LSC for her adult students. The interviewer explains a didactic strategy to avoid such questions.

(346) EMS 00:23:34 JMS

PRO.2 INTERPRET EXEMPLE PRO.1 SER.JO INFANTIL 1-AVISAR-2

interpreter example be-1sp child to.call

[PRO.2 QUE 2-DIR-1] CR CLD:"objecte.de.forma.rectangular.pla"

what say to.be.square-shaped object

CLD:"amb.petits.quadrats.a.sobre" CLD:"amb.un.objecte.vertical.forma.rectangular"

there.be.small.squares.on.the.top there.be.rectangular-shaped.vertical.object

CLI:"per.escriure.hi". PRO.2 MENT 1-CAPTAR-3 RES.MÉS

to.write.there mind to.guess nothing.else

'Interpreta, per exemple, com si fossis un nen i m'ho preguntessis. Què em respondries? Em diries: "Es tracta d'un objecte de forma rectangular pla. Té petits quadres a sobre. A més, hi ha un objecte vertical de forma rectangular i s'escriu". Tu ho endevinaries, oi?'

'Act, for instance, as if you were a child and you asked me about that. What would you answer me? You would tell me: "It refers to a square-shaped object. There are small squares on the top. In addition, there is a rectangular-shaped vertical object where you can write." You could guess it, wouldn't you?'

Another construction used with the presumptive value is [CAPTAR + proposition]. CAPTAR as a lexical item has been lexicalized from the instrumental classifier denoting the basic meaning of 'taking a narrow or delicate physical object'. Also, it has the

semantic extension applied to “subtle knowledge”, “hidden knowledge”, as guessing, through the ontological cognitive metaphors UNDERSTAND IS GRASPING and IDEAS ARE OBJECTS (Jarque, 2005; Jarque & Wilcox, 2000; Taub, 2001; P. P. Wilcox, 1993, 2000).

As an evidential, it is used to express inferences from both the contextual clues and from previous knowledge. Consider the example in (347), where the interviewer is referring to comments made by the respondent about how her son is learning to read and write.

(347) EMS 00:34:44 JMS

PRO.2 NOTAR NO LLEGIR p NO COMPRENDRE

note not read not understand

‘Tu notes que no llegeix, que no comprèn?’

‘Do you see that he can’t read, that he does not understand?’

Crosslinguistically, this form may be related to the acquisitive modals described in van der Auwera, Kehayov and Vittrant (2009).

8.6.1.5 VEURE+DESTACAR ‘to be evident’

VEURE+DESTACAR ‘to be evident’ is a lexical compound (Figure 8.30) that expresses a range of physical senses denoting visual perception, including intensity of color; prominency or saliency, such as a person wearing clothes with a bold/bright color; ‘sharpness, well-defined’ness, such as indicating sharpness of an image; and ‘obviousness’, as when looking for an object located in front of you (Wilcox, Shaffer, Jarque, Segimon, Pizzuto & Rossini, 2000, published later in Wilcox 2009 and Wilcox and Shaffer, in press).



Figure 8.30 VEURE+DESTACAR 'to be evident'

As a grammatical morpheme VEURE+DESTACAR denotes subjective, evidential meanings such as 'without a doubt', 'obviously', 'logically implied'. Usually signer's facial expression shows squid eyes and furrowed brows, as shown in (348). In this fragment of one of the interviews, the informant is explaining that there will be soon a meeting of former students from the deaf board school. In the example, she is answering to the question of who she thinks will attend the meeting and, specifically, whether a common friend will come.

(348) EES 00:21:41 JMS



PRO.3

TAMBÉ

PERQUÈ

VEURE+DESTACAR p

also

because

to.be.evident



DIR

SER.SEGUR

DIR

VEURE+DESTACAR

VENIR

to.say

sure

say

to.be.evident

to.come

'Ell també perquè és evident. Dic que és segur, és evident que hi anirà.'

'Him too, because it is evident. I say that it is sure, it is evident that he will go.'

Observe that in this example the signer is not describing the state of things but signaling her perspective on the issue. The evidential construction functions strengthening the epistemic commitment expressed by the modal marker SER.SEGUR.

8.6.1.6 SEMBLAR 'to seem'

SEMBLAR 'to seem' (Figure 8.31) has its origin in a nominal that means 'face', 'similar' (Jarque, et al., 2012), whose source is a manual gesture meaning 'face' used in the hearing community. SEMBLAR, also, appears in epistemic constructions as dealt with in Chapter 7.



Figure 8.31 SEMBLAR 'to seem'

As a lexical verb, either it denotes similarity between two entities, or it establishes a relation based on a shared element. This use is illustrated in (349): the signer compares her need to attend the deaf club with her smoking dependence.

(349) EMS 00:31:01 MS

[FAMÍLIA]-top ANAR IGUAL p **SEMBLAR** IGUAL FUMAR

family go same seem like smoke

'La família va anar igual (a CERECUSOR). S'assembla al fumar.'

'We go (to CERECUSOR) anyways. It's like the habit of smoking.'

Example (350) shows a specific inferential meaning, where the mother expresses the impression that her son does not read enough in school, judging from his results.

(350) EMS 00:34:09 MS

PERO IGUAL/COM SEMBLAR LLEGIR POC IX.allí p ESCOLA **SEMBLAR** LLEGIR POC O(2h) p

but like to.seem to.read little IX.there school to.seem to.read little or

PRO.1 SABER.NO p DUBTAR.IND p PRO.1 (parece)

know-NEG to.doubt seem

'Però, sembla que hi llegeixin poc; sembla que llegeixin poc a l'escola o... No sé, en tinc dubtes...'

'But, it seems that (they) do not read much there (at the school). At the school, it seems they don't read much, or... I don't know. I'm not sure. It seems to me.'

In this example, the signer is expressing her doubts about her daughter schooling. The use of SEEM denotes that her opinion is grounded in the results observed when her daughter reads at home. The conceptualizer is not signaling her lack of comprehension, but she is inferring an opinion based on specific cues (Aijmer, 2009; Cornillie, 2009; Gisborne & Holmes, 2007). SEMBLAR appears, also, in combination with the sign usually glossed as OMBRA literally meaning 'shadow', the focus of next section.

8.6.1.7 OMBRA 'to seem apparently'

OMBRA literally meaning 'shadow' is used by itself, but it can also form a compound with SEMBLAR, that we translate as 'to seem apparently' (Figure 8.32).



Figure 8.32 SEMBLAR+OMBRA 'to seem apparently'

The use of this construction denotes an effort by the signer of contrasting two different perspectives on the same fact. Consider the excerpt in (351), where the interviewee is complaining about her circumstances on vacation. While people may think that she is resting, her condition as a mother does not allow her to rest.

(351) EMS 00:06:36 MS



SABER

PER.A.SEMPRE

DURANT-ANY

PRO.1

VACANCES

know

forever

all.year.round

vacation



MAI

p

SEMBLAR +OMBRA

never

to.seem+shadow

'Ja sé que mai tinc vacances durant tot l'any. Ho sembla.'

'I know I don't have vacation all year around. It seems (I do).'

It makes reference to what it is seen in a blurry way, not clearly. A sign similar to OMBRA, produced with an alternative movement, is used to indicate, for instance, that the TV image is blurred. Signs with an opposite meaning are the compound VEURE+DESTACAR (8.6.1.5) and the sign SER.CLAR 'to be clear', discussed in the next section.

8.6.1.8 SER.CLAR 'to be clear'

The sign pictured in Figure 8.33 is glossed as SER.CLAR 'to be clear'. As a lexical item, the sign CLAR 'be clear' is an adjective and a predicate (Morales et al., 2005).

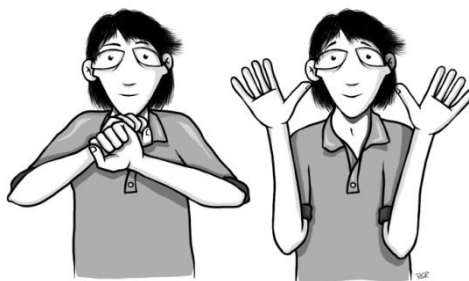


Figure 8.33 SER.CLAR 'to be clear'

When functioning as an adjective, it refers semantically to 'light' and, syntactically, it modifies a noun, as illustrated in the example in (352). As a predicate adjective, it may refer to the physical process of losing color, as shown in (353).

(352) Morales et al. (2005)

VIATGE EGIPTA, ROBA [CLAR-INTENS.]-intens

travel Egypt clothes light

'Si viatges a Egipte, millor portar roba molt clara.'

'If you travel to Egypt, better bring light clothes.'

(353) Morales et al. (2005)

[ROBA]-topic, SOL SOL COLOR CLAR-ASP.GRADUAL

clothes, sun sun colour light-GRADUAL.ASPECT

'El sol decolora la roba.'

'The sun fades clothes.'

Also, as a predicate adjective it may refer to a conceptual process of becoming more comprehensible, as in the fragment in (354), where the interviewer asks for clarifications about why she thinks she cannot be a sign language teacher and whether one of the reasons is that she considers herself too nervous.

(354) EMS 00:22:07 JMS_R

(PRO.IX / NECESSITAR CLAR) p [PRO.2 PROFESSOR LLENGUA.SIGNES]-top

this need clear teacher sign.language

[PRO.2 MATRICULAR]-top (UN.enum / [VOLER^NO]-neg O [PODER.NO NO]-neg)

to.enroll one to.want not or can't not

[CULPA NERVIS]-q/loc.esq [CULPA MANDRA ESTUDIAR]-q/loc.dta

fault nerves fault laziness to.study

'Necessito que m'ho expliquis més clarament. Tu no volies matricular-te o no podies? Era pels nervis? Et feia mandra estudiar?'

'I need (you) to make it clear. You didn't want to register (in a program) to become a sign language instructor, or you weren't able, because of anxiety or because you were too lazy to study.'

Whereas as a predicate it can take an aspectual morpheme, shown in (353), as a verb shown in (355), this would not be allowed. However, the main difference between the two categories does not lie in the existence of exclusively morphosyntactic characteristics, but rather, according to Morales et al. (2005), in a semantic-pragmatic distinction. Consider the fragment in (355).

(355) JMS 1139 Scotland 30062016

[B-R-E-X-I-T IX]-top [TEMA DE ANGLATERRA JA ABANDONAR PROU]-top

Brexit topic on England already abandon enough

SORGIR SORPRESA PROBLEMA DE ESCÒCIA IX.Scotland p

arise surprise problem of Scotland

PERQUÈ PRO.1 JA 1-DIR-2 ESCÒCIA I IRLANDA NORD

because already say Scotland and North Ireland

[[CL.país-LOC.situat.al.nord]-hand/CL.país-LOC.situat.al.costat.més.al.sud] [ELLS.DOS]loc:alt

country.located.north country.located.south they.two

VOLER ROMANDRE UE PERQUÈ VOTAR PERCENTATGE I [IX.LOC.alt]:mirada.loc:Escòcia

want stay UE because to.vote percentage and Scotland

62 PER.CENT VOLER CONTINUAR AMB U-E p DESPRÉS CONTRARI DE SUD ANGLATERRA

percent to.want.to.continue with European.Union after contrary of south England

[[CL.mapa]-mà.esq / [CL.país-LOC.sud.est:Anglaterra CL.país) CL.país-LOC.sudoest WALES

country.located.south. England country country.located.south.east Wales

CL.país-LOC.sud.oest ELLS.DOS PERCENTATGE ALT VOLER ABANDONAR p IGUAL

country.located.at.south.west they.two percentage high to.want.to.abandon same

VEURE MOLT CLAR SEPARAR (CL.país-LOC.sud-MOV.separar-se/CL.país-LOC.nord-MOV.separar-se) PROU

see very clear to.separate country.located.south-separate country.located.north-separate enough

'Sobre el Brexit, Anglaterra ja ha abandonat (la Unió Europea), (però) ha sorgit un problema inesperat amb Escòcia. Perquè ja us he dit que tant Escòcia com Irlanda volen romandre en la Unió Europea perquè el percentatge en la votació en Escòcia el 62 per cent volien continuar en la Unió Europea.'

'As for the Brexit, England already left (the European Union), (but) an unexpected problem aroused. Because, as I said, both Scotland and Ireland want to stay in the European Union because the percentage in the referendum in Scotland was of 62% who want to continue in the European Union.'

In this example, the signer is using the construction [VEURE CLAR], similar to the Catalan and Spanish constructions (Cuenca & Marín, 2012).

8.6.2 Generic inference

All the elements discussed in § 8.6.1 above can be used also to express generic inference. In this section, we will report examples of generic inference uses from the above signs CAPTAR, SEMBLAR and we will add two more elements that do not display specific evidence: SER.CONEGUT 'to be known' and SABER 'to know'.

With regard to CAPTAR, note the example in (356). The interviewer asks a question referred to a situation where the interviewee does not have direct access, but the answer will be based on the her knowledge about the world and her capacity to draw logical conclusions (Tatevosov, 2003).

(356) EMS 00:05:00 JMS

[PRO.2 VEURE **CAPTAR** p [IX.cel TEMPS.ATMOSFÈRIC BÉ TOT.PERÍODE]q [DUBTAR]q

to.see to.guess IX.sky wheather okay whole.time to.doubt

'Quina impressió tens? Farà bon temps durant tota la vostra estada?'

'What do you think? Will the weather be nice throughout your staying?'

The evidential construction expresses that the conceptualizer infers an information based on her encyclopedic knowledge. This is also the case for SEMBLAR in (357), where the use of the construction [SEMBLAR + proposition] is based on her knowledge and experience and not on circumstantial clues: Catalan people fond of nature know that, after mid-August, it usually rains in the Pyrenees (Jarque & Pascual, 2015).

(357) EES 00:22:50 ES

AGOST MARXAR DOTZE p **SEMBLAR** PLUJA HAVER.HI

August to.go twelve to.seem rain to.there.be

'A l'agost marxaré cap al dotze. Em sembla que hi haurà pluja.'

'In August we will go away around the 12th. It seems there will be rain.'

SER.CONEGUT 'to be known' was discussed as expressing folklore meaning in 8.5.3.1., (Figure 8.25). However, it may convey, also, a value of inference based on generic knowledge when reasoning is based on some information that is well known and shared socially. This function is close to folklore knowledge but stressing the inference.

SABER 'to know', on the other hand, when it is produced with a generic plural subject and it includes morphologically durative aspect, may be used for signaling generic inference.

The neutralization of inferences and reports that characterizes the construction SER.CONEGUT 'to be known' occurs only in the case of generic circumstances or general knowledge but not in the case of circumstantial inferences. Neither Willett's (1988), Frawley's (1992) and Aikehnvald's (2003a) models can account for, nor we agree with the internal flaw of the evidential typology derived (Squartini, 2008).

8.7 Findings and research questions

Through the chapter we have examined the linguistic expression of evidentiality combining an onomasiological and a semasiological methodology, i.e. function to form and form to function, respectively. In this section, we will answer the research questions formulated at the beginning of the chapter as follows: § 8.7.1 presents a summary of the data analyzed previously; § 8.7.2 focusses on the semantic domains which constitute the source for the evidential items, and, finally § 8.7.3 discusses the interaction of modality and evidentiality.

8.7.1 Research question 7: Forms and evidential functions

This chapter dealt with forms expressing evidential values in Catalan Sign Language. Table 8.2 summarizes our main findings concerning mode of knowing, i.e. source of information, where the following codes are used: Vis = visual, Aud=auditory,

Tact=tactile, End=endophoric, Exp=experiential, Quo=quotative, Rep=reportative, Folk=folklore, SpecInf=specific inference, and GenInf=generic inference. Notice that we include in the inventory the compound forms as different units from the original composites since, from a functional perspective, a difference on the form implies a difference in the function or in the grammaticalization process.

Table 8.2 Manual forms and evidential functions in LSC for source of knowledge

Token	lexical meaning	grammatical meaning: evidential function for source of knowledge											
		Direct Access						Indirect access					
		Sensory				End	Exp	Mediated			Inference		
		Vis	Aud	Tact	Olf			Quot	Rep	Folk	Spec Inf	Gen Inf	
ASSABENTAR.SE.ORELLA	√	-	-	-	-	-	-	√	√	-	-	-	
ASSABENTAR.SE.ULL	√	-	-	-	-	-	-	√	√	-	-	-	
AVISAR	√	-	-	-	-	-	-	√	-	-	-	-	
1-AVISAR-1	√	-	-	-	-	√	-	√	-	-	-	-	
CAPTAR	√	-	-	√	-	-	-	-	-	-	√	√	
DIR	√	-	-	-	-	-	-	√	-	-	-	-	
DIR+ESTENDRE	√	-	-	-	-	-	-	-	√	√	-	-	
DIR-IX	√	-	-	-	-	-	-	√	-	-	-	-	
DIR.2	√	-	-	-	-	-	-	√	√	-	-	-	
DIR.RESPONDRE	√	-	-	-	-	-	-	√	√	-	-	-	
DIR.SE.QUE	√	-	-	-	-	-	-	-	√	-	-	-	
ESCOLTAR.ORELLA	√	√	√	-	-	-	-	√	√	-	-	-	
ESCOLTAR.ULL	√	√	-	-	-	-	-	√	√	-	-	-	
EXPLICAR	√	-	-	-	-	-	-	√	√	-	-	-	
INFORMAR	√	-	-	-	-	-	-	√	√	-	-	-	
MIRAR	√	√	-	-	-	-	-	-	-	-	√	√	
MIRAR+CLAR	√	-	-	-	-	-	-	-	-	-	√	√	
OLORAR	√	-	-	-	√	-	-	-	-	-	√	√	
OLORAR+TOCAR.AMBIENT	√	-	-	-	√	-	-	-	-	-	√	√	
PRESENCIAR	√	-	-	-	-	-	√	-	-	-	-	-	
SABER	√	-	-	-	-	√	-	-	-	√	-	√	
SEMBLAR	√	-	-	-	-	-	-	-	√	-	√	√	
SEMBLAR+OMBRA	√	-	-	-	-	-	-	-	-	-	√	√	
SENTIR.ORELLA	√	-	√	-	-	-	-	√	√	√	-	-	
SENTIR.AL.COR	√	-	-	-	-	√	-	-	-	-	-	-	
SENTIR.AL.COS	√	-	-	-	-	√	-	-	-	-	-	-	
SER.CLAR	√	-	-	-	-	-	-	-	-	-	√	√	
SER.CONEGUT	√	-	-	-	-	-	-	-	√	√	-	√	
SOSPITAR	√	-	-	-	√	-	-	-	-	-	√	√	
TOCAR	√	-	-	√	-	-	√	-	-	-	-	-	
TOCAR.AMBIENT	√	-	-	√	-	-	-	-	-	-	√	√	
VEURE	√	√	-	-	-	-	-	-	-	-	√	√	
VEURE+DESTACAR	√	-	-	-	-	-	-	-	-	-	√	√	
	33	4	2	3	3	4	2	13	14	4	12	14	
		12							31			27	

Token	lexi- cal mea- ning	grammatical meaning: evidential function for source of knowledge										
		Direct Access						Indirect access				
		Sensory				End	Exp	Mediated			Inference	
		Vis	Aud	Tact	Olf			Quot	Rep	Folk	Spec Inf	Gen Inf
		18						58				
total	33	76										

Table 8.2 shows that the totality of items has a lexical source and between one and three have evidential functions. The choice of one or other evidential form will depend on the communicative context and on the type of evidence the signer wishes to provide. Whereas VEURE 'to see' is used in subjective statements, SEMBLAR 'to seem' and SEMBLAR+OMBRA 'to seem apparently' is used for the intersubjective ones. Subjectivity concerns the signer's exclusive access to the evidence, and intersubjectivity is related to shared access to the evidence (Cornillie, 2007a).

Our position does not share the view that considers evidentiality to be an exclusively grammatical, obligatory category of a language (Aikhenvald, 2004). Instead, we adopt a functional-semantic perspective and consider that the so-called "lexical expression of evidentiality" consists of the use of constructions with specific discourse functions. The forms in Table 8.2 may be used in discourse fulfilling two main functions:

- (i) describing the **state of affairs**, or
- (ii) signaling the **conceptualizer's perspective** on the information denoted or reported by the main predication, establishing the status of information (shared-unshared), her mode of knowing (visual, report, inference, etc.) and the locus of information (internal vs. external).

When used for (i), they are functioning as lexical items, whereas when used to attain the second goal, they fulfill a secondary function in the sentence or piece of discourse and correspond to truly evidential behavior.

Indeed, in this chapter we have described three possible scenarios where the different forms and constructions are used with an evidential function, as listed in (358).

(358) Functions of evidential forms in LSC

- (i) The signer is making a performative act signaling the source of information in the interaction context, and not narrating, describing, etc. a situation on its own.
- (ii) The signer is describing a past action and justifying the source of the information, through indirect or direct discourse (constructed action).
- (iii) The signer is asking a question addressing specifically information from a specific source of knowledge (visual information, feelings, reported, etc.).

Research can address these functions and establish differences in terms of lexical and grammatical status only from a perspective of discourse analysis.

8.7.2 Research question 8: Source for evidential constructions

We have shown that in LSC the semantic space of evidentiality is encoded through the use of markers whose source is a lexical item that developed an evidential semantic extension. The main conceptual domains that may constitute the source of an evidential in LSC are the following (359):

(359) Source for LSC evidential forms

- (i) the **sensory domain**, i.e. lexical signs for smell, ear/hearing, sight, and touch.
- (ii) the **body domain**, i.e. lexical signs such as legs, face, body, etc.
- (iii) the **communication domain**, i.e. lexical signs for talking, saying, telling, etc.
- (iv) the **cognitive domain**, i.e. lexical sign for knowing.

Table 8.3 reproduces the main evidential markers in LSC whose source is a lexical item from the sensory domain, their original lexical meaning, their evidential value and the semantic subdomain they emerge from.

Table 8.3 LSC manual evidential markers from the sensory domain

Gloss	Lexical meaning	Evidential meaning	Conceptual subdomain
ASSABENTAR.SE.ORELLA 'to find out by ear'	to hear recently	mediated	ear/hearing
ASSABENTAR.SE.ULL 'to find out by eye'	to see recently	mediated	sight
CAPTAR 'to capture'	to guess	inferential	touch
INFORM 'to inform'	to catch, to inform	mediated	touch
MIRAR 'to look at'	to see, to look at	sensory inferential	sight
MIRAR.CLAR 'to look at'	to see, to look at	sensory inferential	sight
OLORAR 'to smell'	to smell	inferential	smell
OLORAR.sospitar 'to suspect'	to smell, to suspect	inferential	smell
OMBRA 'to seem apparently'	shadow, blurry	inferential	image
SEMBLAR+OMBRA 'to seem apparently'	shadow, blurry	inferential	image
SENTIR.ORELLA 'to hear by ear'	to hear	mediated	ear/hearing
SER.CLAR 'to be clear'	(color) be.light, clear	inferential	image
SER.CONEGUT 'to be well-known'	fame, to be famous, to be well-known	Reported	ear/hearing
TOCAR 'to touch'	to touch	experiential	touch
TOCAR.AMBIENT 'to be in the ambience'	context, environment	inferential	touch
VEURE 'to see'	eye, to see	sensory inferential	sight
VEURE+DESTACAR 'to be evident'	sharp definition	inferential	image
Total		17	

Sensorial perception predicates are the most frequent source for evidential constructions in LSC, especially from the visual subdomain, such as MIRAR 'to look at' and VEURE 'to see'. Visual evidentiality is undoubtedly the most natural and unmarked interpretation of direct evidentials in signed languages, since it constitutes the main access to information and to knowledge construction.

Indeed, they are not used only for direct experience, but also for indirect evidence. That shows that visual verbs show an advanced degree of subjectivization since in some constructions they have lost totally their reference to the visual domain. From a cognitive point of view, they instantiated the UNDERSTANDING IS SEEING metaphor (Jarque, 2005; Lakoff & Johnson, 1980, 1999; P. P. Wilcox, 2000).

Also, the use of SENTIR.ORELLA 'to hear' expressing second-hand information is apparently surprising, since it is relatively rare crosslinguistically (de Haan, 2002). However, we suspect that it is the product of contact phenomenon with the surrounding spoken languages, both Catalan and Spanish.

Particularly relevant is the use of the olfactive domain since it comprises both a negative connotation and a neutral statement. The negative connotation is present in some languages, such as Catalan and Spanish, but rarely attested crosslinguistically (Ibarretxe, p.c.).

The uses for signaling indirect evidence instantiate the general conceptual metaphor COGNITION IS PERCEPTION, identified across languages and cultures (Ibarretxe Antuñano, 2013; Vigerg, 2008). It is relevant, also, that the richness and pensiveness of perception metaphors and the body domain constitutes another important conceptual domain whose lexical items grammaticalize to express evidential values in LSC (Table 8.4).

Table 8.4 LSC manual evidential markers from the body domain

Gloss	Lexical meaning	Evidential meaning	Conceptual subdomain
SEMBLAR 'to seem'	face	inferential	face
PRESENCIAR 'to attend'	to be somewhere	experiential	legs
SENTIR.AL.COR 'to feel at the heart'	to feel, emotion	endophoric	heart

Gloss	Lexical meaning	Evidential meaning	Conceptual subdomain
SENTIR.AL.COS 'to feel at the body'	to feel	endophoric	body
Total	5		

Finally, the communication domain gives rise to a group of predicates that express mostly mediated evidential functions, namely reported and hearsay values. An exception is the predicate AVISAR, which may also encode endophoric meanings (Table 8.5).

Table 8.5 LSC manual evidential markers from communication domain

Gloss	Lexical meaning	Evidential meaning	Cognitive subdomain
1-AVISAR-1 'to call oneself'	to call/warn	endophoric	signed
AVISAR 'to call'	to call/warn	mediated	signed
DIR 'to say'	to say	mediated	spoken
DIR-IX 'to tell'	to say, to tell	mediated	spoken
DIR.2 'to tell 2'	to say, to tell	mediated	spoken
DIR.RESPONDRE 'to answer'	to say, to tell, to answer	mediated	spoken
DIR.SE.QUE 'to be said'	to be said	mediated	spoken
ESCOLTAR.ORELLA 'to listen by ear'	to listen attentively through the ear	mediated	spoken
ESCOLTAR.ULL 'to listen by eye'	to listen, to pay attention through the eyes	mediated	signed
EXPLICAR 'to explain'	to explain, to describe	mediated	signed
DIR+ESTENDRE 'to spread out'	to spread a rumor/piece of information	mediated	spoken
Total	11		

1-AVISAR-1 'to call oneself' and AVISAR 'to call' might be also classified in the body domain, since their initial meaning is touching somebody's arm to call her attention, which corresponds to

(360) Semantic extension for CRIDAR 'to call'

touching arm > telling > quotative (mediated)

> endophoric

Table 8.6 LSC manual evidential markers from the cognitive domain

Gloss	Lexical meaning	Evidential meaning	Conceptual subdomain
SABER 'to know'	know	endophoric	knowledge
Total	1		

Figure 8.34 shows the distribution of source domains for evidential resources. The sensory domain accounts for 52% of the sources domains, followed by the communication domain, constituting as much as a 32%, the body domain with 14.3%, and the cognitive domain (3.6%).

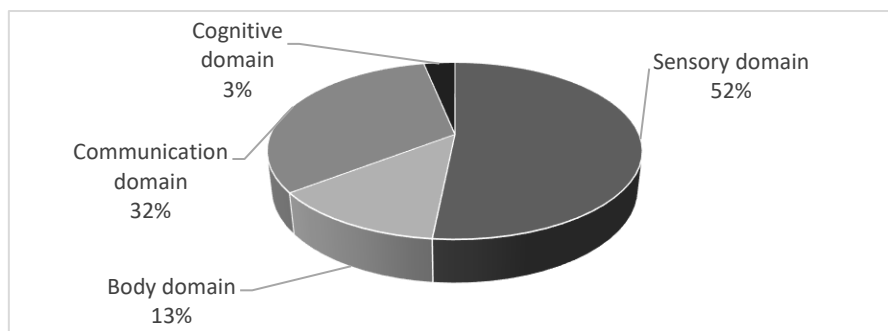


Figure 8.34 Source conceptual domains for evidential resources in LSC

After the sensory domain, the communication domain is thus the largest source of evidence in LSC. Regarding auditory verbs, we consider that there has been no semantic change, but it is a case of calque from Spanish. In this sense, in the course of the last

years, two related verbs formally referring to auditory perception gave rise to two derivatives that refer to visual perception. We observe a different degree of semantic modification depending on the kind of perception. The origin of the evidential forms in LSC illustrates how conceptual systems grow out of bodily experience and are directly grounded in perception, body movement and experience of a physical and social nature (Gisborne, 2010; Ibarretxe Antuñano, 1999; Lakoff, 1987; Lakoff & Johnson, 1999; Talmy, 1985). We will go back to these questions in the discussion chapter.

With respect the status of evidentiality in LSC, the data shows that it constitutes a functional or grammatical category. Following Pietrandrea (Pietrandrea, 2012), we believe that LSC fulfills the two necessary conditions for considering a semantic domain as a functional category in a specific language: (i) the semantic domain of evidentiality is expressed through specific forms in LSC, and (ii) these forms are grammatical. The forms are grammatical, following Boye and Harder (2007, 2009), since they exhibit the following properties (361):

(361) Properties for grammatical status

- (i) They belong to **substantial domains relevant from a crosslinguistic perspective**. Evidentiality constitutes a domain widely discussed and consolidate in the crosslinguistic literature (See chapter 3).
- (ii) They imply a **secondary predication with respect to the main predication** which constitutes the lexical part in the linguistic system. The forms are grammaticalized since they have become “coded as secondary in relation to another, thereby creating both a new, less prominent element, and a dependency relation with the associated primary element” (Boye & Harder, 2009, p. 38).
- (iii) The tendency of meanings to **denote signer’s subjectivity and intersubjectivity** constitutes evidence that the form is more grammatical.

We assume, thus, that grammatical categories in a language are no restricted to those expressed through inflection. Indeed, we assume that grammar and lexicon constitute a continuum and grammatical elements may be based on constructions (Bybee, 2010; Goldberg, 2006; Langacker, 1990, 2013; Traugott & Trousdale, 2013).

8.7.3 Research question 9: Interfaces between evidentiality and modality

Concerning the interface between evidentiality and modality, the data reveal that a few linguistic expressions display both modal and evidential meanings, as described for several languages and pointed out in chapter 3. This is the case for SABER 'to know', SEMBLAR 'to seem' and PENSAR 'to think' in LSC. See Table 8.7 for a summary of the meanings of these linguistic elements.

Table 8.7 Functions of elements with modal and evidential values in LSC

Token	grammatical function								
	modality		evidential function						
	non-epist	epist	Sens	End	Exp	Quot	Hear	Spec Inf	Gen Inf
PENSAR	√	√	-	-	-	-	-	√	√
SABER	√	√	-	√	-	-	-	√	√
SEMBLAR	-	√	-	-	-	-	√	√	√

The polyfunctionality of these forms may display, in some contexts, indeterminacy, i.e. ambiguity or difficulties distinguishing one function from the other. Notice, for instance, example (362), where the interviewer asks the interviewee whether she believes that J. Frigola, a man well-known in the Catalan deaf community, was able to quit smoking because of his age.

(362) EMS 00:17:07 MS

Int.: [CREURE CULPA TEMA ENTITAT EDAT]-av.esp

think fault topic entity age

Resp.: PRO.1 SEMBLAR CREURE

seem believe

Int.: 'Tu creus que és gràcies a l'edat?'

Resp.: 'A mi m'ho sembla, ho crec.'

Int.: 'Do you think it is because of his age?'

Resp.: 'It seems to me, I think so.'

In this context, SEMBLAR displays indeterminacy between epistemic and inferential values, similarly to its equivalent in Catalan *semblar* ‘to seem’ (Antolí Martínez, 2015a) and Spanish *parecer* ‘to seem’ (Cornillie, 2009; Cornillie & Gras Manzano, 2015; Jarque, 2017; Nieuwenhuijsen, 2017). It would be evidential if it would show the kind of justification for a factual claim (de Haan, 1999, 2002).

SEMBLAR ‘to seem’ is used undoubtedly with an evidential function when in the linguistic context there appears explicitly the source for the specific inference and, in addition, a linguistic expression with an epistemic function. Consider the example in (363), where one of the interviewees, mother of a deaf child, suggests that teachers focus on oral language, because she considers that the child is better at speaking rather than comprehensive reading, and she prompts him for a confirmation.

(363) EMS 00:33:49 MS

ESTRANY p PARLAR SEMBLAR ESCOLA PARLAR MOLT p [NO] p PRO.1 DUBTAR.IND p

weird speak seem school speak a.lot no doubt.

PRO.1 1-AVISAR-3 PAU CA:Pau<[NO PARLAR POC]-neg>

call sign.name no speak little

‘És estrany. Sembla que a l'escola parlin molt. No ho sé. Li vaig preguntar a en Pau i em va dir que no, parlem poc.’

‘It is weird. It seems that they speak a lot. I don’t know. I asked Pau and he told me that they don’t, that they don’t speak much.’

The signer signals the specific source for the inference (the quality of her son’s speaking) and then uses SEMBLAR to mark the inferential reasoning; subsequently, she uses an uncertainty expression (PRO.1 DUBTAR ‘I have doubts’) and elicits the verification of her impression asking her son explicitly about that. Consider, also the following example in (364): the signer explains her experience about how she felt when trying to quit smoking.

(364) EMS 00:15:03 MS

[PRO.1 TALLAR]exp.fac.fatal NERVIS MÉS PRO.1 p

to.quit to.be.nervous more

SEMBLAR 3-DONAR-1 TRANQUILITAT p UNA.MICA 3-DONAR-1 FUMAR p

seem give relax a.little.bit give smoke

PRO.1 MENT PRO.1 MAL PRO.1

mind mal

'Parar de fumar em posa més nerviosa. Sembla com si fumar em donés tranquil·litat. Fumar em dona (tranquil·litat) una mica. Tinc el cap malament, (que hi farem...).'

'Quitting smoking made me more nervous. It seems that smoking relaxed me. Smoking relaxes me a little. Something is wrong with my head, (what can I do...).'

In this case too, the signer contrasts two situations (being and not being anxious) where the difference depends on the smoking habit and the inference about its effect. The signer does not use SEMBLAR 'to seem' to signal the degree of commitment with her utterance. Rather, she uses it to mark a specific inference and, indeed, in the next utterance she expresses total commitment with it, since the lack of any modal expression signals total certainty.

(365) EES 00:37:23 ES

PRO.1 VEURE PRO.1 VEURE PRO.3I SENTIR SEMBLAR VEURE SEMBLAR DINS

see see feel seem see seem inside

PER.A FUTUR NO p

for future no

'Veig, veig... ell sent –sembla— veig –sembla— que no hi ha futur.'

'I see, I see... he feels – it seems— I see, it seems there is no future.'

The example in (365), shows, indeed, a modality-specific type of co-occurrence: the combination of manual and non-manual articulators. Wilcox and Shaffer (2018) suggest, for ASL, that the integration of evidentiality and epistemic modality takes place by (i) indicating source of information with a manual sign; (ii) marking the signer's attitude towards the veracity of that information by variations in the manner of movement of the manual sign, and; (iii) indicating the signer's epistemic commitment with facial grammar. This is the case also for LSC, as in (365) where epistemic lack of commitment is marked with uncertainty facial expression, the quality of signs movements is slower and there is shoulders rug.

Finally, with respect to SABER 'to know', we have identified also cooccurrence with epistemic expressions, reinforcing each other. See the fragment in (366), where the

participants are chatting about sports and the respondent expresses her desires related to sport, comments on the difficulties she faces and her bad shape. The interviewer suggests to the respondent that she might practice some sport if she ate healthy food.

(366) EMS 00:14:22 MSFR

MAL PRO.1 DESVIAR p SABER p PRO.1 SER.SEGUR exp.fac.fatal

bad to.stray.away to.know to.be.sure

'Malament, jo no ho seguiria (=un programa de bona alimentació). Ho sé. Estic segura.'

'It's bad, I would not follow it (=a healthy food plan). I know. I am sure about that.'

The respondent produces three clauses in (366) with this order: (i) a projective event: the fact of not following the healthy food plan; (ii) the expression of the source of knowledge about the event: herself, signaling the endophoric evidence with SABER; and (iii) an evaluation of the epistemic status of the event, expressing total commitment.

SABER is, then, a highly polyfunctional verb with grammatical and discursive functions, as, for instance, an intersubjective formulistic expression to initiate a new topic conversation shown in (367).

(367) EMS 00:16:56 JMS

Int.: [PRO.2 SABER PRO.2] p [SER.CONEGUT PERSONA FUMAR FORT FRIGOLA]-q

know person to.smoke hard person.name

Resp.: (cap: sí)

(nodhead)

Int.: ARA PRO.3 gest.què]q

now

Resp.: TALLAR PRO.3

to.quit

Int.: Saps qui té fama de ser molt fumador? Juan Frigola.

Resp.: (Sí).

Int.: (I) ara què?

Resp: Ho ha deixat (de fumar).

Int.: Do you know who has a reputation of being a heavy smoker? Juan Frigola.

Resp.: (Yes).

Int.: (And) now what?

Resp: He quit (smoking).

Moreover, in other instances, the indeterminacy refers to inferential and mediated hearsay evidence. Note the fragment (368), where the respondent is answering a question about how the weather would be in her next holidays in the mountains.

(368) EES 00:23:06 ES_R

[TEMPS.ATM IX]-top SER.SEGUR PLOURE HAVER.HI p [CREURE CADA DIA]-top [NO]-eng p
mov.cap.af c

weather must rain there.be think every day no

SEMBLAR FORÇA PLOURE p [SI]-nod p [MAL TEMPS.ATM]-cond PRO.1 ANAR CAMINAR IGUAL p

seem a.lot rain yes bad weather go walk anyways

'Segur que hi haurà pluges (però) no crec que cada dia. Sembla que plou força. Sí. Si fa mal temps, hi aniré a caminar igualment.'

'It will rain for sure, (but) not every day, I think. It seems that it rains a lot. Yes! Even if the weather is bad, I will go for a walk anyways.'

Finally, we will show the combination of evidential manual and epistemic non-manual articulators. The fragment in (369) belongs to the piece of discourse where the participants are talking about the weather during the respondent's trip to Switzerland.

(369) EES 00:23:56 ES

a. PRO.1 VEURE (ULTIMES.DUES.SEMANES /IX.dues.últimes setmanes

to.see last-two-weeks

[IX.aquí BARCELONA]-top ZONA HAVER.HI p

here Barcelona zone there.be

b. [[IX.allí SUÏSSA]-top [SABER.NO]-neg]-fac.exp.: uncertainty

there Switzerland to.know-not

In (a), the signer adduces direct visual evidence with the use of VEURE 'to see' and, at the same time, her facial expression conveys total commitment. Whereas, the next

sentence, (b) expresses her lack of knowledge and at the same time her face, movement and shoulders rugs display uncertainty.

8.8 Final remarks

This chapter has offered a descriptive approach to the Catalan Sign Language evidentiality system. The main findings derived from our analysis are the following (370)-(372).

(370) Main findings with regard to **RQ 9**: evidential resources

- (i) We have identified 33 manual linguistic expressions signaling evidential meanings.
- (ii) Constructed action (with a biclausal or monoclausal structure) or framed direct discourse constitute fundamental strategies for expressing mediated evidence.
- (iii) Evidentiality is a functional or grammatical category in LSC since it is expressed through specific forms and these forms may be considered grammatical.

(371) Main findings with regard to **RQ 10**: sources for evidentials

- (i) The sources for evidential markers are LSC lexical signs for the sensory domain, the body domain and the communication domain.
- (ii) Some constructions might be a contact-language phenomenon, i.e. calque from Spanish or Catalan.

(372) Main findings with regard to **RQ 11**: interface with modality

- (i) A few manual elements can convey modal and evidential values in LSC.
- (ii) Manual epistemic elements appear in co-occurrence with manual evidential elements providing an evaluation of the source.
- (iii) Some constructions are a combination of manual forms expressing evidential meanings whereas non-manual component signals epistemic values (doubt, certainty...).

- (iv) Modality and evidentiality constitute separate grammatical categories in LSC, i.e. they are in a disjunctive relation.

In short, this chapter has revealed that modality and evidentiality constitute separate functional domains in LSC. Also, we have shown that grammatical categories in a language may not be restricted to those expressed through inflection. Data from LSC fulfilling evidential functions constitute evidence that grammar and lexicon constitute a continuum and grammatical elements may be based on constructions (Bybee, 2010; Goldberg, 2006; Langacker, 1990, 2013; Traugott & Trousdale, 2013).

Chapter 9. The interaction of modality with other semantic domains: aspect

9.1 Introduction

This chapter⁹³ focuses on the results related with **research goal 2**, i.e. it examines the interaction of modal meanings and forms with other grammatical/functional categories or semantic spaces in LSC, specifically with regard to aspect. To attain this goal, we have addressed the research questions (RQ), as specified in chapter 4, and reproduced in (373):

(373) Research questions addressed in Chapter 9

RQ 10. Which are the main elements signaling aspectual categories in LSC?

RQ 11. Which are the sources for aspectual manual markers in LSC?

RQ 12. Does LSC express modal values through aspectual constructions? Do modal constructions express aspectual meanings?

Bybee (1985) points out that the function of aspect is to allow the temporal dimension of a situation to be described from different points of view depending on how the situation is intended to fit into the discourse. The subjective dimension is stressed also in Comrie (1976).

On the other hand, as reviewed in Chapter 3, a line of research addresses the interaction between aspect and modality. Some studies stress how aspect is crucial in the interpretation of modal constructions (Fortuin, 2007; Narrog, 2008), or even how the combination of elements from both domains results in values related to a different domain, as for instance evidentiality (Pietrandrea & Stathi, 2010). Also, some pieces of research describe multiple relations with respect to the combination of modality, time and aspect (Gavarró & Laca, 2008; Maché, 2008; Pérez-Leroux, 1998; Pérez-Saldanya, 2002).

Other works analyze how aspectual constructions acquire modal meanings or vice versa (Antolí Martínez, 2015a, 2015b; Bybee, Pagliuca, & Perkins, 1991; Bybee, Perkins, & Pagliuca, 1994). Also, it is relevant to address the syntactic distribution of both

⁹³ The content of this chapter will appear in Jarque (forth.), in a collective volume addressing the periphrastic expression of aspect. This is the reason why this chapter adopts a cross-linguistic approach comparing this type of coding in sign languages.

constructions and the scope of one construction over the other (Bybee, 1985; Foley & van Valin, 1984; García, Krivochen, & Bravo, 2017; Giammatteo & Marcovecchio, 2009; Hengeveld, 1989, 2004; Rosemeyer, 2017).

The research conducted over the last thirty years shows that aspect in signed languages has formal, semantic and functional properties comparable to spoken languages. Across signed languages, aspectual meanings are expressed through morphological, periphrastic and syntactic marking. In this chapter, we will be concerned with the free constructions expressing aspect in LSC, but also taking into account how it is coded in the signed languages which research is available, following the typological framework, as in Bybee and Dalh (1989), Bybee, Perkins and Pagliuca (1994), Comrie (1976), Dalh (1985), and Heine (1993).

The purpose is twofold. First, we will deal with the constructions for the encoding of aspect in Catalan Sign Language, a grammatical category with no previous research. Second, we will report on the expression of aspectual categories in the signed languages studied until present. Our focus will be on the predicates/markers and their semantic values. A detailed syntactic analysis on the interaction of aspect with negation goes beyond the scope of this dissertation.

Moreover, our interest lies in identifying grams on the modality-aspect interface, that is, markers expressing aspectual and modal values, following the research questions stated at the beginning of the chapter. By addressing these issues, we want to contribute to the crosslinguistic typology of aspect in the languages of the world. For methodological issues with regard to our research in LSC, we refer the reader to the previous chapter 5.

The chapter is laid out as follows. The first two sections will present the frame of our analysis of aspectual markers. Firstly, since aspect usually is linked to time in research on grammatical categories in languages, such as in Romance or Germanic languages, in Section 9.2 we will introduce how time or temporality is expressed in LSC in order to distinguish the values coded by the aspectual construction in a sentence from the expression of time. Second, in Section 9.3 we will refer briefly to the morphological expression of aspect in LSC since it may appear jointly with free constructions in the same clause.

Crosslinguistic studies establish a difference between two main categories of aspect, imperfective and perfective, that refer to contrasting views on the state of affairs expressed by the verb. We will examine the expression of aspect in LSC following this division. Section 9.4 examines the expression of imperfective aspect, namely inceptive (§ 9.4.1), ingressive (§ 9.4.2), iterative (§ 9.4.3), continuative/durative (§ 9.4.4), and habitual/frequentative (§ 9.4.5). Section 9.5 addresses the expression of perfective aspect: perfective (§ 9.5.1) and completive (§ 9.5.2). Section 9.5.3 provides an analysis of anterior/perfect. Exhaustive and other categories described in some studies were not taken into account. Section 9.6 provides a discussion based on the research questions 10 to 12. Finally, section 9.7 presents some final remarks.

9.2 The expression of time in LSC

In traditional accounts, LSC would be considered a truly tenseless language, in the sense that there is no encoding of relations between signing time and reference time in its inflectional system (Shaer, 2003). According to typological research, the term *tenseless languages* is referred to those languages that: (i) have no inflectional temporal marking, comparable directly to the tenses of Romance or Germanic languages, and (ii) permit sentences with no explicit temporal marking whatsoever (Shaer, 2003). Instances of tenseless language include Inuit languages (Greenlandic, Inuktitut and Yup'ik). However, this perspective shows a European language bias and the existence of languages without obligatory marking has been attested worldwide (Bybee, et al., 1994).

In a text in LSC, by default, the interaction time is assumed to be the reference point (i.e. deictic reference point). Otherwise, time must be established at the beginning of the discourse (anaphoric time reference point). Along the discourse string, it is assumed that the reference time is constant until there is a shift. In LSC it is marked by means of the resources listed in (374).

(374) Constructions for expressing time in LSC

- (i) Lexical signs related to time (days of the week, year, etc.).
- (ii) Adverbials and time markers ('before', 'now', 'later'...).
- (iii) Lexical and grammatical items produced in the so-called *time lines* or *time axes*. These lexical items are deictics (pointing to loci in space), numbers,

signs related to time (nouns and adverbs) or some verbal predicates non-body anchored.

- (iv) facial expression and eye gaze.

Typically, temporal items are uttered at the beginning of the discourse or the clause in a topicalized constituent (i.e. raised eyebrows marking). Note in (375) how the signer combines raised eyebrows, eye gaze towards the back and the manual markers (UNA MICA PASSAT 'fa poc').

(375) Webvisual AC_R



BÉ

UN

MICA

PASSAT

well

a

little

past



PASSAT

MES

DICIEMBRE

ÈPOCA

past

month

December

period

'Bé... fa poc, el passat mes de decembre...'

'Well... recently, past month of December...'

Some of those items are articulated in the so-called neutral space, i.e. the horizontal or transverse plane (Figure 9.1).



Figure 9.1 Horizontal plane

The horizontal plane corresponds to the plane that stands perpendicularly to the signer's body and it is the default plane where the majority of the signs are localized (Barberà, 2012), as for instance the days of the weeks (except SATURDAY and MONDAY) or some temporals markers such as FINS+ARA ('until now'). Note in the fragment in (376) the location of the temporal items (in bold) and the expression of simultaneity for the two situations described in the fragment (i.e. the use of MATEIX.JUST 'same').

(376) EES 00:00:13 - 00:00:50

FINS+ARA p PRO.1 19 ANY p RÀPID p **MATEIX.JUST** DIA PRO.1.poss ANY.ANIVERSARI
until now 19 year fast same day birthday

MATEIX.JUST VOLUNTAR.PRESENTAR p PRO.1 TREBALLAR LA.CAIXA IGUAL 3-REGALAR-1 p
same to.attend to.work Bank.name same to.give.a.present

PRO.1 ANIVERSARI p COMENÇAR PRO.1 ANY 20 p **FINS ARA** PRO.1 39 p 39 ANY
birthday to.begin year 20 until.now 39 39 year

'Fins ara. Jo tenia 19 anys. Què ràpid passa el temps! Justament el dia del meu aniversari em vaig presentar a l'examen. Treballar a La Caixa va ser com si em fessin un regal per al meu aniversari. Vaig començar amb 20 anys i fins ara, que en tinc 39, 39 anys.'

'Until now. I was 19. How fast time flies! Just the day of my birthday I wrote the exam. Working at bank.name was as if they gave me a gift for my birthday. I started when I was 20 years old (and I keep working there) until now that I am 39, 39.'

In LSC we have documented five temporal constructions using the space: two axes (the deictic and the anaphoric time lines), one segment, the mixed time line, and the calendar time plane (Fernández-Viader et al., 2000; Jarque, 2017; Quer & Barberà, 2006). The deictic line adopts ground time as the reference temporal point and it is divided in non-

discrete segments that refer to temporal segments (i.e. past, near past, near future, distant future, etc.) relative to the interaction time (Figure 9.7).

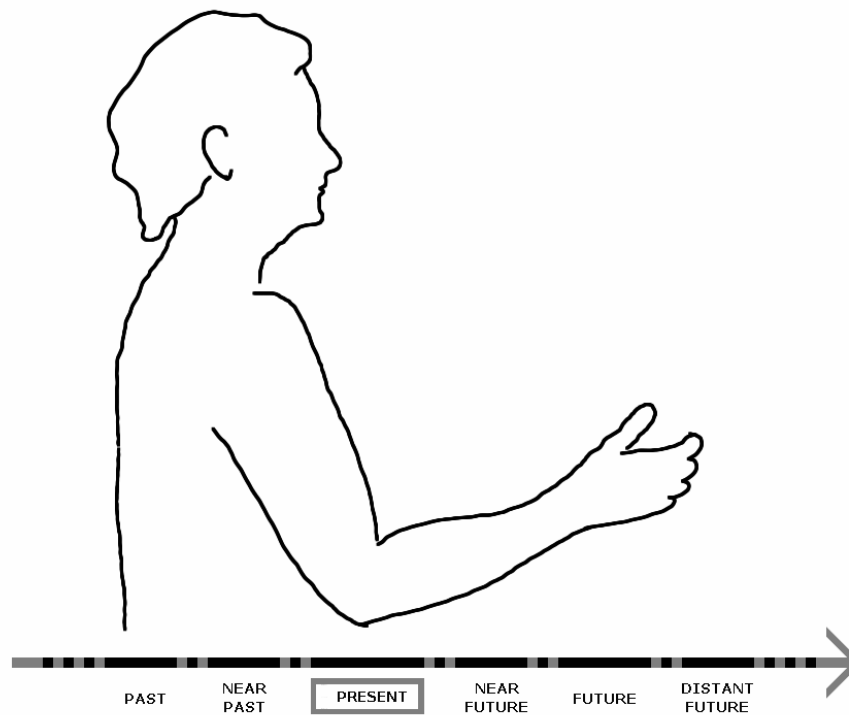


Figure 9.2 Sagittal axis division

Signs are produced along these time lines to locate the situations in the temporal frame. Some items may be verbs whose place of articulation is displaced from the neutral space to the segment of the line corresponding to the intended time. Besides the movement, they may incorporate an aspectual morph as in (377), where NODRIR 'to nourish' is produced incorporating durative aspect. The morphs consist of a reduplicated movement. In this case, the sign movement, in addition, exhibits displacement along the deictic line, signaling that the situation took place several times along the referred period.

(377) Guia visual Estatut de Catalunya, VTS_01_1 M (12:55)

IX.estatut NOU ESTATUT VOLER PROPOSAR INSTITUCIÓ-PLU [MOTIU]-focus

statute new statute to.want to.put.forward institution reason

DEL.PASSAT.ARA [NODRIR-ASP.DURATIVE]-deictic line JA EXPERIÈNCIA AUTO GOVERN

from.past.now to.nourish already experience self government

TREBALLAR p IX NECESSITAT-PLU ADAPTAR EXEMPLE NOU A.PARTIR.D'ARA NOU

to.work need to.adapt example new from.now new

[ADAPTAR ADAPTAR ADAPTAR]-mixed line ACTUALITZAR ADMINISTRACIÓ PÚBLICA

to.adapt to.adapt to.adapt

to.update

administration

public

'La proposta institucional del nou Estatut es nodreix, d'una banda, de l'experiència d'autogovern acumulada i, d'altra banda, de la necessitat d'adaptació a les noves realitats i, especialment, de la modernització de l'administració pública.'

'The proposed new institutional statute draws, on the one hand, on the accumulated experience of self-government and, on the other hand, on the need to adapt to new realities, especially the modernization of the public administration.'

The second axe is called *anaphoric time line* in most of the descriptions or *secondary time line* in Quer et al. (2005). It can be thought of as a line with a spatially fixed reference point. The line stretches outwards from the sender's chest on the side of the signer's non-dominant hand diagonally to the locus of the reference point (Figure 9.3).

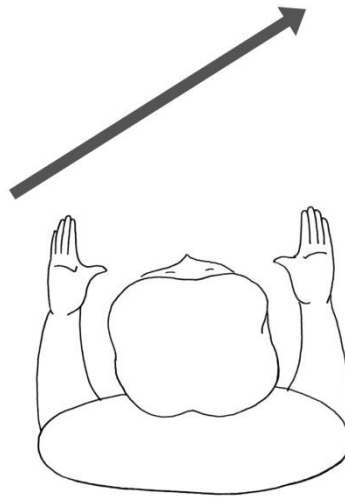


Figure 9.3 Diagonal axis

The time lines are abstractions from usage events in which signers give meaning to the space using their own body as reference point. Similar resources have been attested in most of Western sign languages (Cabeza Pereiro & Fernandez Soneira, 2004; Engberg-Pedersen, 1993; Meir & Sandler, 2008; Meurant, Sinte, Van Herreweghe, & Vermeerbergen, 2013). Some scholars explain this space-time mapping in terms of a conceptual metaphor (Nuñez & Sweetser, 2006; Wilcox, 2004). Locative relations are more basic and provide structural templates (Evans, 2003; Lyons, 1977).

As shown in (377), temporal reference can be marked simultaneously with aspect, but the two formal elements can be clearly distinguished: the sign movement encodes aspect

while the place of articulation or location and the movement direction marks time. In next section, we will focus on the morphological coding of aspect in LSC.

9.3 The morphological coding of aspect

Morphological coding is not produced through the addition of prefixes or suffixes sequentially to the verb. Instead, it consists of changes in the form of the sign itself, mainly by characteristic modulations in the manner and frequency of movement, namely reduplication, rate of signing, evenness of speed, tension, and pauses between cycles of reduplication (Klima & Bellugi, 1979; Pfau, Steinbach, & Woll, 2013; Rathmann, 2005).

Consider the example in (378) from Catalan Sign Language (LSC). The signer is retelling the episode of *the Pear Story* narrative where the farmer is collecting the pears from the tree. In the clause in (378)(a) the signer produces the predicate TAKE-SPHERICAL-OBJECT-PLU in its citation form, that is, the movement of both hands consist of one movement, and it is followed by the predicate CONTINUAR 'to continue', forming a continuative/durative periphrastic construction. Whereas in the clause in (378)(b), produced right after, the signer expresses the same aspectual meaning morphologically by repeating the verbal predicate twice.

(378) LSC (The Pear Story, JMS2)



(a) CL.MANIP. objecte-esfèric-PLU-PRED.agafar CONTINUAR

to.take.spherical-object to.continue

'(El granger) estava recollint les peres.'

'(The farmer) was collecting the pears.'



(b) CL.MANIP.objecte-esfèric-PLU-PRED.agafar-ASP.CONTIN

to.take.spherical-object

'(El granger) estava recollint les peres.'

'(The farmer) was collecting the pears.'

According to Liddell (2003), such modulations may result from a reduplication process (Fischer & Gough, 1999 [1972]), an internal change in the form of the predicate, accomplished by the application of a pattern (Liddell, 1984), or some combination of both. Moreover, these changes in the movement of the manual sign are usually accompanied by specific nonmanual signals, including specific facial expressions as well as head positions and movements. For instance, in LSC, a repeated vertical movement of the tongue tip appears in some verbs, such as SIGNAR 'to sign', to express continuative aspect. Other strategy in the signed modality consists of adding a nonmanual element to the verb, such as in Turkish Sign Language a puffed mouth named 'ap', which is produced during this mouth movement (Dikyuva, Makaroğlu, & Arık, 2017).

In addition, LSC distinguishes between the perfective and imperfective morphological forms of the verb in declaratives by means of a bound morph consisting of modifying the intensity and abruptness of the manual sign. Whereas the imperfective is being produced with relatively longer duration and repetitive head nods, the perfective displays a shorter and tenser movement.

9.4 The encoding of the imperfective point of view

To our knowledge, there are neither aspectual grams (auxiliary verb, marker...) nor morphological grams coding a generic imperfective either in the literature about signed languages that we have reviewed or in the analysis of LSC. The specific imperfective coding categories used in descriptive grammars and research studies correspond to the following crosslinguistic values: inceptive, ingressive, iterative, progressive/continuative,

and habitual/frequentative. We will use these categories in the following sections. We are aware, although, of the diversity of classifications in sign language studies, as pointed out by Quer et al. (2017).

9.4.1 Inceptive aspect

Inceptive aspect profiles the stages prior to the start of the event (Comrie, 1976). According to our research and grammars reviewed, only descriptions of periphrastic expression appear in three signed languages: Mexican Sign Language (LSM), Spanish Sign Language (LSE) and Catalan Sign Language (LSC). Instead, most of the studies address only its morphological expression, as the conative morpheme in Rathmann (2005). Rahman analyses the meaning of the conative morpheme and restrictions on its use as follows:

When the conative morpheme is inserted in a sentence, the sentence focuses on the attempt for the event to be carried out. It encodes a special case of imperfective viewpoint. It is restricted to event sentences and is not followed by a conative sentence (Rathmann, 2005, p. 168).

This morpheme covers both the *delayed completive* (Brentari, 1998) and *unrealized inceptive* (Liddell, 1984). For Mexican Sign Language (LSM), Cruz Aldrete (2008) describes the constructions [IR 'to go' + V] and [#IBA 'I was going to' + V]. The latter signals a short period of time before the situation, as in (379). The auxiliary marker #IBA is a loan from Spanish *iba*, the first-person singular of Imperfect Indicative active, meaning 'I was going to', produced by fingerspelling.

(379) LSM (Cruz Aldrete, 2008, p. 819)

PRO.1 #IBA [PICAR.PUERTA]-ASP.INCEPTIVE MADRE ABRIR.PUERTA

go to.knock.door mother to.open.door

'Anava a picar la porta, quan la teva mare va obrir-la.'

'I was going to knock the door, when your mother opened it.'

Two periphrastic constructions have been identified in LSE: [*Sp.* PREPARAR 'to prepare' + V] and [*Sp.* IR 'to go' + V] (Freire, 2000; Herrero, 2009; Morales-López et al., 2000; Rodríguez González, 1992). Whereas the latter author states that in the first construction the aspectual predicate is located after the main verb, in the examples of the other authors the location is preverbal, as in (380). Both constructions display in the given examples a conative value of a situation that will not be accomplished, i.e. an unrealized inceptive.

(380) LSE (Freire, 2000, p. 70)

AYER HOMBRE PREPARAR LAVAR

yesterday man to.prepare to.wash

'Ahir un home anava a rentar.'

'Yesterday a man was going to do the washing.'

According to Morales-López et al. (2000), [*Sp.* PREPARAR 'to prepare' + V] includes a modal meaning of intention, given by the semantic nuances of the source main verb. This would explain why it cannot be used with predicates as CAER 'to fall down' or LLORAR 'to cry'. With regard to the construction [*Sp.* IR 'to go' + V], exemplified in (381), both Morales-López et al. (2000) and Rodríguez-González (1992) agree that it may be a calque from the Spanish inchoative construction [*ir a* 'to go to' + V].

(381) LSE (Herrero-Blanco, 2009, p. 297)

PRO.1 IR TRABAJAR

to.go to.work

'Em vaig a treballar.'

'I am going to work.'

For LSC, we identify four main resources: A.PROP 'near' (Figure 9.4), MARXAR.va 'to go/depart' (Figure 9.5), JA.AVIAT 'it will shortly be already' (Figure 9.6) and GAIREBÉ 'nearly' (Figure 9.7).



Figure 9.4 PROP 'near'



Figure 9.5 MARXAR.aux 'to go'



Figure 9.6 JA.AVIAT 'it will shortly be already'



Figure 9.7 GAIREBÉ 'nearly'

PROP 'near' is used as an adverb or a preposition with a closeness meaning related to space, quantity and time. MARXAR.va 'to go' is produced with a sharp movement and crucially with the mouthing *va* 'goes', from Spanish spoken language. Its meaning denotes prediction, whereas JA.AVIAT 'it will shortly be already', and GAIREBÉ 'nearly' stresses that the situation is imminent, signaled according to the tension in the facial expression and head position, slightly forward, as shown in the pictures. The last three are illustrated in (382).

(382) LSC (EI 00020 ES)

[PERSONA-PLU]-top p MÓN (MÓN/HAVER.HI HAVER.HI) p ESTAR.MALALT JA p

person world world/to.there.be to.there.be to.be.sick already

PROVOCAR.VÒMIT O VOMITAR TOTS.DOS p VEURE APRIMAR-ASP.GRADUAL COS

to.induce.vomiting or to.vomit both to.see to.lose.weight body

[MARXAR_va [JA+++]-future [JA.AVIAT]-future]-focus OSSOS ACABAR]

to.go already shortly bones to.finish

'Hi ha persones en el món que estan malaltes i es provoquen el vòmit o vomiten, totes dues coses. Es veu com el seu cos es van aprimant a poc a poc. **Van pel camí ja... Aviat** es quedaran en els ossos.'

'There are people in the world who are already sick and vomit or induce themselves to vomit. You can see how they gradually slim down. **They are going to be... They are about** to be but skin and bones.'

9.4.2 Ingressive aspect

Ingressive aspect profiles the beginning of the situation (Comrie, 1976). Its periphrastic expression has been reported only in LSE. LSE makes use of three periphrastic constructions: [EMPEZAR 'to begin' + V], [PRINCIPIO 'to start' + V] and [COMENZAR.POR.PRIMERA.VEZ 'to start for the first time' + V]. According to Morales et al. (2000), [EMPEZAR 'to begin' + V] is the most frequent and it is used with situations that presuppose a posterior duration and it cannot be used with punctual predicates, as SCORE(GOAL). Herrero-Blanco (2009) indicates that the aspectual predicate is located in post-verbal position, see (383), whereas in the examples by Morales-López et al. (2000) it appears preverbally.

(383) LSE (Herrero-Blanco, 2009, p. 298)

PRO.1 ESTUDIAR **EMPEZAR** p MADRE 3-LLAMAR-1

to.study to.begin mother call

'Tot just havia començat a estudiar quan la meva mare em va trucar.'

'I had just begun to study when my mother called me.'

[*Sp.* PRINCIPIO 'to start' + V] is used in the same contexts as [*Sp.* EMPEZAR 'to begin' + V], but not [*Sp.* COMENZAR.POR.PRIMERA.VEZ 'to start for the first time' + V], which refers to a situation that happens for the first time, as in (384).

(384) LSE (Freire, 2000, p. 75)

COMENZAR.POR.PRIMERA.VEZ INVESTIGAR TRES-AÑO-PASADO

start.first.time to.research tree-year- past

'Vaig començar a fer recerca per primer cop tres anys enrere.'

'I began to do research for the first time three years ago.'

In LSC, there is one periphrastic construction [COMENÇAR 'to begin' + V], as shown in Figure 9.8.



Figure 9.8 COMENÇAR 'to begin'

(385) LSC (EMS 00:05:20 MS)

PRO.1 VEURE PERIODE AGOST COMENÇAR FER.FRED p SER.FOSC AVIAT

to.see period August to.begin to.be.cold to.be dusk early

'He vist que a l'agost comença a fer fred. Es fa fosc aviat.'

'I have seen that in August it begins to be cold. It gets dark earlier.'

9.4.3 Iterative aspect

Iterative aspect expresses the repetition of an event occurring during a single occasion and it is particularly relevant to telic verb forms (Bybee et al., 1994). Also, iterativity may imply repeated sequences but it is not regarded as a characterizing property of a referent, as it happens with habituality. The Dahl (1985) questionnaire does not include elicitation of the iterative meaning, because it is not prototypically inflectional. Across signed languages, iterative meaning is coded morphologically. In ASL reduplication is the unique way that the iterative meaning is expressed in the narratives with telic verb forms, especially with activity verbs and some classifier predicates with qualities characteristic of activity verbs. For LSC, iterative reduplication includes short pauses in between. Syntactically it is expressed by adverbial signs meaning 'again' (UNA.ALTRA.VEGADA), 'again and again', 'several times' (MOLTES.VEGADES), 'a lot of times', etc., as in (386).

(386) LSC (EMS 00:32:17 MS)

MOLTES.VEGADES PASSAT [VACANCES]-top [MARIT VACANCES]-top [PRO.1 FER]-q p

a.lot.of.times past vacation husband vacation to.do

SOL p ESTAR.ASSEGUT-ASP.DURATIVE p ANAR.SOTA SIGNE.NOM SIGNAR

alone to.be.sit

to.go.downstairs name.sign to.sign

'Moltes vegades, durant les vacances, el meu marit estava de vacances, què feia jo?
Estava sola, aquí asseguda. (Doncs), baixava i conversava amb signe.nom.'

'Many times, on vacation, (when) my husband is on vacation, what can I do? I am
alone, here, seating. I go downstairs and I chat with sign.name.'

The same event consists of sub-events repeated in a number of different occasions, but conceptualized as a single situation (i.e. the vacation period). As in (386), the signs UNA.ALTRA.VEGADA 'again' and MOLTES VEGADES 'a lot of time' may be ambiguous between a *repetitive* and a *restitutive* meaning, i.e. between a reiteration of the situation done by the same agent or the repeated recovering of a previous state (Fabricius-Hansen, 2001; Kamp & Rossdeutscher, 1994; Wälchli, 2006).

9.4.4 Continuative/progressive aspect

Whereas the progressive aspect focuses the action on the intermediate stage, the continuative expresses that a dynamic situation is ongoing and that the agent of the action is deliberately keeping the action ongoing. On the other hand, the progressive is more generalized than the continuative and, in the languages in which it occurs, it is realized more frequently as inflectional. The continuative is associated with dynamic situations, which may be telic, atelic, or process verbs, that are ongoing, while iterative is usually related to telic verbs (Bybee, et al., 1994). No progressive only or continuative only periphrastic marker was found in the literature reviewed for this work, nor in the LSC data. In signed languages, progressive often conflates with continuative aspect, which has been reported in a few languages.

For ASL, Maroney (2004b) points out that in *The Pear Story*, lexical items such as *Eng. MORE* or *CONTINUE* accompanied the morphological expression of continuative. According to Morales et al. (2000), in LSE the verbal periphrasis [SEGUIR 'to continue' + V] –glossed as [V + CONTINUAR 'to continue'] in Herrero-Blanco (2009), (387)– highlights the intermediate phase or episode nuance of an action.

(387) LSE (Herrero-Blanco, 2009, p. 301)

PRO.1 TREBALLAR **CONTINUAR**

to.work to.keep

'Jo seguia treballant.'

'I keep working.'

Often the main verb is modulated for aspect through reduplication (388), or the marker itself appears reduplicated when located in the final position (389).

(388) LSE (Freire, 2000, p. 79)

(a) **SEGUIR TRABAJAR-ASP.CONTINUATIVE**

to.keep to.work

'Continuava treballant.'

'He keeps working.'

(b) **DISCUTIR-ASP.CONTINUATIVE SEGUIR**

to.argue to.keep

'Seguien discutint.'

'They continue arguing.'

(389) LSE (Freire, 2000, p. 79)

COMER SEGUIR SEGUIR

to.eat to.continue to.continue

'Segueix menjant.'

'He keeps eating.'

Another sign language that uses a sign glossed as CONTINUE for encoding continuative aspect is Egypt Sign Language –LIM– (Fan, 2014). This is also the case for LSC, the construction [V + CONTINUAR 'to continue']⁹⁴, as shown in (390), where the aspectual verb appears in its reduplication form.

⁹⁴ The verb CONTINUAR 'to continue' is illustrated in the example in (378)(a).

(390) LSC (EES 00:01:10 ES)

ESTAR.A.L'ATUR p SENTIR.OÏDA p [EXEMPLE SI ESTUDIAR **CONTINUAR**-ASP.DURATIVE]-cond

to.be.unemployed to. heard example if to.study keep

[PODER BANC PRO.1 HAVER.NI.NO]-hs p SORT p PRO.1 ESTUDIAR ACABAR

may bank to.there.be.not luck to.study to.finish

'Estava a l'atur quan em vaig assabentar (sobre la feina). Si hagués estat estudiant, probablement no tindria aquesta feina al banc. Vaig tenir sort que havia acabat els estudis.'

'I was unemployed when I heard of (the job). If I had been studying, I probably wouldn't have this job at the bank. I was lucky I had already finished my studies.'

Besides the above construction, LSC has another continuative/progressive marker, formally similar to CONTINUAR but produced just with a single movement and glossed usually as *Cat.* ENCARA 'still'. The construction [V+ ENCARA] is used for situations that pragmatically we would expect not to be ongoing, as illustrated in (391).

(391) LSC (EES 00:08:17 ES)

[TENIR.POR]back.lean p TENIR.PRESENT IX.espatlla **ENCARA** p PRO.1 TENIR.POR ALTRE.COP

to.be.afraid to.have.in.mind shoulder still to.be.afraid again

'Tinc por. Segueixo pensant en l'espatlla. Tinc por que em torni a passar.'

'I am afraid. I keep thinking about the shoulder. I am afraid that it would happen again.'

Other constructions in LSC are ENCARA.2 'still' (Figure 9.9) and SER 'to be' (Figure 9.10), produced with two round-F/O handshape hands moving along the midsagittal plane.



Figure 9.9 ENCARA.2 'still'



Figure 9.10 SER 'to be'

Sapountzaki (2005, 2010) reports a phonological similar marker to MANTENIR, glossed as *Eng.* STATIVE, in Greek Sign Language –GSL. It is used to show the continuous, unchanging aspect of an action or situation (392).

(392) GSL (Sapountzaki, 2005, p. 102)

UNTIL-KNOW STATIVE TEACH SIGN TEN YEAR

'I have been teaching sign (language) for ten years without a break or change.'

Finally, Slobin and Hoiting (2001) report on a marker, glossed as *Eng.* THROUGH, used to denote aspectual information of continuative and habitual in NGT (Sign Language of the Netherlands). Crucially, THROUGH has not a lexical counterpart in NGT, but it is a borrowing from the Dutch verb particle *door* ('through'). THROUGH appears postverbally and, interestingly, shows the aspectual modulations for continuative or habitual in combination with verbs that are blocked from aspectual modulations due to phonological constraints. Continuative aspect is coded by "three repetitions of an elliptical modulation accompanied by pursed lips and a slight blowing gesture" (2001, p. 127).

9.4.5 Habitual/frequentative aspect

Habituality signals a situation that is characteristic of an extended period of time and the situation is viewed as a characteristic feature of a whole period (Comrie, 1976). The above semi-auxiliary THROUGH in NGT conveys habitual aspect when is marked by "a lower elliptical modulation accompanied by gaze aversion, lax lips with protruding tongue, and slowly circling head movement" (Slobin & Hoiting, 2001, p. 127). Also, examples of habitual meaning arose in the Dahl (1985) questionnaire for ASL, SSL and LSC. For SSL, Bergman and Dahl (1994) identify the marker glossed as USUALLY (393).

(393) SSL (Bergman & Dahl, 1994, p. 402)

USUALLY SIT WRITE++ LETTER

'He writes letters.'

In ASL it is expressed with lexical items, such as the verb TEND and the noun HABIT, and when these signs were used, reduplicated forms of another verb were also used with telic verbs –as in (394)– but not with atelic –as in (395).

(394) ASL (Maroney, 2004, p. 103)

PRO.3 TEND WRITE++ LETTER

'He usually writes letters.'

(395) ASL: Q (Maroney, 2004, p. 102)

IX L-A-K-E WATER IX TEND COLD

'The lake tends to be cold.'

Whereas in ASL there was no difference in the morphological expression for habitual meaning and the reduplicated form for iterative, both in LSC and LSE the habitual differs from the iterative in that the latter includes brief pauses between the reduplicated forms (Morales-López, et al., 2000). This implies that for LSC and LSE there is no need to add a sign to indicate habitual, whereas this is the case for ASL.

As for LSE, there is a sign glossed as *Sp.* FRECUENTEMENTE 'frequently' (Herrero, 2009), the temporal adverbs as *Sp.* SIEMPRE 'always' and the sign *Sp.* COSTUMBRE 'habit' (Morales-López, et al., 2000). Similarly, in LSC, habitual value is expressed syntactically with the markers *Cat.* SEMPRE 'always', as in (396) and (397) and *Cat.* ACOSTUMAR 'to be used to', as in (398), used both with telic and atelic predicates. The most consistent item that occurred in habitual contexts was SEMPRE 'always'; the main predicate may show reduplication as in (396), but not with punctual verbs, as in (397).

(396) LSC. **Context:** Aspect survey: What your brother usually do after breakfast?

A:]He write a letter)

SEMPRE MENJAR DESPRÉS ESCRIURE-ASP.DURATIVE 1 CARTA

always to.eat after to.write one letter

'Sempre escriu una carta després de dinar.'

'He always writes a letter after eating.'

(397) LSC. **Context:** Aspect survey: Talking about the speaker's habits: I like to be up early)

PRO.1 **SEMPRE** LLEVAR.SE SIS

always to.get.up six

'Sempre em llevo a les sis.'

'I usually get up at six.'

In addition, temporal phases such as week days, year, week, and month can incorporate the habitual morphological pattern, as in (398) where both the predicate ANAR 'to go' and DISSABTE 'Saturday' are reduplicated.

(398) LSC (EMS 00:31:03 MS)

PRO.1 VEURE TOTA.LA.VIDA MASSA ANAR-ASP.FREQ p HAVER.DE CADA-DISSABTE p

to. see whole.life too.much to.go must every-saturday

TOTA.LA.VIDA COSTUM PRO.1 UFF

whole.life habit wow

'Penso que sempre hi he anat massa (a l'associació de sords). Cada dissabte hi he anar. Tinc el costum de sempre.'

'It looks like I must go (to the Deaf club) every Saturday because I have been going my whole life. It's been a habit my whole life...'

For change-of-state predicates, as *Cat.* EMMALALTIR 'to get.sick', or verbs referred to personal qualities, LSC has the construction [V + TENIR.TENDÈNCIA 'tend to'], as in (399).

(399) LSC (EES 00:34:20 ES)

PRO.3I 3-DIR-1 CA< SEMBLAR UN MENJAR> p SI.US.PLAU p EXAGERAR **TENIR.TENDÈNCIA**

to.say to.seem one to.eat please to.exaggerate to.tend.to

'Em va dir que semblava que s'hagués menjat un. Si us plau! Acostuma a exagerar!'

'He told me it seems that he ate one. Please! He tends to exaggerate!'

9.5 The encoding of the perfective point of view

In several signed languages, a sign glossed as FINISH is used to mark perfective or completive aspect depending on its position in the clause and/or the type of situation it refers to. In other sign languages, the two values are expressed by different signs. Moreover, some authors do not distinguish the two categories and use a generic completive/perfective label. We will differentiate the perfective from the completive – *conclusives* in Dahl (1985) and *strong perfectives* in Dalh and Velupillai (2008)—when a specific reference to the completion is made in the literature. Otherwise it will be included in the perfective category.

9.5.1 Perfective aspect

Perfective refers to events viewed as bounded, often in the past, but described for their own sake with no particular relevance to the reference time (Bybee, et al., 1994). Characteristically, it is used for narrating sequences of discrete events (Dahl & Velupillai, 2008). As for ASL, FINISH has developed a perfective function from a lexical verb, as initially described by Fischer and Gough (1999[1972]), and, later, by Janzen (1995), Sexton (1999), Rathmann (2005), Zucchi et al. (2010), *inter alia*. Janzen (1995) argues that FINISH is usually phonologically reduced –i.e. produced one-handed— and it is located preverbally, (400), whereas its postverbal counterpart conveys a perfect/anterior value.

- (400) ASL (Janzen, 1995, p. 109)
 (PRO.1) FINISH WORK THREE-HOUR YESTERDAY
 `Ahir vaig treballar durant tres hores.'
 `I worked for three hours yesterday.'

In Hong Kong Sign Language –HKSL—, whether FINISH marks an event as terminated or completed depends on how it combines with different situation types (Lee, 2002, cited in Tang, 2009). When FINISH is a perfective marker, it consistently occupies the end of a prosodic unit, since it either immediately follows a blink or it overlaps with it, as in (401).

- (401) HKSL (Tang, 2009, p. 27)
 CC CANDY GIVE BRE[NDA]blink **FINISH**, TAKE ANOTHER GIVE KENNY
 `CC gave Brenda a candy, then he took another one and gave it to Kenny.'

As for LSE, two expressions have been reported: *Sp.* FIN `end' and *Sp.* YA `already' (Morales-López, et al., 2000). Both are situated postverbally, but, whereas FIN is compatible with situations that are located in the past and in the future, YA `already' is not used to refer to future situations. For Turkish Sign Language –TİD—, it is reported that the manual marker *Turk.* BİT `finish' expresses perfective aspect (Karabüklü, 2016; Zeshan, 2003).

9.5.2 Compleitive aspect

Bybee et al. (1994, p. 57) define completives as “to do something thoroughly and to completion” for example, “to eat up” and “to shoot someone dead”. Completives tend to have other uses:

- (i) the object of an action is totally affected, consumed, or destroyed by the action;
- (ii) the action involves a plural subject of intransitive verbs or objects of transitive verbs, especially exhaustive or universal plural, such as ‘everyone died’ or ‘he took all the stones’; and
- (iii) the action is reported with some emphasis or surprise value.

Similarly, Dahl (1985) suggests the possible existence of a crosslinguistic category that he labels *conclusive*, based on some similarities between two constructions in Japanese and Tamil. Both constructions have the meaning “to finish doing something” (Dahl, 1985, p. 95). The conclusive refers to punctual actions (i.e. “to step on”, “to leave”, and “to die”). He includes eight examples in the questionnaire where those constructions may be used; three of them appear in the adapted questionnaire but the answers did not contain any gram for ASL. This situation illustrates the possible limitations that the questionnaire method can carry and shows the importance of combining different procedures in order to gather a comprehensive use of a gram (Maroney, 2004a, 2004b).

According to Maroney (2004a), no completive marker arose neither in the questionnaire nor in the narratives. Completive value is not elicited in Dahl (1985)'s questionnaire and in the narrative the completive meaning was primarily expressed through the use of predicates types that have the inherent lexical meaning of completion. The examples were accomplishment verbs that are telic in nature and comprise a process and a change of state, as VANISH in (402).

(402) Frog Story (Maroney, 2004a, p. 199)

BOY, #DOG WAKE-UP LOOK (at jar) **VANISH** (2 handed)!

‘The boy and the dog wake up and look at the jar; the frog has vanished!’

However, Janzen (1995) suggests that clause-final FINISH (glossed as BE.FINISHED) has been grammaticized first as a completive aspect marker from the main verb, as in (403).

(403) ASL (Janzen, 1995, p. 122)

THIS-MORNING TEACH CLASS p **BE.FINISHED**

'This morning I taught class (and now) I am finished for good (because the course is over).'

British Sign Language –BSL— may use two signs that can be glossed as FINISH or BEEN at the end of a clause to mark that “the action is finished and complete” (Sutton-Spence & Woll, 1999, p. 121). BEEN can also be used at the beginning to show that the action about to be mentioned is completed. Similarly, Deuchar (1984), points out that FINISH “seems to suggest the notion of completeness” (p. 101), as in the examples in (404).

(404) BSL (Deuchar, 1984, p. 101)

a. PRO.1 KILL ALL **FINISH**

'I've killed all (the weeds).'

b. PRO.3 SAY YOU ALL READ **FINISH**

'He says, "Have you finished reading all (of the newspaper)?"'

Other languages where lexical *finish* have been grammaticalized as perfective/completive aspect are Australian Sign Language –AUSLAN— where there is a preference for pre-verbal position (Johnston, Cresdee, Schembri, & Woll, 2015; Johnston, Cresdee, Woll, & Schembri, 2013), Israeli Sign Language –ISL— (Meir, 1999; Meir & Sandler, 2008), Taiwan Sign Language –TSL— (Smith, 1990), Egyptian Sign Language –LIM— (Fan, 2014), and Kata Kolok, a village sign language in Bali (de Vos, 2012).

On the other hand, in several sign languages, completive/perfective aspect is signaled with a gram glossed as 'been', 'done' or 'ready'. For example, Sapoutzaki (2005) examines the gram *Eng.* BEEN 'done, accomplished or experienced' for Greek Sign Language (GSL). BEEN combines with verbs of events and actions, but not with verbs of states. Crucially, BEEN is a candidate for cliticization as it may show phonological reduction and incorporation into the lexical verb.

Zeshan (2000) reports on a functional particle, glossed *Hin.* HO-GAYA 'done' coding completive aspect in Indo-Pakistani Sign Language (IPSL), as shown in (405). HO-GAYA can be formally modified showing local assimilation to the preceding sign. It tends to

appear in sentence final position and when it is not the case it is incorporated into other signs the formation of which allow for an additional twist of the wrist.

(405) IPSL (Zeshan, 2000, p. 164)

WOMAN MARRY DIE **DONE**

'My wife is dead.'

In Italian Sign Language (LIS), FATTO 'done' can be used lexically and in postverbal position indicates that the action described by the verb has reached its completion and is not an open process (Zucchi et al., 2010), as (406). FATTO cannot co-occur with stative predicates.

(406) LIS (Zucchi et al., 2010)

GIANNI HOUSE BUILD **DONE**

'Gianni has built a house.'

It is also the case for Turkish Sign Language (TİD). Zeshan (2003) reports the sign *Turk.* TAMAM 'done' which means 'done, complete, ready', as in (407).

(407) TİD (Zeshan, 2003, p. 50).

(a) PRO.1 SCHOOL **DONE/TAMAM**

'I have finished school.'

(b) NEXT WEEK DONE LEFT.UP AIRPLANE FWD COME **DONE/TAMAM**

'After a week, (the trip) was over and I came back home, and that's it.'

Russian Sign Language has two markers for perfective/completive aspect: *Rus.* ZAKONCHENO 'finished' and GOTOVO 'ready' (Grenoble, 1992). Zaitseva and Frumkina (1981, p. 17), cited in Grenoble (1992, p. 329), state that the "sign ZAKONCHENO emphasizes that it is possible to go on to another action, while GOTOVO accents the result of the action." A sign glossed as "ready" has been described, also, for Flemish Sign Language (VGT) and LSE.

Van Herreweghe (2010) gives the evolution of the adjectival/adverbial sign READY into an aspectual marker—similar to FINISH in ASL— as an example of decategorialisation in VGT. Similarly, for Spanish Sign Language, Morales-López et al. (2000) report the particle *Sp.* LISTO 'ready' which conflates a perfective and a completive meaning in postverbal position. Similar signs have been reported with respect to German Sign Language (DGS)

and in Sign Language of the Netherlands (NGT), as pointed out by Pfau and Steinbach (2006).

In LSC, completive aspect is coded by the sign ACABAR 'finish' (Figure 9.11). The phonological properties of the gram ACABAR coincide with one of the two possible forms of the LSC main verb ACABAR 'finish'. As a main verb, it occurs with an NP or a nominal clause functioning as complement in a transitive sentence or with an NP functioning as a subject in an intransitive sentence—as in (408).

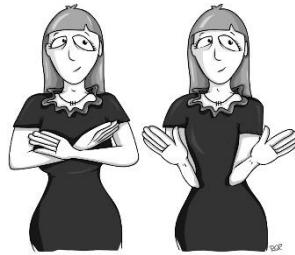


Figure 9.11 ACABAR 'to finish'

(408) LSC (Narr03(JMS)1)

IGUAL/COM ESCOLA **ACABAR** p DESPRÉS SETEMBRE VENIR [NO]-neg

like/as school to.finish after September to.come not

'L'escola es va acabar i més tard, al setembre, ja no va venir.'

'The school was over and later, in September, he didn't show up.'

The examination of the contexts where this gram appears reveals that it conveys a completive meaning. In the example in (409), the signer is explaining his project of traveling around the world: the participants, the arrangements, etc. However, the project is called off because of the family pressure.

(409) LSC (Narr02(JMS)3)

[PLA]a IXa CANCELAR SUSPENDRE **ACABAR**

plan to.cancel to.put.off to.finish

'El projecte de fer una volta al món es va cancel·lar, es va suspendre.'

'The project about going around the world was cancelled, called off (for good).'

The examples (410) and (411) illustrate how “the object of the action is totally affected, consumed, or destroyed by the action” (Bybee et al., 1994, p. 57). Hopper and Thompson (1980, p. 264) point out how the total affectedness of the patient is related to intensity.

(410) LSC (Narr04(JMS)2)

[PRO.1]-q PERSONA.PRO.1 SCL: “saltar a la piscina” IX.pool FER.SE.FOSC **ACABAR**

person jump into the pool pool to.get.dark to.finish

‘Vaig saltar a la piscina i tot es va fer fosc.’

‘I jumped into the pool and everything blacked out.’

(411) LSC (Narr03(JMS)8)

DIR SENTIR **ACABAR** DEPRIMIR.SE

to.say to.feel to.finish to.be.depressed

‘Ell va dir que estava del tot deprimit.’

‘He said he was totally depressed.’

Similarly, in (412) the signer is explaining the story of an old Deaf couple, who wished to adopt a deaf child despite of the difficulties involved. Finally, the couple succeeded in their dream and the sentence refers to their reaction when the baby got home.

(412) LSC (Narr05(JMS)2)

AGAFAR.BEBÈ ARRIBAR.CASA gest: ‘finalment’

happy like/as crazy finish gesture: “a lot, exaggerate”

FELIÇ COM/IGUAL ESTAR.BOIG **ACABAR** gest: “a lot, exaggerate”

get.baby go.home gesture: “finally”

‘Quan la nena va arribar a casa, eren tan feliços, **es van tornar bojós del tot.**’

‘When the baby (girl) arrived home, they were so happy, **they got completely** crazy.’

In (412), the signer is signaling a change-of-state resulting in a new situation where the patient is totally affected. Moreover, completive grams add “some emphasis or surprise value” (Bybee et al., 1994, p. 57) to the situation. This emphasis can be observed also in the examples above, but it is especially important in (413).

(413) LSC (Narr04(JMS)1)

UFF PASSAT 1 SETMANA PASSAT PRO.1 GAIREBÉ MORIR **ACABAR** GAIREBÉ

phew past one week past nearly to.die to.finish nearly

'Uff!! La setmana passada gairebé em moro, gairebé.'

'Phew, last week I nearly died.'

Completive aspect refers to change-of-state, as in (413), but from a different point of view with respect to inchoative. Whereas the latter views it from the state after the change, the completive views it before the change and stresses it.

No example of an exhaustive or universal plural with this gram has been found. The gram ACABAR is always located in a post-verbal/clause-final position. It appears with all types of predicates: stative and dynamic (telic, atelic and process verbs). In addition, there are the signs TERMINAR 'to terminate' (Figure 9.12) and FI 'end' –produced with 3-handshape that express completive aspect.



Figure 9.12 TERMINAR 'to terminate'

TERMINAR is used as a lexical item, as a gram –see (414)– or as a discourse marker signaling the end of the story. On the other hand, there is no occurrence of FI 'end' in the corpus. However, we have seen it used by adult native signers in participant observation expressing completive meanings. Also, it is used with a discourse marker function as a formulaic expression at the end of stories by deaf children in a bilingual school.

(414) LSC (EMS 00:38:16 MS)

[FER.DEURES TERMINAR_amp]-top [ACABAR]-q [NO]-neg

to.do.homework to.terminate to.finish

PRO.1 CA:mare.a.fill gest:vine [DIR IX.paraules.en.el.llibre] [DIR PARAULA g:vinga]

mother.to.son not come to.say words.in.the.book to.say word g:let's go

'Quan (suposadament) finalitzen els deures, han acabat (de veritat)? No. Aleshores jo el faig venir i li pregunto què està escrit aquí? Què és aquesta paraula?.'

'When they've (supposedly) finished their homework, are they (really) done? No. It is when (I say) Come here! What is written here? What is this word?'

Another two signs that encode perfective/completive aspect in LSC are FI.1 (Figure 9.13) and FI.2 (Figure 9.14). FI.2 is a lexical fingerspelling sign, used as a nominal to refer to "the end".



Figure 9.13 FI.1 'end.1'



Figure 9.14 FI.2 'end.2'

In addition, FINISH (ASL), ACABAR (LSC) and TAMAM (TID), when used as a formulaic expression or discourse marker, mark the boundary point between sequences of events in the narratives and at the end of the story for expressing that the story is completely done. This use can be seen in the LSC five narratives where it seems that the signer construes the narrative as consisting of parts that correspond with jumps into times and situations with specific participants. Also, the sign is used as a fixed expression at the end of the narrative to indicate that it has been accomplished.

9.5.3 Anterior/perfect

Let us now turn to the expression of anterior. An anterior –or “perfect” (Comrie, 1976; Dahl, 1985)– “signals that the situation occurs prior to reference time and is relevant to the situation at reference time” (Bybee et al., 1994, p. 54). Perfect constructions generally have the following properties:

- (i) The situation is presented from the point of view of its final point; i.e., there is a strong emphasis on the final point of the situation.
- (ii) The final point of the situation precedes the reference time. In other words, perfect sentences locate an event prior to the reference time of the sentence, denoting anteriority.
- (iii) The construction has the point of view of the state which resulted from that situation.

In several signed languages, FINISH has developed this use as Janzen (1995) and Maroney (2004) report for ASL and Johnston et al. (2015) for Australian Sign Language (AUSLAN). According to Janzen, FINISH is located preverbally when accomplishing a perfect function. As for AUSLAN, both preverbal and postverbal positions have been reported, although the latter is preferred. Signed languages, in this sense, behave similar to spoken languages, such as Romance languages, i.e. Catalan or Spanish (Olbertz, 1998; RAE/ASALE, 2009; Rosemeyer & Grossman, 2017; Yllera, 1980) and the constructions noted by Bybee, Perkins and Pagliuca (1994) in their survey of grammaticalization pathways for language as diverse as Sango (Central Africa), Mwera (Tanzania), Tok Pisin (Papua New Guinea) or Palaung (Burna).

In addition, perfect aspect is expressed by a specific marker glossed as ALREADY. For instance, sentences in (415) illustrate the ALREADY marker in Israeli Sign Language (Meir, 1999).

(415) ISL (Meir, 1999, p. 47)

(a) BUS TEL AVIV INDEX_a **ALREADY** GO-AWAY.

'The bus to Tel Aviv has already left.'

(b) WEEK FOLLOWING THEY(dual) **ALREADY** MARRIED.

'Next week they will already be married.'

Meir (1999) claim that ALREADY is a perfect marker on the basis of three characteristics: (i) It relates a resultant state to a prior event; (ii) ALREADY can co-occur with past, present and future time adverbials; and (iii) it occurs much more in conversations than in narrative contexts. The above marker *It. FATTO* 'done' in LIS also conveys a perfect reading. Zucchi et al. (2010) provide additional evidence from the co-occurrence of FATTO with time adverbs like *It. ORA* 'Lit. now, done', (416).

(416) LIS (Zucchi et al., 2010, p. 203)

NOW COFFEE DRINK **DONE/ORA**

'Now I have drunk the coffee.'

Bergman and Dahl (1994) used Dahl (1985) questionnaire to describe the tense-aspect system in Swedish Sign Language. They argue that the sign glossed as HAP is a perfect marker, as illustrated in (417). This sentence corresponds to the context: "I want to give your brother a book to read, but I don't know which. Is there any of these books that he READ already?" and where the expected sentence will be "(Yes,) he READ this book".

(417) SSL (Bergman and Dahl, 1994, p. 399)

THIS ONE BOOK **HAP** READ

'He read this book.'

In LSC, anterior is expressed with the gram glossed as JA 'already' (Figure 9.15), as illustrated in (418), where the reference time is located in the future.



Figure 9.15 JA 'already'

(418) LSC (SurTA(JMS)28)

VOLER.DIR TOCAR HAVER.HI DINERS **JA** p 3-AGAFAR.DINERS-1 **JA** p

to.mean to.touch to.there.be money already p 3-get.money-1 already p

ALESHORES COMPRAR REGAL DONA

then to.buy present woman

'Vol dir que quan (el noi) ja tingui diners, ja els hagi agafat, aleshores comprarà un regal per a la noia.'

'It means that when (the boy) has already the money, has already taken it, then he will buy a present for the girl.'

The example in (418) illustrates how the gram JA only encodes aspectual content and not past tense, since it is used in hypothetical situations in the future.

On the other hand, JA has a two-handed version when it assimilates to the preceding or following two-handed sign (Figure 9.16), as it is shown in example (425), when it is produced after the two-handed sign ACABAR 'to finish'.



Figure 9.16 Two-handed version LSC JA 'already'

The general property of the anterior gram (continuing relevance of a previous situation) receives more specific manifestations in some languages (Comrie, 1976, p. 56). This author examines four different meanings: *the perfect of result*, *the experiential perfect*, *the perfect of persistent situation*, and *the perfect of recent past*. Subsequently, Dahl (1985) prefers to regard these as types of "uses" of the category and not as "types of perfect" and stresses their overlap (p. 133). Moreover, he includes the Pluperfect within the category. These usages have been proposed as different steps in the grammaticalization path of anterior, as Harris (1982) in his study of Romance Present Perfect. In what follows, we will illustrate these uses conveyed by the gram JA 'already' in LSC.

Comrie defines the typical *perfect of result* as "a present state [...] referred to as being the result of some past situation" (1976, p. 56). Dahl (1985) points out the inadequacy of this definition and establishes the differences between a perfect of result and a resultative construction arguing that in the perfect use "there is more focus on the event than on the state" (1985, p. 134). On the other hand, the resultative construction "can only be formed from verbs whose semantics involves change of some kind" (1985, p. 135). The use of perfect of result in LSC is shown in (419) where a change of state, that is a resultative reading, is possible. The signer is stressing the actual state where arguing is a common activity, as a result of past action of arguing (repeatedly).

(419) LSC (ModSc(CG)23)

PRO.1 VEURE FATAL p DISCUTIR FATAL PERQUÈ MAJORIA PARELLA DISCUTIR UNA.MICA **JA** p

to.see awful to.argue awful because most couple to.argue a.little already

DESPRÉS [DISCUTIR]-intens SER++ VIDA+ UN.DE.VARIS DINER DOS.DE.VARIS PROBLEMA

after to.argue to.be life one.of.several money two.of.several problem

TRES.DE.VARIS ETC SER+++ p [**JA** DISCUTIR]-top [SER.ESTRANY]-com

three.of.several etc to.be already to.argue to.be.weird

'Penso que és horrible. Discutir és horrible perquè moltes parelles que discuteixen (ara =abans del casament) només una mica, després (=del casament) es discuteixen molt. La vida és així (a causa dels) diners, els problemes, etc. Per això que ells es discutissin era estrany.'

'I think it is awful. It is awful to argue because most couples who argue (now=before marriage) just a little bit, later (=after marriage) argue a lot. Such is life... (because of) money, problems, and so on. That they already argue is weird.'

The experiential perfect asserts (questions, denies) that "an event of a certain type took place at least once during a certain period up to a certain point in time" (Dahl, 1985, p. 141). Or, in Comrie's words, it indicates that "a given situation has held at least once during some time in the past leading up to the present" (Comrie, 1976, p. 58). The experiential sense of the anterior is illustrated in (420) and (421), for ASL and LSC respectively, where the informant had to answer to the question "Did you know my father, who died last year?" with a translation of the sentence "(Yes) I met him (at least once)". In Hong Kong Sign Language –HKSL– FINISH also marks experiential perfect, in (422).

(420) ASL (Maroney, 2004, p. 132)

YES, PRO.1 **FINISH.AUX(ant)** MEET H-I-M ONCE

'Yes, I met him once.'

(421) LSC (SurTA(JMS)12)

JA TROBAR.SE SEMBLAR UNA.VEGADA

already to.see/meet to.seem once

'Em sembla que ens vam trobar una vegada.'

'It seems to me I met him once.'

(422) HKSL (Tang, 2009, p. 26)

(a) IX-pro2 AFRICA TRAVEL FINISH?

(b) TRAVEL **FINISH** p IX-pro2 NOT_YET?

(a) 'Have you ever traveled to Africa?'

(b) '(I) have traveled (to Africa) already. Haven't you been (to Africa)?'

The perfect of persistent situation has been referred to as the universal perfect – McCawley (1971), cited in Dahl (1985). It includes “reference to recent past events and to events occurring at a period of time still in progress” (Harris, 1982, p. 49). In Dahl’s questionnaire, it is exemplified by the sentence: “He has been coughing for an hour” (1985, p. 136). We illustrate this use in LSC in (423).

(423) LSC [Narr01(JMS)4]

ARA [UN.ALTRC.COP]-top [SER.DIFÍCIL]-neg PERQUÈ **JA** COM ABANDONAR p

now again to.be.difficult because already like to.give.up

UN.ALTRC.COP. PRO.3pla PERSONA [a-MIRAR-b(2h) MALAMENT]-rs

again people to.look.at wrong

'Tornar ara seria molt difícil perquè ho vaig com deixar. De nou, la gent ho veuria malament.'

'Coming back now would be very difficult because I gave it up. Coming back would be seen as wrong.'

The perfect of recent past has been labeled also as *hot news*. The anterior can be used “where the present relevance of the past situation referred to is simply one of temporal closeness” (Comrie, 1976, p. 60). This usage is shown in (424) where the informant answers the question “What did you find out when you came to town yesterday? with “The king die”.

(424) LSC (SurTA(JMS)18)

VEURE IGUAL/COM **JA** REI MORIR

to.look.at like already king to.die

'Vaig veure que el rei havia mort.'

'I saw that the king has died.'

The prototypical pluperfect case refers to a situation where the interlocutor “is speaking of an event that took place before a definite point in past time” (Dahl, 1985, p. 146). Dahl treats pluperfect as a separate value, although he includes it within the perfect category. The distinction is illustrated by the difference between Past Perfect and Present Perfect in English. Givón (1982) stresses the special role that anteriors plays in narratives and proposes a discourse-pragmatic characterization. He points out that it “marks out-of-sequence clauses in the narrative, specifically those which look-back and relate events that occurred earlier than the preceding clause in the narrative” (Givón, 1982, p. 121, his emphasis). The example in (425) shows this use.

(425) LSC (SurTA(JMS)31)

Context: The task in the questionnaire consisted in signing the following sentence: “When I come home (yesterday), he write two letters (=he finished writing them just before I came)”.

[JUST CASA JUST ANAR TOCAR]-top PRO.3 ESCRIURE CARTA DOS JA ACABAR

exactly home exactly to.go to.touch to.write letter two already to.finish

ABANS PERSONA.PRO.1 HAVER.HI.NO p ACABAR JA(2h) PRO.3

before person to.there.be.not to.finish already

‘Quan vaig arribar a casa, ell just havia acabat d’escriure dues cartes abans quan jo no hi era. Just hi havia acabat.’

‘When I came home, he just had already finished to write two letters before I was there. He had finished already.’

Finally, resultative aspect denotes a state that was brought about by some action in the past and persists at reference time (i.e. ‘He is gone.’ or ‘The door is closed.’). According to Bybee et al. (1994), resultatives differ from anteriors in that resultative indicates that a state persists at reference time, while an anterior indicates that a past action is relevant to reference time. In the research conducted by Maroney (2004) no resultative marker arose in the data in response to the Dahl (1985) questionnaire.

However, several examples of resultative meaning occurred in the narrative data, by using verbs that have inherent endpoints, such as MISSING, and where the patient is the subject of the sentence. The analysis of the LSC data from the questionnaire and from the interviews shows that the marker JA ‘already’ was used with a resultative value:

the predicate indicates a change of state, as in (426), where the verbs are telic verbs that have an inherent endpoint.

(426) LSC (EMS 00:20:43 MS)

RADIOGRAFIA.PULMONS METGE JA p DIR NEGRE JA RADIOGRAFIA.PULMONS p

radiography.lungs doctor already to.say to.be.black already radiography.lung

PRO.1 SER.NEGRE SABER PRO.1

to.be. black to.know

'Ja m'havien fet una radiografia. El doctor va dir que ja tenia els pulmons negres. Ho sé que estan negres.'

'I already had chest x-rays. The doctor says that I already have black lungs. I know (they are) black.'

Exhaustive and other categories described in some studies on aspect were not taken into account. More discussion is needed in order to establish if these categories belong to aspect or to quantification. See Rathman (2005) and Quer et al. (2017) for a discussion.

9.6 Findings and research questions

Throughout this chapter we have examined the expression of aspect by means of free elements following a cross-linguistic methodology, i.e. contrasting the coding of aspectual values in the languages examined until present. In this section, we will answer the research questions formulated at the beginning of the chapter as follows: § 9.6.1 presents a summary of the data analyzed previously; § 9.6.2 focusses on the semantic domains which constitute the source for the evidential items, and, finally § 9.6.3 discusses the interaction of modality and evidentiality.

9.6.1 Research question 12: Forms signaling aspect

This chapter focused on the manual signs encoding aspect values in LSC and across signed languages, leaving aside its interaction with negation, as for instance the sign ENCARA-NO 'not yet'⁹⁵. Indeed, we have not included other items expressing finish-like meanings, because of their low frequency. This is the case of APAGAR 'to turn off' (Figure

⁹⁵ See Zucchi et al. (2010) for a discussion regarding the interaction of negation, quantification and aspect, concerning FATTO (LIS) and FINISH (ASL).

9.17), that appears in our data as a lexical marker referring to *electric device with screen* (TV, computers, etc.) and as a discourse marker for closing tales or talks.



Figure 9.17 APAGAR 'to turn off'

Although research on aspect in signed languages is scarce and most of the evidence and analysis is only preliminary, we can point out the following findings. First of all, there is crosslinguistic variation as well as general tendencies on the manual resources for the expression of aspect in signed languages, both with respect to verb + verb constructions –periphrastic-like expressions— or with grammatical markers that have their origin in signs other than verbs (adverbs, etc.). According to the published data, there are grams that fit the crosslinguistic values of inceptive and ingressive aspect in a few languages only (LSC, LSE and LSM).

Moreover, there is no free grammatical morpheme for the general imperfective aspect, although morphological patterns across and within languages do show different types of reduplication for imperfective values, namely continuative/progressive, habitual/frequentative and iterative. As a consequence, it is difficult to distinguish habitual/frequentative from progressive/continuative in ASL for instance, because they overlap in expression (Maroney, 2004a, 2004b). The data show a preference for a combination of the periphrastic-like and morphological expression of imperfective values (continuative/progressive, habitual/frequentative and iterative) in the same sentence, as seen in the data of ASL, LSE and LSC.

We suggest two reasons. First, they have the same morphological realization and therefore the need arises to distinguish one from the other through free grams, especially in ASL. Second, there is a crosslinguistic tendency for reduplicated forms that applies to the most grammaticalized (the morphological form) as well as to the less grammaticalized form (the periphrastic). The research on ASL, LSE and LSC supports Bybee et al. (1994)'s claim that when reduplicated forms are used to express aspectual

meanings, such as iterative, continuative, and habitual, the iterative form is the most likely source of the reduplication along the grammaticalization path.

In addition, perfective/completive markers may appear cliticized to the main verb (as in ASL, BSL, GSL, IPSL and LSC) and they may give rise to lexicalization processes, where the perfective form of the verb is considered a lexical item on its own. This is the case for LSC, as for instance in SABER ('to know') and SABER.JA ('to know already'). The cliticized predicate means 'to dominate', 'to know previously'.

From a grammaticalization perspective, perfective, completive and anterior markers are grammaticalized from a full predicate meaning 'finish' (in ASL, AUSLAN, BSL, HKSL, ISL, LSC, LSE, RSL, and TSL), 'done' (in LIS), and the adjective/adverbial 'ready' (in DGS, LSC, LSE, NGT, RSL, and VGT). These facts are consistent with the lexical sources described in the GRAMCATS sample by Bybee et al. (1994) and in the World Lexicon of Grammaticalization by Heine and Kuteva (2002, pp. 134-138).

The data further support the hypothesis that completives, especially those from 'finish', may develop into anteriors (Bybee et al., 1994, p. 61). 'Finish' has both uses in ASL and AUSLAN and so has 'done' in LIS. Furthermore, some of these 'finish' grams have developed a discourse function (in ASL, LSC, and TID) and constitute a case of type-2 grammaticalization or pragmaticalization (Ocampo, 2006). The grammaticalization instances observed provide evidence for the general trend whereby process verbs are grammaticalized as auxiliaries denoting aspect functions (Heine, 1993; Heine & Kuteva, 2002).

9.6.2 Research question 13: Sources for aspectual manual markers

Moreover, the description is synchronic in nature, since diachronic data are not available in most signed languages, as explained in chapter 5. Internal reconstruction is the method followed through the comparison of similar forms in terms of its phonological properties (erosion and cliticization), syntactic behavior (deategorialization), and semantic content (desemanticization). In the majority of cases, there is no reference to the source of aspectual marker, and the gloss used (usually a verb or an adverb in the surrounding spoken language) obscures their lexical category.

In addition, the limited number of examples in the literature reviewed do not allow for considering nuances other than those reported. Janzen (1995), Sapountzaki (2005,

2010) and Johnston et al. (2015) constitute an exception. These studies hypothesize paths on the analysis of the phonological form, syntactic position and semantic function within the framework of grammaticalization theory. For instance, according to Janzen (1995) the entire grammaticization process for 'finish' in ASL is complex, with certain preverbal functional morphemes developing from the transitive verb FINISH (427) and other in a postverbal position from the stative verb BE.FINISHED (428) (Cf. Heine, 1993).

(427) Janzen's (1995) path of grammaticization for FINISH in ASL

main verb > main verb > anterior > perfect > past
 [V+NP] [V clausal complement] [AUX+V] [AUX+V] [AUX+V]

(428) Janzen's (1995) path of grammaticization for BE.FINISHED in ASL

a. stative verb > stative verb > anterior
 [NP+ stative V] [NP+ stative V] [AUX+V]

b. stative verb > completive > conjunction
 [NP+ stative V] [] [S + conjunction + S]

In a number of languages, the perfective/completive markers, glossed either as 'finish' or 'done', look similar to the widespread "cut-off" or "finish" manual gesture. It is a two-handed form in which the open flat hands, palms down, are initially crossed over each other –partially or totally– in front of the torso, then the arms move rapidly out to the side. This would lend support to Wilcox's (2004, 2007 inter alia) hypothesis on the development of manual grammatical morphemes out of manual gestures in the surrounding culture/language(s), through a lexical stage. The importance of gestural sources for grammaticalization has further been pointed out by Heine and Kuteva (2007).

Some aspectual constructions may be the product of language contact phenomena. The inchoative constructions [IR 'to go' + V] and A.PUNTO 'almost' in LSE seem to be a calque from spoken Spanish (Morales-López et al., 2000), the conclusive [FINISH + V] in AUSLAN possibly being a calque from spoken English (Johnston, et al., 2015)- Similarly, [IBA + V] in LSM and THROUGH in NGT are borrowings from spoken Spanish and Dutch respectively. This observation is important since some studies on signed languages do not take into account the grammatical strategies of the surrounding spoken language(s).

9.6.3 Research question 14: Interaction of aspectual and modal resources

As for the question whether there is a marker expressing both modal and semantic values in LSC, the data analyzed show that none of the markers described in chapter 6 on the expression of modality encodes aspectual meanings. Moreover, we have identified some uses of the aspectual gram ACABAR 'to finish' that pragmatically may trigger a modal reading. This occurs with verbs that correspond to achievements. In this grammatical context, the gram may signal a completive value that activates a modal nuance of strong commitment.

We can trace back the origin of ACABAR 'to finish' in multimodal communication expressing 'enough', 'done', or 'finish' (Cestero, 1999; Kendon, 2004; Morris, Collett, Marsh, & O'Shaughnessy, 1979; Müller, 2004, 2013; Nascimento, 2007; Payrató, 2014; Streeck, 2009).

As a sign, it may take formally several forms: from an elaborated movement in a bow-shape (as in Figure 5.5. in chapter 8) to a reduced form. This sign is very frequent in LSC discourse since it develops lexical, grammatical and discourse functions, as we will discuss in Section 9.5. As a lexical item, ACABAR is a simple verb (Morales-López, Boldú-Menasanch, Alonso-Rodríguez, Gras-Ferrer, & Rodríguez-González, 2005), equivalent to English verbs 'finish', 'complete', etc. The main grammatical functions are linked to the expression of aspect, mainly perfective and completive, illustrated in (429).

(429) EES 00:01:10 ES

DONAR.VOLTES p SENTIR p [EXEMPLE SI ESTUDIAR CONTINUAR-ASP.dur]-cond
to.be.unemployed to.heard example if to.study to.keep

[PODER CAIXA PRO.1 HAVER.HI.NO]-hs p SORT p PRO.1 ESTUDIAR **ACABAR**
may name.bank to.there.be.not luck to.study to.finish

'Estava a l'atur quan m'hi vaig assabentar. Si hagués estat estudiant, probablement ara no tindria aquesta feina a La Caixa. Vaig tenir sort que hagués acabat els estudis.'

'I was unemployed when I heard of (the job). If I had been studying, I probably wouldn't have this job at (the bank) *La Caixa*. I was lucky I had already finished my studies.'

However, our data show that in some contexts ACABAR accompanies verbs that do not refer to a process, but which identify punctual actions. That is, following Vendler (1967)'s classical typology of lexical aspect (or *Aktionsart*), when ACABAR occurs with verbs that

correspond to achievements it may signal a completive value that activates a modal nuance of strong commitment, as in (430).

(430) EJG 00:23:52 JMS

ESTUDIAR TEATRE JA 2-ANY p ABANDONAR p PROFESSOR+DIRECTOR

to.study drama already 2-year to.give.up instructor

CA:profesor<SISPLAU CONTINUAR-ASP.dur> p [ESTUDIAR FÀCIL]-focus [NO]-neg p

teacher please to.keep to.study to.be.easy not

[DIFÍCIL]-int p [EXEMPLE SUSPENDRE-ASP.iter]-cond [EXPULSAR **ACABAR**]-strong commitment

to.be.difficult example to.fail fire finish

'Va estudiar teatre durant dos anys. Ho va deixar (però) (el seu) professor li va demanar que seguís (estudiant). No és fàcil; és realment difícil. Si algú suspèn, el fan fora segur.'

'He has been studying drama for two years. He gave up (but) (his) instructor asked him to keep (studying). It is not easy; it is really difficult. If somebody fails, that person is going to be fired for sure.'

When it is used in this context, ACABAR shows a reduced form, as represented in Figure 9.18. It exhibits a tension in the hands movement as well as in the head and the facial expression.



Figure 9.18 ACABAR 'to finish'

As pointed out above in § 9.5.2, completive grams also add "some emphasis or surprise value" to the situation (Bybee et al., 1994, p. 57). We may consider, thus, ACABAR as a resource in LSC for expressing mirative values. Mirative, as described in chapter 3, refers to the expression of new or unexpected information that somehow shocks or surprises the issuer (de Haan, 2012; DeLancey, 1997, 2001, 2012; Estrada, 2013; Mocini, 2014; Peterson, 2013; Tournadre & LaPolla, 2014). We argue that a certainty reading is triggered by the construction composed of a facial expression signaling mirativity values

and the manual aspectual marker. We are faced, thus, with an instance of constructionalization (Bybee, 2010; Traugott & Trousdale, 2013).

A second phenomenon that displays a relation between aspect and modality is the lexicalization of SABER.DOMINAR and OBLIGAR.CANÓ, described in Chapter 6. SABER.DOMINAR is a sign derived from SABER. The lexicalization process consists in applying the morphological pattern to express perfective aspect to the verb citation form. Phonetically, the perfective pattern consists of a sharp and shorter movement in comparison with the citation form. This analysis coincides, although only partially, with Brennan (1983)'s analysis of BSL. According to her, these types of form are "blends" which have incorporated into one sign the lexical verb and the completion sign glossed as FINISH. A different view considers the derived verb a past form of the verb, such as WIN/WON, SEE/SAW, GO/WENT in BSL.

9.7 Final remarks

This chapter examined the encoding of aspect values in LSC, against the background of the expression of this grammatical/functional category across signed languages, aiming to identify interfaces with the modality domain. The main findings derived from the analysis conducted along the chapter are the following (431)-(433).

(431) Main findings with regard to **RQ 12**: aspectual constructions in LSC

- (i) Aspect and time are encoded by different type of constructions.
- (ii) We have shown that LSC displays an array of grams (free markers) that express imperfective and perfective aspectual meanings.

(432) Main findings with regard to **RQ 13**: sources for aspectual manual markers

- (i) Some of the described markers are the result of a grammaticalization process that takes lexical items as their sources, some of them similar to those described crosslinguistically.
- (ii) Of other markers, we do not know the origin.

(433) Main findings regarding the **RQ 14**: interfaces with modality

- (i) The analysis of our data reveals that the encoding of grammatical aspect through free grams does not overlap with the encoding of modality.
- (ii) The combination of morphological encoding of perfective aspect with the lexical verb SABER results in the lexicalization of two modal grams (SABER.DOMINAR and OBLIGAR.CANÓ).

Overall, the grammaticalization of aspectual values in LSC and, more generally, in signed languages is incipient and more research is needed on formational, semantic, grammatical, and usage factors in order to determinate their degree of grammaticalization and to propose proper paths, on the grounds of solid evidence.

Chapter 10. Modality: lexicalization, grammaticalization and pragmaticalization

10.1 Introduction

This chapter addresses **research goal 3**, i.e. it aims to explore and propose which gestural and linguistic elements, be they lexical or grammatical, may constitute the source (raw material) for modal constructions and to trace evolving processes and possible grammaticalization paths. To attain this goal, we have addressed the research questions (RQ) 13 to 17, as specified in chapter 4, and reproduced in (434).

(434) Research questions addressed in chapter 10 (RG 3)

Grammaticalization and source of modal constructions

RQ 13. Which modal forms and constructions have their source in lexical items, grammatical items, manual gestural items and non-manual gestural items?

RQ 14. Does LSC exhibit prototypical modal grams?

RQ 15. Can we determine grammaticalization paths from the different synchronous properties modal constructions exhibit? Which cognitive mechanisms may have been at work? Do LSC data confirms the two routes proposed for signed language grams in the literature?

Discourse dimension:

RQ 16. Do LSC forms adopt modal readings via pragmatics?

RQ 17. Do gestures/discourse markers express modal nuances? Does it contribute to the discussion on grammaticalization paths for sign languages?

Throughout this chapter, we will discuss the possible origin of the LSC modal grams examined in Chapters 6 and 7 and put forward hypothetical grammaticalization paths. As pointed out in Chapter 2, grammaticalization studies establish that free grammatical grams in signed languages come from lexical sources, the origin of which can be traced back in manual gestural elements from the surrounding spoken language (S. Wilcox, 2004, 2007; S. Wilcox, Rossini, & Pizzuto, 2010), as illustrated in (435).

(435) Grammatical sources in ASL

- (i) gesture 'strong' > STRONG > modal CAN [ASL]
- (ii) gesture 'owe' > OWE > modal verb MUST [ASL]

This proposal is not new at all, it was already present in the proposals of McNeill (1992, 2005) or Kendon (2000, 2004) in gestural studies. However, the evidence provided to date for sign languages amounts to a few signs. The lack of sistematicity leads to a situation where, except for ASL (P. P. Wilcox & Wilcox, 1995), no grammatical category has been addressed in its entirety.

We accept as initial hypothesis that the source for LSC modal forms can be traced to manual gestural elements, but we question that the path includes necessarily a lexical element. A few studies reveal that grammaticalization in LS may proceed directly from a gestural source to a functional element, skipping the intermediate lexicalization stage in the cases in (436) (Pfau & Steinbach, 2006, 2011):

(436) From manual gesture to functional elements in SL

- (i) gesture > classifier handshapes (that combine with verbs of motion and location)
- (ii) gesture > question particle / discourse marker
- (iii) gesture > pronoun

After addressing the search for historical roots, considering that present pragmatics may be future grammar (Bybee, 2008; Givón, 1971, 1979; Hopper & Traugott, 1993; Traugott, 1982), we will examine if contemporary discourse elements can trigger modal readings that might develop into grammatical elements in the (near) future. In addition, we will discuss gestural manual elements in LSC discourse that express modal-like notion and, thus, constitute potential candidates to become linguistic material and develop grammatical functions. Specifically, we will focus on the palm-up gesture family, already described in multimodal and gestural studies because of its high frequency.

The chapter is structured according to the following plan. The next section addresses the challenge of identifying possible (lexical and gestural) sources for modal grams in LSC (§ 10.2). The following two sections focus on the pragmatics, both with respect to the LSC lexical elements that may have modal interpretations (§ 10.3) as well as manual gestural elements expressing modal meanings in LSC discourse (§ 10.4). In the next

section (§ 10.5), we present a summary of previous findings and a brief discussion with relation to research questions 13 to 17. To conclude, Section 10.6 presents some final remarks.

10.2 Lexical and gestural sources of modal elements in LSC

As starting point for our search, we assume Kendon (2004)'s definition of gesture: a gesture is a "visible bodily action that is seen as intimately involved in the activity of speaking" (Kendon 2004, p. ii). Our main focus will be on the gestural units termed *quotable gesture* (Kendon, 1995), *emblem* (Ekman & Friesen, 1969), *symbolic gestures* (Morris, Collett, Marsh, & O'Shaughnessy, 1979), *autonomous gestures* (Payrató, 1993), *conventionalized body movements* or *utterance visible actions* (Kendon, 2004, 2013), all synonyms in the literature on gesture studies or multimodality (Payrató, 2008; Teßendorf, 2013).

That is, we will focus on highly conventional forms used "in interaction with what is expressed in words, can extend, enrich, supplement, complement spoken meanings" (Kendon, 2013, p. 12). Following Teßendorf (2013), we will adopt the term *emblem*, coined by David Efron, that is the most widespread within the research community. Emblems are characterized by the following properties (437) (Teßendorf, 2013, pp. 82-83):

(437) Characterization of emblems

- (i) They are historically developed and therefore belong to the gestural repertoire of a certain culture or group.
- (ii) They are conventional gestures that have a standard of well-formedness.
- (iii) They have a more or less defined meaning and are easily translatable into words or a phrase.
- (iv) They can be used as a substitute for speech. Consequently, they have, at least in part, an illocutionary force.

Multimodal approaches provide a fine-grained analysis of how the verbal and gestural dimensions interact in verbal exchanges and allows the participants to make sense in real-world settings. Some works adopt a form-based approach to gesture (Müller, 2013) that focuses on one group of articulators at a time (face, gaze, head, shoulders, torso, hands, legs, and feet) and relates its production with the content of verbal performance taking into account language, cognitive and socio-cultural dimensions.

Concerning the source for non-manual elements, we consider relevant recent studies on interpersonal pragmatics since they incorporate in their scope the embodied dimension of emotion as being part of the fuller context of interaction (Niedenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric, 2005). In particular, facial expressions are identified as a major conveyance of affective and cognitive stance, including, then, intersubjective evaluation, positioning, and alignment of language users in a context of collaborative interaction (Englebretson, 2007).

Indeed, they display an emotion-regulating function and may provoke empathic inferences in the participants in the exchange. Also, ethnographic studies have shown that facial expressions, rather than being genetically determined and, therefore, natural and universal, must be considered as culturally shaped and socially acquired (Meyer, 2013). Also, cross-linguistic studies on emblems have shown important differences and especially they have highlighted the need of including them in second-language programs.

Since, there are no comprehensive studies that include the totality of emblems from a culture, we will search through emblems repertoires from different languages and cultures. Also, we consider that languages and cultures are intertwined and fluid, and that there are mutual influences and developments, as a result of synchronic (e.g. mass media, personal interaction, etc.) and diachronic factors (i.e. genealogical).

Also, Kendon (2004) and Payrató (2013) suggest that the repertoires of emblems across cultures show strong similarities in their macro-categories and that this may be explained by the fact that all cultures share similar communicative needs and, we add, similar bodies. On the other hand, during our field-work we found that some gestures shared in different cultures are included in some inventories but not in others.

Our search will go through the studies and inventories on common gestures or emblems in the Hispanic tradition, from the Mediterranean region and worldwide. We have consulted pieces of work related to Catalan (Amades, 1957; Mascaró, 1981; Payrató, 1993, 2008, 2013, 2014; Payrató & Teßendorf, 2013), Spanish (Coll, Gelabert, & Martinell, 1990; Meo-Zilio & Mejía, 1983; Nascimento, 2007; Poyatos, 1994; Vaz, 2013), Italian (Diadori, 1990; Kendon, 1995, 2004; Poggi, 2002, 2013), French (Calbris, 1985, 1990, 2011), Portuguese (Nascimento, 2007, 2008), as well as other works that examine gesturing in English and other languages from a multicultural perspective (Efron, 1972; Morris, et al., 1979).

In addition, we have searched across the articles in the 2 volumes of the handbook *Body-Language-Communication* edited by Müller et al. (2013, 2014). We are aware that most emblems may be traced back to Roman times (Fornés & Puig, 2008) and they were already mentioned by Cicero and Quintilian as important oratorical elements.

Regarding the historical data that are specifically of the sign languages, we have consulted the few existing lexicographical sources or etymological dictionaries on the LSC (Ferrerons, 2011a, 2011b) as well as the manuals written from Spanish and Catalan educators along the 18th and 19th century described in chapter 1 (Clotet, 1866; Hervás y Panduro, 2008 [1795]; Villabrille, 1851).

Moreover, the French descriptions from the 19th century are particularly relevant since LSF and LSC are historically related. In 1792, Deaf Education became a concern of state and, as a result, in 1796 the National Assembly created six schools across the country. Teachers of the French sign language needed descriptions of the language and manuals to help them teach it. Along the 19th century, 27 works proposed inventories of signs and, in 1825, Bébien published even a writing system for sign language (Boutet & Harrison, 2014).

For instance, the abbé Roch-Ambroise Cucurron Sicard, who succeeded Epée as the principal of the school for the deaf in Paris in 1789, wrote a two-volume dictionary, *Théories des Signes* (1808). Specifically, volume 2 is relevant to our research since it includes the description of abstract terms and grammar. Other, relevant manuals⁹⁶ were written by Brouland (1855), Pélissier (1856), Vuillemeys (1940), and Lambert (1865).

⁹⁶ They can be consulted at <https://gallica.bnf.fr/accueil/?mode=desktop>

With respect to 20th century dictionaries, relevant publications are Moody, Vourc'h, Girod and Dufour (1986), Girod, Vourc'h and Dufour (1990) and Girod (1997), and more recently Delaporte (2002, 2007). Also, for ASL, Shaw and Delaporte (2015) have traced the historical and etymological origin of more than 500 signs.

The investigation of the origin of modal constructions in LSC is not without difficulties. We will follow an approach analogous to internal reconstruction methods, as described in Chapter 4. Regarding the use of the methodology of internal and external (comparative) reconstruction, we work with the assumption that linguistic change is directional and that the processes and mechanisms of change are universal (Bybee, 2010; Bybee, Perkins, & Pagliuca, 1994; Heine & Kuteva, 2007; Langacker, 2011). This methodology consists in the formulation of hypotheses of linguistic change processes based on synchronic data from both the target language and other genetically related languages.

This methodology has been used in studies that propose trajectories of grammaticalization in languages without historical data, both in spoken languages from the linguistic typology perspective (Bybee, et al., 1994; Heine, Claudi, & Hünemeyer, 1991; Heine & Kuteva, 2007), as well as in sign languages (Janzen & Shaffer, 2002; Meir, 2003; S. Wilcox & Xavier, 2013; Xavier & Wilcox, 2014). In the case of the sign languages, it is relevant to indicate that the LSC and the consulted languages –ASL, LSF, LIBRAS and LIS— belong to the same linguistic family due to the history of the education of deaf people (McBurney, 2012) (See Chapter 1 for a description).

The rest of the section is organized as follows: Section 10.2.1 focuses on the origin of generic non-manuals markers (i.e. facial and body linguistic elements non-specific for expressing modal meanings), whereas Section 10.2.2 deals with the possible sources for volitive grams and constructions, and Sections 10.2.3 and 10.2.4, for possibility and necessity grams, respectively. Finally, Section 10.2.5 examines negative elements.

10.2.1 Origin of generic modal non-manuals elements

Before addressing the goal of this chapter, we will refer briefly to some studies that examine the interaction between speech and non-speech elements that may constitute the basis for non-manual linguistic elements in signed languages. For instance, in Jarque

(Jarque, 2016), we discussed the importance of eyebrow raising for syntactic constructions in LSC and sign languages, in general.

Research on eyebrows in spoken languages link their movement to discourse structure, utterance function and pitch accents (Flecha-García, 2010), whereas other studies establish a relation with head movements (McClave, 2000). The multifaceted nature of the interaction between gestures and speech is addressed in other main works (Norris, 2016; Wagner, Malisz, & Kopp, 2014).

10.2.2 Origin of volitive constructions

Volitive constructions, as shown in Chapter 6, are the syntactic combination of elements, including the lexical verb, the agent and a whole constellation of non-manual components, mainly facial elements. First, we will focus on the non-manual elements, followed by the manual ones. With respect to the raw manual material forming the volitive constructions, four of them have the source, not surprisingly, in lexical volitional verbs (AGRADAR, VOLER, DESITJAR and TENIR.GANES in § 10.2.2.2), one in a cognition verb (ESPERAR, § 10.2.2.3) and another one arises from a creative incorporation process linked to the Spanish equivalent (TANT.DE.BÓ, § 10.2.2.4).

10.2.2.1 From gestural facial expressions to grammatical facial forms

The specific elements in the non-manual component in volitive constructions in LSC – described in chapter 6— have been already recognized in multimodal and gestural studies. When expressing desire, people in the western hemisphere display an expressive facial pattern that may consist of raised eyebrows, open eyes, and raised cheeks (Ascaso, 2015; Cestero, 1999; Efron, 1972; Ekman & Friesen, 2003; Kendon, 2004; McNeill, 1992). Also, Cestero (1999, p. 125) offered this description for Spanish: The lips remain glued and the mouth in resting position or slightly rounded. Another possibility is squint eyes and raised eyebrows with open mouth with slightly rounded lips (1999, p. 125). Some dictionaries, even, report that gaze direction towards sky expresses a plead in Spanish (Coll, et al., 1990; Meo-Zilio & Mejía, 1983) and in German communication (Ascaso, 2015).

10.2.2.2 From volitional verbs to volitive constructions

With relation to the source of LSC VOLER 'to want', we suggest that its origin may be a manual gesture meaning 'to love', attested in gestural studies (Gaviño, 2012)⁹⁷, and that it is related to the LSF sign *Fr.* AIMER 'to love'. The evolution of AIMER since its first documentations to the present form is particularly relevant to our purposes, as we will discuss below. In Sicard (1808)'s dictionary, it is documented as follows.

AIMER. 1^o To represent two people. 2^o Action de mettre les deux mains sur le cœur, et de le presser, avec une expression de physionomie qui annonce un sentiment vif et ardent d'affection et de tendresse. 3^o Mode indéfini (Sicard, 1808, p. 29)⁹⁸

In sense 2, Sicard explains its meaning with relation to the gestural expression, the external demonstration, of the internal situation: the action of putting the two hands over the heart, as described in present-day gestural repertoires. The formal characteristics are similar to the LSC sign ESTIMAR 'to love' as captured in LSC dictionaries (Ferrerons, 2011b). Also, in Delaporte's French Sign Language dictionary, under the entry AIMER (Delaporte, 2007) there are reported the same sign (Figure 10.1), and a more recent form (Figure 10.2), similar to LSC signs VOLER 'to want' and PODER 'can', as described in Chapter 6.



Figure 10.1 LSF AIMER.2 'to love'
(Pélissier, 1856)



Figure 10.2 LSF AIMER.3 'to love'
(Moody et al., 1986)

Indeed, Delaporte (2007) describes their formal properties as well as its origin going back to the first documentation in l'Épée's (1784) manual. What is really interesting is the formal motivation of the sign as well as the changes that took place along time:

⁹⁷ [http://www.coloquial.es/es/diccionario-de-gestos-espanoles/3-manos-y-cuerpo/#prettyPhoto\[galeria_11101\]/0/](http://www.coloquial.es/es/diccionario-de-gestos-espanoles/3-manos-y-cuerpo/#prettyPhoto[galeria_11101]/0/)

⁹⁸ "AIMER. 1^o To represent two people. 2^o Action of putting both hands on the heart, and press it, with an expression that indicates a strong and burning feeling of affection and tenderness. 3^o Indefinite mode (Sicard, 1808, p. 29).⁹⁸

AIMER. 1. Pour l'abbé de l'Épée (1784), ce signe s'exécute "en mettant fortement sa main droite sur sa bouche, pendant que la gauche est sur le cœur : on rapporte ensuite la main droite avec une nouvelle force sur le cœur, conjointement avec la main gauche, et on ajoute le signe de l'infinif". 2. De cette production gestuelle alambiquée, suivie presque mot pour mot par Ferrand (v. 1785), les sourds n'ont conservé que l'élément central, les deux mains posées sur le cœur : c'est sous cette forme que AIMER est attesté à Paris (Pélissier 1856, Vuilemey 1940, Lelu-Laniepce 1985) et en province (Le Puy, Saint-Laurent-en-Royans). 3. Parallèlement, a été pratiquée une forme simplifiée qui n'engage qu'une seule main (Blanchet 1850, Brouland 1855, Oléron 1974). (Delaporte, 2007, p. 44)⁹⁹

Based on Delaporte's description, we suggest, then, that LSF AIMER.2 changed formally to AIMER.3, "a simplified form" according to Delaporte (2007). Weak drop –i.e. the fact that the non-dominant hand, in this case the left one, "disappears" in the production of the sign overtime— is a phonological process consisting in the deletion of a feature [two handed]. As explained in chapter 7, weak drop is a case of phonetic reduction and has been attested in several sign languages as a phonetic and evolutionary process (Crasborn, 2011).

In other words, the original AIMER.2 underwent weak drop as a result of a formal lexicalization process over time. The formal similarities between the LSC and the LSF verbs and the semantic proximity lead us to suggest that this is the explanation for the change from the meaning of 'love' to 'want', as it is attested in other languages, such as Spanish (Coromines & Pascual, 1991-1997) and Catalan. So, for instance, in Catalan, the lexical item *estimar* comprises similar meanings (438), as the *Diccionari català-valencià-balear* (Alcover & Moll, 1993)¹⁰⁰ provides.

(438) Voler (Alcover & Moll, 1993)

- (i) Exercir la potència de l'ànima que mou a fer alguna cosa; tenir la intenció determinada (de fer o de fer fer quelcom).
- (ii) Tenir la intenció determinada d'obtenir una cosa o de procurar-la a algú.
- (iii) Tenir amor, estimar.
- (iv) Requerir, exigir.
- (v) Ésser imminent (un esdeveniment).

⁹⁹ "AIMER. 1. According to abbot de l'Épée (1784), this sign is realized "putting with strength the right hand on the mouth, while the left hand is on the heart: subsequently, one moves the right hand with renewed strength on the heart, together with the left hand, and one adds the infinite sign". 2. Of this convoluted gestural production, followed almost word by word by Ferrand (v. 1785), deaf people have kept only the central element, the two hands resting on the heart: it is in this form that AIMER is attested in Paris (Pélissier 1856, Vuilemey 1940, Lelu-Laniepce 1985) and in the province (Le Puy, Saint-Laurent-en-Royans). 3. At the same time, there was a simplified form that involved just one hand (Blanchet 1850, Brouland 1855, Oléron 1974)." (Delaporte, 2007, p. 44).

¹⁰⁰ We have looked up the word in the on-line version of the dictionary (<http://dcvb.iecat.net/>).

(vi) Besar.¹⁰¹

Indeed, Alcover and Moll give, when is a name, the meanings of *voluntat* ('will') and *amor, estimació* ('love', 'care').

Also, Clotet, in his (1866)'s manual, referring to the articulation of verbs, indicates "y para expresar que *aman*, se ponen la mano en el corazon ó en el pecho" (1866, p. 39)¹⁰², which means that the verb for expressing 'to love' in old LSC was similar to the one in old LSF. Nevertheless, in Villabrille's work on LSE, we have identified a sign phonologically similar to the contemporary PODER and meaning DESEAR:

DESEAR. La mano derecha estendida y con la palma hácia el pecho, se atrae dos o tres veces hácia este y se pasa rozando con él. (Villabrille 1851, p. 48)¹⁰³

If we compare the LSF AIMER.3 with the current signs meaning desire (VOLER and DESITJAR), as illustrated in Chapter 6, the formal difference between them lies in the movement: the current sign realizes a horizontal or slightly diagonal movement touching lightly the upper chest area, as it is shown in Segimon et al.'s (2004) dictionary. However, there is currently in LSC a sign that is closer to the old DESEAR, namely the sign OFERIR.SE also with the meaning described in Ferrerons' (2011a) dictionary as *Cat.* "postular-se" ('to run for'), "oferir-se com a voluntari" ('to volunteer') and as a nominal item with the meanings equivalent to the Catalan words "voluntat" ('will'), "postulanta" ('postulant'), "voluntary" ('volunteer'), and "candidat" ('candidate') (Ferrerons, 2011).

The difference, however, lies in the fact that OFERIR.SE/VOLUNTAT is a bimanual sign. According to Ferrerons (2011), the process through which LSC VOLUNTAT underwent is parallel to the process of LSF signs VOLONTÉ 'n. will' and VOLONTAIREMENT 'voluntarily' that derived from VOULOIR 'to want'. Also, these signs are documented in the *Dictionnaire des Sourd-Mutes* de l'Abbé Ferrand (1784). We will go back to this path in § 10.2.3.1 concerning the origin of PODER.

¹⁰¹ Estimar: (1) To determine the value of something. (2) To determine the importance of something. (3) To judge, to consider something in a certain way. (4). To have a good opinion of something. (5) To love, to aspire. (6) To kiss (Alcover Moll) (<http://dcvb.iecat.net/>)

¹⁰² "and to express "to love" they put their hand on the heart or the breast" (Clotet, 1866, p. 39)

¹⁰³ "TO WISH. The right hand, extended and with the palm toward the breast, is drawn two or three times toward it, almost touching it. (Villabrille, 1851, p. 48).

The O-FSL DÉSI^RER (Figure 10.3) coincides with the present LSF form for expressing desire (French 'souhaiter')¹⁰⁴ and it is related to the present form for 'to want' and 'to desire' in ASL (Figure 10.4).



Figure 10.3 O-FSL DÉSI^RER 'to desire'
(Pélissier, 1856)



Figure 10.4 ASL WANT 'to want'¹⁰⁵

Pélissier examines the sign O-FSL VOULOIR (Figure 10.5), more oriented to the expression of elections between several options, as the description indicates "L'index et les médiu recourbés et écartés, touchant le front, les précipiter en bas avec un air décidé"¹⁰⁶ (1856, p. XVI). The V-handshape refers to the initial of the French verb *vouloir*. It is introduced in the 19th century since, previously, Pierre Desloges (1779)¹⁰⁷ described it with the index handshape and at Lambert (1865, p. 76¹⁰⁸) shows the V (Delaporte, 2007).

¹⁰⁴ https://www.elix-lsf.fr/spip.php?page=signes&id_article=216500&lang=fr

¹⁰⁵ <https://sites.google.com/site/mrsstoneman85/home/lessons/school-used-signs>

¹⁰⁶ "The index and the middle fingers curved and separated, touching the forehead, precipitating down with determined attitude".

¹⁰⁷ <https://gallica.bnf.fr/ark:/12148/bpt6k749465.r=pierre+desloges.langFR>

¹⁰⁸ <https://gallica.bnf.fr/ark:/12148/bpt6k930015s/f99.image>



Figure 10.5 O-FSL VOULOIR 'to want'
(Pélissier, 1846)

Other two signs of present-day ASL that use the torso as location and are semantically related correspond to the verbs LIKE (Figure 10.6¹⁰⁹) and DESIRE (Figure 10.7¹¹⁰).



Figure 10.6 ASL LIKE 'to like'
(Baby Sign Language)



Figure 10.7 ASL DESIRE 'to desire'
(Signing Savvy)

The ASL DESIRE has its origin in the sign for the situation of feeling hungry, since the LSF sign FAIM 'hungry' and the ASL HUNGRY are formally very similar, the only difference being that FAIM/HUNGRY displays a longer movement (See Signing Savvy¹¹¹). Formal lexicalization would imply, then, a phonological reduction in the movement parameter. Semantically, it seems that there has been a semantic extension from concrete meaning to a general desire, as attested in several languages –e.g. *tener gana* and *tener ganas de* in Spanish (Coromines & Pascual, 1991-1997). Possibly LSC sign TENIR.GANES 'to

¹⁰⁹ <https://www.babysignlanguage.com/dictionary/l/like/?v=04c19fa1e772>

¹¹⁰ <https://www.signingsavvy.com/sign/DESIRE/3267/1>

¹¹¹ <https://www.signingsavvy.com/sign/HUNGRY>

fancy' has the same origin linked to the feeling of being hungry since it is produced on the frontal neck.

Finally, and with respect to the possible sources for the predicate AGRADAR 'to like', Ferrerons suggests, in his (2011b) dictionary, that it has its origin in the classifier predicate to refer to the movements of the tongue. It would be a case of lexicalization from a verbal predicate: a verbal predicate –expressing that somebody is amazed for something and shows this attitude sticking out the tongue– would have been lexicalized into the plain verb AGRADAR. The formal changes would include handshape and frozen movement, and a lowering in place of articulation –already attested in sign language phonology (Tyrone & Mauk, 2010).

However, another possible origin might be the gesture known to the Italian tradition as "carezza sulle guance" ('caress on the cheeks') (Figure 10.8), described in several studies (Morris, et al., 1979). The gesture *carezza sulle guance* has its origin in the gesture for face; later its meaning has been reduced to express *bellezza* ('beauty') in Rome (Diadori, 1990). LSF exhibits a formally and semantically similar sign, glossed as "joli, gentil" by Lambert (1865, p. 77). See Figure 10.9.



Figure 10.8 Carezza sulle guance
(Morris et al., 1979)



Figure 10.9 O-LSF JOLI/GENTIL
(Lambert, 1865)

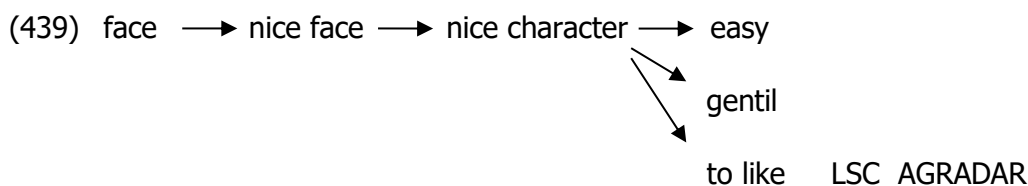
Also, this sign appears in the LSF present-day dictionary Elix (Signes de Sens, 2012) as the verb APPRÉCIER 'to appreciate' with the meaning "1. Estimer, juger favorablement." ('To evaluate, to judge favourably') (Figure 10.10).



Figure 10.10 LSF APPRÉCIER 'to appreciate'
(Signes de Sens, 2012)

APPRÉCIER is a compound sign: the first compositive is related with the smell domain, as it is shown in the explanation given in the dictionary. The second sign is formally similar to the LSF sign 'joli, gentil' described by Lambert (1856).

In (439) we show the suggested semantic development: gesture face > sign face > gesture/sign for 'nice face' > sign for 'nice character' > sign 'to like'



The conceptual metaphors implied in the semantic change would be THE FACE IS THE SOUL and the conceptual metonymies THE ENTITY FOR THE CHARACTERISTICS OF THE ENTITY and THE EFFECT FOR THE CAUSE. These conceptual mechanisms have already identified for LSC as contributing to lexical creation and semantic change (Jarque et al., 2012). The general path of semantic change constitutes an example of subjectification since the initial external objective entity has evolved into a cognitive internal process.

According to Delaporte, the LSF sign GENTIL gave origin to the LSF sign FACILE 'easy', documented for the first time in 1900, meaning "aimable" ('kind'), "sympathique" ('friendly'), "s'il vous plait" ('pleasant'). The semantic field is explained because of the old meanings of the spoken word *gentil* in French ("beau, gracieux, joli, mignon, plaisant") (Delaporte, 2007, p. 269). Formally, it shares some formational parameters with the equivalent LSE sign FÁCIL 'easy', but differs from the LSC sign SER.FÀCIL, analysed in Section 10.2.3.7.

10.2.2.3 The marker ESPERAR 'to expect'

The manual part of the sign ESPERAR 'to expect' within the modal construction is related to the lexical verb ESPERAR 'to wait'. The origin of ESPERAR can be traced to the regulator gesture consisting of crossed arms for conveying "lack of activity" or 'immobility', which is also present in the Catalan verbal expressions "creuar-se de braços" ('to sit back', lit. to cross your arms) (Amades, 1957, p. 98) o "quedar-se de braços creuats" ('to stand by', lit. to remain with crossed arms) (Payrató, 2013, p. 44). It exists also in Spanish and Portuguese (Nascimento, 2008).

Indeed, its LSF equivalent (ATTENDRE) is examined in Delaporte (2007)'s dictionary, as shown in Figure 10.11. for the version closer to the gesture and Figure 10.12., for a later form.



Figure 10.11 LSF ATTENDRE.1 'to expect'
(Lambert, 1865)



Figure 10.12 LSF ATTENDRE.3 'to expect'
(Brouland, 1855)

Delaporte's characterization suggests the transparency of the sign based on the body gestural expression in the meaning of the words.

ATTENDRE. 1 "Placer un avant-bras sur l'autre avec expression de: j'attends" (Lambert 1865); cette attitude de passivité, bras croisés, avait également la valeur de "calme". 2. Le signe actuel est dessiné par Pélissier (1856) et ainsi commenté par Blanchet (1850): "comme pour attirer quelque chose à soi". (Delaporte, 2007, p. 70)¹¹²

The formal change from the gestural form to the more recent lexical one consists of a process of distalization, i.e. the substitution of distal joints for proximal joints, a phonological process described for other sign languages (e.g. van der Kooij, 2002). As a result, the crossed arms are substituted by "crossed hands". The distalization has been

¹¹² « ATTENDRE. 1 "To put a forearm on top of the other with the expression: I'm waiting; this passive attitude, crossed arms, had also the value of "quiet". 2. The contemporary sign is drawn by Pélissier (1856) and commented by Blanchet (1850): "as to attract something toward oneself".

attested in ASL as a formal change process (Frishberg, 1975, 1979). Frishberg (1979) describes the “process of limiting articulation to that made with the hands” (1979, p. 70) and identifies it as “displacement”.

The semantic change from the gestural form, a sort of re-enactment, and the lexical meaning to the grammatical meaning is based on the conceptual metaphor THE MIND IS THE BODY and a subjectification process by which the user is not presenting a physical state but a stance, a mental stance of desire. Also, there is a second formal change: the passive facial expression is modified to adopt an active and desiring attitude.

On the other hand, since the volitive meaning is shared also with the Catalan and Spanish equivalents, we cannot ascertain if there has been a parallel semantic change in LSC or it is the product of language contact with the spoken languages. The issue of grammatical calquing in language change will be address in the next section with respect to the origin of the sign TANT.DE.BÓ ‘I wish’.

10.2.2.4 The marker TANT.DE.BÓ ‘I wish’

We might think that the sign TANT.DE.BÓ ‘I wish, hopefully’ has been created from the process called *lexical fingerspelling* (Jarque et al., 2005)¹¹³. The J-handshape refers to the letter *J* of the Spanish word *ojalá* (‘I wish’) and the specific process of creation would consist in an *ad hoc* formal modification of the sign that represents the letter *J*. The formal change would affect three of the formational parameters (the different sublexical structures that form the signs) of the movement and of the non-manual component. Specifically, the movement is modified and takes an upward spiral movement. Also, there is a modification of the spoken or oral component (mouthing)¹¹⁴. In the lexicalized

¹¹³ It is a lexicalization process consisting in restructuring words spelled using the dactylogical alphabet to suit the formational patterns of sign languages (Battison, 2003). It is a mechanism converting elements of a spoken language into lexical elements of a sign language. It is a gradual process that extends over time. Therefore, so some signs may show a more advanced formal lexicalization process than other signs, also with respect to the production rules that can be applied. Check Valli, Lucas and Mulrooney (2005) for a description regarding the process of lexicalization in ASL and Thumann (2012), regarding the differences between *lexicalized fingerspelling* and production of words through fingerspelling (or dactylology) in the signed discourse.

¹¹⁴ Along with the handshape, location and movement of the hands, another element that is part of the sublexical structure of the signs is the movement that lips make simultaneously to the other manual and non-manual phonological elements. It comprises two types: the oral component (mouth gesture) and the spoken component (mouthing). The first refers to gestures made with the mouth and cheeks. An example of this type in LSC is the sign SABER-ASP.CONTINUATIVE that has to be necessarily accompanied by an articulation of the mouth that we can reproduce as “zzz”. Regarding the spoken component, it is not accompanied necessarily by vocalization, and often it consists of a simplified or altered production of the word. One of its functions is to differentiate between manual homonyms, i.e. signs whose manual components are identical (or very similar), as is the case for BRUT ‘dirty’ and INFECCIÓ ‘infection’ in LSC.

version, signers tend to produce only some of the phones of the oral word and to stress by extension and intensity the most prominent phones. In this case, they would be the vowels *O* and *A*. This simplification would be a case of phonetic reduction or loss of phonetic segments, as described for spoken languages by Bybee (2010) and Beijering (2012), among others.

This process of handshape substitution might be produced at school as a way to “convert” natural signs in “methodical signs”. In the manuals by educators for the deaf this distinction refers to the signs used by deaf children in their naturalistic communication (the “natural signs”) and to the signs created by educators as pedagogical resources to teach spoken and written Spanish language, (the “methodical signs”). According to Gascón Ricao & Storch de Gracia y Asensio (2004), it seems that the method used by Jean Martí in his teaching activity at the school for the deaf in Barcelona was based on Hervás y Panduro’s style, and it comprised both the system of L'Epée’s “methodical signs” and his own signs, created on the basis of his personal experience.

However, this process of blending or simultaneous compounding of an already existing sign with the production of the fingerspelled word might be later since a sign with this function, but without the J handshape, is documented in Jaume Clotet’s 1866 manual:

Para el subjuntivo, como yo ame, tu amases, aquel hubiere amado, etc., hay que añadir un cierto movimiento, que se podría traducir en ojalá: v.gr. Esta oracion¹¹⁵: Hubiese amado á Dios: se podría espresar así: Tu ojalá antes amar Dios. (Clotet, 1866, p. 41)¹¹⁶

This quote is interesting because it includes the use of TANT.DE.BÓ that is equivalent to the Spanish subjunctive, but it does not indicate the formal characteristics related to ‘ojalá’, as the O handshape or circular (or spiral) movement of the letter J. We have searched without success for a similar sign in LSF and LSE, for instance in Villabrille’s dictionary.

We believe that we can postulate that the movement of TANT.DE.BÓ has its origin in the gesture of expression of desire and hope, as in the Arabic expression *Inshallah* ‘God willing’. Therefore, it would correspond to a process of lexical creation based on the

¹¹⁵ Original ortography.

¹¹⁶ “For the subjunctive, as yo ame, tu amases, aquel hubiere amado, etc., one has to add a given movement, that could be translated as “to wish”: v.gr. This sentence: Hubiese amado á Dios: could be expressed as: One wishes you had loved God.” (Clotet, 1866, p. 41).

modification of the manual gesture through a process of “substitution”, halfway between lexicalized dactylogy and the initialization process, for the Spanish word *ojalá*.

The use of TANT.DE.BÓ is relevant because it illustrates that we cannot focus only on the auxiliary element in verbal construction, such as a verbal periphrasis, since it did not exist previously as a lexical item. Rather, what has been created is the whole construction and, therefore, we are confronted with a case of constructionalization, where many internal factors and external factors are involved.

With regard to the external factors, it is conceivable that this element has been borrowed from Spanish, this being the only language of instruction for deaf students in the nineteenth and twentieth centuries. TANT.DE.BÓ has not undergone a process of desemantization, because everything leads us to believe that it has never existed as lexical item. TANT.DE.BÓ is not documented with a different meaning either in Ferrerons (2010)'s dictionary, or in Perelló and Frigola (1987)'s and Segimon et al. (2004)'s glossaries. Nor have we observed its use with any other function. It seems therefore that it was created incorporating the Spanish word *ojalá* in a sign of “plea or demand”, already existing in communication, and that it proceeds from a cultural gesture.

This desire gesture is a pragmatic gesture (Müller, Bressemer, & Ladewig, 2013; Payrató & Teßendorf, 2013; Streeck, 2009). Pragmatic gestures are “formally heterogeneous, multifunctional, mostly non-representational and visible unintentional actions in language interaction” (Kendon, 1995, p. 247). They express “aspects of utterance structure, including the status of discourse segments with respect to one another, and the character of the ‘speech act’ or interactional move of the utterance” (Kendon, 1995, p. 247).

The incorporating of TANT.DE.BÓ in the LSC grammar could be considered a type of borrowing or calque, as proposed for grammatical elements in spoken languages (Gast & van der Auwera, 2012). However, its grammatical category and its use in an LSC syntactic structure do not coincide with the original category and use in Spanish, although its function or element of meaning related to desire coincides. Although in Spanish *ojalá* is an interjection, it shares properties with verbs that express desire: it requires the subjunctive in the subordinate and accepts the conjunction 'that', a nexus that introduces the substantive subordinate, just as the Catalan and the Spanish verbs for desire do (“desitjar” and “desear”, respectively).

This process is also called *grammatical calquing* (Ross, 2007), *structural borrowing* (Winford, 2003), *pattern transfer*, or *indirect (morphosyntactic) diffusion* (Heath, 1978). Also, Heine and Kuteva propose the concept of *grammatical replication* (Heine & Kuteva, 2003, 2005). It designates the emergency of new values for existing grammatical categories, that are imported through the contact language. Examples are new values for existing grammatical categories that are adopted from other languages in contact, such as adding the dual to an originally two-fold number system (Heine & Kuteva, 2003).

As for the internal factors, the data suggests that it has been integrated in LSC and it has established itself thanks to the analogy of other elements with similar semantic values. The use of OJALÁ in sentences is similar to the use of the microconstruction *AGRADAR + verb/proposition*. Since the verb AGRADAR and the entire construction have the highest frequency in the corpus among the volitive predicates, followed by *VOLER + verb/proposition*, the mesoconstruction resulting from both¹¹⁷ constitutes a case of paradigmaticization (Bybee, 2010; Lehmann, 1982/1995).

10.2.3 Origin of the possibility markers

This section will focus on the possible sources and semantic changes for the modal forms in possibility constructions in LSC. First, we will analyze the prototypical possibility marker PODER 'can/may' (§ 10.2.3.1). Then we will study mental state predicates (§ 10.2.3.2), permission forms (§ 10.2.3.5), epistemic possibility forms (§ 10.2.3.6) and, finally, predicate adjectives (§ 10.2.3.7). We will not include ESPERAR since we already dealt with in § 10.2.2.3.

10.2.3.1 The marker PODER 'can/may'

Regarding possibility modals, in Catalan Sign Language neither a fully lexical reading of PODER ('can/may') co-exist with the grammatical ones, nor detailed documentation of diachronic evidence is available. As for its origin, we have searched signs with similar formal properties in LSC as well as in signed languages from the same family. Concerning deontic possibility in LSE, the sign glossed as PODER (permission) is related formally to LSC PODER as it exhibits a 5-handshape with curved fingers touching the signer's chest (Figure 10.13). This version is similar to the ASL LIKE sign, as discussed in 10.2.2.2.

¹¹⁷ Unfortunately, there are no LSC textual corpora that allow us to provide frequencies of occurrence of both combinations. A corpus (available at <http://blogs.iec.cat/lsc/corpus/>) is currently under construction under the direction of Josep Quer at the Institut d'Estudis Catalans (Barberà, Quer, & Frigola, 2016).

Also, there is a phonologically similar version, produced with the 5-handshape and glossed as PODER, that some authors translate into Spanish as “puede que” (‘It may be’) and that signals epistemic possibility (Herrero Blanco, 2010, p. 308).



Figure 10.13 LSE PODER (permiso) ‘can’
(Herrero Blanco, 2010)



Figure 10.14 PODER (puede que...) ‘it may be’
(Herrero Blanco, 2010)

Indeed, there is a phonetically reduced form that belongs to a compound sign glossed as POSIBLE, that also conveys epistemic possibility (Figure 10.15) (Herrero Blanco, 2010, p. 303).



Figure 10.15 LSE QUIZÁ ‘maybe’ (Herrero Blanco, 2010)

The pioneering study by Klima and Bellugi (1979) described in detail the segmental and featural changes that undergo the signs that enter into a compound.

Table 10.1 Formational changes which occur in compounding

First sign	Second sign
- Loss of repetition	- Loss of repetition.

<ul style="list-style-type: none"> - Loss of stress (becomes an upbeat to second sign) - If one-handed, tends to reduce to a single brief contact or stop - Circular movement may reduce to a briefly indicated stop 	<ul style="list-style-type: none"> - Sometimes takes on added stress. - Non-dominant hand of the second sign is present during the first sign
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------

However, in the historical studies, there is no sign meaning ability or epistemic possibility. Thus, in Villabrille's (1851) dictionary under the entry PODER we find the formal description of this sign as follows:

PODER. Se levantan los dos brazos con los puños cerrado y se bajan enérgicamente, con signo afirmativo de cabeza. (Villabrille, 1851, p. 117)¹¹⁸

These production characteristics of the old LSE sign PODER are similar to the modal signaling possibility in O-FSL POUVOIR (Figure 10.16), which has its source in the lexical item FORT 'strong' in O-LSF (Figure 10.17).



Figure 10.16 O-LSF POUVOIR 'can'
(Brouland, 1855)



Figure 10.17 O-LSF FORT 'strong'
(Pélissier, 1846)

Indeed, research on modality has found similar modal forms in other signed languages. For instance, in ASL there are signs glossed as CAN and SHOULD (Shaffer & Janzen, 2016; P. P. Wilcox & Wilcox, 1995; S. Wilcox & Shaffer, 2006); in LIS as POSSIBILE (Figure 10.18) (Gianfreda, Volterra, & Zuczkowski, 2014), and in LIBRAS as POSSIBLE-S (Figure 10.19) (Xavier & Wilcox, 2014).

¹¹⁸ "PODER. One raises both arms with clenched fists and lowers them energetically, with an affirmative nod" (Villabrille, 1851, p. 117).



Figure 10.18 LIS POSSIBLE
(Gianfreda et al., 2014)



Figure 10.19 LIBRAS POSSIBLE-S
(Xavier & Wilcox, 2014)

It has been proposed that these ASL and LIBRAS modal signs proceed from the old French Sign Language, from which both languages come (Janzen & Shaffer, 2002; S. Wilcox & Shaffer, 2006). This path from ‘be strong’ to ability has been attested for spoken languages (Bybee, et al., 1994; van der Auwera & Plungian, 1998).

We have not documented a grammatically related sign in LSC, except for the predicate adjective FORT ‘strong’, meaning “Que té força física” (‘That has physical strength’), or as a noun “persona forta” (‘strong person’) (Ferrerons, 2011, p. 456).

On the basis of this information and of the grammaticization trajectories observed crosslinguistically (Bybee, et al., 1994; Heine & Kuteva, 2002) and the data discussed in § 10.2.2.2, we can formulate the hypothesis that the LSC PODER has its origin in a previous sign meaning ‘desire’ – also examined in old LSF and LSE— and that has evolved in LSC into the current PODER (Jarque, 2006). PODER is phonologically identical to the present LSF sign for AIMER.1 defined by Signes de sens (2012) in the first meaning as “avoir du gout pour quelque chose” (‘to like something’) (Figure 10.20¹¹⁹) and AIMER defined as 2. “éprouver de l'affection, de l'amour pour quelqu'un ou quelque chose” (‘to feel affection for, to love somebody or something’) (Figure 10.21).

¹¹⁹ https://www.elix-lsf.fr/spip.php?page=signes&id_article=127868&lang=fr



Figure 10.20 LSF AIMER.1
(Signes de Sens, 2014)



Figure 10.21 LSF AIMER.2
(Signes de Sens, 2014)

Formally, the main differences between AIMER.1 and AIMER.2 is the facial expression denoting affective feelings and a slower movement in the latter. Also, it will be related to the LSC VOLUNTAT 'will', currently meaning 'to offer oneself'. Formally, VOLUNTAT is a two-hand sign, as illustrated in Figure 10.22, taken from the *Guia estatut de Catalunya* (FESOCA, 06:04).



Figure 10.22 VOLUNTAT 'n. will' (FESOCA, 2006)

See example (440). It is glossed as PRESENTAR and it has the meaning of 'to apply'. It belongs to an excerpt where the signer explains how she got her first job. Specifically, she describes her reaction when they told her that she got it.

(440) EES 00:01:30 ES

JUST DIA PRO.1 ANIVERSARI JUST p PRESENTAR PRO.1 p
just day anniversary just apply

TREBALLAR CAIXA IGUAL 3-REGALAR-1 PRO.1 ANIVERSARI
work Bank same give.a.present anniversary

'Justament el dia del meu aniversari em vaig incorporar (a la feina a La Caixa). Va ser com si em fessin un regal.'

'Exactly for my birthday I joined (the bank La Caixa). It was as if they were giving me a present.'

Cezario, p. 735), respectively. And participant-internal possibility (i.e. ability) auxiliaries usually have been grammaticalized from verbs meaning 'know', 'be strong', 'arrive at', 'finish' and 'suffice' (Kuteva, 2001; van der Auwera & Plungian, 1998). We will go back to this path in § 10.5.3., where we will discuss on the semantic extensions and the cognitive mechanisms implied.

10.2.3.2 From pointings to mental state predicates, and then to epistemic constructions

As for the synchronic data, PENSAR 'to think' is used in several constructions that can be interpreted as steps in the subjectivization path. PENSAR is used in a transitive construction 'to think about Y'. It makes reference to an activity in which we can identify the content. And it corresponds to a dynamic event that is limited in time. This use is illustrated in (442). The informer is describing a shoulder injury. The interviewer asks her whether she will undergo another operation.

(442) EES 00:07:09 ES

FINS FILL GRAN VEGADES PENSAR p

till sun big times to.think

[CRÉIXER-2m]-top ALESHORES OPERAR-ESPATLLA ALTRE.COP p SEGON

to.grow then to.operate.shoulder another.time second

'He estat pensant moltes vegades si (operar-me) quan els fills seguin grans. Quan siguin gran, aleshores m'operaré de nou. Serà la segona vegada.'

'I have been thinking many times whether undergoing an operation when the children will be grown up. When they will adults, then I will have another operation. It will be the second time.'

Also, CREURE 'to believe' is conceptualized as the locus of mental activity. This sign appears in compounds (Jarque, et al., 2012). It corresponds to a nominal that refers metonymically to *head, mind* (Jarque, 2005). It appears in compounds such as CREURE+COINCIDIR –illustrated in (443)— and CREURE+AFEGIR –illustrated, subsequently, in (444). In the fragment in (443), the participants get deeply involved in a discussion about Spanish political issue. Specifically, the signer points to the possibility that the Basque Country could become independent.

(443) EJG 00:12:10 JG

[SI CREURE+COINCIDIR-ASP.EXHAUSTIU PAÍS.BASC TOT.TERRITORI]-cond.

if to.believe+agree Basque.Country whole.territory

PODER INDEPENDÈNCIA ESPANYA p

can independence Spain

'Si tots els bascos estiguessin d'acord, seria possible la independència d'Espanya.'

'If all the Basque people agreed, independence from Spain would be possible.'

In (444), after the interviewer asks her whether she is courageous enough, the informer expresses her reaction about the possibility of working as a sign language professor.

(444) EMS 00:24:22 MS

[NO]neg p gesto:verguenza CREURE+AFEGIR-ASP.CONT PRO.1 MATEIX p IMAGINAR P

not gesture:shame to.believe+add same to.imagine

PODER IX.altres DIR NO p PRO.1 PENSAR MÉS PRO.1

can other to.say not to.think more

'No (no tinc por). (Soc vergonyosa). Li dono voltes jo mateixa. M'imagino (la situació). Pot ser que els altres no diguin res, (però) jo penso més (del que hi ha).'

'I am not (afraid). (I am shameful). I think about it over and over. I imagine (the situation). Maybe other people do not say anything, (but) I think more (than there is).'

In addition, CREURE is used with the meaning of 'to be aware', 'to keep in mind', 'to consider'. It indicates a state. This usage is illustrated in (445), where the complement corresponds to a nominal phrase and in (446), to an entire proposition. In (445), the conversation revolves around family food and the criteria applied when cooking and, in (446), the informer describes the sequels of a repeated injury at the shoulders.

(445) EMS 00:14:04 MS

PRO.1 CREURE MÉS IX.el.fill.petit

to.believe more the.child.young

'Jo penso en ell (= El tinc en compte).'

'I think about him (=I pay attention to him).'

(446) EES 00:07:42 ES

PRO.1 VIGILAR-ASP.EXHAUSTIU p [IX.ara PRO.1 IX.ara] CREURE TENIR.CURA+VIGILAR PROU
to.watch IX.now IX.now to.believe to.take.care to.watch finish

'Sempre estic vigilant. Tinc molt present el fet de mirar i tenir cura.'

'I'm always alert. I'm very conscious and watch out (for problems) and keep care of myself.'

The last function observed in the LSC corpus is associated with the expression of courtesy, hence with intersubjectivity. Consider (447), where the interviewer has asked about the kind of job that the interviewee would recommend to his son, if he were Deaf. Confronted with the informer's lack of answer, the interviewer makes the following proposal.

(447) EJG 00:09:06 JMS

PRO.1 **CREURE** DIR TREBALL MOLT p PRO.1 **CREURE** PRO.2 PODER ACONSELLAR-3
to.believe say work a.lot to.believe can advise

PRO.3 NEN SORD PRO.3 ELECTRICISTA O MECÀNIC PERQUÈ ÈPOCA DEMANDA
child deaf electrician or mechanic because period demand

'Crec, diuen, que hi ha molta feina. Crec que podries aconsellar-li que (treballés) com a electricista o mecànic perquè actualment hi ha molta demanda.'

'I believe, they say, that there are many jobs. I believe that you could advise him that he (work) as electrician or mechanic because currently there is a big demand.'

The construction [PRO.1 CREURE proposition] performs the function of attenuating assertions that could be perceived as too blunt, as in (447) where the proposal is presented as a suggestion. Also, this is the case in the fragment in (448), where the interviewer expresses the following comment because the conversation lasted more than what was considered as sufficient.

(448) EJG 00:31:22 JMS

PRO.1 CREURE PRO.2 SIGNAR PRO.1 BASTAR SER.SUFICIENT p BÉ BASTANT
believe to.sign finish to.be.sufficient well enough

'Penso que ja hem parlat prou. És suficient. Està molt bé.'

'I believe we have talked enough. It suffices. It is correct.'

Clearly, in both productions the interviewer is paying close attention to the interlocutor when his making these observations. The semantic description is shown in (449).

(449) I know that my interlocutor thinks differently.

I cannot say that I know it.

I do not want to impose my opinion.

In the corpus, we do not find examples with the sign PENSAR, but our informants point out that it would be possible to use it in these sentences. The analysis of the mental predicates CREER and PENSAR shows that signers use them within constructions realizing different functions in discourse. We do not have diachronic data allowing us to trace reliably their process of evolution and linguistic change, but we submit that it could be explained as an instance of subjectivization. The concept of subjectivization as a factor of the process of semantic change refers to the tendency in the grammaticization processes toward an increase of expressivity/subjectivity (Brinton & Traugott, 2005; Lyons, 1977). According to Traugott (1989), propositional meanings acquire meanings of three kinds:

- (i) textual meanings (contributing to cohesion),
- (ii) presuppositional expressive meanings, or
- (iii) pragmatic expressive meanings.

Regarding the LSC data, the first possibility would capture the change in meaning related to the cognitive content based on the issuer's perceptual experience. Instead, the third possibility would be responsible for changes, in the issuer expression of certainty, based on objective reasons and leading toward a diminished commitment about the truthfulness of the proposition. Finally, the second possibility would explain the extension to discursive uses, i.e. it would lead to an increase of intersubjectivity. As indicated by Traugott and Dasher (2005), intersubjectivization is subordinated to subjectivization.

With regard to their gestural source, LSC cognitive predicates CREURE 'to believe' and PENSAR 'to think', their origin can be traced to the manual gesture meaning 'head', 'think', 'believe', 'knowledge', 'to know', etc. CREURE has its origin in the pointing to the forehead, as documented in the gestural and multimodal literature (Müller et al., 2014; Payrató, 2013). Pointing constitutes a prominent way of gesturing. Regarding the head to represent 'knowledge' is exemplifying the metaphoric conduit gesture for communication, presented in Reddy (1993).

Also, Amades (1957) refers the meaning of "saviesa", with the action of "touching the front with the right hand index finger" (Amades, 1957, p. 113)". Both forms are documented in Villabrille's dictionary with several meanings:

PENSAR "Se ponen los dedos en la figura de la letra Q, y se estan rozando un poco en la frente." (Villabrille, 1851, p. 116)¹²⁰

CREER "Cerrados los ojos, se apoya el índice en la frente como para el signo de saber, y luego se arrastra hacia la nariz con intención." (Villabrille, 1851, p. 44)¹²¹

SABER "Se pone el dedo índice derecho sobre la frente y se tiene un rato quieto en ella, manifestado reflexión." (Villabrille, 1851, p. 131)¹²²

Delaporte (2007) reports two slightly different forms, where the sign for believe traces back its form to two consecutive pointing gestures to the head and to the heart. Note the difference between the old form CROIRE.1 from Pélissier (1856, p. XVI) (Figure 10.23) and the contemporary (Figure 10.24).

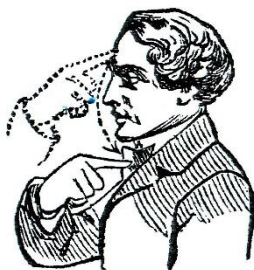


Figure 10.23 LSF CROIRE.1
(Pélissier, 1856)



Figure 10.24 LSF CROIRE.1
(Delaporte, 2002)

Crucially, Delaporte (2007) also provides a description of the origin of the sign and he explains that the raising of the location is a type of phonological reduction:

"CROIRE 1. L'abbé de l'Épée (1784) avait créé un signe pour "croire" [...]. Expurgé d'éléments superfétatoire, il s'est bientôt réduit à l'index posé sur le front puis sur le cœur. Ultérieurement, les deux points de contact se sont rapprochés par économie gestuelle: le second point de contact est remonté du cœur au cou (Pélissier 1856, Lambert 1865) puis au menton."¹²³ (Delaporte, 2007, p. 171).

Regarding the negative versions, Sicard (1808) refers to the sign INCROYABLE:

¹²⁰ "PENSAR. You form a Q shape with your fingers and rub them on the front." (Villabrille, 1851, p. 116)

¹²¹ "CREER. Closing the eyes, you rest the index finger on the front as for the *saber* sign, and then you drag it purposely toward the nose." (Villabrille, 1851, p. 44)

¹²² "SABER. You put the right index finger on the front and you keep it there quiet for a short while, showing that you are reflecting upon something." (Villabrille, 1851, p. 131).

¹²³ "CROIRE 1. Abbot de l'Épée (1784) had created a sign for "croire" [...]. Simplified eliminating redundant features, the sign was quickly reduced to putting the index finger on the front and subsequently on the heart. Moreover, the two points of contact have become closer due to gestural economy: the second point of contact has risen from the heart to the neck (Pélissier 1856, Lambert 1865) and then to the chin." (Delaporte, 2007, p. 171).

INCROYABLE 1°. (*Voyez le mot Croire*). 2° Figurer la futurition, en affirmant l'Impossibilité. 3°. Signe d'adjectif. (Sicard, 1808, p. 208).¹²⁴

However, in Delaporte for INCROYABLE appears the LSC form IMPOSSIBLE. The pointing to the forehead to refer to ideas, knowledge... instantiates the conceptual metaphors IDEAS ARE OBJECTS, THE MIND IS A CONTAINER, and THE BODY IS THE MIND, and the metonymy THE FOREHEAD IS THE MIND (Jarque, 2005). Similar metaphorical and metonymic mappings have been described for several sign languages, such as ASL (P. Wilcox, 1993, 2000; S. Wilcox, Wilcox, & Jarque, 2003).

As for contemporary PENSER in LSC, with respect to O-LSF (Péllissier, 1856, p. XVI), it displays a different –pointing– handshape, that coincides with CROIRE in O-LSF (Figure 10.1), but it shares the same, circular, type of movement. Also, consider the formal properties of LSC SAVOIR 'to know' (Figure 10.26) in contrast with LSC SABER.



Figure 10.25 O-LSF PENSER
(Péllissier, 1856)



Figure 10.26 O-LSF SAVOIR
(Péllissier, 1856, p. XVII)

SAVOIR in Péllissier (1856, p. XVII) is produced with a B-handshape different from the point handshape described for SABER in Villabrilie's dictionary, that coincides with the LSC handshape in LSC but differs concerning location (under the chin). We will examine LSC SABER in the following section.

¹²⁴ "INCROYABLE 1°. (See the word *Croire*). 2° To represent futurition, claiming impossibility. 3°. Adjectival sign." (Sicard, 1808: 208)

10.2.3.3 SABER 'to know'

The only gestures formally similar to LSC SABER 'to know' is the "il colpetto sotto il mento" ('the stroke under the chin'), described by Morris et al. (1979) as one of the homomorphic gestures from the Mediterranean area (Figure 10.27), or similar gestures like *falar pelos cotovelos* ('speak a lot') in Portuguese of Brasil (Figure 10.20) or 'to be fed up' in Portuguese in Portugal (Vaz, 2013) and in Brasil, as well in Spanish (Nascimento, 2008).



Figure 10.27 *el colpetto sotto el mento* gesture (Morris et al., 1979)



Figure 10.28 g. *falar pelos cotovelos* (Nascimento, 2008)



Figure 10.29 gest. *harto* (Vaz, 2013)

The Italian gesture, despite the formal similarities, differs semantically in the domain of knowledge or ability because signals 'lack of interest for something' and 'disregard attitude'. Nascimento (2008) examines its use in Brasil for expressing a "perda irreversível" ('an irreversible loss'). It is used in a situation in which a person had a lot of opportunities but, lacking interest, lost them all. However, the two Brazilian gestures may be related to SABER. The gesture referring to somebody who speaks a lot, despite implying pragmatically a negative evaluation, is semantically related with the knowledge domain.

In Wilcox, Wilcox and Jarque (2003) and Jarque (2005), we examined the complex interplay of conceptual metonymy and metaphor in LSC signs for the cognitive and communication domain. The sign SABER is formally related to the sign for fully expressing a situation in a concrete domain: the sign SUFICIENT 'enough', produced with a flat-B handshape touching the signer's body below the chin. This sign is very similar, then, to the above gesture *harto* and it is used not only for food ('I am full') but

also for ideas or feelings, instating the ontological conceptual metaphor THE MIND IS THE TORSO.

We argued, then, that SABER originated by establishing an isomorphic relation between physical entities (the containers and liquids) and the domain of knowledge (the mind and ideas) through the following conceptual metaphors: THE MIND IS THE BODY, IDEAS ARE LIQUID and LEARNING IS FILLING THE MIND.

10.2.3.4 DEPENDRE 'to depend on'

We can trace the origin of the last epistemic sign, DEPENDRE 'to depend on', back to the gesture expressing doubt or ambivalence between two options. The gesture has several variants: one- or two-handed, horizontal or vertical palm-orientation, with or without shoulders shrug, alternative movement of the two hands or palm-orientation change when one-handed, sideways head movement, etc. (Ascaso, 2015; Cestero, 1999; Nascimento, 2008).

Formally, it shows similarity in the movement and location parameter to the ASL epistemic marker MAYBE (Shaffer & Janzen, 2016; P. P. Wilcox & Wilcox, 1995; S. Wilcox & Shaffer, 2006), but it differs in palm-orientation. Whereas DEPENDRE is palm-down, ASL MAYBE is palm-up oriented. Long (1918) associates its form to the physical act of comparing weights by using the hand as a balance scale. Also, DEPENDRE may exhibit two different handshapes: the same B-handshape as in the palm-up gesture and MAYBE (Figure 10.30¹²⁵), and the index-handshape. Delaporte (2005) reports four variants for the equivalent LSF sign PEUT-ÊTRE: (i) one similar to the ASL form, (ii) a second one with palms vertically-oriented, and (iii) the third version with the V-handshape (from the initial P letter in the French word), as it is shown in Figure 10.31.

¹²⁵ <http://speakingwithoutounds.weebly.com/>



Figure 10.30 ASL MAYBE 'maybe'¹²⁶



Figure 10.31 LSF PEUT-ÊTRE 'maybe'
(Signes de Sens, 2012)

The LSC sign is clearly related to them since it has two allophonic variants: one with B-handshape with palm-down orientation and one with index-handshape, also with the same palm-orientation. But more research is needed in order to establish developmental changes in handshape and palm-orientation from the most frequent variant of gesture (B-handshape and palm-up orientation).

10.2.3.5 Permission forms: PERMETRE and CONCEDIR

It seems that the origin of PERMETRE 'to allow' is related to its LSF equivalent. Delaporte (2007) examines two different forms for the entry PERMETTRE: PERMETTRE.3 produced with a short movement (Figure 10.32) and PERMETTRE.4 with a longer one (Figure 10.33).



Figure 10.32 LSF PERMETTRE.3
(Delaporte 2007, based on Chambéry, 1982)

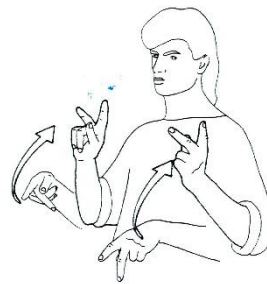


Figure 10.33 LSF PERMETTRE.4
(Moody, et al., 1986)

¹²⁶ <http://www.signlanguagetutor.info/>

The French lexicographer locates the origin of the sign in a process of handshape substitution motivated by the French word. But, also, he considers its gestural origin as follows:

PERMETTRE, AUTORISER. [...] 3. Dans un autre signe chambérien, les deux mains s'abaissent de concert : c'est le "*oui, vous pouvoir*" de Ferrand, après la chute de OUI. La configuration en fourche est la lettre P, initiale du mot *permettre*. Le mouvement long et unique de POUVOIR a été remplacé par un mouvement court et redoublé. 4. Deux signes parisiens présentant la même initialisation en P semblent pouvoir être rattachés à deux étymons différents. Avec un mouvement vertical de bas en haut, c'est un emprunt à la gestualité ambiante : les deux mains tracent un chemin pour inciter un interlocuteur à s'y engager. Exécute par des entendants, c'est souvent un geste ironique : "*tu veux y aller ? eh bien vas-y !*". Cette origine se lit sans ambiguïté dans le signer amér. ALLOW "permettre" identique mais non initialisé. 5. Avec un mouvement d'écartement des mains dans un pla horizontal, ce synonyme paraît dériver de LIBRE. (Delaporte, 2007, p. 456)¹²⁷

Therefore, it seems that PERMETTRE would have its origin in the emblem signaling 'to encourage' produced with the B-handshape, a variant of the palm-up gesture, as discussed in gestural studies on several languages: Catalan (Payrató, 2014), Spanish (Cestero, 1999), German (Ascaso, 2015; Müller, 2004), and Italian (Kendon, 2004), among others. This gesture is examined below in § 10.4 with regard to its use as a gesture/discourse marker in LSC.

According to Delaporte (2007), once the palm-up gesture had entered the language, the users would have substituted its B-handshape for the initial letter in the French word *pouvoir* (the P-handshape). This is consistent with LSE data, since Herrero Blanco and Salazar (2006) include a formally similar sign for expressing permission, glossed as DEJAR-LIBRE ('to leave free'), as shown in Figure 10.34.

¹²⁷ "PERMETTRE, AUTORISER. [...] 3. In another sign from Chambéry, both hands are lowered together: this is the "*oui, vous pouvoir*" sign indicated by Ferrand, after the disappearance of OUI. The fork configuration is the letter P, first letter of the word *permettre*. The long and unique movement of POUVOIR is replaced by a short and doubled movement. 4. Two Parisian signs initialized by P seem to be traceable to two different etymons. With a top-down vertical movement, it is a loan from the surrounding environment: both hands draw a path to encourage the interlocutor to follow it. Executed by hearing people, it is often an ironical gesture: "*Do you want to go there? Well, go there!*". This origin can be traced without ambiguity in the case of sign *amér*. ALLOW "to allow" that is not initialized, but otherwise identical. 5. If the hands move apart on the horizontal plane, this synonym seem to be derived from LIBRE." (Delaporte, 2007, p. 456).



Figure 10.34 LSE DEJAR-LIBRE 'to leave free'
(Herrero Blanco & Salazar, 2006)

In LSC, the sign PERMETRE is produced with the 3-handshape or the L-handshape. The former might be an allophone of the LSF P-handshape since it has been attested that the thumb is spread in some signs where it is in touch with the fingers (e.g. DÈBIL 'fragile' with I-handshape). The latter variant is interpreted by the LSC signers as the handshape corresponding to the initial letter in the Catalan or Spanish words for freedom, *llibertat* and *libertad*, respectively (Segimon, 2018).



Figure 10.35 LLIBERTAT_Y (Webvisual, 2018)

The LSC verb PERMETRE has the location and movement similar to LSF PERMETTRE.3, whereas the LSC noun LLIBERTAT would be to LSF PERMETTRE.4.

Regarding CONCEDIR, its gestural origin can be traced to a pointing gesture. Delaporte (2007) documents the old version of the LSF sign AVOIR PITIÉ Lit. 'to have compassion', 'to favor' (Figure 10.36) as well as the contemporary (Figure 10.37).



Figure 10.36 LSF AVOIR PITIÉ
 'to have compassion' (Lambert, 1865)

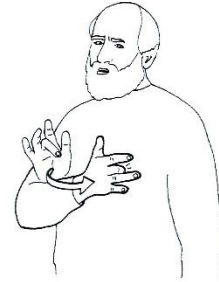


Figure 10.37 LSF AVOIR PITIÉ
 'to have compassion' (Girod, et al., 1990)

In his description, Delaporte (2007) describes the formal characteristics as well as its meaning as follows:

AVOIR PITIÉ. Chez Degérando (1827), « la main s'applique sur les cœur ». Auparavant, Sicard (1808) avait décrit un signe traduit par ressentir, consistant à « porter l'index au cœur » pour montrer que l'on est ému d'une fâcheuse nouvelle, telle que la mort ou l'infidélité d'un ami, l'index faisant sur le cœur « l'effet d'une pointe qui le perce et le déchire ». Le signe actuel est dessiné par Lambert (1865), qui le glose « cœur touché ». Il est réalisé avec le majeur configuration par excellence du toucher. (Delaporte, 2007, p. 467)¹²⁸

It coincides formally with the LSE sign glossed by Herrero-Blanco and Salazar-García (2006) as CONDESCENDER. These authors point out that it is a form derived from the noun LÁSTIMA 'pity'.

The description in Delaporte is interesting since it allows us to suggest several conceptual metaphors involved at different levels: THE HEART IS THE LOCUS OF EMOTIONS, IDEAS ARE OBJECTS, IDEAS THAT HURT ARE SHARP OBJECTS, and EMOTIONS ARE OBJECTS. Some of them are at the basis of other communication and cognitive verbs showing their pervasiveness in LSC (Jarque, 2005).

10.2.3.6 From gestural body expression to epistemic possibility forms

Lack of commitment expressed through specific facial expression and body movements in multimodal communication have been addressed in several works (Calbris, 2011; Jorio

¹²⁸ "AVOIR PITIÉ. According to Degérando (1827), «you rest the hand on the heart». Earlier, Sicard (1808) had described a sign translated as *to experience*, consisting in «moving the index finger on the heart» to show that one is touched by unfortunate news, such as the death or infidelity of a friend, the index finger representing on the heart «the effect of a spike that penetrate the heart and tears it apart». The current sign is drawn by Lambert (1865), that glosses it as « cœur touché ». It is realized by the most prominent configuration of the verb *toucher* » (Delaporte, 2007, p. 467).

& Kendon, 1999; Kendon, 2004). Concerning facial expression, two different constellations of non-manual gestures have been described in the literature, that coincide with the two different patterns that we have identified for LSC. The first constellation includes expressions with very open eyes and raised brow. The mouth may be open or closed, with tight and downturned lips. The body tilts slightly forwards or backwards (Rodríguez, 2013, p. 211).

The second group, on the other hand, comprises furrowed brows and semi-closed eyes. With respect to uncertainty and doubt in Spanish, Cestero (1999) describes: the eyes are half closed, the brow slightly furrowed, the mouth (labios) is stretched (se estira) and is curved down with the lips glued and tight (1999, p. 123).

For Catalan, Amades (1957) suggests that wrinkling the face denotes skepticism, disdain/dismissiveness and doubt (1957, p. 91). Payrató points out that a "ganyota dels llavis" (grimace with the lips) is an emblem in Catalan culture for indifference, doubt and lack of knowledge (2013, p. 131).

Concerning body movements, Goodwin (2006) examines expressions, as palm-up gesture and shoulder shrug for uncertainty. Also Nascimento (Nascimento, 2008) refers to shoulder raising as a way to express lack of knowledge. The LSC non-manual elements encoding doubt appear already in Clotet's manual.

Los adverbios de duda, como *acaso*, *quizá*, encogiendo un poco los hombros, como cuando nos preguntan una cosa y respondemos: *No lo sé*. (Clotet, 1866, p. 45)¹²⁹

Also, the sources of the predicate DUBTAR go back to a body gestural expression of doubt and indecision. Payrató (Payrató, 1993, 2013, 2014) examines its use in the Catalan-speaking area referring to hands and head sideways movements:

Expressions of doubt or approximate evaluation ("more or less") are usually made with oscillations of the flat hand or with sideways head movements, and expressions of indifference or ignorance are shrugging one's shoulders with a downward grimace of the lips and often by showing the palms (the three movements can be combined in various ways). (Payrató, 2014, p. 1268)

It is also mentioned in dictionaries of gestures and studies of Spanish (Coll, et al., 1990) and German (Ascaso, 2015). The lack of commitment and doubt between two options expressed, also, by body movements constitute the source for the lexicalization process

¹²⁹ "The doubting adverbs, as *acaso*, *quizá*, slightly shrugging the shoulders, as when we are asked something and we do not know the answer: *No lo sé*." (Clotet, 1866, p. 45)

of DUBTAR.INDECISIÓ. According to Ferrerons (2011), the handshape and the movement of the dominant hand reproduce the shape and movement of a flan (crème caramel) that stands for the oscillatory movements in non-verbal communication expressing doubt. Regardless of the specific object the sign refers to, the crucial issue is that it entails several conceptual metaphors and metonymies: THE BODY IS THE MIND, THE MIND IS AN OBJECT, THE PROMINENT CHARACTERISTIC OF AN OBJECT FOR THE CHARACTERISTIC (Jarque, 2005; Johnson, 1987; S. Wilcox, et al., 2003).

10.2.3.7 From adjective predicates to possibility markers

Two lexical items that function as predicate adjectives have acquired modal functions expressing possibility: SER.FÀCIL 'to be easy' and SER.DIFÍCIL 'to be difficult'. Consider the example in (450). The informant has been talking about the profession of his sons, telling that one of them had started studying theater, but that later he had quit that because of several difficulties that had come up.

(450) EJG 00:23:51 JMS

ESTUDIAR TEATRE JA 2-ANY p ABANDONAR p PROFESSOR+DIRECTOR

to.study theater already-ASP.PERF 2-year leave professor+director

CR:prof< [SISPLAU CONTINUAR-ASP.dur]> c [ESTUDIAR **SER.FÀCIL**]-focus [NO]neg p

please to.keep to.study be.easy not

[**SER.DIFÍCIL**]-int p [EXEMPLE SUSPENDRE-ASP.iter]-cond EXPULSAR PROU.sure

to.be.difficult example to.fail to.expel finish

'Ell ha estat estudiant teatre durant dos anys. Va abandonar (però) (el seu) professor li va demanar que seguís estudiant. No és fàcil. És realment molt difícil. Si algú suspèn, és expulsat.'

'He has been studying acting for two years. He gave up (but) (his) instructor asked him to keep (studying). It is not easy; it is really difficult. If somebody fails, that person is going to be expelled for sure.'

In (450) we observe that SER.FÀCIL and SER.DIFÍCIL have only a lexical meaning and refer to the degree of complexity when studying theater. The agent is specific and known by the informant and his interlocutor. Instead, in fragment (451) — where the informant is talking about the difficulties that he would certainly face to become a practicing electrician—, although it preserves the lexical meaning, it refers to a potential situation where the agent is generic.

(451) EJG 00:06:09 JG

SEGON [ELECTRICITAT ASSUMIR]top SORD [**DIFÍCIL**]interromput [**FÀCIL**]interromput
second electricity assume deaf difficult easy

[SER.DIFÍCIL]-int [NO]neg **SER.FÀCIL** p PERÒ CARNET INSTALADOR CARNET HAVER.DE(2h) p
difficult not easy but working.license # electrician license have.to

ESTUDIAR DE PARTICIPAR GENERALITAT INDÚSTRIA IX.allí
study of enroll Catalan.government industry

'Segon, treballar com a electricista sent una persona sorda és difícil (pausa), fàcil (pausa), no és molt difícil, no és fàcil. Però cal tenir el carnet d'instal·lador, estudiar en els cursos que organitza la Generalitat'

'Second, as for working as electrician being deaf it is difficult (pause), easy (pause), it is not hard/impossible. It is easy/possible. But (the deaf person) must have an electrician license: he (has to) study at the courses organized by the Catalan government'.

Also in (452), the sign SER.DIFÍCIL carries a modal meaning, showing the signer's low commitment in relation with the achievement of the action expressed in the verb.

(452) EMS 00:06:33 MS - 00:06:57

Int.: [HAVER.DE(2h)]-q [ESFORCAR.SE]interrupted
have.to make.an.effort

Resp.: HAVER.DE p [DESCANSAR]-top **SER.DIFÍCIL** PRO.1
have.to to.rest to.be.difficult

Int.: HAVER.DE ESFORCAR.SE PER.A BUSCAR 1 ESPAI PER.A PRO.2 DESCANSAR p [NO]-q
have.to make.an.effort for look.for moment for rest not

Resp.: [SER.**DIFÍCIL**]fac.exp.resignació p [O PORTAR.NENS p PRO.1 PRO.1.dual
to.be.difficult or bring.kids

[SOLS]-cond DESCANSAR p [QUI]-q PORTAR.NEN NO.RES/NINGÚ (gest:so)
 fac.exp.resignació
alone rest who bring.kinds nobody

Int.: VOLER+DIR [FUTUR **PODER**]-q
mean future possible

Resp.: (2h)FER.SE.GRAN DESCANSAR PRO.1.dual p ENCARA SER.PETIT
to.grow.up to.rest yet be.small

Int.: 'Has de fer-ho (de descansar). Fes un esforç'

Resp.: 'Hauria; (però) no és possible descansar.'

Int.: 'Has de fer un esforç i buscar una estona per a vosaltres dos i descansar, no?'

Resp.: 'És molt difícil (=no és possible). Si deixo els nens amb algú i estem sols, podria descansar. (Però) a qui porto els nens. A ningú! Per tant...'

Int.: 'Això vol dir que serà possible en el futur.'

Resp.: 'Quan creixin, podrem descansar. Encara són molt petits.'

Int.: 'You have (to rest). Make an effort'

Resp.: 'I have to; (but) it is not possible to rest.'

Int.: 'You have to make an effort and look for a moment for you two to rest, isn't it?'

Resp.: 'It is difficult/not possible. If I leave the kids to somebody and we are by ourselves, I can rest. (But) to whom I bring the kids. Nobody! So...'

Int.: 'This means that it is possible in the future.'

Resp.: 'When they will grow up, we could rest. They are still small.'

The semantic change of SER.FÁCIL from easiness of the progression of an action to the epistemic meaning could be analyzed as a case of metonymic change. Conceptual metonymy is referred to as "[...] a cognitive process in which one conceptual entity, the vehicle, provides mental access to another conceptual entity, the target, within the same idealized cognitive model" (Radden & Kövecses 2002). In this case the first reference point (a *vehicle* or *source*) is the lack of potency (inability) that triggers a target meaning: non-occurrence and, respectively, lack of possibility (Lakoff 1987, Radden & Kövecses 1999, Panther & Radden 1999, Langacker 2000, Barcelona 2000, Dirven & Pörings, Panther & Thornburg 2003). See Graphic 10.2.



Graphic 10.2 Metonymic extension chain for FÁCIL

It entails the metonymy THE POTENCY FOR THE ACTION, a predicational metonymy (Panther & Thornburg 2002). This chain is similar to the SER.DIFÍCIL 'to be difficult' (Graphic 10.3).



Graphic 10.3 Metonymic extension chain for DIFÍCIL

Metonymies provide natural inference schemas that guide much of pragmatic reasoning in the construction of meaning (Barcelona 2003; Ruiz de Mendoza & Pérez Hernández 2003; Panther and Thornburg 2004). As Panther suggests:

Metonymic meanings provide generic *prompts* that are fleshed out on the basis of background knowledge (world knowledge), the situation of the utterance and the linguistic context (co-text) in which the metonymic expression occurs. (Panther 2006, p. 148)

POTENCY FOR ACTION is a pervasive metonymy that guides pragmatic inferencing in the modality domain in LSC and other signed languages. This chain constitutes evidence for the hypothesis that metonymic principles guide the production and comprehension of pragmatic inferences in LSC (Barcelona 2003, Ruiz de Mendoza & Pérez-Hernández 2003, Panther & Thornburg 2004 *inter alia*).

Concerning the source of the lexical items SER.FÁCIL ‘to be easy’ and SER.DIFÍCIL ‘to be difficult’, it can be hypothesized that their origin is linked to the gesture meaning ‘easiness’ described, for instance, by Nascimento (2007) and Rector and Trinta (1985) with respect to the Brazilian gesturing for expressing that an activity is easy to do.

[...] dos dedos, juntamente com o polegar, acham-se unidas e são levadas aos lábios. Após o beijo nos dedos assim unidos, a mão é lançada aberta em direção ao interlocutor, representando a soltura do beijo contido. É usado para caracterizar algo fácil de obter (1985, p. 130) ¹³⁰

This gesture (the fingertips kiss) has a long tradition in gestural studies (Morris, et al., 1979). For Catalan, it is described as expressing “delicious” and “excellent” (Payrató, 2014). With respect to Spanish, it has been examined as expressing that something is good or very tasty (Nascimento, 2007; Vaz, 2013) (Figure 10.38) and it is used to evaluate positively situations, people or things (Nascimento, 2007).

¹³⁰ [...] the fingers, together with the thumb, are united and are brought to the lips. After the kiss on the fingers so attached, the hand is thrown open towards the interlocutor, representing the looseness of the contained kiss. It is used to characterize something easy to get.



Figure 10.38 gesture (Vaz, 2013)

We suggest that the original handshape has evolved from five fingertips touching to the contact of only the first and second finger, as a result of relaxation.

Indeed, the facial expression accompanying SER.DIFÍCIL has been identified in several works. For instance, in Calbris (2011) the notion of difficult is indicated by the “shape of the mouth (corners curved downwards, lips pressed together)” and that “the mouth fart, produced by noisily projecting the lower lip into a pout “putt”, finally reveals to be fruitless” (2011, p. 248). As for the manual component, the handshape and the local movement (flexion and extension of index finger) coincide with the equivalent LSF and ASL signs (Figure 10.39).



Figure 10.39 LSF DIFFICILE ‘hard’ (Signes de Sens, 2012)

Delaporte argues that DIFFICILE has its origin in crossing of the index fingers on the forehead representing ‘to reflect with perplexity because a question is very hard to solve’ (2007, p. 197). It might be considered that the equivalent LSC sign has experienced lowering –as described for Tyrone and Mauk (2010) for ALS and discussed in § 10.2.2.2— until being located at the chin.

10.2.4 Origin of necessity markers

The origin of necessity markers is organized as follows. The next section will discuss the source for non-manual markers 10.2.4.1, followed by the manual markers. First, we will deal with NECESSITAR, the prototypical necessity marker (§ 10.2.4.2), FORÇOSAMENT (§ 10.2.4.3), DEURE (§ 10.2.4.4), OBLIGAR and MANAR (§ 10.2.4.5). Finally, the focus will be on the necessity modals that share the handshape HAVER.DE and SER.SEGUR (§ 10.2.4.6).

10.2.4.1 Non-manual markers

Concerning non-manual markers for necessity functions, we have to distinguish between commands (also referred as imperatives) and other functions such as epistemic certainty. The non-manual components in LSC had already been examined in Clotet (1866)'s manual. Specifically, in the section about verb conjugation, Clotet shows the modifications necessary to express an order or command using a non-manual component.

Los signos de los verbos en la mímica como se ha dicho, son invariables: Tambien se ha insinuado como se distinguen los modos y los tiempos; pero pasemos á la práctica. Los modos son cuatro: infinitivo, indicativo, imperativo y subjuntivo. [...] Por lo que toca al imperativo, es la misma señal: hecha en ademan de mando, ó suplica ó deseo. V. gr. Mirando á un niño le hago la señal de escribir de manera que conozca que le mando que escriba; les señalo una silla y al momento entiende, que quiero que la traiga. Esto se hace naturalmente y sin estudio. (Clotet, 1866, p. 41)¹³¹

The fact that Clotet does not specify what he refers to with the expression “hecha en ademan de mando, ó suplica ó deseo” implies that he is making reference to usual non-manual gestural elements common in the hearing community when giving orders or commands. The main elements are pointings with the head to the person or the object involved (Monterubbianesi, 2011), tension in the facial expression that may be marked with open eyes, raised eyebrows and headnod or furrowed brows (Bouchet, 1989; Calbris, 2011).

¹³¹ “Verb signs in mimic, as has been said, are invariable: it has also been hinted how to differentiate mood and tense; but let us go practical. There are four moods: infinitive, indicative, imperative and subjunctive. [...] As for imperative, it is the same signal: realized as a gesture of command, plea or wish. V. gr. Looking at a kid, I make the signal of writing so that he realizes that I require him to write; I point at a chair and immediately he understands that I want him to bring it. This comes naturally, without any study. (Clotet, 1866, p. 41)

10.2.4.2 NECESSITAR 'to need'

The gram NECESSITAR 'need' has its source in the lexical item meaning 'to lack' or 'to be missing', 'to last', 'to take', etc. This lexical meaning is documented in Ferrerons (2011a), and shown in example (453).

(453) EJG 00:07:06 JG

PRO.1 JA PRO.1 UNA.MICA ANY MOLT p NECESSITAR 15 ANY PER.A JUBILACIÓ

already a.little year a.lot need 15 year for retirement

'Ja tinc un quants anys. Em falten 15 per a la jubilació.'

'I am kind of old. I have only fifteen years until my retirement.'

This diachronic relation is documented for the English word *want*, which came from an Old Norse verb meaning 'to lack or miss', from which it developed the sense of 'need'; only beginning in the eighteenth century it has been used to express desire (Bybee et al. 1994, p. 178).

We hypothesize that NECESSITAR has its gestural source in the symbolic manual gesture used in the Mediterranean region for expressing 'come here', as documented by Poggi (2002) for Italian and by Nascimento for Spanish and Brazilian Portuguese (2007, 2008).



Figure 10.40 gesture 'come here' (Poggi, 2002)

Wilcox (2004, 2007) discusses the same semantic relation regarding a similar gesture with a B-flat handshape, as an old sign in ASL for necessity showed in Figure 10.41 (Higgins, 1923).



Figure 10.41 ASL old NECESSITY (Higgins, 1923)

The metonymic path is triggered by pragmatic inferencing, since “pragmatic inferencing motivates the extension from a request for physical movement to necessity and emergency: one reason I might request that another person come to me is because I need them” (Wilcox, 2005, p. 17). This semantic extension would result into the lexicalization of the name URGÈNCIES in LSC and one-handed variant of this form is used in a Sicilian dialect of LIS in a more grammaticized sense to indicate epistemic evaluation (S. Wilcox, 2010).

10.2.4.3 SER.MOGUT.A.LA.FORÇA ‘to be obligated by force’

The lexical homonym form that we can gloss as SER.MOGUT.A.LA.FORÇA has the meaning “to be held, to be caught by the arms and be brought or moved forward”. We propose that the meaning of forced physical movement can be projected into the social context by a conceptual metaphor. Prototypically, in the obligation value the force locus comes from the world external to the agent (Sweetser, 1982, 1990).

Since there are similar expressions in Catalan, such as “a la força” (Lit. ‘forcibly’) and “forçosament” (Lit. ‘forcibly’), as well as in Spanish, such as “a la fuerza” (Lit. ‘forcibly’), and the LSC signers usually accompany the manual sign with the mouthing ‘a la fuerza’, there is the possibility of it being a semantic calque. If this were the case, the emergence of FORÇOSAMENT might be considered a case of second type of contact-induced grammaticalization (Gast & van der Auwera, 2012), called ‘replica grammaticalization’ by Heine and Kuteva (2005). In such cases, the process of grammaticalization in the target

language (or ‘replica language’)¹³² is not only ‘instigated by’ the contact language, but the relevant languages also use the same underlying source meaning; in other words, rather than “draw[ing] on universal strategies of grammaticalization”, the target language adopts the same grammaticalization path that was also taken by the source language.

10.2.4.4 DEURE ‘must’

DEURE ‘must’ is phonetically similar to a gesture/sign produced by LSC, Catalan, German and Spanish users when expressing a large quantity or intensity (Ascaso, 2015; Cestero, 1999; Murias, 2018). Formally, it consists of “a continued wide upward and downward movement executed by one or the two hands, with its edge parallel to the floor” (Murias, 2018, p. 18). See Figure 10.42. Also, it “is performed together with an upwards movement of the eyebrows, and of the production with the lower and upper lips of a small circle. Likewise, the cheeks can be swollen with air” (Murias, 2018, p. 18). It would be equivalent to the expression ‘it’s amazing’ or ‘wow’ in spoken English. It has been documented for ASL (McClave, 2001) (Figure 10.43).



Figure 10.42 UF gesture



Figure 10.43 ASL WOW (McClave, 2001)

In LSC it functions, also, as a quantifier expression, usually entailing a negative assessment, as illustrated in (454) and (455).

¹³² *Replica grammaticalization*’s described as follows (Heine & Kuteva, 2003, p. 539; 2005, p. 92): a. Speakers notice that in language M there is a grammatical category Mx. b. They create an equivalent category Rx in language R, using material available in R. c. To this end, they replicate a grammaticalization process they assume to have taken place in language M, using an analogical formula of the kind [My > Mx]: [Ry > Rx]. d. They grammaticalize Ry to Rx.

(454) EES 00:30:59 ES

DOLÇ PÉSSOL p DOLÇ UFF p MENJAR IX PODER.NO

sweet pea sweet wow to.eat cannot

'Els pèsols són dolços, massa dolços. No me'ls puc menjar'

'The peas are too sweet, too sweet. I cannot eat them.'

(455) EES 00:09:38 ES

FINS SORD DIVERTIR.SE SCL:"people falling down" p PRO.1 ANGOIXAR

even deaf to.have.fun to.distress

PRO.1 CREURE TAMBÉ PRO.3 DOLOR SER.SEGUR UF

to.believe also pain to.be.sure

'Veure persones caient, fins i quan estant només jugant al voltant, m'angoixa. Penso que també segur es faran mal.'

'Seeing people falling down, even when they are just playing around, upsets me. I think that for sure they also are going to get injured.'

This use is also examined in multimodal studies, such as Poggi (2002). See Figure 10.40. This idea of mass quantity or gravity when using the gesture is interpreted by users as something inescapable, something that has to be completed, realized, etc., i.e. something that the conceptualizer feels obliged to.



Figure 10.44 Quantifier a lot (Poggi, 2002)

The uses of UFF in the corpus include instances that provide us with "metonymic bridges" between the different modal nuances the markers express in the sense described by Goossens (2002). The synchronic "bridges" may be indicative of the diachronic paths (Hopper & Traugott, 1993; Pelyvás, 2000).

10.2.4.5 Deontic predicates

The verbs MANAR.CANÓ 'to order', OBLIGAR 'to force', and REQUERIR 'to require' have their origin in gestures common in the Mediterranean tradition (Calbris, 2011; de Jorio, [1932] 2000; Kendon, 2004; McNeill, 1992). Payrató (1993, 2013; 2013) refers to it a *gest d'amenaça*: "sotragar l'índex estirat, també de costat, amb la resta de dits plegats en el puny" (Payrató, 2013, p. 60)¹³³. It is attested in old LSF, glossed as IL FAUT, in Brouland (1855)'s dictionary (Figure 10.45), and its contemporary version appears in Girod (1997) (Figure 10.46).



Figure 10.45 LSF IL FAUT

(Brouland, 1855)



Figure 10.46 LSF IL FAUT

(Girod, 1997)

Indeed, another piece of evidence comes from Old LSF (Péllissier, 1856) under the entry ORDER 'order' (Figure 10.47).



Figure 10.47 LSF Old ORDER (Péllissier, 1856)

This common gesture is also documented in the classical antiquity in the works by Quintilian (Fornés & Puig, 2008), and in present-day gestural studies about German and

¹³³ "to sway the stretched finger, on its side, while the rest of fingers are curled forming a clenched fist"

Spanish (Ascaso, 2015). Body gestural studies consider them as gestures with a dominant function of appealing to others (Müller, 2013), as gestures having a dominantly perlocutionary function (Searle, 1969), that is they are used to regulate the behavior of other pragmatic gestures.

Finally, concerning ACONSELLAR, we have not found any data linked to the form or the meaning, either lexical or gestural.

10.2.4.6 Necessity modals with O-handshape: HAVER.DE and SEGUR

Concerning LSC modals HAVER.DE ('must') and SEGUR ('sure'), there is no attested diachronic evidence of the lexicalization or grammaticalization path in LSC. In our corpus, we have documented several signs that share the same handshape and same or similar movement: SER 'to be' (Figure 10.48), JUST 'proper' (Figure 10.49), VERITAT 'true', PREPARAR 'prepare' and so on.



Figure 10.48 SER 'to be'



Figure 10.49 JUST 'proper'

SER 'to be' conveys a semantic meaning related with definitional characteristics of the entity. The form glossed as JUST 'proper' (Figure 10.49), with the Spanish mouthing 'justo' ('just') functions as a predicate adjective and conveys the followings meanings: 'proper', 'adequate'. This lexical function is illustrated in (456). The signer mentions that she is not sure that next year she will be able to go on holiday to Menorca. The reason is her financial situation and the final decision will depend on the cost of the travel.

(456) EMS 00:09:43 MS

A.VEURE PRESSUPOST DINER **SER.JUST** p PRO.1 [PER.SI.DE.CAS]-top. PLANIFICAR VOLER
let's see budget money proper just in case to.plan to.want

'A veure, si el pressupost està ajustat (= assumible). Per si de cas, voldria planificar-lo.' 'Well, if the budget is low. Just in case, I'd like to plan it.'

Indeed, it is used as a conjunction introducing a temporal clause. The following excerpt contains an instance of this use, which we glossed as JUST/MOMENT (457). The issuer is complaining about his son's lack of competence in writing.

(457) EMS 00:33:16 MS

PERQUÈ ESCOLA HAVER.HI.NO FINS.TEMPS PROVES JUNY p **JUST/MOMENT** VENIR CASA
because school to.there.be.neg till exams June moment to.come home

CA:mare< [IX.text.escrit. fac.exp. què.vol.dir.això] p CA:fill<[SABER.NO]-neg> p gest.estranyesa
mother written.text "what does it mean?" son to.know.neg

SER.ESTRANY [SABER.NO]-neg

to.be.strange to.know.neg

'Perquè a l'escola no hi ha proves fins el juny. (Però) quan ve a casa si li pregunto: "Què vol dir això?", em diu: "No ho sé". És una mica estrany que no ho sàpiga.'

'Because at school there are no exams till June. (But) when he comes homes if I ask him: "What does this mean?", he tells me: "I don't know". It is a bit strange that he doesn't know.'

However, a similar temporal use may trigger a modal reading. Consider (458), where the signer answers the interviewer, that asked him whether the doctor suggested him to quit smoking. We gloss the sign as JUST/DE.MOMENT capturing the signer's oral component ("de momento").

(458) EMS 00:20:25 MS

PRO.1 IX.ara **JUST/DE.MOMENT** BÉ p CONTINUAR-ASP.CONTINUATIVE SENTIR A.PUNT p
now moment well to. keep to.feel proper

DINS SABER-NO

inside to.know-neg

'De moment, estic bé. Seguiré igual. Em trobo bé. Dins el meu cos, no sé.'

'For the time being, I'm fine. I will keep (the same habits). I'm feeling good. Inside my body, I don't know.'

As the example in (458) shows, when a signer refers that the state of things is as described at the interaction point in time, the expression entails a nuance of lack of commitment for the lasting state of things in the future.

We suggest that the signs SER 'to be' and JUST/DE.MOMENT 'proper' have their origin in the ring gesture as examined by de Jorio ([1932] 2000) (Figure 10.50), articulated as an F-handshape (thumb and index finger touch, forming a circle). A. de Jorio described seven gestures with this handshape expressing nuances related to 'justice', 'perfection', 'correctness' or 'exactness'.



Figure 10.50 The ring gesture (de Jorio, 1832)

Later, the ring gesture has been the focus of several pieces of work, as in Morris et al. (1979), Efron (1972), Munari ([1963]2005), Diadori (1990), Kendon (2005), and so on. This research highlights its wide range of semantic and pragmatic meanings that vary quite significantly across and within cultures. According to Morris (1977), the ring-family derived from 'the precision grip', referring to the manual action of picking up tiny objects with the index finger and thumb, and it is associated with the following semantic themes: 'making precise' and 'making specific'.

Morris (1977) accounts for the "thumb and forefinger touch" indicating that when the speaker makes use of the precision grip "he wishes to express himself delicately and with great exactness" (1977, p. 58). According to Kendon (2005, p. 225) this gesture has a modal function because it operates on a given unit of verbal discourse and shows how it is to be interpreted.

Interestingly, Kendon (1995), based on the analyses of conversations among South-Italian speakers, noted that this 'discourse marker' gesture (called *the Ring*) marks a segment of discourse that plays a focal role in an argument: something specific in contrast to other possibilities, or some piece of information which he maintains is correct, opposing it to specific information suggested by his interlocutor, among others (1995, p. 268). See the ring gesture in Figure 10.51.



Figure 10.51 The ring gesture (Kendon, 1995)

The analysis of some of the more frequent gestures is particularly interesting since they display an extensive use (Müller, 2014). In German discourse, for instance, when it is oriented vertically and produced at head or upper chest level, and it is held for a moment, expresses perfection and excellence of something. However, when it is oriented horizontally and produced at chest level (or lower), and shows a rhythmical –typically downward– movement pattern it refers to the precession of an argument (Neuman, 2004).

In Iran it is a common discourse gesture and it is documented in miniatures since the 15th century (Seyfeddinipur, 2004). In India this gesture is known as *hamsasya* and it appears in the local dance and dance theatre forms. According to Ramesh (2013) it is “used by *Abhinayadarpana* to denote amongst others assurance, giving instructions, small and tender objects like pearls or jasmine flowers” (2013, p. 316). Even the shape is very similar to the LSC lexical sign VERITAT ‘true’: “when depicting concepts like truth or time, the movement sketches a vertical line downward” (316, p. 316) (See Figure 10.52).

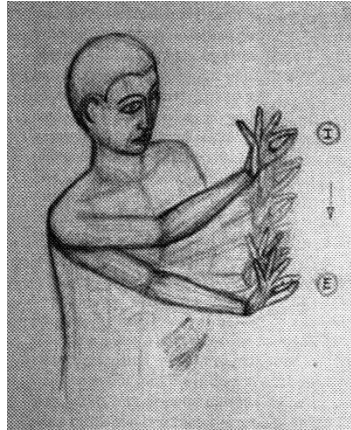


Figure 10.52 Thru gesture (Ramesh, 2013)

This gesture is described, also, for Catalan by Payrató (1993, 2013, 2014): “a circle is made with thumb and forefinger to indicate “good”” (2014, p. 1268). Another argument supporting our hypothesis comes from modal signs of other sign languages from the same family, such as Italian Sign Language (LIS), Brazilian Sign Language (LIBRAS) and Spanish Sign Language (LSE). In Gianfreda, Volterra and Zuczkowski (2014), the authors describe two signs that express necessity and that are formally very similar to the LSE signs DEBER.DE and SEGURO and the LSC signs HAVER.DE and SER.SEGUR: OBBLIGO/PER-FORZA (Figure 10.53) and SICURO (Figure 10.54).



**Figure 10.53 LIS OBBLIGO/PER-FORZA
(Gianfreda et al., 2014)**



**Figure 10.54 LIS SICURO
(Gianfreda et al., 2014)**

The handshape of the sign OBBLIGO/PER-FORZA is not closed. Concerning its use, the authors report: “Questo segno esprime il concetto di necessità. Nella sua accezione deontica, può anche avere valore verbale (COSTRINGERE), in cui diviene saliente il

criterio di agentività.” (Gianfreda et al., 2014, p. 209). On the other hand, OBBLIGO/PER-FORZA can also express the epistemic modality:

Il segnante può utilizzare OBBLIGO/PER-FORZA anche in accezione epistemica, per esprimere una constatazione o una valutazione sulla necessità che le cose descritte stiano in un certo modo (anziché un altro) o sull’imprescindibilità di determinate qualità o azioni affinché un determinato stato di cose possa realizzarsi. (Gianfreda et al., 2014, p. 209)¹³⁴

Another sign that expressed epistemic necessity in LIS is SICURO ‘sure’ (Figure 10.54 above) (Gianfreda et al., 2014). Similarly, they point out that SICURO can be produced uni- or bymanually, as in the figure above. Regarding its modal function, they claim that:

SICURO ha un valore per lo più enfatico, legato a determinati scopi discorsivi: rafforzare un’affermazione in cui viene espresso qualcosa di altamente probabile, marcare la fondatezza di un processo inferenziale, convincere/rassicurare l’interlocutore dell’affidabilità dell’informazione datagli, ecc. (Gianfreda et al., 2014, pp. 208-209).¹³⁵

It is not the only such sign. Also, the sign glossed as CAPACE/SI-PUÒ displays contact between the index and the thumb. This shows capacity of an agent “o il suo essere in grado di realizzare, avendo determinate conoscenze, abilità o risorse, un’azione specifica espressa dal verbo principale” (Figure 10.55) but “mostra estensibilità semantica e può acquisire significati di possibilità epistemica” (Figure 10.56)¹³⁶ (Gianfreda et al. 2014, p. 212).



Figure 10.55 LIS CAPACE/SI-PUÒ
(Gianfreda et al., 2014)



Figure 10.56 LIS CAPACE/SI-PUÒ epistemic
(Gianfreda et al., 2014)

¹³⁴ “The signer can use OBBLIGO/PER-FORZA also in its epistemic meaning, to express a statement or evaluation of the necessity that the described situation is in a particular way (rather than a different one) or of the unavoidability of certain qualities or actions if a given state of affairs has to materialize.” (Gianfreda, et al. 2014, p. 209)

¹³⁵ “SICURO has mostly an emphatic value, related to specific discursive goals: it strengthens a statement expressing something that is highly likely, it marks the validity of an inferential process, it convinces/reassures the interlocutor of the reliability of the provided information, etc.” (Gianfreda et al., 2014, pp. 208-209).

¹³⁶ “or its ability to realize, having some given knowledge, skills or resources, a specific action expressed by the principal verb” but “it shows semantic extensibility and it can acquire epistemic possibility meanings.”

Gianfreda et al. (2014) describes the formal difference in the non-manual component between the use of CAPACE as a non-epistemic and an epistemic modal marker in the following terms:

Infatti, con espressioni facciali neutre la nozione di fattibilità espressa dal segnante si situa in uno "spazio semantico" intermedio tra le zone di certezza e incertezza epistemica, che non è particolarmente marcato. Invece, quando CAPACE viene prodotto con le sopracciglia aggrottate, le labbra protruse e un cenno deciso del capo in avanti, indica un grado più elevato di impegno epistemico, spostando il valore semantico del segno maggiormente sul polo della certezza soggettiva, sempre relativamente a ciò di cui il segnante è a conoscenza e/o su cui può esercitare un controllo attivo. (Gianfreda et al., 2014, p. 213)¹³⁷

In LIBRAS, a formally similar sign is documented but only for expressing certainty. A similar sign, but with a longer movement, is attested with the meaning of 'certain, correct' (Ferreira Brito, 1990, 1995).

Regarding LSE lexicographic sources, the non-epistemic value has been documented in the Villabrille (1851) dictionary under the entry NECESARIO. PRECISO. CRUCIAL. ('needed, precise, essential').

NECESARIO. PRECISO. CRUCIAL. Se juntan el índice y el pulgar como para la O de la dactilología y se dan repetidos golpecitos de arriba abajo en el aire. (Villabrille, 1851, p. 105)¹³⁸

Moreover, the entry for SINCERO 'sincere' VERDADERO 'true' describes the sign as follows:

SINCERO VERDADERO Se hace el signo de hablar y enseguida un movimiento hacia abajo con la mano en la postura de la O de la dactilología. (Villabrille, 1851, p. 134)¹³⁹

Cabeza-Pereiro (2013), striving to identify the possible motivations that lie behind the form of the signs that express modal meanings, carries out an analysis of the form of these as well as other similar signs. The author points out the limitations imposed by the same text, such as the lack of entries relevant for the proposed investigation, as "is the case of DEBER, which does not appear in any of its meanings, neither deontic nor epistemic" (2013, p. 20).

¹³⁷ "Indeed, with neutral facial expressions the notion of feasibility expressed by the signer has place in "semantic space" between the epistemic certainty and uncertainty areas, that is not particularly marked. On the other hand, when CAPACE is produced with frowned eyebrows, protruded lips and with a resolute forward head gesture, it shows a higher degree of epistemic commitment, moving the semantic value of the sign toward the subjective certainty pole, always relatively to what the signer knows or can exercise an active control" (Gianfreda et al., 2014, p. 213).

¹³⁸ "NEEDED, PRECISE, ESSENTIAL. The index finger and the thumb are in contact as for the O of the fingerspelling and do small hits in the air."

¹³⁹ SINCERO VERDADERO One produces the *hablar* sign immediately followed by a downward movement of the hand with the dactylogical O shape" (Villabrille, 1851, p. 134).

Specifically, she makes an inventory of the lexical items that appear in the *Diccionario Normativo de la lengua de signos española* (DILSE) by CNSE (2011) and that are produced with the O-handshape. Cabeza-Pereiro (2013), then, classifies these signs according to their semantic content. Thus, she can count the signs that belong to or are related with the semantic value of accuracy, such as VERDAD 'true'. Secondly, she counts the signs the configuration of which is motivated by the shape of the entity they refer to (the ring represents all kinds of round objects), as for instance a coin. The last category clumps together all those lexical items that do not belong to the previous categories. We reproduce her results in Table 10.2.

Table 10.2 Recount of O-shaped lexical units grouped by their meaning

	With meaning of <i>accuracy</i>	With descriptive meaning	Without identified meaning	Total
Cases recognised by the DNLSE	36 (60%)	17 (28,33%)	7 (11, 67%)	60 (100%)
Differentiated lexical units	24 (51,06 %)	16 (34,04%)	7 (14, 89%)	47 (100%)

As the data show, the most frequent meanings associated with the O-handshape are related with exactness and not with the shape properties. Therefore, it has prototypical meaning present both in lexical and in functional signs. This link between the ring gesture and the forms with lexical and grammatical functions in several signed languages deserves further attention. Furthermore, the question that remains to elucidate is whether or not manual gestures can enter in the language directly as manual grammatical morphemes (Janzen & Shaffer 2002, p. 220; Wilcox, 2004b). We will discuss these issues later.

10.2.5 Origins of negative markers

This section deals with the primitive elements for actual LSC negative modals, focus of chapter 7. It addresses non-manual (§ 10.2.5.1) and manual markers: NO (§ 10.2.5.2), HAVER.HI.NO, SABER.NO and PODER.NO (§ 10.2.5.3), SER.IMPOSSIBLE (§ 10.2.5.4) and SER.INÚTIL (§ 10.2.5.5).

10.2.5.1 Non-manual markers

With respect to the negative expression of desire, i.e. dislike or lack of desire, gestural studies have examined the characteristics of facial elements. For instance, Cestero (1999, p. 126) reports the following traits for Spanish speakers: closed eyes, furrowed brows and frown, wrinkled nose and lips kept glued, squeezing or stretching down oneself. Ascaso (2015) confirms these characteristics for German speakers.

Also, some studies have identified gestural properties conveying lack of possibility (ability and availability). For rejecting a proposal, offer or invitation, speakers display: closed eyes and furrowed frown; the lips remain glued or slightly separated whereas the mouth is in resting or shrunken position (the corners rising slightly up). The head may produce a simple downward lateral movement to the right or to the left, while the neck shrugs and the shoulders rise (Cestero, 1999, p. 39).

The general negative non-manual sign, described in chapter 7, has its source in the sideways head movement, as described by Payrató (1993, 2014; 2013):

The non-verbal *yes* and *no* are performed by head movements (forward and sideways, respectively, i.e. nodding or shaking one's head). Rejection can also be made moving the head back in a strong movement. (Payrató, 2014, p. 1268)

Indeed, this emblem for negation has been described for several languages in the Mediterranean region (Jorio & Kendon, 1999; Kendon, 2004; Poggi, 2013) and Latinoamerica (Coll, et al., 1990; Meo-Zilio & Mejía, 1983), as well for anglo-germanic languages (Müller et al., 2013; Müller, et al., 2014). Recent psycholinguistic considers it a universal gesture. Gestural uses of headshake have been reported in the literature for replying or accompanying negative statements, signaling uncertainty or intensification (Kendon, 2004; McClave, 2000, 2001).

As a functional sign in LSC, it was already described by Clotet (1866) as follows:

El adverbio *no*, volviendo un poco la cabeza de un lado á otro, como cuando respondemos un *no* á una pregunta que nos hacen, ó bien levantando el índice y haciendo con él dos pequeños movimientos horizontales. (Clotet, 1866, p. 45)¹⁴⁰

¹⁴⁰ "The *no* adverb, turning slightly the head from one side to the other, as when we answer negatively to a question, or else raising the index finger and making two small horizontal movements." (1866, p. 45)

Although negative markers have their origin in gestures, crosslinguistic research in sign languages points out that when used as a marker of negation “headshakes appear to be tightly linked to the syntactic structure of the utterance they accompany” and their use and distribution (scope) is subject to language specific constraints (Oomen & Pfau, 2017; Pfau, 2015; Pfau & Steinbach, 2011).

10.2.5.2 Manual marker NO ‘not’

The main negative manual NO ‘not’ has its source in the manual non-verbal gesture, as described by Payrató (1993, 2013, 2014), as “denial is expressed with the stretched index moving sideways like a metronome.” (Payrató, 2014, p. 1268).

As a non-manual sign, it was described by Clotet (1866) as in the above quote: “levantando el índice y haciendo con él dos pequeños movimientos horizontales.” (1866, p. 45)¹⁴¹. Moreover, Clotet provides information about the position of NO in the sentence:

La negacion: y así no dirémos con signos: *Mañana no vengas*, sino: *Mañana tú venir, no*. (1) Esta misma regla siguen todos los adverbios negativos: y así no se señala: *Jamás pecar*, sino: *Pecar jamás*. (Clotet, 1866, p. 55).¹⁴²

It is a gesture very common across languages and cultures (Ascaso, 2015; Calbris, 2011; Cestero, 1999; Kendon, 2004; Nascimento, 2007). However, it is not universal. Its distribution parallels the distribution of the similar negative sign. The sign languages in surrounding cultures that use it have it as the main negative sign, unlike those immersed in cultures and language with different manual gesture. This is the case, for instance, in Pakistan (Zeshan, 2003).

10.2.5.3 The negators HAVER.HI.NO, SABER-NO and PODER.NO

Concerning the negator HAVER.HI.NO ‘there not be’, we can posit that its source is the pragmatic gesture used to convey lack of money or things in general. Payrató (2013) refers to it twice: “(It) is performed with a vertical hand, which is closed quickly in front of the mouth [...] meaning ‘not to eat anything’ or ‘not to understand a word’” (p. 1269).

¹⁴¹ “raising the index finger and making two small horizontal movements.” (1866, p. 45)

¹⁴² “Negation: and so we will not say with signs: *Tomorrow you (do) not come*, rather: *Tomorrow you come, not*. (1) All negative adverbs follow this very same rule: and so you do not sign: *Never commit sin*, rather: *Commit sin never*.” (Clotet, 1866, p. 55).

Also, he mentions that “rhythmically opening and closing the fingers of one hand (or both) signifies that a place is full to overflowing” (p. 1269).

As for the negative form SABER.NO ‘not to know’, it has been pointed out that it is a derivative form of the positive counterpart through a process of phonological reduction as a result of the frequent use of the collocation [SABER NO]. Bosch-Baliarda (2005) examined extensively this process of reduction in lexical compounds in LSC. It is also being dealt with in Jarque et al. (2012) regarding lexical paradigms made of compounds.

SABER-NO exhibits the characteristics explained by Bosh-Baliarda (2005) for type-0 compounds (i.e. both compositives are one-handed signs) (459)

(459) Changes in the composite signs in type-0 in LSC

- (i) Just one handshape remains through the articulation of the sign.
- (ii) The sign is articulated in one major body area, in this case under the chin. Frequently at different setting in contact and near the head.
- (iii) Both orientations are retained: one associated with the first location and the other with the second, so the compound has an LML structure. Sometimes it is assimilated together with the handshape.

Phonological changes for compounds have been described for other signed languages, such as ASL (Brentari, 1998; Klima & Bellugi, 1979; Liddell & Johnson, 1986), BSL (Brennan, 1990), ISL (Meir, Aronoff, Sandler, & Padden, 2010) and SSL (Wallin, 1983).

However, in Greek Sign Language (GSL) there exists a similar form glossed as CANNOT for signaling physical impossibility and a bimanual form, glossed as 2handedCANNOT for expressing general impossibility (Sapoutzaki, 2005, 2010). Examples of use are given in (460)(a) and (460)(b), respectively.

(460) Greek SL (Sapoutzaki, 2005, p. 128)

(a) SON SLEEP CANNOT

‘My son could not fall asleep.’

(b) SHOP 2handedCANNOT

‘The shops do not do that (generally).’

Finally, concerning PODER.NO 'cannot', we can hypothesise that it has its source in a cliticised form of PODER and HAVER.HI.NO, as some verbs are negative with this specific pattern, as examined in chapter 8.

However, Delaporte (2007) reports a homophone sign in LSF, glossed as IMPOSSIBLE. Indeed, Delaporte (2007) refers to three signs glossed as IMPOSSIBLE quite similar formally to the LSC PODER. Other than the LSF sign IMPOSSIBLE.2 signaling negative epistemic necessity (Figure 10.57), LSF displays IMPOSSIBLE.3 produced with a closing B-handshape located in the chin (Figure 10.58).

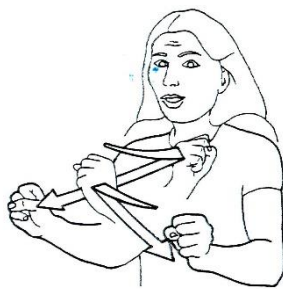


Figure 10.57 LSF IMPOSSIBLE.2
"incroyable" (Moody et al., 1986)



Figure 10.58 LSF IMPOSSIBLE.3
(Moody et al., 1986)

Moreover, DELAPORTE reports two more signs glossed as IMPOSSIBLE.4 made with the 5-handshape and a closing fingers movement (Figure 10.59) and IMPOSSIBLE.5 produced with a form identical to LSC PODER (Figure 10.60).



Figure 10.59 LSF IMPOSSIBLE.4
(Moody et al., 1986)

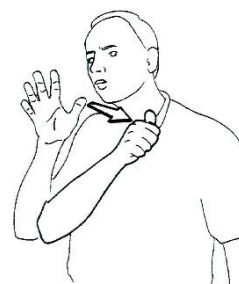


Figure 10.60 LSF IMPOSSIBLE.5
(Girod et al., 1997)

The historical data and the data from gestural studies seem to suggest that the origin of PODER.NO or LSF IMPOSSIBLE might be the combination of two emblems: a manual

emblem referring to the action of grasping (the closing hand movement) and a non-manual emblem for negation (head shake). In other words, the grammatical sign would be a lexicalization of the negation of the gestural action for grasping. The underlying conceptual metaphors would be UNDERSTANDING IS GRASPING, already described for LSC (Jarque, 2005) and ASL (P. P. Wilcox, 2000): ACTIONS ARE OBJECTS and TO COMPLETE AN ACTION IS GRASPING THE ACTION.

More research is needed to figure out the source for PODER.NO. The historical data available do not allow us to confirm an origin.

10.2.5.4 SER.IMPOSSIBLE 'to be impossible'

The source for LSC SER.IMPOSSIBLE 'to be impossible' can be traced into the negation of OLD POIVOIR 'can' in LSF, as its formal properties are similar to the equivalent modals in ASL, LIBRAS and LSE (Herrero, 2009; Herrero & Salazar, 2006; Shaffer, 2002; P. P. Wilcox & Wilcox, 1995; Xavier & Wilcox, 2014). The formal and semantic similarities between both signs suggest that the LSC sign is probably a borrowing from LSF because in LSC there are no signs from the family of signs related with the strong gesture, as it happens in LSF. Another piece of evidence comes from the LSF sign INSUPPORTABLE 'unsupportable, unenable'. Delaporte (2007) describes this sign as a compound former by the sign SUPPORTE 'to support' and NON 'not', as follows:

INSUPPORTABLE. 1. Signe composé SUPPORTER, le mouvement étant celui de PORTER au sens concret de "SOULEVER", suivi de NON. 2. Autre sens de IMPOSSIBLE 2 par calque de la diversité des emplois du mot impossible: un enfant "impossible" est un enfant "insupportable". (Delaporte, 2007, p. 315).¹⁴³

The two versions of INSUPPORTABLE, the syntagmatic compound and the clitized/reduced lexicalized compound, are shown in Figure 10.61 and Figure 10.62, respectively.

¹⁴³ « INSUPPORTABLE. 1. Compound sign formed by SUPPORTER, the movement being that of PORTER in the concrete sense of "SOULEVER", followed by NON. 2. Other meaning of IMPOSSIBLE 2 calquing the diversity of use of the word *impossible*: an "impossible" kid is kid that is "insupportable".



Figure 10.61 LSF INSUPPORTABLE.1
 'ne pas supporter' (Girod et al., 1997)

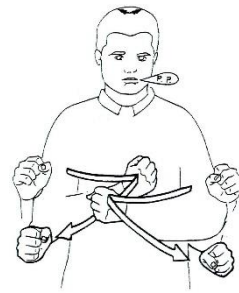


Figure 10.62 LSF INSUPPORTABLE.2
 'ne pas supporter' (Girod et al., 1997)

Interestingly, LSF INSUPPORTABLE.1 gives us evidence of the initial process of compounding culminated as LSC IMPOSSIBLE. Figure 10.61 show how the sign is performed with two composites: the sign NO –consisting of the manual marker NE 'not', similar to the ubiquitous sign for 'not' across sign languages— and the sign meaning 'supportable' that produces initially a movement of support or holding followed by a movement of ceasing. The signer's facial expression and head movement also signals a negative evaluation of the action, a sort of withdraw since it has not been possible to accomplish it.

Figure 10.62 shows the experienced product of the formal lexicalization process. The sign INSUPPORTABLE.2 shows a fusion of formal characteristics of the two original composites: the handshape, orientation and place of articulation correspond to the 'supportable' sign and the movement reproduces the movement of *Fr.* NE 'not'. The result shows a bi-syllable sign where each trajectory movement corresponds to one syllable. This type of formal fusion in compounding has been described for LSC (Bosch-Baliarda, 2005; Jarque, et al., 2012) as well as for several sign languages such as Al-Sayyid Bedouin Sign Language (Meir, et al., 2010) or BSL (Brennan, 1990).

Semantically, it seems that the original meaning related to the lack of physical ability ('not been able to support something') has evolved into root and epistemic values, i.e. it has moved from more concreted to more abstract. We have dealt with the origin of the French signs in order to be able to discuss the possible source of grammatical signs in lexical or gestural sources.

10.2.5.5 SER.INÚTIL 'to be useless'

The last negative form addressed is SER.INÚTIL 'to be useless'. Also, it seems it is a borrowing from LSF since formally it belongs to the strong-gesture family and a formally and semantically similar sign is found in LSF, glossed as INUTILE (Delaporte, 2007), defined as follows:

INUTILE. 1. "Signe bon pour, signe négation" (Ferrand v. 1785). Ce signe composé s'est ensuite réduit à la seule négation, l'injection de la lettre I (variante en cornes), initiale du mot inutile, compensant la perte d'information. (Delaporte, 2007, p. 318)¹⁴⁴

Delaporte refers, then, to the word formation process in sign languages known at present as initialization. It consists of the process of substituting the original handshape of the sign by a new one that corresponds to the initial letter in the manual alphabet. Interestingly, there is also an LSF negative sign glossed in Delaporte (2007) as PUISSANT. This adjective has two forms: one related to the sign meaning 'strong' (Figure 10.17) and the LSF modal POUVOIR (Figure 10.16), as shown in Figure 10.63. The second one exhibits the Y-handshape (Figure 10.64).

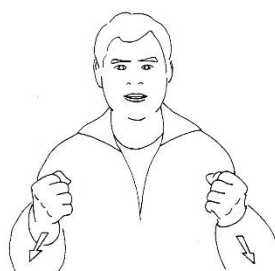


Figure 10.63 LSF PUISSANT.1
(Delaporte 2007, based on Poitiers, 1982)



Figure 10.64 LSF PUISSANT.2
(Girod et al., 1986)

Delaporte (2007) explains the difference in the handshape through a substitution process based on a cognitive metonymy, as follows:

PUISSANT. 1 "Les deux bras, les poings fermés, se portent avec force an avant, et s'arrêtent en se roidissant. Le pouce se lève à la hauteur de la tête" (Degérando, 1827). Le premier composant est un proche dérivé de POUVOIR [...]. Le pouce levé en hâteur prend à cette époque la valeur de "premier, unique, seul" : un personnage puissant est quelqu'un qui exerce son pouvoir sans partage. Réduit à son premier composant, c'est aujourd'hui le signe PUISSANT en usage à Poitiers. 2 Le signe le plus répandu (Paris, Chambér) dérive du précédent. C'est un signe-valise, qui a intégré au premier composant de PUISSANT 1 la configuration en

¹⁴⁴ "INUTILE. 1. "Good sign for, negation sign" (Ferrand v. 1785). This composed sign reduced later to the negation, the incorporation of the I letter Ce signe composé s'est ensuite réduit à la seule négation, l'injection de la lettre I (horn variant), the first letter of the word *inutile*, thus balancing for the loss of information." (Delaporte, 2007, p. 319).

pouce tendu du second composant. Le déploiement de l'auriculaire aboutit à la configuration en cornes, sans doute par contagion paronymique avec l'image des défenses d'animaux réputés pour leur puissance, sanglier ou éléphant. (Delaporte, 2007, p. 507)¹⁴⁵

The creation of signs through a conceptual metaphor such as HUMAN IS AN ANIMAL has been identified for several signs reporting human properties or qualities (Moriyón, Fernández-Viader, & Codorniu, 2006). This process entails also a metonymic chain: A PROMINENT PART OF AN ANIMAL FOR THE ANIMAL and THE ANIMAL FOR A CHARACTERISTIC FEATURE. The conceptual mechanisms of metaphor and metonymy are extensively at work in the lexicon across signed languages (Taub, 2001; P. P. Wilcox, 2000, 2004; S. Wilcox, et al., 2003).

Along the subsections 10.2.2 to 10.2.5 above, we have examined possible sources for the LSC modal elements. In section 10.5 we will present a summary and a discussion of these findings trying to answering the corresponding RQ with respect to the sources (§ 10.5.1) and the implications for developmental paths (§ 10.5.3). The next section addresses issues with respect to pragmatics and modal interpretation.

10.3 Pragmatics and modal interpretation

This section focuses on LSC linguistic forms that in some contexts may adopt a modal reading: TENIR.PACIÈNCIA 'to be patience', TENIR.COMPRÓMÍS 'to have a compromise' and MÉS HAVER.HI.NO 'there's nothing'.

10.3.1 TENIR.PACIÈNCIA 'to be patient'

The first form addressed is the sign usually referred as 'patience', that we will gloss as a verb TENIR.PACIÈNCIA 'to be patient' (Figure 10.65).

¹⁴⁵ "PUISSANT. 1 "Both arms, with clenched fists, are brought forward, they stop there and stiffen. The thumb raises at height of the head" (Degérando, 1827). The first component is a close derivative from POUVOIR [...]. The raised thumb assumed at that time the value of "first, unique, only": a « puissant » figure is somebody that exercises power without sharing it. Reduced to its first component, it is the sign PUISSANT that is used nowadays in Poitiers. 2 The most widespread sign (Paris, Chambér) derived from the previous. It is a suitcase sign, which has integrated in the first component of PUISSANT 1 the thumb-out of the second component. Stretching out the little finger results in the horn configuration, certainly due to paronymous influence of the image of defenses of animals known for their strength, such as wild boars or elephants. (Delaporte, 2007, p. 507)



Figure 10.65 TENIR.PACIÈNCIA 'to be patient'

Ferrerons defines it as "Capacitat de suportar amb calma, sense queixa, infortuni i offenses, allò que triga, l'excessiva durada d'un treball"¹⁴⁶, (2111b, p. 179). Delaporte (2007, p. 446) locates the origin of the LSF equivalent –formally similar to the LSC sign– in the sign SACRIFICI 'sacrifice', represented by a cross over the lips linked to the ritual abstinence which entails patience and resignation.

This is a simple predicate that may take only aspectual morphemes. In this section, we argue that TENIR.PACIÈNCIA may trigger a pragmatic reading of obligation. The semantic change would consist in a metonymic change where the consequence of an internal need ('being patient') stands for the cause ('being obligated by the circumstances' implies not to follow the internal needs or desires). Consider example (461) where the interviewer and the respondent are chatting about the possibility of the latter quitting smoking.

(461) EMS 00:30:41 JMS (CR)

[PRO.2 SER.CAPAÇ ANAR CERECUSOR IGUAL/COM FUMAR SENSE **TENIR.PACIÈNCIA**]-q

to.be.able to.go deaf.club.name same/as to.smoke without to.be.patient

'Series capaç de deixar d'anar a CERECUSOR, com (has fet amb) el fumar, i aguantar-te? O et cansaries? Series capaç d'estar tot un any sense anar-hi? Podries?'

'Would you be able to stop going to CERECUSOR, as (you quit) smoking, would you bear that? Or would you grow tired of it? Would you be able to spend a year without going there? Would you?'

In the context of (461), the interviewer is asking about the internal situation of the respondent in the case of quitting smoking. The use of TENIR.PACIÈNCIA is understood as an internal physical necessity for smoking as the result of being exposed to a context

¹⁴⁶ 'the ability to endure peacefully, without complaining, all that lasts long, the excessive length of a work'

where a lot of people do. The second example in (462), however, shows a slightly different use.

(462) EMS 00:30:57 MS (CR)

ANAR-ASP.FREQ p [HAVER.HI.NO]-cond p PRO.1 AVORRIR.SE p

to.go to.there.be.not to.get.bored

UNA.VEGADA [FILL PRO.3I MALALT]-top [QUEDAR.SE CASA]-nod p

once son to.be.sick to.stay.at.home

IMAGINAR CERECUSOR p NERVIS p SIGNAR/COMUNICAR EXCEL·LENT p

to.imagine Deaf.association be.nervous sign excellent

TENIR.PACIÈNCIA QUEDAR.SE

to.be.patient to.stay

'Jo hi vaig sovint (a l'associació). Si no hi vaig, m'avorreixo. Una vegada el meu fill va caure malalt i em vaig haver de quedar a casa. M'imaginava ser a CERECUSOR i em posava dels nervis. Allà estaria xerrant sense parar. (En canvi), em vaig haver d'aguantar i quedar-me a casa.'

'I go often (to the association). If I don't go, I get bored. Once my son got sick and I had to stay at home. I imagined myself being at CERECUSOR and that made me nervous. There I'd be chatting without stopping. (Instead), I had to bear it and stay at home.'

In (462), unlike (461), the source of the obligation is external to the respondent but it is not explicitly indicated in the sentence. The signer performs a verbal sign that expresses literally the effect of a deontic modal context to refer to the source. This happens also in fragment (463).

(463) EMS 00:26:35 JMS

PERDÓ PRO.1 ALLARGAR p [PRO.2 FUMAR VOLER]-q p [TENIR.PACIÈNCIA]-q [NO]-neg/q

sorry to.take.longer to.smoke to.want to.be.patient not

'Em sap greu. M'he allargat. Vols fumar? Et sents 'obligat' (a estar aquí)?

'Sorry. I took me longer. Do you want to smoke? Do you feel forced?'

The sign is also documented for LSF in Elix Dictionary (Signes de Sens, 2012) with the following definition "1. Qualité d'une personne qui supporte une situation désagréable avec calme, résignation ou sang-froid. Prendre patience." and "3. qualité de celui qui sait attendre en restant calme sans se plaindre. Prendre son mal en patience."

The above data in (461) to (463) constitute evidence for the hypothesis that metonymic principles guide the production and comprehension of pragmatic inferences in LSC

(Barcelona, 2002; Panther & Thornburg, 2004; Ruiz de Mendoza Ibáñez & Campo, 2002) (Barcelona 2003, Ruiz de Mendoza & Pérez-Hernández 2003, Panther & Thornburg 2004 *inter alia*). The sign TENIR.PACIENCIA is a candidate to signal modal notions of obligation in LSC in the near future.

10.3.2 TENIR.COMPROMÍS 'to have a commitment'

Lack of availability is commonly expressed in LSC with the form TENIR.COMPROMÍS Lit. 'to have a commitment' (Figure 10.66).



Figure 10.66 TENIR.COMPROMÍS 'to have a commitment'

It is an expression used with a polite value. Usually the signer indicates first that she cannot participate in the situation named by the verb, followed by this expression used as an excuse. However, it is signed increasingly more often by itself without producing overtly the source of the lack of availability, as shown in (464).

(464) IC 00:24:03 JM

(a) [TARDA]-top [VENIR ASSEMBLEA ASSOCIACIÓ]-q
afternoon come meeting club

(b) PRO.1 TENIR.COMPROMÍS
to.have.a.commitment

(a) 'Aquesta tarda, vindràs a l'assemblea de l'associació (de sords)?'

(b) '(No puc). Tinc plans.'

(a) 'Will you come to the (Deaf) club meeting this afternoon?'

(b) '(I can't.) I already have plans.'

In cases such as (464), the interlocutor understands PRO.1 TENIR.COMPROMÍS as a lack of availability. Signers produce this fixed expression to excuse themselves even if they do not have a “real” compromise. So, the expression is being used to express a modal value activated through a metonymy: THE CAUSE FOR THE RESULT. This is a case of emergence of new semantic content through an “invited inference” in which the signer evokes an implicature and invites the addressee to infer her lack of availability. It constitutes, thus, an expression of intersubjectivity in which the meaning indexes the signer attitude or viewpoint (subjectivity) and the signer’s attention to the addressee’s self-image (intersubjectivity) (Traugott, 2010; Traugott & Dasher, 2002).

10.3.3 MÉS+HAVER.HI.NO ‘there’s nothing to be done’

The last resource expressing root necessity is an idiom equivalent to the expression ‘there is nothing to be done’ in English or ‘no hi ha res a fer’ in Catalan. We have glossed it using the spoken words used in the oral component of the sign. Formally, it is a colloconstruction consisting of the sign meaning ‘more’ and the negative existential HAVER.HI.NO (Figure 10.67).

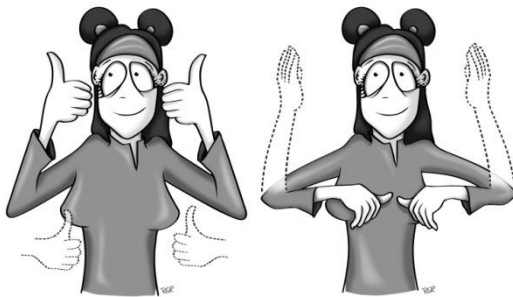


Figure 10.67 MÉS+HAVER.HI.NO ‘there is nothing to be done’

Consider (465), where the signer expresses resignation, equivalent to the Catalan expression Jo no puc fer-hi res (‘I can’t do anything about it’), as a response to the suggestion that he should see a doctor to find a way to quit smoking.

(465) EMS 00:16:46 MS

Int.: PODER PRO.2 PREGUNTAR METGE p PODER DONAR-3 UN SOLUCIÓ (gest:demanda)

may ask doctor may to.give a solution

Resp.: METGE FORÇOSAMENT PRO.3I p [PRO.1]-top **MÉS-HAVER.HI.NO**

doctor by.force

there's.nothing.to.do

Int.: 'Poder li pots preguntar al metge. És possible que et doni una solució, oi?'

Resp.: 'Hauré (d'anar) al metge. /No hi ha res a fer.'

Int.: 'You can ask the doctor, can't you? It is possible that he gives you a solution, isn't it?'

Resp.: 'I'll have (to see) a doctor. / There's nothing to do about it.'

As in the example (465), there is a predicative relation between the base and the collocative (Firth, 1957). Also, the collocation allows interpolation, that is the insertion of other elements such as ALTRE 'other', showing that the grammaticalization is still in process, as illustrated in (466).

(466) EES 00:19:08 ES

gest DEPENDRE(segons) [SABER-NO] p HAVER.DE OBLIGAR FATAL p MÉS ALTRE HAVER.HI.NO

depen.on know-NEG have.to obligate horrible more other there.be.no

'Depèn. No ho sé. És necessari. Cal que ho faci. Estic fatal. No hi ha res més a fer.'

'It depends. I don't know. It is necessary. I have to do it. I'm a mess. There's nothing to do about it.'

The possibility of interpolation is habitual in the collocations, since it is a type of construction not totally fixed (Brinton, 2000; Brinton & Traugott, 2005).

10.4 Modal values in discourse and gestural forms

In previous sections, we have examined modal grams trying to identify their gestural source and several constructions that instantiate modal readings in discourse. But we have not yet considered the contribution of gestures expressing modal stance to the discourse. Grammaticalization theory in sign linguistics claims that manual gestures used within the surrounding spoken language enter in the sign language as lexical morphemes and later develop a grammatical meaning (S. Wilcox, 2004, 2007; S. Wilcox, et al., 2010). But, we are wondering whether modal gestures in the spoken language may enter or

are used in LSC to accomplish modal functions in the discourse, and later develop more grammaticalized functions.

Signers produced three types of elements in signed discourse: fully and partially lexicalized elements, and gestures. To add evidence for the process of building the modality functional category in LSC, we raised two issues/questions. First, we wanted to examine whether lexicalized non-modal elements can trigger modal meanings via pragmatics. Second, whether gestures express modal meanings and potentially can be lexicalized and enter the language as discourse or grammatical markers. The final goal is to contribute to the discussion on the two routes posited by Wilcox from a synchronic perspective.

When signers communicate, they produce fully-lexical signs (highly conventionalised signs in form and meaning, stable across contexts), partly-lexical signs (signs combining conventional and nonconventional elements, which must be contextualised to understand their meaning) and gestures (non-lexicalised manual activity that is sometimes shared with the surrounding SpL culture) (Johnston, 2015). Since palm-up gesture is very frequent, we decided to analyze its possible functions with regard to modality.

Research on multimodality has highlighted the modal functions of the palm-up gesture in several languages (Kendon, 2004; Morris, et al., 1979; Müller, 2004, 2013; Payrató, 2014; Streeck, 2009). For instance, Kendon (2004) has observed the functions developed by the 'palm up family of gestures' (or the *Open Hand Supine with lateral movement* in his terminology) in the following contexts (emphasis added) (467):

(467) Palm-up functions in spoken discourse (Kendon, 2004, p. 275)

- (i) "When the speaker expresses **unwillingness** or **inability** to intervene in respect or something."
- (ii) "When the speaker admits, accepts or claims that **something is 'obvious'**, about which nothing further need be said."
- (iii) "When the speaker displays being open to suggestions or shows that something that has been suggested is a **possibility** which the speaker neither denies nor accepts. In such cases the gesture is a way of saying that something 'could be so' but **without making any commitment** to any position with regard to it."

- (iv) "When the speaker indicates that **the other is free to do something**, as when the other is invited to enter a shop, to make themselves comfortable in a restaurant, or in other situations where the speaker **shows being available** to serve the other."

Briefly, the palm-up gesture in spoken languages discourse is used to express: (i) volitional meanings, lack of internal or contextual ability/capability, (ii) epistemic necessity/evidentiality, (iii) epistemic possibility, and (iv) permission and availability.

In what follows, we will aim at addressing the RQ 14, i.e. **Do gestures/discourse markers express modal nuances? Does it contribute to the discussion on grammaticalization paths for sign languages?** Specifically, we will ascertain whether the palm-up form accomplishes modal functions, that is, gestures that convey the signer's perspective on the certainty, possibility, and truth of information in the discourse as well as non-epistemic meanings.

10.4.1 Modal functions of palm-up form in LSC discourse

The analysis of the palm-up forms in LSC reveals that they can be considered a cluster (or family) with several symbolic units consisting of a form and a meaning. The analysis of the LSC discourse shows that the *palm-up* family of gestures accomplishes the modal functions summarized in Table 10.3:

Table 10.3 Modal functions of palm-up gesture in LSC discourse

Modal categories	Specific discourse functions
deontic possibility	"permission", acceptance of ideas or actions
inability	Resignation lack of opinion or responsibility for the actions
epistemic possibility	possibility confirmation request possibility in answer
uncertainty	lack of knowledge lack of certainty
certainty	confirmation answer certainty

Also, we identified the characteristics of the non-manuals (body, head and facial expression) produced in co-occurrence with the palm-up gestures expressing the modal functions as pointed out in Table 10.3.

Table 10.4 Co-occurrence of non-manuals with palm-up gestures

Modal function	Main non-manuals
Deontic possibility	movement of the head downwards movement of the torso forwards or to one side raised or furrowed brows lip protrusion
Inability	lowered corners of the mouth closed eyes
Uncertainty	shoulder shrug lowered corners of the mouth movement of the head downwards movement of the torso from one side to the other lateral head movement raised or furrowed brows puffed cheeks
Possibility	agreement request: visual contact with the interlocutor lowered corners of the mouth movement of the torso from one side to the other lateral head movement raised or furrowed brows puffed cheeks
certainty	confirmation of agreement: visual contact with the interlocutor head nod raised brows LCM, MtorSS, LHM, R/F Br, Pc

In what follows, we will illustrate the functions listed in Table 10.3 and the non-manuals produced, as listed in Table 10.4. In (468) the signer expresses her resignation when, after spending the summer in Switzerland, she “must” come back with a lot of food, such as chocolate, as souvenir. The palm-up shows lack of knowledge (lack of internal capability).

(468) EES V3_2:59 ES (CR)

[SABER.NO]-neg VENIR PESAR [PRO.1 SABER.NO]-neg MENJAR POSAR **g:palm-up**

know-NOT come weigh know-NOT eat put

‘No ho sé. Vindrem carregats. No ho sé. (gesture: quin remei)’

‘I don’t know. We will come here carrying many things. I don’t know. (gesture: what else can we do?)’

Her facial expression highlights by lowered corners of the mouth, closed eyes and shoulder shrug (Figure 10.68).



Figure 10.68 Palm-up form expressing resignation

Deontic possibility is shown in the fragment in (469), where the interlocutors are discussing about the interviewee's future job opportunities. The interviewer suggests some possibilities for professional improvement, since she knows personally the situation and her managers. The interviewee reacts positively to the proposals and is pleased to accept them. Discursively, this acceptation is interpreted pragmatically as "granting permission" to the interlocutor for expressing his own ideas.

(469) EMS V8_02:47 MS

TANT.DE.BÓ p BÉ gest.palm.up.endavant p [VOLER]-cond CONTENT PRO.1(5)

I wish well go.on to.want to.be.happy

'Tant de bo. Estaria molt bé. Gest: endavant. Si volen, jo estaria contenta.'

'I wish so. It would be great. Gesture: forward. If they want, I would be happy.'

The facial expression as well the position of the head is clearly different when compared to epistemic possibility and uncertainty, seen in previous examples. See in Figure 10.69 how the signer keeps visual contact with her interlocutor, produces a head nod with raised brows and her hand is oriented towards her interlocutor's head.



Figure 10.69 PALM-UP form (permission)

Moreover, epistemic possibility is illustrated in (470), when complaining about the large number of documents that the signer must bring in her family trips to foreign countries. The palm-up, jointly with the manual sign PER.SI.DE.CAS ‘just in case’, expresses epistemic possibility.

(470) EES 00:11:36 ES

HAYER.DE p **g:palm-up** p PER.SI.DE.CAS **g:palm-up**
must just in case

(PER.SI.DE.CAS / **g:palm-up**)
just.in.case

TOT EXAGERAT CLI:“portar.molts.documents” p ACABAR IX.a IX.ab p [GUANYAR sí NO]-alt.
everything exaggerated bring.a.lot.of.documents to.finish this that to.gain yes not

SABER.NO **g:palm-up** HAYER.DE
to.know.not have.to

‘És necessari, *gest.* Només per si de cas, *gest.* (Només per si de cas/*gest.*). Porto tots els documents, (tot i que) és una mica exagerat. Un per a una cosa, un altre per a una altra... Si em serà beneficiós?, no ho sé. Què és necessari (portar-los)? Està clar.’

‘It is necessary, *possibility gesture.* Just in case, *possibility gesture.* Just in case *possibility gesture,* I bring all the documents, although it is an exaggeration. This for one thing, that for another thing... Whether we will gain some advantage, I don’t know about that. It is necessary [to bring them] *possibility gesture.*’

Note in the picture in Figure 10.70 how the issuer produces the palm-up gesture with her non-dominant hand while signing simultaneously the manual sign PER.SI.DE.CAS (‘just in case’) with the dominant one. Also, it is relevant that the signer looks away and does not maintain visual contact with her interlocutor. This is characteristic of lack of certainty.



Figure 10.70 PALM-UP (possibility)

A different use is shown in (471), in which the signer is expressing a confirmation request through the use of the palm-up form.

(471) EES V3_03:08 JMS (CR)

Int.: VOLER DIR 4 PERSONA QUATRE p DIR SOBRAR 3 PERSONA HAVER.HI.NO p
to.want to.say person to.say to.excess person there.be.NEG

[PRO.2 PER.A MENJAR COMPRAR QUANTITAT]-q
for to.eat to.buy quantity

Resp.: []nod

Int.: g:**palm-up**

Resp.: PODER

may

Int.: Vol dir per a quatre persones? Dius que hi ha de sobres. Tu compres (prou) quantitat per a menjar?

Resp.: (Sí)

Int.: (Doncs?)

Resp.: És possible.

Int.: You mean for four people? You say there is more than enough. Do you buy (enough) to eat?

Resp.: (Yes)

Int.: (So?)

Resp.: It is possible.

Another intersubjective use is related with the expression of agreement with the opinion formulated by the interlocutor, as in Figure 10.71. The signer gives support pointing out that it may be a possibility. In these cases, the palm up is two-handed (EJG 00:00:42 JMS).



Figure 10.71 PALM-UP form (two-handed)

The issuer in the excerpt in (472) expresses her uncertainty and skepticism about the future, that is denial of epistemic possibility.

(472) EMS V8_00:14 MS (EMS 00:32:40 MS)

[FUTUR]-top [BÉ]-q [MALAMENT]-q

future god bad

'Com serà el futur? Bo? Dolent? (gest: "que sé jo".)'

'The future... Would be good? Would be bad? uncertainty.gesture.'

In this example, uncertainty is signaled with shoulder shrug, lowered corners of the mouth, raised brows and puffed cheeks as shown in Figure 10.72. Again, uncertainty implies a lateral head movement and looking away.



Figure 10.72 PALM-UP form (uncertainty)

The use of the palm-up form is very frequent in LSC discourse. This leads us to suggest that we are witnessing an on-going grammaticalization process. That is, we believe that the high frequency of palm-up and the functions accomplished in LSC discourse as a modal discourse marker make it a candidate for being a modal gram. Another relevant issue that arises in the fragments discussed above, (468) through (472), is the fact that

the palm-up form is mostly used in performative or in the context of enacted quotes, as in the excerpt in (473), in which the signer recounts her experiences as a child visiting the entity where she will eventually work as an adult.

(473) EES 00:00:55

CA:signer<BÉ [PARLAR PODER DIRECTOR AVISAR-2aCONC3b]-q>

good to.speak can director let.know

DIR CA:director<[VOLER PODER **PASSAR-3aLOC3b**]>

to.say to.want can to.go.in

'Podria parlar amb el director? Poden avisar-lo? És clar que poden passar—ens van respondre.'

'Could I speak with the director? Could you tell him that? Of course, you can – they answered.'

In Figure 10.73, we can observe how the signer “quotes” her grandfather discourse in the narrative. Particularly interesting is the used of the palm-up gesture with a lateral movement indicating that **the other is free to do enter at the office**, to make them comfortable.



Figure 10.73 PALM-UP form (physical movement)

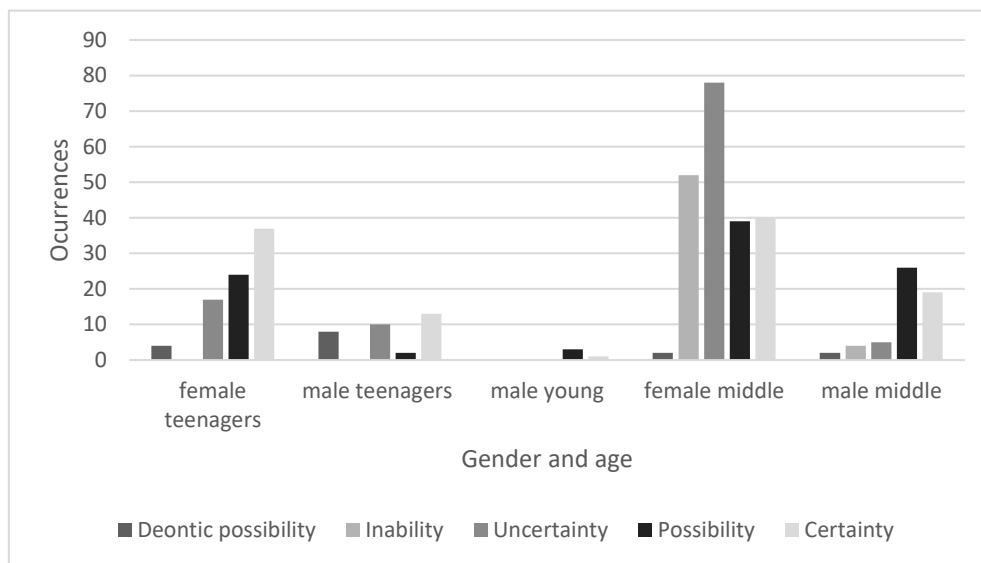
The use of palm-up with this function has been addressed in Payrató (2013) with the name of “passeu” gesture: “l’oferta feta amb el palmell, que mira enfora o enlaire tot apuntant cap al lloc on es traslladaran el “convidat” i qui fa l’oferta (que, doncs, es compromet a no barrar el pas)”¹⁴⁷, (2013, p. 40). In LSF, the gesture has been lexicalized as CÉDER ‘to give up’, defined as “cesser de résister à (personnes)” (Signes de Sens, 2012).

¹⁴⁷ ‘the offer made with the palm, which looks outwards or upwards pointing to the place where the “guest” and the person that makes the offer (which, then, commits not to block the way) will move’

10.4.2 Palm-up form status in LSC

Since we wanted to define the criteria to categorize the palm-up units as gestures versus discourse markers or modality grams, in the grammaticalization process (Amundsen & Halvorsen, 2011; Kendon, 2004; McNeill, 2005), we observed their frequency in discourse.

In Jarque, Palmer and Pascual (2013), we studied the frequency of the palm-up gesture expressing modal notions across age and gender. We compared its use in four interviews (the 2 corresponding to the dissertation corpus and 2 for the Palmer corpus), using the same techniques: (i) 1 young male and two female teenagers, (ii) 1 young male and 2 male teenagers, (iii) 1 male and 1 female adults, and (iv) 1 male and 1 female adult. The results are shown Graphic 10.4.



Graphic 10.4 Palm-up frequency and age-related distribution

The results show a different pattern in the use of the palm-up gesture among male and female participants. Also, keeping in mind that the two female adults are interviewees, they use of the palm-up gesture expressing uncertainty is much superior than in the case of the male participant. The second difference concerns the use of palm-up signaling inability. Interestingly, the young female participants do not show the female adult pattern.

Apart from the high frequency of use, we are interested in how they are used, in particular whether with a performative or a descriptive use (Nuyts, 2001). We identified some uses of these gestures in discourse that do not correspond to a pure performative or descriptive context, but they show an integration of both. In these cases, the signer has as a goal to describe a situation in the past, but the style is performative, i.e. the signer, through the use of constructed action/discourse adopts the entity's attitude, discourse and actions. We consider this discourse structure a case of fictive interaction (Pascual, 2002, 2006, 2014) or virtual speech act (Langacker, 1999). (See chapter 8 on evidentiality for a comprehensive characterization of constructed action/discourse in signed languages.)

The importance of constructed action in signed languages in general, and in LSC in particular, makes it a linguistic context particularly relevant to facilitate the grammaticalization of the palm-up gesture, that could evolve and become a modal gram. Comparing with similar items across signed languages, its behavior coincides with the situation in Indo-Pakistani Sign Language (IPSL): the lexical verb PASS grammaticalized into a modal verb expressing root possibility or permission. However, it cannot be used to entail dynamic possibility, such as learned abilities. This function is accomplished in IPSL with the sign KNOW (Pfau & Steinbach, 2006). Moreover, in LIS the palm-up form seems to be fully grammaticalized as an imperative marker (Donati et al., 2017).

The analysis of the palm-up forms in LSC reveals that they can be considered a cluster (or family) with several symbolic units consisting of a form and a meaning. Two of them are particularly relevant because they seem to show less variability in the form and more concrete function.

10.5 Findings and research questions

Throughout the chapter we have examined several issues concerning the grammaticalization of modal forms in LSC. In what follows, we will summarize the main findings examined in previous sections and will discuss the research questions addressed in this chapter.

10.5.1 Research question 13: Gestural, lexical and grammatical sources

First, we have put forward the origin of the modal elements addressed in chapters 6 and 7, trying to identify the lexical or grammatical source and discussing the possible grammaticalization paths. Secondly, we have tried to ascertain whether this lexical item has a gestural origin. To attain these two goals, we have applied an internal reconstruction methodology as well as comparing the data with the linguistic elements in signed languages from the same family, namely LSF, LIS, LIBRAS, LSG and ASL. In some cases, the data suggest that the LSC sign is a borrowing from LSF and, thus, we have hypothesized the evolution from gestural or lexical sources in this language in order to be able to quantify the type of source.

A summary of the results with respect to positive modals is presented in Table 10.5. For grammatical source we have considered those signs that also express another relational meaning linked to grammatical categories. For instance, the sign NO! has its source in the negative marker/adverb for expressing standard sentential negation and the sign ZERO works as a quantifier.

Table 10.5 Origin and functions of positive modal forms

	gestural origin		lexical meaning	gram meaning	modal grammatical meaning				
	manual	non-manual			volit	intern	root	deontic	epist.
ACONSELLAR	?	√	√	-	-	-	-	√	-
AGRADAR	√	√	√	-	√	-	-	-	-
A.VEURE	√	√	√	-	√	-	-	-	√
CONCEDIR	√	√	√	-	-	-	-	√	-
CREER	√	√	√	-	-	-	-	-	√
DEPENDRE	√	√	√	√	-	-	-	-	√
DEURE	√	√	-	√	-	-	-	√	-
DUBTAR.INC	?	√	-	-	-	-	-	-	√
DUBTAR.IND	?	√	√	-	-	-	-	-	√
ESPERAR	√	√	√	-	√	-	-	-	-
SER.ESTIRAT.FOR	√	√	√	-	-	-	√	√	-
HAVER.DE	√	√	-	-	-	√	√	√	-
INTERROGAR.SE	√	√	√	-	-	-	-	-	√
MANAR	√	√	√	-	-	√	√	√	-
NECESSITAR	√	√	√	-	-	√	√	√	-
OBLIGAR	√	√	√	-	-	-	√	√	-
TENIR.PACIÊNCIA	?	√	√	-	-	-	√	-	-
PENSAR	√	√	√	-	√	-	-	-	√
PERMETRE	√	√	√	-	-	√*	√*	√	-
PER.SI.DE.CAS	√	√	-	-	-	-	-	-	√
PODER	√	√	√*	-	-	√	√	√	√
REQUERIR	√	√	√	-	-	-	√	√	-
SABER	?	√	√	-	-	√	-	-	√
SER.CAPAÇ	√	√	-	-	-	√	√	-	√*
SER.DIFÍCIL	?	√	√	-	-	-	-	-	√
SER.FÁCIL	√	√	√	-	-	-	-	-	√

	gestural origin		lexical meaning	gram meaning	modal grammatical meaning				
	manual	non-manual			volit	intern	root	deontic	epist.
SER.LLEI	-	√	-	-	-	√	√	√	-
SER.SEGUR	√	√	√	-	√	-	-	-	√
TANT.DE.BÓ	√	√	-	-	√	-	-	-	-
TENIR.GANES	?	√	√	-	√	-	-	-	-
TENIR.HABILITAT	√	√	-	-	-	√	-	-	-
VOLER	√	√	√	-	√	-	-	-	-
Total	24	32	24	2	8	8	10	12	13
%	75	100	75	6,3	25	25	31,3	37,5	40,6

As for negative modals, the summary of the results is given in Table 10.6. The general negative marker NO 'not,' unlike the negative command NO!, is not included in the table.

Table 10.6 Origin and functions of negative modal forms

	gestural origin		lexical meaning	gram meaning	modal grammatical meaning				
	manual	non-manual			volit	intern	root	deontic	epist
NO!	√	√	-	√	-	-	-	√	-
PODER.NO	√	√	-	-	√	√	√	√	√
PROHIBIR	√	√	-	√	-	-	-	√	-
SABER.NO	?	√	√	-	-	√	-	-	√
SABER+ZERO	√	√	√	√	-	√	-	-	√
SER.IMPOSSIBLE	√	√	-	-	-	√	√	√	√
SER.INÚTIL	√	√	√	-	-	√	√	√	√
ZERO	√	√	√	√	-	√	-	-	-
Total	7	8	4	4	1	6	3	5	5
%	87,5	100	50	50	12,5	75	37,5	62,5	62,5

The data in Table 10.5 and Table 10.6 also show that only a small number of modal elements can be considered candidates for auxiliary status, i.e. those that display a highest number of modal functions, namely PODER/PODER.EPIST, NECESSITAR, HAVER.DE/SER.SEGUR and SER.IMPOSSIBLE. This issue will be addressed in 10.5.2. Table 10.7 presents a summary of the results. It includes both positive and negative signs.

Table 10.7 Number of modal forms with gestural sources

Polarity	Total	Lexical source	Grammatical source	Gestural source	
				Manual	Non-manual
Positive	32	24	2	24	32
Negative	8	4	4	7	8
Total	40	28	6	31	40

%	-	70	15	77,5	100
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This methodology is not exempt from problems, especially because of the paucity of data and particularly with reference to the genetic and developmental links between ASL, LSF, LSE and LSC.

We have just examined whether the form is documented in the other languages in order to be able to obtain traces or clues, without implying in any case that the sign was borrowed in one sense or the other. More research on deaf education needs to be done in order to establish the direction of possible borrowings or calques by contact among signed languages, or by the use of elements taken from signed language and used as “methodical signs” when teaching to deaf students in public and religious schools during the nineteenth and twentieth century.

Our search for gestural and lexical sources shows that a high percentage of modal forms have a lexical counterpart (70 %), some express, also, other relational meanings (15 %), and in an even higher percentage we are able to identify, or at least hypothesize, the potential manual “raw gestural material” (77,5 %). All signs display non-manual features identified in gestural studies.

10.5.2 Research question 14: Prototype modals in LSC

In this section, we will address **RQ 14**: Does LSC exhibit prototypical modal grams? To attain this goal, we will ascertain that the signs examined are proper auxiliaries considering the criteria and properties examined in Chapter 2 with regard to lexicalization, grammaticalization and pragmaticalization as systematized by Beijering (2012) (Table 2.2). The arguments for this selection are provided in (474):

(474) Prototypicality criteria

- (i) **Number of modal values**: These signs signal three or more modal values.
- (ii) **Relation with its lexical counterpart**: one can observe a generalization of meaning or semantic change with respect to the lexical source (not desemantization/semantic bleaching). In some case, the lexical counterpart is not used or does not exist in the language at present.

- (iii) **Semantic properties:** they are used in all the linguistic contexts and show no semantic restrictions.
- (iv) **Use frequency:** they are the most frequently used modal constructions.

After the previous discussion of the signs, we conclude that a few of them are candidates to auxiliary status. DEURE, HAVER.DE, NECESSITAR, PODER, SER.SEGUR and SER.IMPOSSIBLE are highly polyfunctional and cover all the functions in three non-epistemic subdomains. Hansen and de Haan (2009, p. 514) consider polyfunctionality as a crucial feature distinguishing a modal from a lexical element. Other candidates to modal status are NECESSITAR 'need' and DEURE 'must'. Stemming from the properties of lexicalization, grammaticalization and pragmaticalization summarized/systematized and proposed by Beijering (2012), we will check those that can be examined taking into account synchronic data, to the extent that current knowledge about the language allows us.

Table 10.8 presents the mechanisms in language change for LSC modals. We will refer to the specific manual elements, and not the whole construction, since our goal is to discuss synchronic properties and analyze them as the result of developmental processes. Therefore, we will group together PODER with non-epistemic and epistemic functions since they belong to the same developmental path, even though PODER with epistemic value constitutes a different construction. This applies also to HAVER.DE and SER.SEGUR because we consider the formal difference in the movement between both as a product of language change.

Table 10.8 Mechanisms in language change of LSC modals

Mechanisms	Mechanisms in language change	PODER/ PODER. EPIST	HAVER.DE /SER. SEGUR	NECESSI- TAR	DEURE
reinterpretation	propositional > extra-propositional status	√	√	?	√
	categorial reanalysis	?	√	√	√
	constituent internal reanalysis: syntagm > (simple) lexeme	√ TC > O > par	√	?	?
reinterpretation	referential > relational meaning	√	√	√	-

Mechanisms	Mechanisms in language change	PODER/ PODER. EPIST	HAYER.DE /SER. SEGUR	NECESSI- TAR	DEURE
(metaphor/ metonymy)	relational > relational meaning	√	√	-	√
	referential/relational > communicative meaning	√	-	-	-

The communicative meaning of PODER refers to the polite use with the meaning of encouraging to act/participate in a situation. This use might be considered half way between possibility and necessity.

Regarding the characteristics of changes of the primitive forms, we have considered necessary to add specific properties to capture the development from gestural to lexical/grammatical forms (They are indicated in grey shadow), for instance changes in phonological/phonetic substance that tend to “adapt” gestural forms to phonological/phonetic properties in LSC, such as hands symmetry, location in neutral signing space, accuracy in hand configuration adopting a handshape value existing/conventional in the language, etc. This is the case of DEURE, from the gestural intensifier discourse marker to necessity modal. Table 10.9 presents primitive changes for LSC modals.

Table 10.9 Primitive changes in the development of LSC modals

Area	Primitive changes	PODER/ PODER.EPIST	HAYER.DE/ SER.SEGUR	NECESSI- TAR	DEURE
Phonology	loss of phonological/phonetic substance	√	√	-	
	consistency/systematicity	√	√	√	√
Syntax	syntactic variability	√	√		
	syntactic autonomy	√	√		
Semantics	loss of semantic substance	√	/	-	-
	pragmatic strengthening	√	(=) no	√	√
Discourse/	subjectification	(=) √	(=) no	-	?

Area	Primitive changes	PODER/ PODER.EPIST	HAYER.DE/ SER.SEGUR	NECESSI- TAR	DEURE
pragmatics	intersubjectification	(=) √	no	-	?

As discussed in Section 10.2.2.2, PODER may have as a primitive the manual gesture locating both hands on the heart and expressing 'to love', and becoming later a predicate meaning 'to love, to like', as it is documented in the old and contemporary LSF dictionaries (Delaporte, 2007; Péliissier, 1856).

The gestural source of NECESSITAR and DEURE continued to exist along with the lexical and grammatical forms. We have added to Beijering (2012)'s list the "pragmatic strengthening", since we agree with Traugott (1988) and Traugott and König (1991), that argued that semantic change intervening in grammaticalization processes are better characterized as the raising of a new semantic value, more subjective, than the cancelling of the lexical meaning. The side effects of formal reanalysis and semantic reinterpretation for LSC modals are given in Table 10.10.

Table 10.10 Side effects of change in the development of LSC modals

Side effects of change	PODER/ PODER.EPIST	HAYER.DE/ SER.SEGUR	NECESSI- TAR	DEURE
paradigmatism	-	-	-	-
obligatorification	(-)	(-)	(-)	(-)
condensation	?	?	?	?
layering/divergence/specialization/persistence	√	√	?	?
productivity	?	?	?	?
frequency	√	√	(-)	(-)
typological generality	√	√	√	?

The values for obligatorification of PODER/PODER.EPIST and HAYER.DE/SER.SEGUR are evaluated as (-) since they are not grammatically obligatory, although they may be 'communicatively obligatory' (Beijering, 2012).

Table 10.11 (Inter)subjectification properties

(Inter)subjectification	PODER/ PODER.EPIST	HAYER.DE/ SER.SEGUR	NECESSI- TAR	DEURE
subjectification (signer perspective, attitude and judgement) - ideational level [meta-linguistic meanings]	√	√	-	-
intersubjectification (interaction with interlocutor) - interpersonal level communicative meanings (mitigation)	√	√	-	-

Overall, PODER, PODER.EPIST, HAYER.DE and SER.SEGUR meet more criteria than NECESSITAR and DEURE. Some parameters proposed in grammaticalization theory are difficult to apply to signed languages. That is the case of decategorialization, i.e. loss of morphosyntactic properties characteristic of lexical or other less grammaticalized forms (Lehmann, 1982/1995). Verbs in signed languages do not exhibit obligatory morphemes for grammatical categories. Therefore, this parameter is not applicable. On the contrary, we can observe, as a result of a process of grammaticalization, an increase in the use of the most frequent morphological patterns (expressing, for instance, the semantic functions of agent and patient/theme) and, at the same time, a process of conventionalization of the syntactic constructions where they are used (constructionalization).

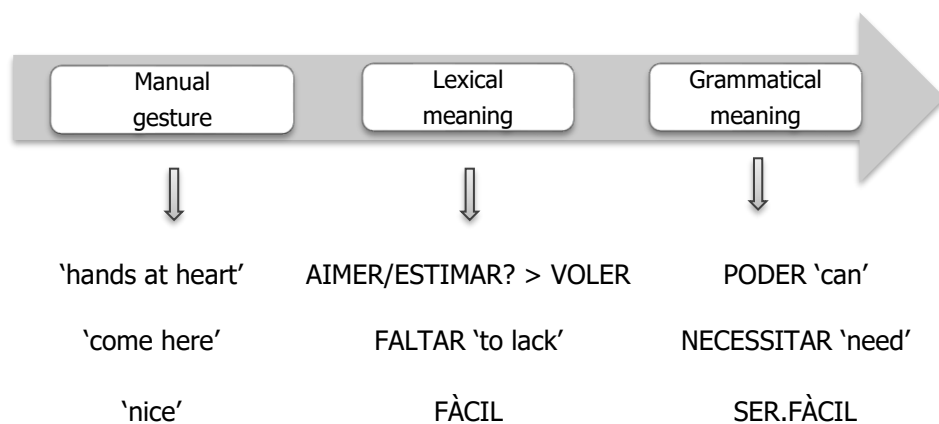
Regarding extension –i.e. the rise of new grammatical meanings when linguistic expressions are extended to new contexts (context-induced reinterpretation) – it cannot be observed because of the lack of diachronic data. The same applies to erosion (‘phonetic reduction’), i.e. loss in phonetic substance. Diachronic changes in lexical items in LSC show decrease as well increase in phonetic substance due to the preference for similarity or homogenization among the two manual articulators.

It is also difficult to confirm the general hypothesis that epistemic modals develop out of agent-oriented/deontic/non-epistemic modals (Bybee, et al., 1994; Coates, 1983; Traugott, 1989). This hypothesis establishes a unidirectional path from agent-oriented possibility to epistemic possibility, and from agent-oriented necessity to epistemic necessity, but not from agent-oriented possibility to agent-oriented necessity or

epistemic possibility to epistemic necessity (van der Auwera and Plungian, 1998). The existence and use of the gestural elements such as the ring-family expressing modal values in spoken multimodal communication (discourse) and the presence of similar elements in the signed language grammar casts doubts on the semantic direction of the path, as well as on the relation between spoken discourse and signed discourse and grammar. We will address this discussion in detail in the discussion chapter.

10.5.3 Research question 15: Grammaticalization paths and routes in LSC

Building on the hypothesis developed by Wilcox and colleagues (Janzen & Shaffer, 2002; Shaffer & Janzen, 2000; S. Wilcox, 2004, 2007; S. Wilcox, et al., 2010; S. Wilcox et al., 2000), data from LSC confirm that grammatical expressions may develop from two routes. As for the first route, we have been able to suggest a lexical source element in 70 % of modal forms, and 77,5 % of the manual signs may be related to a quotable gesture from the Mediterranean tradition. Instances are given in as follows (Graphic 10.5):

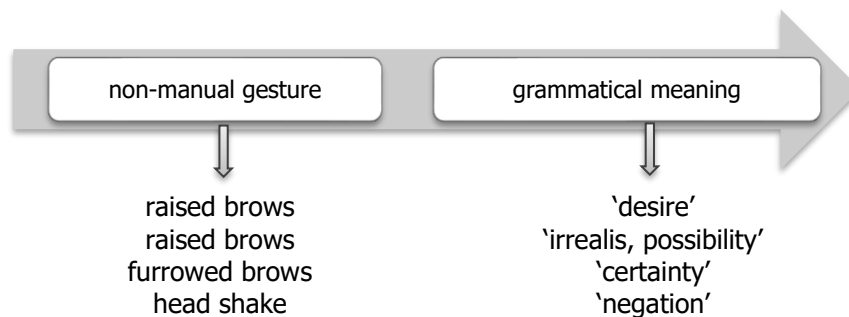


Graphic 10.5 Route 1: from manual gesture to grammar

In other words, the data suggest that emblems from multimodal communication tend to enter in the LSC through a process of lexicalization, but it is not for all the grammatical elements. In some cases, the records in the old LSF dictionaries show sign forms that resemble more the gesture than the actual signs in LSC. We have discussed this path in detail examining the particular case of PODER, as a prototype element of the category modals in LSC.

We have posited that modal PODER has its source in the lexical sign meaning 'to love, to like'. This is the case for AIMER.2 'to love' and AIMER.3, predecessor of the present modal form PODER. The present LSC lexical item VOLER 'to want' differs slightly respect AIMER.3, which coincides totally with the current VOLER. A variant form of the gesture 'hands at heart', but with the arms crossed on the torso, do exist in LSC with the meaning of 'to love'.

In addition, our data also confirm the second development route posit by Wilcox (S. Wilcox, 2002, 2007; S. Wilcox, et al., 2010), as illustrate in Graphic 10.6.



Graphic 10.6 Route 2: from nonmanual gesture to grammar

In this second route, prosodic and intonational devices develop into grammatical elements in LSC. This developmental perspective provides an explanation of the relation between gesture and signed languages. We will discuss this issue in depth in Chapter 12.

Concerning grammaticalization and cognitive mechanisms, in previous works, we have described -at the lexical level- the complex interaction between conceptual metonymy, metaphor, and iconicity showing mappings in the conceptual space (Jarque, 2005; Jarque & Wilcox, 2000; S. Wilcox, et al., 2003). This dissertation has expanded this analysis to the grammatical level showing that conceptual metonymy contributes to raising of grammatical meaning.

The main cognitive mechanism at work is metonymy through invited inferencing. In Table 10.12, we provide a summary of the main metonymies discussed in chapter 10.

Table 10.12 Conceptual metonymies in the modality domain in LSC

Conceptual metonymies	Examples
the potency for the action	SER.FÁCIL 'to be easy' > possibility
	SER.DIFÍCIL 'to be difficult' > lack of possibility
the necessity for the absence	NECESSITAR 'to lack' > necessity
the obligation for the action	DEURE 'negative quantifier' > obligation
the obligation for the presence	OBLIGAR 'to oblige'
lack of the action for the lack of physical strength	IMPOSSIBLE 'lack of physical strength' > lack of the action (situation)
	INÚTIL 'lack of physical force' > lack of the action (situation)

The metonymies in Table 10.12 constitute instance of a process of subjectification in *à la* Traugott (Traugott, 1989, 2010). The cline from 'to be easy/difficult' to 'to be possible/impossible' represents a case of ideational (non-subjective, or less subjective) meanings becoming subjective, i.e. encoding signer's attitudes and beliefs. This is also the case for the change from 'deny of existence' to 'necessary'.

The shift from the epistemic cognitive predicate construction to the use of the reduced form [PRO.1 PENSAR] and [PRO.1 CREURE] as a parenthetical structure constitutes a case of intersubjectification (Traugott, 2010).

So far, the discussion has concerned the specific forms. However, it is worth mentioning that the changes take place within a construction. So the shift is described better as constructionalization (Traugott & Trousdale, 2013) (475) and (476):

(475) lexical /constructional item > grammaticalized item

(476) lexical PENSAR > grammatical construction [PRO.1 PENSAR verb/proposition] > parenthetical

Arguments in favour of this path are formal: the pronoun presents a more reduced form along the cline, being almost unnoticeable/imperceptible in the parenthetical use. In some cases, it has been reduced to a brief movement towards the signer's torso, without

contact with the body and with the handshape totally assimilate to PENSAR and CREURE. The last function would be analyzed as *secondary grammaticalization* by Traugott (1989, 2010), Garachana (2015) and as pragmaticalization by Beijring (2012).

Indeed, the combination of manual and non-manual elements for expressing modal functions can be explained in terms of constructionalization. In other words, we suggest that lexical material adopts a grammatical function when it is produced in the context of facial and body elements within a specific ordering of elements. So, modal grammatical constructions in LSC will be formed by manual elements grouped in several types of syntactic, facial, and body elements.

10.5.4 Research question 16: Modal readings via pragmatics

In section 10.3 we have discussed RQ 16: *Do LSC forms adopt modal readings via pragmatics?* Our discussion of the signs TENIR.PACIÈNCIA ‘to be patient’, TENIR.COMPRÒMÍS ‘to have a compromise’ and ACABAR ‘to finish’ (examined in Chapter 9) have shown that they can trigger modal readings in appropriate semantic and syntactic contexts. These signs are candidates for future modal elements in LSC.

Also, we looked at the construction MÉS+HAVER.HI.NO ‘there is nothing to be done’, as an instance of a colloconstruction expressing resignation and obligation imposed by the circumstances.

10.5.5 Research question 17: Gestural forms and modal functions

With the purpose of describing on-going changes in LSC, we formulated RQ 17 as follows: Do gestures/discourse markers express modal nuances? Do they contribute to the discussion on grammaticalization paths for sign languages? Specifically, based on previous studies of the palm-up gesture in spoken and signed languages and taking into account its high frequency in LSC, we considered interesting to analyse whether palm-up forms accomplish modal functions in LSC and which implications would this posit for grammaticalization and discursivization theory. As for modal functions, we have identified the following (477):

(477) Modal functions of palm-up forms in LSC discourse

- (i) deontic possibility (permission)
- (ii) inability (resignation, lack of opinion or responsibility for the actions)
- (iii) epistemic possibility (possibility, confirmation request, possibility in answer)
- (iv) uncertainty (lack of knowledge, lack of certainty), and
- (v) certainty (confirmation answer, certainty of ideas).

Two uses are particularly relevant because they show less variability in the form and more concrete function. Because of these characteristics, we consider them proper linguistic discourse markers. The data suggest, then, a third path where gesture constitutes the direct source, without passing through the lexical stage. The discourse functions of the palm-up family of gestures related with the semantic domain of modality lead us to propose the trajectory shown in Graphic 10.7.



Graphic 10.7 From discourse gesture to discourse marker

Considering them as gesture with modal function that may enter in the grammar would challenge, again, the grammaticalization theory that claims that manual gestures enter in the sign language as lexical morphemes and later develop a grammatical meaning (Cf. Wilcox et al. 2010).

This proposal has implications also for pragmaticalization theory, the type of diachronic change where elements assume functions on the discourse-pragmatic level (Beeching, 2009; Beijering, 2012; Dostie, 2009; Günthner & Mutz, 2004). Therefore, sign languages add new challenges to the already controversial theory on pragmaticalization (Harder & Boye, 2012), which -as mentioned earlier- does not consider the emergence of discourse markers out of non-linguistic material. Indeed, present-day theories on language change do not capture the linguistic fact that, in signed languages, elements of multimodal communication may be the sources of developmental paths.

Nevertheless, the relation between grammaticalization and what has been called *pragmaticalization* is a controversial issue in the area of linguistic change. Data from LSC

suggest that the two processes are distinct, giving support to the arguments defended by Harder & Boye (2012). We will address these issues in the Discussion chapter.

10.6 Final remarks

This chapter addressed research goal 3. We explored possible sources for modals elements in LSC and traced evolving processes and grammaticalization paths. The main findings with respect to research questions 13 to 15 are listed in (478) to (480).

(478) Main findings with regard to **RQ 13**: sources for modal elements

- (i) Manual emblems from the surrounding spoken community may constitute the source signs in LSC with lexical and grammatical modal functions as they exhibit formal and semantic similarities.
- (ii) Manual emblems from the surrounding spoken community with modal discourse functions constitute the source for grammatical elements in LSC.
- (iii) Non-manual emblems from the surrounding spoken community constitute the source for facial and body linguistic elements in LSC.

(479) Main findings with regard to **RQ 14**: prototypical modal grams

- (i) Some modals (i.e. PODER, NECESSITAR, HAVER.DE, SER.SEGUR and SER.IMPOSSIBLE) present properties associated to auxiliary status, namely, polyfunctionality, relation with its lexical counterpart, semantic properties and use frequency.
- (ii) NECESSITAR and DEURE meet less criteria for been considered prototypical modals.
- (iii) Some parameters proposed in grammaticalization theory focused on spoken languages and are difficult to apply to signed languages.
- (iv) Secondary grammaticalization (or pragmaticalization) processes has taken place in LSC with respect to fixation of HAVER.DE and SER.SEGUR as linguistic elements.
- (v) Data from LSC suggest that grammaticalization and pragmaticalization are two distinct processes.

- (480) Main findings with regard to **RQ 15**: grammaticalization paths of LSC modal elements
- (i) Some modals have their origin in the lexicalization of manual gestural elements.
 - (ii) Conceptual metonymy is an important cognitive mechanism is linguistic change in LSC.
 - (iii) Constructionalization is an important mechanism for grammar emergency in LSC.

With respect to the discourse dimension and RQ 16 and RQ 17, the main findings are listed in (481)-(482), respectively.

- (481) Main findings with regard to **RQ 16**: pragmatics and modal meanings
- (i) Some elements adopt modal readings in specific contexts, being candidates for future modal elements.
 - (ii) Metonymic principles guide the production and comprehension of pragmatic inferences concerning modal meanings.
- (482) Main findings with regard to **RQ 17**: modal gestural/discourse markers
- (i) The palm-up form displays several modal functions, functioning as a discourse marker.
 - (ii) The palm-up form exhibits a great variety with respect to its formal properties across functions.
 - (iii) Constructed action constitutes a linguistic context particularly relevant to facilitate the grammaticalization of the palm-up gesture, that could evolve and become a modal gram.

This chapter has shown that, since historical data on LSC is very scarce, developmental paths must be built on data from crosslinguistic research on culturally related sign languages. In addition, historical language research should be conducted in parallel to historical deaf education research, because the acquisition and use of sign languages were related to the gathering of deaf children in day and residential/boarding schools and later, as adults, in urban spaces or deaf associations.

Also, the pedagogical issues at these schools are other important factors in the research on sign language change. In particular, we single out the use of *methodical signs* and its interaction with *natural signs*, the teaching of writing and speaking skills, the influence

of manuals written for educators of the deaf, language contact between LSC and Spanish (the language of instruction), the mobility and intellectual exchanges among educators (through letters or writings), and the conception of languages based on classical philology. Finally, one should not forget the influence on the language of aspects of classical, Christian and Mediterranean cultures.

Chapter 11. LSC modals and the grounding function

11.1 Introduction

This chapter is devoted to research goal 4. The aim is to elucidate whether modals elements in LSC effect the semantic function of grounding and how this is accomplished. This goal is specified in the **RQ 18**: Do prototypical modal grams in LSC constitute grounding predications in terms of Langacker (1990b, 2002, 2013b)?

As examined in Chapter 3, grounding predications are the linguistic elements that effect the grounding function. In Cognitive Grammar, grounding is a process which establishes a basic connection between an entity – either a *thing* evoked by a noun or a *process* evoked by an infinite clause— and the ground –the interlocutors and the communication event (Evans & Green, 2006; Langacker, 1991; Taylor, 2002). In other words, grounding predications constitute the key elements for establishing a name as a nominal and a verb as a clause (Langacker, 1987, 1990a, 1991, 2009, 2013a).

Previous studies related to grounding are focused on spoken languages, mainly on Chinese (Xing, Zhang, & Chen, 2015), Dutch (Nuyts, 2002), French (Achard, 2002), German (Mortelmans, 2002), Japanese (Nobuko, 2001), Polish (Kochańska, 2002), and Spanish (Cornillie, 2003, 2005). In Chapter 3 we reviewed the contributions of these studies, and we stressed some limitations and shortcomings of the concept of grounding and grounding predications as established by Langacker.

On the other hand, one must keep in mind that Langacker (2008) asserts that “every language has its own grounding system, which must be described in its own terms” (2008, p. 272). There is only one article, published recently, that addresses the analysis of grounding in a sign language, and moreover it refers only to nominal grounding. Martínez and Wilcox (2018) analyse two grammatical implementations of nominal grounding in LSA (Argentine Sign Language): pointing and placing.

To the best of our knowledge, to date, no study has focused on clause grounding in a sign language. Clause grounding is related to modality, since it situates the verb with respect to the issuer’s current conception of reality. We discuss how clausal grounding is effected in LSC with regard to the modals discussed in chapter 6 and 7 and address the question of whether the core modals in LSC, as examined in chapter 10, constitute grounding predications.

This chapter is organized as follows. In Section 11.2 we examine the modal and the possible grounding predication status of prototypical modals discussing their grammaticalized status (§ 11.2.1), the nature of the conceptual content (§ 11.2.2) and the nature of the construal (§ 11.2.3). Section 11.3 closes the chapter with a summary and conclusions.

11.2 LSC modals and the grounding function

In Cognitive Grammar, the language user's involvement is included in the notion of epistemic grounding, defined by Langacker (1987) as follows:

An entity is epistemically grounded when its location is specified relative to the speaker and hearer and their spheres of knowledge. For verbs, tense and mood ground an entity epistemically; for nouns, definitive/indefinite specification establish epistemic grounding. Epistemic grounding distinguishes finite verbs and clauses from nonfinite ones, and nominals (noun phrases) from simple nouns (Langacker, 1987, p. 489).

In this section, we will discuss to what extent the prototypical core modals of possibility and necessity in LSC, described in chapters 6 and 10 (PODER/PODER.EPIST and HAVER.DE/SER.SEGUR), can be considered grounding predications in the technical sense proposed by Langacker and taking into account the alternative proposals reviewed in chapter 2. We will also extend our analysis to the ASL modals CAN, POSSIBLE, MUST and SHOULD as a heuristic tool to develop a contrastive argumentation. An analysis based on the three main features of grounding predications will be provided: their highly grammaticalized status (§ 11.2.1), the nature of the conceptual content (§ 11.2.2), and the subjective construal of the ground (§ 11.2.3).

11.2.1 Grammaticalized status

In this section, we will argue that LSC modals, despite being bare elements, are highly grammaticalized. We start the discussion analysing the grammaticalized status of modals in ASL and LSC by considering their source as well as their syntactic distribution. As examined and illustrated in chapters 6, 7 and 10, the research comparing lexicalization, grammaticalization and constructionalization processes between spoken and signed languages has revealed interesting points concerning the interaction between grammatical structure and modality. On the one hand, it shows that the principles governing grammaticalization processes are very similar, e.g. the principles involved in the transition from one stage to another in a grammaticalization path are not modality-

specific. On the other hand, the analysis underscores dissimilarities regarding possible sources for grammaticalization and constructionalization. These dissimilarities indicate that modality does play a role in grammatical processes and in the construction and emergence of the language (Janzen, 2012; Meir, 2003).

One such difference concerns the source of grammatical morphemes. Besides the evolution from lexical morphemes into grammatical morphemes (Janzen, 1995; Meir, 2003; Pfau & Steinbach, 2006, 2011; Sexton, 1999; Zeshan, 2003), it has been attested how nonmanual gestures have developed into nonmanual grammatical morphemes (Janzen and Shaffer, 2002; Wilcox 2004, 2007) and that the development does not affect only the lexical material but whole composite structures (Janzen, 2017; Jarque, 2016).

The proposal by Wilcox and colleagues (S. Wilcox, 2004; S. Wilcox, Rossini, & Pizzuto, 2010) of the second route, through which a gestural element moves into the grammatical system without going through a lexical stage, has been extensively discussed in Chapter 10. With regard to the core ASL modals focused on in this chapter (CAN, POSSIBLE, MUST and SHOULD), their grammaticalization path from their initial gestural source through the lexical stage and finally to the grammatical function has been described thanks to the documentation on the Old French Sign Language, Old American Sign Language and the ASL narratives filmed in 1913¹⁴⁸.

For instance, CAN (Figure 11.1) and POSSIBLE have their source in the manual gestural expression for 'strong' in multimodal communication, which is documented as a sign with lexical meaning in Old French Sign Language, OLSF. (See Chapter 10 for other sign languages with "derived" modals from strong).

¹⁴⁸ *The Preservation of American Sign Language*, Sign Media Inc. 1977.



Figure 11.1 ASL CAN 'can'

CAN meanings range from participant internal mental/physical ability, and general ability, or skill to participant external permission and root possibility (Shaffer, Jarque, & Wilcox, 2011; P. P. Wilcox & Wilcox, 1995), whereas POSSIBLE –very similar in shape except for the reduplicated movement – signals epistemic possibility. The grammaticalization path suggested for CAN is given in (483) (Janzen & Shaffer, 2002, pp. 207-210).

(483) gesture 'strong' > lexical 'strong' > grammatical morpheme 'can' > epistemic 'can'

Furthermore, MUST and SHOULD have their origins in the manual gesture for 'to owe' (S. Wilcox, 2002). MUST covers necessity: participant-internal and external meanings, as well as root and deontic values (Shaffer, 2004). Its epistemic counterpart, SHOULD, is similar in shape, except that it is produced with a reduplicated articulation and non-manual marking.



Figure 11.2 ASL MUST 'must'

The grammaticalization path suggested for MUST (Figure 11.2) and SHOULD is given in (484) (Janzen & Shaffer, 2002, pp. 207-210).

(484) gesture 'owe' > OLSF verb 'owe' > LSF/ASL 'must', 'should' > epistemic 'should'

According to Shaffer (2004), those ASL modals serving prototypically non-epistemic functions appear in pre-verbal position, while those modals that appear in clause-final position express more subjective, non-prototypical root modality and epistemic meanings. Root modals appearing in clause-final position express less prototypical conditions, and in most cases have no salient agent. From a (diachronic) constructional point of view (Barðdal, Smirnova, Sommerer, & Gildea, 2015; Bybee, 2010; Croft, 2000; Garachana, 2015; Goldberg, 2006; Hilpert, 2014; Hopper & Traugott, 1993; Traugott & Trousdale, 2013), these grammatical patterns point toward the existence of a meso-construction. We capture these regularities in the analysis by Shaffer (2004, p. 193) in the constructional schemas listed in (485), that would constitute evolutionary steps in the grammaticalization and constructionalization process.

(485) Modal constructional schemas in ASL

(a) **Participant-internal possibility:**

[semantic.agent modal [verb]_{modal scope}]

(b) **Participant-external possibility:**

[semantic.agent [verb]_{modal scope}]

[[proposition]_{modal scope} modal]

(c) **Epistemic possibility:**

[[proposition]_{modal scope} modal]

Concerning LSC modals, that have been examined in Chapter 10, neither a fully lexical reading of PODER ('can') or PODER-EPIS ('may') co-exists with the grammatical ones, nor detailed documentation of diachronic evidence is available. We will base our analysis on two types of data: the LSC synchronic properties and the properties displayed by modals that are similar in shape and meaning in sign languages from the same family.

Taking into account data from the OLSF and LSF, we hypothesize that PODER 'can' has its source in the lexical verb meaning VOLER 'to want', product of the lexicalization of the gesture for 'to love'. The analysis of variation in the distribution and uses of the modal is of particular importance. We hypothesize that the different constructions constitute the reflection of the diachronic processes in the synchronic stages of the

language, following the internal reconstruction method applied in other studies on sign languages (Janzen, 1995; Meir, 2003).

Research on grammaticalization in spoken languages has shown that the more a linguistic expression grammaticalizes in the linguistic system, the more it becomes entrenched. Syntactic changes include constraints on the distribution of the more grammaticalized morphemes, in that their distribution is much more restricted than that of the lexical items from which they originated (Hopper & Traugott, 2003). We will argue that for the possibility modal PODER in LSC, there is a correlation between meaning and formal features such syntactic distribution and scope. As an element grammaticalizes within constructions, its meaning tends to become increasingly based on the speaker's subjective belief state or attitude toward the proposition (Traugott, 1989).

(486) Constructional schemas with PODER in LSC

(a) **Participant-internal possibility:**

[[[semantic.agent verb]_{modal scope}]-TOP [modal]_{nod}]

[semantic.agent modal [verb]_{modal scope}]

(b) **Participant-external possibility:**

[[[semantic.agent verbal action]_{modal scope}]-TOP [modal]_{nod}]

[semantic.agent modal [verbal action]_{modal scope}]

(c) **Epistemic possibility:**

[modal [propositional content]_{modal scope}]

Besides the manual elements and their ordering, the process of constructionalization includes also the non-manual component. Facial expression differs across the several constructions, as discussed in Chapter 6.

If we compare the constructions expressing modality in ASL and LSC, we can observe both differences and similarities. First at all, we found two important differences between ASL and LSC: information ordering in discourse and, more significantly, the distribution of modals. Whereas ASL commonly uses the topic-marked construction, LSC exhibits a tendency for other type of constructions and the presence of topic-comment construction with PODER in the comment is almost nonexistent in our corpus of interviews (two out of eighty occurrences and only with participant-internal possibility meanings).

On the contrary, Shaffer (2000) points out that sixty-eight percent of the modals in her database occurred in topic-comment constructions; of those, 97 percent were in the comment. Within the comment some modals appeared in pre-verbal and some in clause-final position; some were the only linguistic material in the comment (2004, p. 182). Presuppositional material is in the topic, while the signer's attitude about that information appears in the comment. In ASL the degree of subjectivity is associated with clause-final position, whereas in LSC it is in clause-initial position. Shaffer (2004), following the work by Bybee et al. (1994), argued that ASL ordering is based on iconic principles that operate in language: modals with scope over just the verb appears near the verb while modals with clausal scope appear at the end of the clause (2004, p. 193).

Furthermore, we argue, from a diachronic perspective, that the participant-internal possibility construction [[[semantic.agent verb]_{modal scope}]-TOP [modal]_{nod}] is evolutionarily older since it has a turn-taking-like structure and the epistemic one is the more recent, product of modal raising. By *turn-taking-like structure* we refer to the hypothesis that the topic-comment construction has its origin in the grammaticalization of the question-answer in interaction pattern, and thus it is the product of a process of syntacticization.

The proposal of the use of the basic frame of turn-taking as the source for non-interactive constructions for modelling thought, discourse, and grammar has been recently argued for in Cognitive Linguistics. It has been called 'fictive interaction' by Pascual (Pascual, 2002, 2006, 2008, 2010, 2014; Pascual & Sandler, 2016). It is coined *fictive* – in the sense of Talmy [1996] 2000) or Langacker (1987, 1991)— because this involves an invisible channel of communication that is construed as utterly imagined or fictive (and thus ontologically different from the scenario in which it is embedded (i.e. the context of the actual communication in the here-and-now)". We will illustrate this concept with the example in (487), from a comment by a reader in the Catalan newspaper *Ara*, after an article on the Catalan *procés*.¹⁴⁹ Consider the pragmatic function of the question addressed to other readers.

(487) Catalan (*Ara*, 19/03/2015)

Però, a tu t'ha dit que farà l'endemà en Mas amb una altra majoria parlamentària?
Declararà la DUI a les 9 del vespre en sortir al balcó?

Nooooo.....! Tornarà a marejar la perdiu i anar darrera d'una altra pastanaga, com la de l'Estatut.....!. I així va quedar de rebaixat!

¹⁴⁹ https://www.ara.cat/politica/Junqueras-ERC-27-S-dubtes_0_1323467776.html

Amb ERC guanyadora en pots estar segur que sí. La vols tu la INDEPENDENCIA?

'But did you tell me what Mas will do next day with another parliamentary majority?
Will he declare the DUI at 9 in the evening when he will show at the balcony?

Nooooo! He will beat about the bush again and go after another carrot, like the
one of the Statute! And so it was downgraded!

With ERC winning you can be sure that yes. Do you want INDEPENDENCE?'

The question in (487) is not intended to be a real question, but to express negation about what Mas has told after the elections in 1995 and his disappointment about the political situation. The use of this "fictive" question-answer is, in Catalan, a pragmatically marked resource. However, in other languages, intersubjective structures may cover obligatory grammatical values. (See Pascual (2014) and Pascual & Sandler (2016) for an overview).

Evidence for this claim comes from typological and grammaticalization research in spoken languages. An important number of studies have related discourse and syntactic structure, establishing a close relationship between: (i) questions and topics (and also topics and connectives); (ii) questions and conditionals (and also topics and conditionals); and (iii) questions and focus (and conditionals and focus); and (iv) questions and relatives (and also topics and relatives) (Geluykens, 1992; Givón, 1979; Haiman, 1978; Haspelmath & König, 1998; Heine, Claudi, & Hünne Meyer, 1991; Heine & Kuteva, 2002; Jespersen, 1940; Sankoff & Brown, 1976; Traugott, 1988). Consider the following example (488).

(488) English (Haspelmath & König, 1998)

The expert will get splendid results from a cheap box camera; others will get poor results from an expensive model. The greater the amount paid for a camera, and the more gadgets it has is no sure way of guaranteeing good results. *But whatever model you have*, study it carefully and know thoroughly how to work it and what its capabilities and limitations are. (Leuschner, 1998, p. 175).

In (488), a concessive conditional has its origin in an interrogative structure, also with clear connections with a relative. This connection between intersubjective structures and the origin of grammatical constructions seems to be the case also for signed languages, as oral languages, i.e. languages prototypically used in face-to-face interaction with no written code (Jarque, 2016; Jarque & Pascual, 2016; Pascual, 2014). Jarque (2016) argues that elements from multimodal conversation developed into polar interrogative

constructions and further grammaticalized into topic-comment constructions, focus and relatives. Furthermore, she argues that the topic-comment, formally a monological structure,

is intersubjective in nature because of its grounding functions (in Langacker's sense of mental contact) and it is the first step in the evolution from a genuine two-interlocutor-interaction to a fictive interaction construction. Hence, from a cognitive perspective, topics are reference point constructions based on an image-schematic ability (Langacker, 1987, 1991). (Jarque, 2016, p. 187)

Research on fictive interaction constructions shows that it seems to be universal, although it had been signaled that there are important differences in the degree of grammaticalization depending on the position of the given language on the orality/literacy continuum (Pascual, 2014).

On the other hand, the evolution from the LSC original construction [[[semantic.agent verb]_{modal scope}]-TOP [modal]_{nod}] to the epistemic construction [modal [propositional content]_{modal scope}] may be explained by *modal raising* as result of a subjectification process. Through modal raising, the source of the potency, initially associated with the semantic agent of the predicate situations, is displaced to the enunciator. In the first two constructional schemas, the source of potency coincides with the semantic agent (the subject) and is well delineated and easily identifiable. The modal relationship (the potency directed at the landmark process) is profiled.

In the epistemic schema, however, the landmark process is profiled. The modal marker designates the grounded process expressed in the propositional content. Attenuation of subject control indicates an increase of subjectification (Langacker, 1991, p. 273). Langacker (1999) conceives subjectification as a decrease of objectivity. It is defined as the disappearance of an objective basis for the conceived relationship, leaving behind only a subjectively construed relation. Moreover, an important number of studies point out that as linguistic elements are subjectified, they are used in increasingly peripheral positions (Traugott, 2010).

Another line that can be followed to study their degree of grammaticalization is establishing a comparison with other modal elements. As for LSC constructions with cognitive predicates, their lexical items source can be established in gestures. CREURE ('believe') has its origin in the pointing to the forehead whereas, whereas PENSAR

(‘think’) comes from a manual gesture referring to mental activity. Both predicates are used in the following constructional schema.

(489) Constructional schema with PENSAR and CREURE in LSC

[PRO.1 MENTAL.PREDICATE [proposition_{scope}]

Both microconstructions could be used to describe the same referential situation, highlighting different aspects of it through alternate choices of modal constructions. Note, for instance, the differences between (490) and (491).

(490) LSC (Shaffer, Jarque & Wilcox, 2011, p. 35)

[SI MENT+ACORD-ASP.EXHAUSTIVE PAÍS.BASC TOT.TERRITORI]-cond

if to.agree Basque.Country all.territory

[**PODER** INDEPENDÈNCIA ESPANYA]-epis

may independence Spain

‘Si tothom en el País Basc estigués d’acord, (aleshores) seria possible la independència d’Espanya.’

‘If all the people in the Basque Country agreed, (then) independence from Spain would be possible.’

(491) EMS 00:05:07 MS

[OSCA IX.allà]_{-TOP} PRO.1 PENSAR JA FER.FRED-INTENS gest:uff

Osca IX.there think already be.cold gesture:a.lot

‘Crec que ja fa fred a Osca.’

‘I think it is already cold in Osca’.

Following the developments in Cognitive Grammar, the contrast between (490) and (491) reflects the choice of conferring prominence on either the process or the conceptualizer. Semantically, both correspond to the inclination subphase within the potential phase: the conceptualizer inclines toward accepting the target proposition as part of his view of reality. However, while in (490) the conceptualizer is an implicit and “offstage” reference point, in (491) it is focused on and put “onstage”.

These constructional schemas are typical of possibility meanings in LSC. Markers of necessity do not seem to have clear distributional patterns associated to the different modal values. When appearing in lateral positions, HAVER.DE is located in initial and

final-clause position with scope over the proposition. In other cases, it appears pre-verbally. As for zero-anaphora constructions, it can be the only element or combine with the subject in final position. (For examples, we refer the reader to Chapter 6). So, the possibility modal PODER appears to have been more grammaticalized than the counterpart necessity markers –HAVER.DE ('must') for non-epistemic values and SER.SEGUR ('to be.sure'), for epistemic necessity.

Concerning LSC modals HAVER.DE and SER.SEGUR there is no attested diachronic evidence of the lexicalization or grammaticalization path in LSC. However, in Chapter 10, based on synchronic data from LSC as well as on synchronic and diachronic data from sign languages belonging to the same family, we suggested that they have their origin in the ring gesture, articulated as an F-handshape (thumb and index finger touch, forming a circle). The proposed grammaticalization paths are given in (492) and (493):

(492) gesture 'needed, essential' > verb 'to need' / predicate adjective 'needed'
> modal HAVER.DE

(493) gesture 'exact, correct' > modal SER.SEGUR
> noun 'true'

The behavior of HAVER.DE and SER.SEGUR is more similar to a discourse marker or adverbial-like element in comparison to PODER. Probably the reason lies in the pervasive use of the ring gesture in multimodal communication and the functions of Spanish word *seguro*, as adjective, predicative adjective, adverb and discourse marker (See Chapter 10 for more details).

In conclusion, LSC modals PODER, HAVER.DE, SER.SEGUR have changed since their initial identity as gestural elements in multimodal communication experiencing, along the way, lexicalization, grammaticalization and constructionalization processes. The evolution of PODER from the gesture 'to love' to cover epistemic function shows that it is a highly grammaticalized element. The evolution of HAVER.DE and SER.SEGUR seems to be a little different, including a pragmaticalization process acquiring discourse functions from manual and non-manual gestural forms and, later, developing in parallel lexical and grammatical functions.

11.2.2 The nature of the conceptual content

The second relevant issue in order to ascertain the grounding predications status of modals is the nature of their conceptual content. CAN/POSSIBLE in ASL, as well as PODER in LSC, are best understood in terms of *force dynamics* following Talmy (1988, 2000) and Sweetser (1982, 1990): possibility presupposes overcoming a resistance. Specifically, physical capability is understood as the absence of restricting force barriers with focus on potentiality or capacity to act, whereas social permission is the absence of external or internal restraint or compulsion.

On the other hand, MUST/SHOULD and HAVER.DE/SER.SEGUR are also conceptualized applying force dynamics: for internal-agent values, the agent himself behaves as a force that compels him. In the case of root and deontic values, the agent is forced by external entities, such as the (physical or cultural) context or norms (law, moral values, authority...).

In addition, semantically they are quite schematic, i.e. they lack the specificity and rich details typical of lexical items or the specialized modal elements such as the exclusive-deontic oriented modals described in Chapter 6 (e.g. DEURE and OBLIGAR). The more they have advanced along the path (experiencing grammaticalization and constructionalization), the more these constructions exhibit a "relativistic" character and their meanings are limited to general specification concerning fundamental "epistemic issues", such a reality, and identification, as it happens with PODER and MUST. They do not locate the profile entity in terms of precise values or specific units of measurement, but only relative to the issuer, one important element of the ground, i.e. they do not locate the profiled entity in absolute terms but always relative to the ground (Langacker, 1990, pp. 321-322).

11.2.3 The nature of the ground construal

Finally, the third fundamental property of grounding predications, as defined in Cognitive Grammar, is the nature of the construal of the ground. According to Langacker, modals do not profile the grounding relationship, but only the grounded process serving as their target (Langacker, 1990, p. 27). In what follows, we will examine how the construal of the ground is established in ASL and LSC modal constructions.

One of the aspects to be considered is related with the syntactic distribution. ASL and LSC modals may function as schematic, finite clauses, i.e. they can occur alone as in (494).

(494) EMS 00:13:02 MS

Int.: [EXEMPLE PRO.2 CASA PRO.2 SOL]-cond [[CUINAR]-top PODER SIN]q

example home alone to.cook can without

Resp.: PODER p PRO.1 PENSAR PODER

can to.think can

Int.: 'Si estiguessis sola a casa, podries/series capaç de passar sense cuinar?'

Resp: Podria. Crec que podria.'

Int.: 'If you would be at home by yourself, would you be able (to eat) without cooking?'

Resp.: I would be able. I think I would be able.'

The respondent answers the interviewer's question by using the modal PODER expressing ability in a reduced clause. As examined in Chapter 6 and illustrated above in (494), modals appear in zero anaphora constructions, as listed in (495).

(495) Structure of modals in zero anaphora constructions

- (i) [proposition with lexical.verb] p [subject modal]
- (ii) [proposition with lexical.verb] p [subject modal subject]
- (iii) [proposition with lexical.verb] p [subject object modal]
- (iv) [proposition with lexical.verb] p object [modal]
- (v) [proposition with lexical.verb] p [modal object]
- (vi) [proposition with lexical.verb] p [subject modal object]
- (vii) [proposition with object] p [modal verb]
- (viii) [proposition with object] p [modal]

Consider the example in (496), repeated from Chapter 7 for convenience sake, where the respondent is answering the question whether she would change her job if she had a better offer.

(496) EES 00:05:30 ES

Int.: [EXEMPLE ALTRE EMPRESA 3-ESCOLLIR-2]-cond p [3-DONAR-2 MÉS/AMUNT]-q

example other

Resp.: [SABER.NO]-neg p [PODER.EPIS]-ep p [MÉS/AMUNT]-enum p [EXCEL·LENT]-enum p

to.know.not may more to.be.excellent

[HORA MENYS]-enum [gest.saber.no SABER.NO]-neg p

hour less gesture:uncertainty to.know.not

Int.: 'Si una altra empresa t'agafés i el sou fos més alt.'

Resp.: 'No sé. És possible. Que em pagués més, estigués forca bé, menys hores. No ho sé.'

Int.: 'If another company would hire you and the salary would be higher.'

Resp.: 'I do not know. It is possible. That they pay me more, that would be excellent, less hours. I don't know.'

Both in full clauses and in the reduced ones with zero-anaphora, the ground remains implicit and offstage, as an unprofiled reference point. The conceptualizer is not explicit, because of three reasons. First, as we have already pointed out, the core modal markers in both languages do not inflect for tense, i.e. they are equivalent to bare infinitives in spoken languages. Second, they do not inflect for person since they belong to the category of plain predicates, as described in Chapter 6. Third, they do not allow inflection for aspect, as described in Chapter 9, as do other predicates. Therefore, non-finite forms may profile a process in LSC, since they show semantic properties of sequential scanning.

We can conclude, then, that the source of potency is implicit, diffuse, and subjectively construed, differently from the epistemic constructions with cognitive predicates, as shown in the constructional schemas with CREURE and PENSAR in (489), see § 11.2.1. above, where the conceptualizer is explicitly signed with a pronoun or a nominal and, thus, is objectively construed.

On the contrary, in the sentences with PODER (with epistemic value) and SER.SEGUR, the locus of potency is the conceptualizer, subjectively construed. Without being

explicitly mentioned, the signer is invoked as a point of reference serving to locate another entity. This means that it is thus not merely the platform of conception but it figures at least marginally in its content (Langacker, 1990). For instance, note the fragment (497) –repeated from Chapter 8 for convenience sake— where the respondent is answering a question about how the weather would be in her next holidays in the mountains.

(497) EES 00:23:06 ES_R

[TEMPS.ATM IX]-top SER.SEGUR PLOURE HAVER.HI p

weather must rain there.be

'Segur que hi haurà pluges.'

'It will rain for sure.'

Finally, subjectification brings the conceptualizer into the scene and involves him or her in the structuring of the conceptualization. Until now, we have differentiated the constructions expressing non-epistemic and epistemic possibility, since the latter, based on their syntactic and semantic properties, are a step further in the grammaticalization continuum. Pelyvás (2006) argues that there is a discrepancy between conceptual content and formal considerations in Langacker's definition of epistemic grounding. He concludes that only epistemic senses of the modals should be regarded as grounding predications since "in the prototypical root modals all major components of the force dynamics can be grasped and associated with participants, which may also include the speaker" (2006, p 18).

However, in LSC, in some uses of PODER or HAVER.DE concerning social norms or expectations, the force behind the obligation is implicit. Hence, we argue that the locus of potency is a subjective construal also in non-epistemic uses, as for instance in (498)—repeated from Chapter 8 for sake of readability. In the fragment, the informant is answering a question about which places must be visited according to her in Switzerland or what one should do.

(498) EES 00:12:13 ES

[RESTA]-top gest.res p VERD VALL SER.SEGUR(2h) p

the.rest nothing green valley be.sure

APOLTRONAR.SE OBLIDAR palm.up.gest.prou

to.relax *to.forget*

[HAVER.DE]-top PRO.1 MENJAR FONDUE p

must *to.eat* *fondue*

MENJAR ESPECIAL CARÀCTER SEU palm.up.gesture:prou

food *special* *character* *their* *enough*

'De la resta... les valls verdes, seure's i oblidar-se de tot. Cal menjar una fondue. Es tracta d'un menjar especial típic d'allà.'

'And, what else,... the green valleys, sitting there and forgetting about everything. You have to eat fondue. It's a typical local food.'

The interviewer in (498) expresses the “obligation” concerning the realization of some activities while being on holidays in Switzerland in a diffuse and subjective manner. HAVER.DE stands on the topic, recovering the conceptual content of the question but formally does not explicit the source of the “obligation”, pragmatically understood as the issuer but also cultural habits. In other words, the obligation force has its origin in elements from the ground which may include the issuer in the interaction, but it may change to include, also, shared beliefs and cultural knowledge and values assumed in the community. In this respect, we agree with Laury (2002), defending that the ground is not static, but rather dynamic and constantly shifting in interaction, as it is not only maintained but also created and modified by the participants (2002, p. 84).

11.2.4 Research question 18: Grounding status

We have shown that epistemic modals in LSC, as well as in ASL, constitute grounding predications. Core modals in LSC display the properties expected by Langacker's grounding theory. First, the nature of the grounded entity: they are grammaticalized. Second, the conceptual import related to the epistemic notion of reality. Third, with respect to the nature of the grounding relation and the configuration of the ground, the ground is subjectively construed.

However, we have shown that Langacker's definition of grounding predications is problematic for signed languages, thus strengthening the argument based on some languages other than English (Cornillie, 2003, 2005). For instance, for the characterization of the grammaticalized status, we have taken into account other factors not included in Langacker's analysis. Our study has looked at the syntactic environment in which the modal occurs: different semantic meanings of the modal appear in different constructional schemas.

For this reason, we agree with Mortelmans (2006) and consider that a more gradual view on grounding and subjectification is needed. This can be achieved taking into account local and constructional factors of the specific modal. In fact, instead of considering the grounding predication status of a modal, we should discuss the status of the specific modal constructions, independently of their degree of specificity. Whereas in ASL the candidate to the grounding status is the mesoconstruction including a topic-comment with the modal (e.g. MAYBE, SHOULD, MUST or FUTURE) on the comment, in LSC it may be only the microconstruction with PODER in the topic and the proposition in the comment.

In short, we have argued that, formally speaking, modal markers in LSC (but also in ASL) serve the function of clause grounding due to their reference point function and to the subjectification they undergo.

11.3 Final remarks

This chapter focused on Research Goal 4, i.e. it aimed at elucidating whether core modal elements in LSC effect the semantic function of grounding and how this is accomplished. The main findings with respect to Research Question 18 are shown in (499).

(499) Main findings with regard to RQ 18: grounding predication status for prototypical core LSC modals

- (i) Epistemic modals in LSC, as well as in ASL, constitute grounding predications since they are grammaticalized, the conceptual import is related to the epistemic notion of reality and the ground is subjectively construed.

- (ii) Langacker's original definition of grounding predications should be revisited since it does not take into account formal properties of signed languages (as well as other spoken languages typologically diverse from English).
- (iii) Constructionalization is a key process in defining the grammaticalized status of core modals in LSC and ASL, and probably in most of the sign languages studied until present.
- (iv) A gradual view of grounding would allow to establish a continuum in the characterization of grounding predications.
- (v) The conceptualization of the ground is complex and dynamic since not only it may be modified through the interaction, but also it may adopt an intersubjective or cultural perspective.

The analysis in this chapter provides a unified account of clausal grounding based on the general cognitive principles of Cognitive Grammar. This study builds upon and extends the work of Langacker (1985, 1990b, 2009, 2013a), thus contributing to Langacker's idea that grounding predications should be a universal and central feature of clause structure.

Chapter 12. Discussion

12.1 Introduction

The focus of this dissertation has been on the grammatical expression of the semantic space of modality in LSC and its relationship with the grounding function. Throughout the previous chapters, we have examined the main resources in LSC for coding the modal values and other semantic categories whose resources might function as grammatical interfaces with the former. Moreover, this dissertation echoes the voices that warn of the need to introduce the discursive perspective in order to achieve a holistic view of grammatical phenomena (Morales-López, Boldú-Menasanch, Alonso-Rodríguez, Gras-Ferrer, & Rodríguez-González, 2005; Morales-López, Reigosa, & Bobillo, 2012). For the studied areas, there was almost no previous research on LSC and just a few pieces of work in sign languages.

We have conducted the inquiry adopting a comprehensive perspective and assuming the main principles of complexity theory (Beckner et al., 2009; Cameron & Larsen-Freeman, 2008; Ellis & Larsen-Freeman, 2006; Morin, 1994), i.e. not only we examined this semantic space as an entity that is formed by entities and is in interaction with its context but we also analyzed the conditions for its emergence rejecting, thus, a reductionist approach. These three dimensions corresponds to what Capra (1996) identifies as: (i) the study of the pattern, (ii) the study of the structure, and (iii) the study of the process of life.

Whereas the description of the pattern of organization involves an abstract mapping of relationships, the description of the structure involves describing the system's actual physical components. Both issues have been addressed in Chapter 6 including the modal values (the pattern of organization) and the forms that convey them (the structure), corresponding to **Research Goal 1**: To identify and describe the language constructs encoding meanings that belong to the semantic domain of (volitional, epistemic and non-epistemic) modality in LSC.

The study of the pattern of organization not only refers to the configuration of the relationships among the system's components, but also with other systems' components. This correspond to **Research Goal 2**, i.e. to examine the interaction of modal meanings and forms with other grammatical or functional categories in LSC,

namely aspect, negation, and evidentiality (chapters 7 to 9), that determines the system's essential characteristics.

On the other hand, the study of the life process involves the continual embodiment of the system's pattern of organization and, thus, constitutes the link between pattern and structure (Capra, 1996). Thus, Chapter 10 explored the (gestural and lexical) sources for the modal forms and posited possible grammaticalization paths, and Chapter 11 analyzed how the grounding function is accomplished at clause level and discussed the grounding predicate status of prototypical core modals.

In this chapter, we present a thorough discussion of the results thus far obtained, keeping in mind the goals, reproduced in (500) for the sake of readability, and the research questions formulated. The following chapter will present the conclusions.

(500) Dissertation Research Goals

RG1. To identify and describe the constructions encoding meanings that belong to the semantic domain of (volitional, epistemic and non-epistemic) modality in LSC.

RG2. To examine the interaction of modal meanings and forms with other grammatical or functional categories in LSC, namely negation, evidentiality and aspect.

RG3. To explore and posit gestural and linguistic elements, either lexical or grammatical, that may constitute the source for modal constructions and to trace evolving processes and possible grammaticalization paths.

RG4. To elucidate whether modals elements in LSC effect the semantic function of grounding and how this is accomplished, contributing to the discussion of grounding systems from the perspective of the signed modality.

We dedicate a section to each of the two goals and further subdivide them into subsections dedicated to the specific areas and the research questions. In section 12.2, we discuss RG1, i.e. the formal expression of modality in LSC. Section 12.3 presents a discussion of the RG2, i.e. the potential interaction of modality with negation, evidentiality and aspect. In Section 12.4 we address RG3, i.e. the grammaticization issues and the sources for modal constructions. Section 12.5. focuses on RG4, i.e. the grounding function and the status of prototypical modals as grounding predications. Finally, 12.6 presents some final remarks.

12.2 Discussion of research goal 1: Linguistic constructions encoding modal meanings

The first step in analyzing modality in LSC consisted in identifying forms conveying modal meanings, and describing their semantic values, and morphosyntactic properties.

12.2.1 Modal elements

RQ1. Which linguistic elements convey (volitive, epistemic and non-epistemic) modal meanings in LSC discourse?

The study revealed that LSC displays a great variety of linguistic resources that express modal values: manual, non-manual and combinations of both types. Firstly, with relation to non-manual resources, i.e. suprasegmental constructions, we have described how the facial expression may be used to signal volitive, non-epistemic or epistemic values.

This characterization has been proposed also for LSE. Iglesias Lago (2006a, 2006b), in her Ph.D. Dissertation on the non-manual expression of modality in LSE, notes that the expression of ability and certainty tends to be expressed with furrowed brows and labial protrusion, sometimes raising the chin muscles. This analysis, however, is not applicable to all the sign languages studied so far. For instance, Ling and Chang (2011) reveals that in TSL only epistemic modality can be expressed either manually or non-manually. Furthermore, signers vary non-manual features for expressing different degrees of subjectivity.

Regarding the manual expression (and its combination with the non-manual component), we will contrast now the LSC inventory of signs expressing modal values with information from other sign languages. The starting point for the search has been similarities in the formal properties. Nevertheless, the comparison is not complete because:

- (i) there are only a few studies focusing on the modality domain;

- (ii) the few studies differ in the scope of the modal elements addressed—
e.g. for TID and TSL only a few signs are examined or illustrated with
examples;
- (iii) in most of the cases, the descriptions are partial. Some articles address
specific values, whereas in other cases, the source of information is not
a research article but dictionaries and basic grammars.

The results, thus, are partial and provisional. Nevertheless, the results concerning LIBRAS, LIS and LSF are interesting and reveal connections with LSC for different modal signs.

Globally, our comparison with other sign languages studies revealed similarities but also differences in the modal elements and constructions. As for volition in LSC, it is mainly accomplished through a meso-construction consisting of the following structure:

(501) [[pronoun/noun]NP VOLITIVE.PREDICATE proposition]

The lexical items that can occupy the volitive predicate slot, and have their own more specified micro-constructions, are: AGRADAR 'to like', VOLER 'to want', DESITJAR 'to desire' and TENIR.GANES 'to fancy'. Other cognitive verbs are ESPERAR 'to expect' and PENSAR 'to think'. Indeed, TANT.DE.BÓ 'to wish' adopts the same functioning as the volitive and mental predicates.

As for the volition domain, the contrast with data from other sign languages, in most cases, has been based exclusively on dictionaries since few studies on modality have included this semantic domain. A summary is given in Table 12.1. We have marked the signs with an asterisk (*) when the formal properties or the modal values of the sign coincide with the LSC target only in some important dimensions. The differences are explained along the following text.

Table 12.1 Inter-sign languages modal resources contrast: volition

LSC modal forms	Sign languages						
	ASL	LIBRAS	LIS	LSE	LSF	TiD	TSL
AGRADAR	-	-	-	-	-	-	-
DESITJAR	-	-	-	√	-	-	-
ESPERAR	-	-	-	-	-	-	-
PENSAR	-	-	-	√	-	-	-
TANT.DE.BO	-	-	-	√	-	-	-
TENIR.GANES	-	-	-	√*	-	-	-
VOLER	-	-	-	√	√*	-	-
	0	0	0	4/5	0/1	0	0

As Table 12.1 shows, LSE is the language with more volitive elements formally similar to LSC: 4 out of 7, if we are restrictive. Only LSC shares partial similarities of VOLER 'to want' with LSF AIMER 'to love'. With respect to TANT.DE.BO ('I wish'), it is only reported for LSE, not surprisingly as in its emergence it is the product of a language contact with Spanish, as argued in Chapter 10. Iglesias (2006a) provides an example of use, where the location of the sign in the clause matches the location in LSC, but this is not the case in the description by Herrero and Salazar (2006).

Secondly, concerning the non-epistemic possibility domain (i.e. the values traditionally referred to as *root* or *deontic possibility*, see chapter 2), this study has identified eight modal forms: SABER 'to know', SABER.DOMINAR 'to know.master', SER.CAPAÇ 'to be able', TENIR.HABILITAT 'to be skilled', PODER 'can', PODER+SER.CAPAÇ 'can+be able', PERMETRE 'to allow' and CEDIR 'to grant permission'. The form PODER is the only one that exhibits polyfunctionality, since it signals the whole spectrum of values in the possibility domain.

However, when expressing epistemic possibility, we will consider it a different form because of differences in the non-manuals, such as facial expression, as well in the properties of the construction where it appears. These differences are important, later, for the discussion of grammaticalization paths and constructionalization processes.

Moreover, epistemic possibility is expressed by means of the form PODER.EPIST, thus, and the cognitive predicates CREURE, DUBTAR.1(flam) and DUBTAR.2, PENSAR, SER.FÀCIL.

With regard to the (original) linguistic status of the forms, it includes mental state and volitive predicates, a body-movement verb, predicate adjectives, and adverbs which have undergone a grammaticalization process in different degrees. Other forms did not have a previous lexical category, such as TANT.DE.BÓ or SER.LLEI. Both have been formally created via lexical fingerspelling and they constitute, in part, a product of spoken language contact. A summary of similarities on the LSC expression of necessity and possibility values with other sign languages is given in Table 12.2.

Table 12.2 Inter-sign languages modal resources contrast: possibility

LSC modal forms	Sign languages						
	ASL	LIBRAS	LIS	LSE	LSF	TİD	TSL
CEDIR	-	-	-	√	-	-	-
PERMETRE	-	-	-	√*	√	√*	-
PODER	-	-	-	√*	-	-	-
PODER.EPIST	-	-	-	√	-	-	-
PODER+SER.CAPAÇ	-	-	-	√*	-	-	-
SABER	-	-	-	√*	-	-	-
SABER.DOMINAR	-	-	-	-	-	-	-
SER.CAPAÇ	-	-	-	√	-	-	-
SER.FÀCIL	-	-	-	-	-	-	-
TENIR.HABILITAT	-	-	-	-	-	-	-
	0	0	0	3/7	1	0/1	0

LSE is again the language with more similarities, displaying however some important differences. The sign CEDIR is identical to the LSE CONDESCENDER ('to condescend'), as included in Herrero and Salazar (2006). PERMETRE coincides with the LSE sign

glossed as Sp. AUTORIZAR ('to authorize') in Herrero and Salazar (2006) –produced with a short movement on the horizontal axis. In LSE, also, there is a similar sign, in which the movement is longer than AUTORIZAR and is produced on the vertical axis. This is glossed as AUTORIZAR and it is described and illustrated in the LSE Grammar (Herrero, 2009) and as LIBRE ('free') in Herrero and Salazar (2006), which coincides formally with the LSC signs for LLIBERTAT 'freedom' and SER.LLIURE 'to be free'. Both signs have been reported for LSF in Delaporte (2007)'s dictionary. The sign Turq. SERBEST ('free') in TİD expressing permission shows a V-handshape and movement in the horizontal axis.

LSC PODER is not documented in any other sign language, not even in LSE. The sign glossed as Sp. PODER (may) in LSE (Figure 12.1) coincides only in location in the first hold and appears, also, in the negative counterpart (Figure 12.2).



Figure 12.1 LSE PODER 'may'
(Herrero & Salazar, 2005)



Figure 12.2 LSE PODER-NO 'can/may not'
(Herrero & Salazar, 2005)

This location appears in both signs. Also, the LSE Sp. PODER looks like a more reduced version of the LSC compound PODER+SER.CAPAÇ, since it shows the characteristics of 0-type compounds as described for signed languages and examined in Chapter 10. These observations taken together suggest that they have a common origin or that one derives from the other. LSC PODER+SER.CAPAÇ coincides formally, but not semantically, with the LSE sign. In the LSE Grammar, the LSE Sp. PODER appears with the label for permission (Herrero, 2009) and in the research article by Herrero and Salazar (2006) and in Rodríguez-González (1992) –where it is glossed as POSIBLE 'possible'— it is associated with epistemic possibility.

On the other hand, the main possibility modal in LIBRAS, LSF and ASL are linked to the gestural and lexical adjective meaning 'strong' (Signes de Sens, 2012; P. P. Wilcox & Wilcox, 1995; S. Wilcox & Shaffer, 2006; Xavier & Wilcox, 2014).

As for SABER, in LSE there is a formally similar sign, glossed as Sp. *ACEPTABLE* ('acceptable') and expressing epistemic modality (Herrero & Salazar, 2006). According to the mentioned publication, it is used only as an adverb and it does not modify nouns. This sign, although, is not included in the LSE Grammar, that has a formally similar sign, glossed as Sp. *HABILIDAD* 'ability'.

Furthermore, *SER.CAPAÇ* is similar to the LSE sign glossed by Iglesias as *PODER.2* ('can.2'), which signals participant-internal meanings. We have not found any sign formally similar to LSC *TENIR.HABILITAT*. However, LSE has a sign, not documented in LSC, with a similar gloss, namely *HABILIDAD* 'ability' (Figure 12.3). It is a two-handed sign produced with the left hand with B-handshape and the risen thumb and the right hand with I-handshape and the little finger in contact with the left-thumb producing up-movements Iglesias (2006a).



Figure 12.3 LSE *HABILIDAD* 'ability'

(Iglesias, 2006a)

In our LSC corpus, we have not identified a similar sign for the deontic possibility sign glossed as *DEJAR.LIBRE* ('to leave free'), that we submit is the precursor of (or very similar to) LSC *PERMETRE*, as explained in Chapter 10.

Concerning the epistemic possibility forms, we have examined the following: *CREURE* 'believe', *DUBTAR.1*(flam) 'to hesitate', *DUBTAR.2* 'to doubt', *DUBTAR.3* 'to doubt.3', *INTERROGAR.SE* 'to wonder', *INVENTAR* 'to invent' and *SEMBLAR* 'to seem'; the adjective predicate *SER.FÀCIL* 'to be easy'; and other linguistic elements, such as *PER.SI.DE.CAS* 'just in case', *DEPENDRE* 'to depend on' and *A.VEURE* 'let's see'. We present a summary of the forms documented in other sign languages in Table 12.3.

Table 12.3 Inter-sign languages modal resources contrast: epistemic possibility

LSC modal forms	Sign languages						
	ASL	LIBRAS	LIS	LSE	LSF	TİD	TSL
A.VEURE	-	-	-	-	-	-	-
CREURE	√*	√*	√*	√*	√*	-	-
DEPENDRE	-	-	√	-	-	-	-
DUBTAR.1(flam)	-	-		√	√*	-	-
DUBTAR.2	-	-	-	-	-	-	-
DUBTAR.3	-	-	-	-	-	-	-
INTERROGAR.SE	-	-	-	√	-	-	-
INVENTAR	-	-		√*	√*	-	-
PENSAR	-	-	-	√	-	-	-
PER.SI.DE.CAS	-	-	-	-	-	-	-
SEMBLAR	-	-	√*	√*	-	-	-
Total	0/1	0/1	1/3	3/6	3/0	0	0

Concerning CREURE, we noted that a formally similar sign is found in ASL, LSF and LIBRAS, but showing inverse movement orientation. Whereas in LSC the movement is toward the forehead, in LIBRAS –glossed as THINK-NOT (Ferreira Brito, 1990)— and LSF –glossed as *Fr.* PENSER (Signes de Sens, 2012)— the movement starts from the forehead and goes up. Also, LSF displays the sign *Fr.* CROIRE ('to believe'), that is very similar in shape except for the curved index finger (Signes de Sens, 2012).

DEPENDRE is formally similar to the LIS sign glossed as *It.* DUBITARE ('to doubt'), as described in Gianfreda et al. (2014). The oscillation movement is present also in the one-handed sign FORCE 'perhaps', that is produced with the 5-handshape. With respect to DUBTAR, the form representing a flan (crème caramel) is found only in LSE (Herrero & Salazar, 2006; Rodríguez González, 1992). However, in LSF the sign *Fr.* HÉSITER ('to doubt') is similar in place of articulation and movement, although it diverges in handshape and orientation (Figure 12.4 LSF HÉSITER 'to doubt' Figure 12.4).



Figure 12.4 LSF HÉSITER 'to doubt'

(Signes de Sens, 2012)

INTERROGAR.SE is documented for LSE in Rodríguez-González (1992) as NO-SÉ 'I don't know', but neither in Herrero and Salazar (2006) nor in Herrero (2009). INVENTAR is formally similar to the LSE sign glossed as *Sp.* SUPONER 'to suppose' (Herrero & Salazar, 2006), except that the latter is two-handed.

PENSAR has been addressed previously, for volitive signs. PER.SI.DE.CAS is not identified in research on other sign languages. Rodríguez-González (1992) refers only that one of the LSE informants produces the oralization "por si acaso" ('just in case') and stresses the influence of written languages. In her work, she documents the sign A LO MEJOR ('maybe') that we have included in the uses of the palm-up gesture.

With respect to SEMBLAR, a similar form, consisting only in the final hold in the chin, is documented in LSE by Rodríguez-González (1992). This author documents also the sign glossed as *Sp.* PARECERSE/PARECER, similar to the LSC sign SEMBLAR.OMBRA, that has been described in chapter 8 on evidentiality. Also, LIS exhibits the sign *It.* MI-PARE ('to seem') characterized by a movement from the chin to the central part of the chest (Gianfreda, et al., 2014), resembling the final hold of the LSC SEMBLAR, as it were a compounding sign consisting of SEMBLAR and the first personal pronoun.

Concerning the forms that code the necessity domain, this study has identified seven forms expressing non-epistemic meanings: DEURE, FORÇAR, HAVER.DE, MANAR.CANÓ, OBLIGAR, SER.LLEI and SER.NECESSARI. There is only one form signaling epistemic necessity: SER.SEGUR, formally very similar to HAVER.DE, except that the latter exhibits a reduplicative movement. We present the summary in Table 12.4.

Table 12.4 Inter-sign languages modal resources contrast: necessity

LSC modal forms	Sign languages						
	ASL	LIBRAS	LIS	LSE	LSF	TİD	TSL
DEURE	-	-	-	-	-	-	-
FORÇAR	-	-	-	-	-	-	-
HAYER.DE	-	-	√*	√	-	-	-
MANAR.CANÓ	-	-	-	-	-	-	-
OBLIGAR	-	-	-	√	√	-	-
SER.LLEI	-	-	-	√*	-	-	-
SER.NECESSARI	-	-	-	√	-	-	-
SER.SEGUR	-	√	√	√*	√	-	-
	0	1	½	3/5	2	0	0

As Table 12.4 shows, in the studies or books consulted, we did not find a sign language exhibiting a form similar to LSC DEURE, FORÇAR and MANAR.CANÓ – not even in LSE.

With respect to HAYER.DE expressing obligation, Rodríguez-González (1992) documents the form glossed as *Sp.* OBLIGADO ‘obliged’, and Herrero and Salazar (2006), as *Sp.* DEBER ‘must’. A sign similar to HAYER.DE signaling non-epistemic necessity has been documented also in LIS. The two signs differ in that the two selected fingers in handshape are not in contact (Gianfreda, et al., 2014). The necessity modals in LIBRAS are mainly derived from a lexical sign/gesture meaning ‘to pay’.

Concerning OBLIGAR, it coincides with the LSE sign glossed as *Sp.* MANDAR in Herrero and Salazar (2006), similar to the LSF sign (2012).

Modal signs formally created by incorporating a fingerspelling letter –via lexicalization (e.g. LSC SER.LLEI) or initialization— seem to be found also in other sign languages, such as the necessity modal *Turq.* LAZIM (‘required’) in TİD borrowed from written Turkish (Dikyuva, Makaroğlu, & Arık, 2017).

As for SER.SEGUR, a two-handed similar form is reported for LSE (Herrero & Salazar, 2006), a one/two-handed for LIS (Gianfreda, et al., 2014) and a one-handed sign for LIBRAS (Ferreira Brito, 1990).

Concerning morphological derivation, neither LSC nor LSE display the morphological pattern for the difference in movement between the expression of deontic and epistemic possibility found in ASL and LIBRAS. This alternative pattern explains the

distribution of the pairs MUST/SHOULD and CAN/POSSIBLE in ASL, for instance. Semantic strong commitment is produced with a sharp movement, whereas soft commitment is produced with repetitive movement (P. P. Wilcox & Wilcox, 1995). LSC exhibits only a difference in terms of a sharp, single movement and sharp, repetitive movements, displayed by HAVER.DE (non-epistemic necessity) and SER.SEGUR (epistemic necessity).

Globally, comparing the modal resources of LSC and of other sign languages yields the following conclusions (502):

(502) Conclusions from modal resources comparison across sign languages

- (i) Resources expressing modal values **differ across sign languages** although they are shaped by the same articulators, cognitive principles and, in most cases, cultural background.
- (ii) At the same time, modal elements across languages can be characterized by **commonalities although not in a homogeneous way**, language to language, but in a disperse and diffuse manner across resources and languages.
- (iii) Comparable modal elements in different signed languages serve similar discourse functions and are **based on similar principles**, despite differing from one another in specifiable ways.
- (iv) Some languages display more similar resources than others and, thus, data from modality can contribute to the establishment of **sign language families**.
- (v) Sign languages in contact or from the same family **change over time**. The traces of these changes are dispersed across languages and only a wide and comprehensive analysis including them can lead to the discovery of proper developmental patterns and paths.

In sum, LSC displays a whole constellation of linguistic forms to express the semantic domain of modality, conveying volitive meanings and possibility and necessity values concerning the epistemic and non-epistemic subdomains. The examined modal devices in LSC represent conventionalized multidimensional pairings of form and meaning, some of them formally and semantically related to signs in other sign languages or created by means of the same types of linguistic resources or cognitive mechanisms.

The main questions not discussed related to RQ 1 are the following issues (503).

(503) Issues for further research concerning **RQ 1**

- (i) Token and type frequency of modal elements and constructions.
- (ii) The interaction between manual and non-manual channels of expression in LSC to distinguish between lexically specified non-manuals and non-manuals that mark scope of modal over the whole construction (micro- and macro-constructions).
- (iii) The lexical category of some modal elements and the criteria that distinguish predicates (verbs and adjectives), adverbials and markers.
- (iv) Crosslinguistic research on modal elements.

In our analysis of the LSC resources for encoding modality, we agree with those scholars that view modality from a broad perspective as a grammatical category that includes the constructions based on their semantics, both for spoken languages – such as Nuyts (Nuyts, 2001, 2002) or Talmy (1988) referring to force-dynamics— or sign languages –such as ASL (P. P. Wilcox, 1996; P. P. Wilcox & Wilcox, 1995; S. Wilcox & Shaffer, 2006), LIBRAS (Ferreira Brito, 1990; Xavier & Wilcox, 2014) or LSE (Herrero & Salazar, 2006, 2010).

12.2.2 Semantic dimension

RQ 2. Which semantic values do these elements express and how are they structured in the modality domain?

Furthermore, we defined modality in LSC as a perspectivization phenomenon of non-discrete nature, an expression of the signer's conceptualization of the situation based on the context of utterance and on the signer's relationship with the interlocutor and the conceptualized scene. The domain in LSC has been characterized by three scalar parameters: perspective (subject-internal ↔ external/context), contingency (possibility ↔ necessity) and conceptualization (implicit ↔ explicit), all of which are construed as bipolar continua.

The modality domain is structured as a semantic network where the elements are linked in several gradual scales, as described in chapter 6. This implies a gradience conception

of the modality domain and a view of categories as fuzzy entities with prototypical and peripheral values, and with gradience and indeterminacy in the overlapping zones.

If we contrast our LSC modal scales with those proposed for LIBRAS (Ferreira Brito, 1995), as well as with other characterizations of the semantic space of modality as explained in Chapter 3, we find the following differences (504):

(504) Differences with other studies on modality in sign languages

- (i) Modality is not considered as a list of values organized along two axes, as in Ferreira Brito (1990) for LIBRAS, but in a space configured as a **semantic network** with multiples connections among the values.
- (ii) The semantic space of modality in LSC **includes volition** in contrast with the rest of studies on modality in signed languages, e.g. ASL (S. Wilcox & Shaffer, 2006) and LIBRAS (Ferreira Brito, 1990; Xavier & Wilcox, 2014).
- (iii) It **does not include alethic modality**, contra Ferreira Brito (1990), since assuming a constructivist position it is impossible, from a linguistic perspective, to disentangle linguistic assertions about real world truth-conditions from agent's beliefs.
- (iv) It **does not comprise inferential values**, which are restricted, thus, to the evidential semantic space (or functional domain), as argued in Chapter 8.

We will refer to these two last domains (boulomaic modality and mirativity) in Section 12.3.5 on the interaction with other functional categories. Finally, the main questions not discussed related to RQ 2 are the following issues (505).

(505) Issues for further research related to **RQ 2**

- (i) Crosslinguistic contrast of modal semantic values.
- (ii) Expression of modalization in discourse and attenuation of semantic values.
- (iii) Interaction between volitive and epistemic values.
- (iv) Subjectification and participant-external values.

This view on modality contrasts with logic and formal semantics approaches to modality, which explain it in terms of discrete categories and *possible worlds semantics*

(Cf. Kratzer, 1978; Portner, 2009; von Wright, 1951), and confirms the observation by Lakoff that

“[...] natural language concepts have vague boundaries and fuzzy edges and that, consequently, natural language sentences will very often be neither true, nor false, nor nonsensical, but rather true to a certain extent and false to a certain extent, true in certain aspects and false in certain aspects” (Lakoff, 1972, p. 183).

In conclusion, the interpretation of modal values in LSC requires taking into account the whole constellation of resources that are manual and non-manual, linguistic and gestural, as well as the elements that configure the ground (the participants, the time and location, and cultural context). On the other hand, it has shown that the cognitive linguistics concepts of force-dynamics and subjectification are useful tools to examine modality in signed languages.

12.2.3 Morphosyntactic dimension

RQ 3. Which syntactic distribution do LSC modal elements exhibit?

The morphosyntactic dimension refers to the combination with other manual elements in the sentence (as for instance concerning the possibility of being verbal periphrasis), but also their inclusion in constructions with several degrees of specificity, from micro-constructions to meso-constructions and macro-constructions, as distinguished in Constructionalization Theory and Diachronic Construction Grammar (Barðdal, Smirnova, Sommerer, & Gildea, 2015; Bybee, 2010; Garachana, 2015; Hilpert, 2014; Hopper & Traugott, 1993; E. C. Traugott & Trousdale, 2013), and described in detail in Chapter 6.

[Verb + verb] constructions expressing modal meanings in LSC, such as cognitive predicates (e.g. PENSAR, CREURE and DUBTAR) do not correspond to the characterization of verbal periphrasis in, for instance, the Hispanic tradition. The main difficulties reside in identifying the morphological expression of grammatical categories, establishing finite and non-finite forms in LSC and determining the degree of grammaticalization in terms of morphological marking. Since the properties of morphological expression of grammatical categories of sign language verbs do not correspond to the morphological expression displayed by languages for which the

notion of verbal periphrasis has been proposed, this theoretical construct is not adequate for languages in the signed mode.

One possible solution would be to establish a more general definition. Some combinations of verbs might be considered verbal periphrases if their characterization were less restricted and formulated as the following: a grammatical construction formed by the combination of two verb forms that constitute one predication, the whole having a procedural and non-compositional meaning (Garachana, 2017). This characterization is formulated as a language-independent notion, capable of covering the different language-specific manifestations, where the emphasis is put on the unitarian nature of the combination of the two verbal forms as well as on the procedural nature of the resulting meaning, in the sense of Blakemore (1987).

In conclusion, the traditional concept of periphrasis is a restricted theoretical construct. We believe that it would be more adequate to substitute it with the concept of construction, as we argued in Chapter 6, and examine the syntactic distribution from a broader perspective.

The few studies on modality in sign languages reveal the importance of word order of modals with respect to the verb or peripheral positions. Shaffer (2004) refers for ASL that the modals with lower subjectivity (e.g., non-epistemic modals) tend to occur in preverbal position, while the ones with higher subjectivity (e.g., epistemic modals) usually occur in postverbal position. Also, in the description for TSL, Ling and Chang (2011) explain that modals may be located pre-verbally, or in sentence-initial or -final position but, when combining, epistemic and non-epistemic modals are ordered as summarized in Table 12.5, where the modal with a wider semantic scope (i.e. the epistemic) always precedes the modal with a narrow semantic scope (i.e. the non-epistemic).

Table 12.5 The word order of modals in TSL

Epistemic modal	>	Deontic modal	Verb
			Verb Epistemic modal > Deontic modal
		Epistemic modal	Verb Deontic modal

However, our study has revealed that, besides their position with respect to the verb or a second modal, it is crucial to examine the argument structure constructions (or higher constructions, even information structure constructions) where the modal is inserted. LSC displays information order constructions (such as topic-comment or focus constructions) as well as argument structure constructions (such as subject-object-verb) (Jarque, Massone, Fernández-Viader, & Bosch-Baliarda, 2007), and modal elements are inserted in both types, as examined in Chapter 6.

As for the volitive values, modal verbs are inserted in micro-constructions, that grouped form a meso-construction consisting, in performative function, of the first-person personal pronoun followed by the volitive predicate and then by the lexical verb or a full proposition. We argue that it constitutes a construction in the sense that is a “pairing of some sort of syntactic representation with some sort of semantic representation” (Goldberg, 2006), that profiles the subjective source of the internal conditions that project an irrealis situation.

Concerning non-epistemic functions, modal elements tend to appear in argument structure constructions with the ordering: [subject modal verb/proposition]. They appear also in sentences with zero anaphora, i.e. without the lexical verb (or proposition), that is inferred on the basis on the information delivered in previous sentences.

As for epistemic functions, we noted several constructions depending on the substantive element, e.g. PODER.EPIST or mental verbs. PODER.EPIST tends to appear in initial position with topic marking (raised eyebrows) followed by the proposition, which constitutes a micro-construction. Although the link between subjective and topic-comment structure may seem surprising, the connection between speaker’s attitude and the family of topic-comment constructions in spoken languages has been pointed out by several authors –for instance, Lambrecht (1990) talks about the *Mad Magazine Sentences*– giving rise to the Incredulity Infinitive Construction, exemplified in (506).

(506) French (Nikolaeva, 2014, p. 142)

Fai-re le premier pas, moi! Jamais!

‘Make the first step, me! Never!’

The pragmatic function of this type of sentence is “the expression of a speaker’s attitude (disbelief, skepticism, surprise, etc.) towards the unconventional pairing of a certain argument with a certain predicate in the proposition which is expressed or contextually implied in the preceding discourse” (Nikolaeva, 2014, p. 142). This type of construction has been described, also, in English, German, Spanish and Russian (Akmajian, 1984; Etxepare & Grohmann, 2005). In all the languages they “are used by speakers to express surprise, disbelief, skepticism, scorn, and so on, at some situation or event” (Akmajian, 1984, p.2).

Comparing it with the LSC epistemic construction, two main differences can be established. First, in LSC the modal element is situated in the topic, whereas in the Incredulity Infinitive Construction the epistemic qualification is in the comment. Second, it is a construction pragmatically and strongly marked in the spoken languages, whereas in LSC the PODER.EPIST construction is one of the more basic means, the resource subjectively construed by default. Moreover, the semantic content of epistemic possibility and the functions of topic seem to be unrelated, according to some descriptions, as Lambrecht himself points out:

Since the topic is an element of the pragmatic presupposition evoked by the sentence there is a sense in which the topic itself must be taken for granted, hence must be outside the scope of negation or modality in an assertion. (Lambrecht, 1990. p. 153).

A different interpretation may be that the construction is intimately related to a sentence-focus construction, since its communicative function is to open a new (or surprising) frame of interpretation (the lack of commitment in front of the neutral commitment, which is the default interpretation of sentences in discourse), closer to functions associated with a focus, i.e. to introduce a new discourse reference or to announce an unexpected event involving a new discourse referent (Lambrecht, 1994). Jarque (2016b) and Jarque & Pascual (2018) examined how LSC focus constructions are marked similarly to polar questions, i.e. with raised eyebrows, and are related in terms of constructional structures in the language grammar.

Moreover, Jarque (2016b) argues that in LSC the question-answer pattern is a highly schematic symbolic unit emerged from more specific constructions, which are themselves highly abstract and include information-seeking question, topic-comment, scene-setting topic, focus question-answer structure, connective, conditional and relative question-answer constructions. All these constructions, taken together, form a

complex network and share not only formal properties (bi-clause structure and eyebrow raising on the first constituent) but also a highly intersubjective schematic import:

Semantically, these constructions function discursively, establishing a “window” of attention that directs the interlocutor to a particular facet of the usage event: (i) the topic construction foregrounds the entity against the background of shared knowledge; (ii) the focus construction stresses particular content and anticipates its relevance for the current discourse space; (iii) the conditional construction directs attention to the specific circumstances and conditions for the realization of a usage event; (iv) the connective guides and establishes a specific reading between two discourse chunks; and (v) the relative clause singles out a particular entity present in the discourse. (Jarque, 2016, p. 186)

In short, we suggest that the epistemic construction with PODER.EPIST constitutes a micro-construction that is highly subjective, in Langaker’s terms, and profiles the event and not the source of the evaluation in order to guide the interlocutor to the state of things. This construction might belong to the family of the question-answer pattern constructions as an extension of the focus and the topic construction. Mental-state verbs (PENSAR, CREURE, DUBITAR), instead, are inserted in argument structure constructions, similar to the volitive verbs, and profile the source of the evaluation (the syntactic subject) establishing a marked difference between the subject/conceptualizer’s perspective and the “objective” world or state of things.

In addition, PODER, PENSAR and CREURE appear in parenthetical structures behaving as adverbs –constituting thus a case of secondary grammaticalization– or as discourse markers, according to the analysis of those scholars that defend pragmatization (or discursivization), as explained in Chapter 2. These forms, therefore, function similarly to the semantic characterization of parenthetical verbs in the classical work by Benveniste (1958) and Urmson (1952), and in more recent research (Dehé & Wichmann, 2010; Dehé and Kavalova 2007). Thus, the following quote by Urmson is still relevant: “(...) the whole point of some parenthetical verbs is to modify or to weaken the claim to truth which could be implied by a simple assertion” (Urmson, 1952, p. 484).

The preference for the left periphery of the clause PODER, PENSAR and CREURE when used as strong epistemic commitments and for the right for hedging provides support to the hypothesis that “expressions at the left periphery are likely to be subjective, those at the right periphery intersubjective” formulated by Beeching, Degand, Detges, Traugott and Waltereit (2009), cited in Traugott (2012, p. 7).

Other than the above two distributions, i.e. [PRO V prop] and parentheticals, mental-state predicates appear in more autonomous distributions and in zero-anaphora sentences (as listed in Chapter 6), such as conversational responses. Taking the three types of distribution into account, this construction, in its attenuative function, exhibits similarities to the one called *weak verb construction* in spoken languages (Willems & Blanche-Benveniste, 2014). According to Willems and Blanche-Benveniste the weak verb construction “has the peculiarity of not linking one specific structure to one meaning, but rather of linking a cluster (or family) of three syntactically quite different constructions to a specific meaning” (2014, p. 126).

More research is needed, also, with regard to the syntactic status of elements expressing the situation evaluated and for establishing criteria concerning subordination in LSC, an area not investigated in LSC, except on relativization and understudied in general terms in sign languages with naturalistic data and discourse corpus –See Tang & Lau (2012) and Pfau & Steinback (2016) for an overview. The lack of research in this area does not allow to add more evidence for the analysis of weak verbs as formulas or fragments taking sentential complements that are not grammatically subordinate (Thompson, 2002) in contrast to more traditional syntactic analysis that defend the existence of structural subordination (Boye & Harder, 2007; Newmeyer, 2010; Willems & Blanche-Benveniste, 2014).

The LSC data do add evidence in favor of the hypothesis that lexicon and syntax constitute a continuum also in signed languages, and that semantics, information structure and pragmatics are interrelated (Goldberg, 1995; Lambrecht, 1994; Langacker, 1987; Talmy, 1988).

Other important questions not discussed in this thesis, but relevant for the topic addressed here, are the following issues (507).

(507) Issues for further research related to **RQ 3**

- (i) The identification of potential restrictions on the combination of lexical verbs with modal elements in constructions.
- (ii) Token and type frequency. We have described the most frequent constructions in which the modal appears. However, there is still a need to ascertain the frequency of occurrence of the patterning based on

information structure constructions (topic-comment) and argument structure constructions –i.e. on classic syntactic-constituency (S, V, O).

- (iii) Analysis of phonetic/phonological reduction of elements in the proposed constructions, in terms of parameters assimilation, length, etc.
- (iv) Analysis of subordination marking and adjacency in LSC with relation to modal constructions.

Despite the exploratory character of this research and the need to expand the descriptive research on morphosyntax and discourse in LSC, this dissertation constitutes one of the first studies approaching a grammatical phenomenon in sign languages from a constructional point of view. There is to our knowledge no extensive work dealing with other signed languages using key concepts of Construction Grammar, except for the analysis of indicating verbs by Schembri, Cormier and Fenlon (2018) and the Construction Morphology approach to core and classifier signs in ASL by Lepic and Occhino (2018).

12.3 Discussion of research goal 2: Interaction with other grammatical categories

An exploratory (but comprehensive) analysis of the semantic domain of modality necessarily includes the boundaries with other functional domains in the language. We have dealt with the main resources for the expression of aspect and evidentiality, and with the overlap between negation and modality. These categories are included either in the TAME hypercategory (Bybee, Perkins, & Pagliuca, 1994; Givón, 1982) -TAME being the initials of “tense-aspect-modality-evidentiality” - or in the hypercategory of “qualifications” of states of affairs (Nuyts, 2001, 2005). In this dissertation, we have not addressed the expression of time since it is signaled discursively and exceeds the limits of the thesis, but see Chapter 6 and Jarque (2016a, 2017) for a description. In what follows, we will summarize the main issues discussed with respect to the potential relationships among the (T)AME categories.

12.3.1 Modality and negation

The main aspects related with the interaction of modality and negation in LSC concern the use of general resources (RQ4), negative modals (RQ5) and the combination of negative modal resources (RQ6).

12.3.2 Negation of positive modals

RQ 4. Are modal constructions negated with general resources for the expression of negation in LSC?

The main results derived from our study are the following. LSC combines the use of the general negative mechanisms for negation in the language with the use of specific manual markers to express negative modal meanings, as described for other natural languages (Horn, 1989; Horn & Kato, 2000; van der Auwera, 2001, 2011).

The non-manual marker consists of a negative facial expression, which spreads over the headshake. As for the facial expression, the properties described (the corners of the mouth down and pursed lips) have been documented in many sign languages: among others, BSL (Sutton-Spence & Woll, 1999), LIU (Hendricks, 2007), SSL (Bergman, 1995). It has not been attested, however, that facial expression by itself functions as a negator for a clause (Zeshan, 2004). In LSC this facial expression, including also puffed cheeks and closed mouth with air breathed out, turns the positive TENIR.GANES and AGRADAR into their negative counterparts. The puffed cheeks facial expression has been attested in LIU for negating a sentence on its own (Hendricks, 2007). So, both types of negation (lexical and clausal) might be exceptional cross-linguistically.

Concerning manual negators, the standard negator tends to occur at the end of sentences, thus following the general crosslinguistic tendency (Zeshan, 2004). As for typological considerations, what do the negation of positive modal resources in LSC tell us? Recall that Zeshan (2006) proposed a binary typological classification of sign languages, including the categories of manual-dominant languages and non-manual dominant languages. Non-manual dominant languages are languages in which: (i) clauses are commonly negated by means of a non-manual marker only and (ii) the non-manual may spread over a string of signs. On the contrary, in manual-dominant languages the negative particle is required (Pfau, 2016).

Quer (2012) situated LSC in the category of non-manual dominant sign languages, basing his argument on the way negation is expressed in LSC and since LSC admits negations with just non-manual marking. However, our data from LSC naturalistic discourse (and not from elicited decontextualized sentences), show a tendency to encode negation either with a negative manual marker coarticulated with non-manual marking or a free negative non-manual marking without manual elements in the clause, but not exclusively with non-manual marking spreading over the clause. We have identified only a few instances where negation is non-manually marked over non-negative manual signs and it corresponds to only one or a few signs.

The data in our corpus show a predominance for a combination of manual and non-manual negative marking -the latter being specified lexically or spreading over a group of signs. We consider that the tendency for manual marking is fostered by the combination of argument structure constructions and topic-comment constructions, and the importance of the latter.

As in the case of other issues, we defend that the description of functional signs must not be disconnected from the constructions where they appear. Moreover, the establishment of tendencies and grouping of sign languages according to a specific trait should be based on the analysis of naturalistic corpus data and should not be based on a limited set of elicited sentences and grammaticality/acceptability judgements. In this vein, Oomen and Pfau (2017), despite adopting the binary classification and locating NGT in the non-manual dominant SL group, wrote some crucial reflections:

We are here adding data from Sign Language of the Netherlands (NGT) to the picture, and we demonstrate that NGT belongs to the latter group. Still, detailed comparison suggests that NGT patterns differently from other non-manual-dominant sign languages, thereby improving our understanding of the typological variation in this domain. A novel contribution of the present study is that it is based on naturalistic corpus data, showing more variation than often found in elicitation and grammaticality judgment studies of sign languages, but also presenting new problems of interpretation. (2017, p. 1).

This should have not been a surprise, since elicitation and grammaticality judgments always offer a “cleaner”, i.e. simplified, picture of language. See, for instance, the article by Johnston, Vermeerbergen, Schembri and Leeson (2007) where the authors invoke the slogan “Real data are messy” in discussing the reliability of studies of basic constituent order in some sign languages. Some of the problems are derived by the procedures of data collection (grammaticality judgements and elicitation from

drawings), while others arose from theoretical assumptions, whereby sign languages were considered homogeneous systems. Nevertheless, the interaction of negative non-manual marking and syntactic constituent structure versus topic-comment organization deserves further attention.

12.3.2.1 Negative modals

RQ 5. Are there negative modals in LSC? Which modal functions do they accomplish? Which properties do these constructions exhibit?

LSC exhibits a whole constellation of negative forms for expressing the semantic domain of modality, conveying volitive meanings and possibility and necessity values of the epistemic and non-epistemic subdomains. Some negative forms have been created building on the positive equivalents, whereas other elements, formally, appear to be suppletive forms, as it occurs crosslinguistically (Horn, 1989; Horn & Kato, 2000; van der Auwera, 2001, 2011).

We have described modal negators created by the lexicalization of a construction, (i.e. the positive modal and the standard negator), traditionally referred to as morpho-phonological univerbation. They constitute instances of diagrammatic iconicity (e.g. NO.2h, NECESSITAR-NO, etc.). The degree of formal fusion or erosion of the original elements suggests that the modals under exam may be situated along a continuum of increasing grammaticalized forms.

The literature is divided about the status of the bound negative marker, discussed in Chapter 7. Some authors consider it a clitic, e.g. Zeshan (2003) or Pfau and Quer (2007a), while others surmise that it is a suffix, e.g. Hendricks (2008). Our analysis does not agree with Hendricks for LIU and, on the other hand, raises some issues. Firstly, since LSC is an understudied language, it is difficult to distinguish verbs from predicates adjectives. A complementary research should analyze the word category of the latter and establish whether they constitute a separate category or they belong to the verbal category. Second, concerning the second criterium, the negative form only applies to very high frequent verbs, most of them included in grammatical constructions such as the ones examined concerning modality.

With respect to the third item, the resulting form of the combination behaves more like a 0-type compound, as described by Bosch-Baliarda (2005). As for syntactic rules, we

agree with Hendricks (2008) in that the last two criteria are harder to test for LSC, since there is not enough research conducted on syntactic operations and clitics on LSC. A constructionalist analysis allows us to consider modal negators as lexical constructions, behaving formally as compounds that exhibit different formal properties, and warrant situating them along a continuum from less to more formally lexicalized, and, thus, grammaticalized.

Concerning the lexical semantics of the forms, our analysis of LSC shows semantic overlaps between modality and negation. The more evident concerns the core notions of modality: possibility and negation. Possibility and necessity are interdefinable, according to the Aristotelian Square of Oppositions, by means of negative operators with different scopes (Horn, 1989; Horn & Kato, 2000; Palmer, 2001; van der Auwera, 2001): (i) possible not = not necessary and (ii) necessary not = not possible.

Clearly, from a semantic perspective, negated situations correspond to non-actual facts, similar, thus, to the modality notion of non-factuality as described in Chapter 3 (Kiefer, 1997; Narrog, 2005). However, some authors distinguish between *a non-fact* and *a negative fact*. The interaction has been crucial to express counterfactuality.

With deontic meanings, however, there is a preference for the prohibitive markers and, following the general crosslinguistic tendency (See van der Auwera 2010c; de Haan 2004; Squartini, 2016), there is not such a construction of negation of positive commands (or negation of imperative). However, traditional descriptions of the interaction between modality and negation do not include constructions that are presents in LSC, such as the combinations of negation and informative structure constructions.

They include: (i) topic with the positive modal on the topic and the standard negator in the comment and (ii) topic with positive verb on the topic and modal negator in the comment. This type of constructions, besides their corresponding versions with zero-anaphora, is complementary to the two others discussed in the literature: prohibitive markers and negation of imperative.

Similarly to the comparison between the LSC positive forms and positive forms in other sign language conducted in § 12.2.1, we will contrast, in what follows, the LSC inventory of modal negators with the information from other sign languages. Again, as

in section 12.2.1 above, the reader is warned that the comparison is not comprehensive, since there are just a few studies focusing on modality and negation and, in most of the cases, the descriptions are partial. Table 12.6 examines the similarities for the negative forms expressing volition.

Table 12.6 Inter-sign languages modal negators contrast: volition

LSC modal forms	Sign languages						
	ASL	LIBRAS	LIS	LSE	LSF	TİD	TSL
AGRADAR-NO	-	-	-	-	-	-	-
DESITJAR-NO	-	-	-	√	-	-	-
TENIR.GANES-NO	-	-	-	-	-	-	-
VOLER-NO	-	-	-	√	-	-	-
Total	0	0	0	2	0	0	0

As the tables shows, only two signs from LSE coincide formally with the LSC volitive negators: DESITJAR-NO and VOLER-NO, with mainly two differences between them, namely the facial expression and the movement. Furthermore, Table 12.7 shows the modal elements for expressing negative possibility in the mentioned signed languages that are similar to the LSC forms under scrutiny.

Table 12.7 Inter-sign languages modal negators contrast: possibility

LSC modal forms	Sign languages						
	ASL	LIBRAS	LIS	LSE	LSF	TİD	TSL
CREURE^NO	V*	√*	√	√*	√	-	-
CREURE-NO!	-	-	-	-	-	-	-
NEGAR	-	-	-	√	-	-	-
NO	-	-	√	√	√	√	-
NO!	-	√	√	√	√	-	-
PODER.NO	-	-	-	-	√	-	-
SABER-NO	-	-	-	-	-	-	-
SER.DIFÍCIL	-	-	-	-	-	-	-
SABER+ZERO	-	-	-	√	-	-	-
Total	0/1	2/1	3	4/5	4	1	0

A form similar to CREURE[^]NO is examined by Moriyón et al. (2004) in LSE and by Gianfreda et al. (2014) in LIS. The latter sign is glossed as SAPERE-NO ('know-not'), but the analysis of its function concurs with the function of CREURE[^]NO in LSC.

Tuttavia, SAPERE-NO può anche avere una funzione maggiormente pragmatica; infatti, ci sono casi in cui, indipendentemente dal reale grado di conoscenza o dall'opinione effettiva del segnante, la UL viene utilizzata per evitare il "posizionamento" in merito a un tema che egli non intende approfondire, esprimendo così un "disimpegno" discorsivo. (Gianfreda, 2014, p. 211)

Also for LSE the negative form of SABER is formally similar to CREURE[^]NO (Moriyon, et al., 2004; Rodríguez González, 1992), unlike the positive that it is produced with two contact-movements. Furthermore, a similar sign is found in ASL and LIBRAS, but with inverse movement orientation. Whereas in LSC the movement is toward the forehead, in LIBRAS (glossed as THINK-NOT) the movement begins in contact with the forehead and goes up (Ferreira Brito, 1990).

LSC shares with LSE some modal negators, namely NO, NO!, NEGAR – glossed as NO₃ and described in Moriyón et al. (2004). Emphatic NO (that we glossed as NO!), is found in several signed languages not included in the Table 12.7, such as LIU (Hendricks, 2007).

Signs similar to LSC NO 'not' are documented also in other sign languages, as for instance TID where it appears jointly with the palm-up negator DEGIL 'not', as shown in Figure 12.5. (Dikyuva, et al., 2017). However, it is not universal, as usually believed, since in some countries the prototypical manual negator comes from the palm-up gestural negator and the non-manual from a head movement consisting in a backward head-tilt. This is the case, among others, in GLS (Antzakas, 2006), LIL (Libanese SL), LIU (Hendricks, 2008), and TĪD (Dikyuva, et al., 2017; Zeshan, 2003), where they are documented alongside with the negator signed with index-finger (Zeshan, 2004). Other sign languages show a sign consisting of a horizontal handwave combined with the headshake, similar to the gesture for declining an offer or denial an idea. This is the case for Chinese SL as shown in Figure 12.6.



Figure 12.5 TID DEGIL 'not'
(Dikyuva et al., 2017)



Figure 12.6 CSL BU 'not'
(Yan & Fischer, 2005)

Also, ASL displays several negators for deontic modality different from the prototypical index-finger negator: the standard negator NOT (Figure 12.7), the idiosyncratic NOT.2 (Figure 12.8) and DON'T (Figure 12.9).



Figure 12.7 ASL NOT.1
(Penilla & Lee Taylor, 2012)



Figure 12.8 ASL NOT.2
(Baby Sign Language)

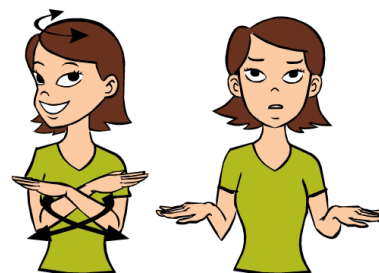


Figure 12.9 ASL DON'T
(Baby Sign Language)

The form of the sign PODER.NO is not found in the other sign languages. For ASL, LSF and LIBRAS, the equivalent signs share the form, but they display a different degree of commitment. Whereas in LIBRAS it signals deontic necessity (prohibition), in ASL, it is used for deontic possibility (Xavier & Wilcox, 2014). The last sign addressed, SABER+ZERO, has been documented only for LSE. It appears also in ASL (Signing Savvy¹⁵⁰) but as the collocation KNOW^ZERO.

¹⁵⁰ <https://www.signingsavvy.com/sign/KNOW%20NOTHING/227/1>

As for necessity, Table 12.8 exposes the comparison between modal negators across the studied signed languages.

Table 12.8 Inter-sign languages modal negators contrast: necessity

LSC modal forms	Sign languages						
	ASL	LIBRAS	LIS	LSE	LSF	TİD	TSL
MAI	-	√	-	√	-	-	-
NECESSITAR-NO	-	-	-	√	-	-	-
PROHIBIR	-	√*	-	√	√	-	-
SER.IMPOSSIBLE	-	√	√*	√	√	-	-
SER.INUTIL	-	-	-	-	√	-	-
Total	0	2/3	0/1	4	3	0	0

LSC shares with LSE and LIBRAS the form of the adverb MAI 'never', included in the study by Moriyón et al. (2004) and Ferreira Brito (1990), respectively. The reason stems from the coincidence, in Spanish and Portuguese, of the equivalent spoken word *Sp./Port. nunca*. Probably both have their origin in a methodical sign created by educators of the deaf for teaching spoken language.

Also, PROHIBIR is similar to LSE (Moriyon, et al., 2004) and to LSF INTERDIRE as represented in Delaporte (2007). LSF displays another sign for prohibition, similar to prohibition in LIBRAS and ASL CAN'T (Xavier & Wilcox, 2014). LIBRAS includes a two-handed sign for prohibition with the dominant hand producing a similar movement to LSC PROHIBIR, glossed as PROHIBITED, PROHIBIT (Ferreira Brito, 1990).

As shown in Table 12.8, the modal negator IMPOSSIBLE is found in most of the sign languages studied so far. It may include, although, differences in the movement parameter, as in the International Sign System where the beginning of the movement is somewhat similar to the movement for untying a knot, or even without crossing arms, as in LIS (Gianfreda, et al., 2014). LIBRAS and LIS include a second sign for 'impossible' (negative necessity) similar in shape, originated from the benediction gesture (S. Wilcox, 2009; S. Wilcox, Rossini, & Pizzuto, 2010; Xavier & Wilcox, 2014). Xavier and Wilcox (Xavier & Wilcox, 2014) report that the incorporation in LIBRAS from LIS may be attributed to the massive Italian immigration to Brazil in late nineteenth century.

The last sign to be compared is SER.INÚTIL, which is found only in Delaporte LSF's dictionary, but is not included in any of the modal studies, not even in LSE dictionaries consulted as a lexical entry.

The comparison of LSC modal negators with the modal negators in other sign languages enriches the observations made in (502) concerning the positive modals. We can add the following observations (508):

(508) Conclusions from crosslinguistic comparison of modal manual negators

- (i) **Modal negators vary across languages.** On one hand, the negator based on the index-finger gesture is not present in all the languages. On the other hand, other signs, whose sources are found in different manual gestures, are present in several languages, sometimes together with the index-finger negator.
- (ii) Some LSC modal negators are **attested in Old LSF** although not in other languages from the same family.
- (iii) Some modal negators result from **language contact**, via writing, with oral languages .

The analysis and crosslinguistic contrast of modal negators contributes to expand our knowledge of the interaction between modality and negation and, more interestingly, of the relation between gesture, language and culture, a relation shaped by the tension between diversity and universality.

12.3.2.2 Syntactic distribution of negative modals

RQ 6. Which syntactic distribution do negative modal constructions exhibit? Are there combinations of negative modality markers? Do they express negative agreement? Do they show negative concord?

Concerning manual modal negators, they tend to occur at the end of sentences, thus confirming the general crosslinguistic tendency (Zeshan, 2004). However, data from LSC have shown some limitations of the typological analysis on the interaction of modality and negation (de Haan, 1997).

We have argued that, in order to distinguish between external and internal negation – i.e. negation having scope over modality vs. the core argument and the action—, LSC displays not only the two basic strategies –Modal Suppletion Strategy and the Negation Placement Strategy (de Haan, 1997; van der Auwera, 2001)– but also a third strategy. We have called it Topicalization Strategy. It is characterized by the fact that differences in scope can be signaled by different information constructions. If the signer wants to make clear that the negator has scope over the whole proposition, she may use the topic-comment constructions in Table 12.9.

Table 12.9 Constructions with external negation and topicalization

[proposition with modal]-top (agent/subject) general.negator
[proposition]-top (agent/subject) modal.negator
[proposition with lexical.verb]-top (agent/subject) modal.negator general.negator

We have not found any reference to such constructions in the studies on modality and negation in signed languages, despite the high number of studies that indicate the importance of topic-comment constructions in signed languages. The references are always about the placement in argumental syntactic constructions, namely in pre- or post-verbal position or in final clause position. For instance, according to Lin and Chang (2011), in TSL when the non-epistemic modal is affected by the internal negation there is no change of the word order of the modals in the clause. However, there are differences regarding epistemic modals. With external negation, it can only occur at the end of the clause.

The lack of references affects also the research on spoken languages, such as the study by de Haan, based on the GRAMCATS project, which includes a sample of 76 languages, but focusses only on word order. De Haan (1997) himself considers topicalization and focusing as factors that interfere with scope interpretation, but he does not examine the issue in detail. The almost exclusive focus on the argumental structure ordering may hide fundamental strategies and resources present and active in the languages.

With respect to double negation, we have observed combinations of two negators resulting in affirmative interpretation in topic-comment constructions with standard negator in the comment. As for the combination of two negative markers, we observe

negative agreement between manual and non-manual, such as NO, and manual + manual, such as PODER.NO + NO. Also, LSC shows some specialized modals, but not in all cases (Pfau & Quer, 2007b).

Finally, the analysis of negation has left out particular phenomena that exceed our goals, such as the following issues (509).

(509) Issues for further research with relation to **RQ 6**

- (i) The significance and obligatoriness (i.e. the degree of grammaticalization) of non-manual expression.
- (ii) The negation of specific volitive items.
- (iii) The quantification of occurrence and presence of modals in the topic-comment constructions vs syntactic ordering.
- (iv) The interaction of modality, negation and quantification.
- (v) The analysis of negative commands (imperatives).

In short, the interaction of modality and negation in LSC has proved to be a complex and interesting area of study. However, as we have pointed out, the analysis of sign languages poses challenges addressed neither in the traditional studies, mostly based on English, nor in the most recent typological studies on sign languages.

12.3.3 Modality and evidentiality

Evidentiality refers to the linguistic category that indicates the source of information. Its interaction with modality constitutes a highly controversial issue in linguistics, as examined in detail in Chapter 3. The study of the expression of evidential and modal values in a signed language (the forms and the meanings) contributes to the general discussion, which up to now had included only data from languages of the spoken modality.

12.3.3.1 Evidential constructions

RQ 7. Which are the main constructions signaling evidential meanings in LSC?

Our study constitutes the first research addressing the category of evidentiality in LSC. We have identified 33 main constructions signaling evidential meanings in LSC, comprising values referring to direct and indirect access to the source of knowledge. With respect to direct access, we included sensory, endophoric and experiential resources. For indirect access, we described constructions concerning mediated evidence –quotative, reported and folklore values– and inference –specific and generic types. We argued that evidentiality constitutes a functional or grammatical category in LSC since it is expressed through specific forms and these forms express procedural or relational meanings.

Since this dissertation constitutes the first comprehensive study with a focus on the resources expressing evidentiality in a sign language –except for the preliminary survey by Wilcox and Shaffer (2018)– the comparison with other studies on signed languages is not possible. However, we can identify some evidential resources mixed in modal studies, referring to epistemic inferential values. We attribute this fact to the difficulties in disentangling the two semantic domains that have originated the confusion discussed in Chapter 3. An example is the LSE Grammar (Herrero, 2009), where evidential signs, similar to the LSC forms, such as VER-DESTACAR (*Sp.* ‘es evidente que’, Eng. ‘it is obvious’) or DEDUCIR (*Sp.* ‘deducir’, Eng. ‘to deduce’) are included in the expression of inferential epistemic modality. The same happens also for ASL (Shaffer, 2000; P. P. Wilcox & Wilcox, 1995).

Traditional studies on evidentiality conceptualize this semantic space as a linguistic category that codifies the source of information, and thus that it is characterized by the properties of obligatoriness, systematicity, and contrastivity (Willett, 1988; Aikhenvald & Dixon, 2003). Therefore, they focus on determining whether it is grammaticalized in a particular language, on the grounds of inflectional paradigms and, thus, conceptualize the evidential domain as a grammatical category only present in a non-European language group/body (Aikhenvald, 2004; Lazard, 2001).

However, other approaches have pointed out the limitations of this perspective and have proposed a broader conception (de Haan, 2002; Hennemann, 2012; Squartini, 2007), calling into question what constitutes the grammar of a language and widening the description of evidentiality to include lexical forms, capitalizing on the concept of “construction” as defined in the cognitive linguistic framework (Bermúdez, 2005; Hilferty, 2003) and on the conception of lexicon, grammar and discourse as constituting

a continuum (Langacker, 1987, 1991). We agree with this perspective and contribute to it.

12.3.3.2 Sources of evidential constructions

RQ 8. Which are the sources for evidential markers?

The analysis of evidential constructions shows that their sources are found, in decreasing order, in the following domains: sensory, communication, body and cognitive domains. LSC recruits the classical senses of the human perceptual system as sources for the lexicalization of evidential markers: smell, touch, hearing, and vision. The sense of smell deserves a special attention. Crosslinguistically, it is associated with a negative value, however this is not the case for LSC, since it appears in general and neutral context, without a negative connotation. Similar neutral uses are attested also in Spanish (Ibarretxe Antuñano, 1999, 2013).

Globally, the extension from concrete to fully abstract meaning by means of abstraction and schematization processes may be accounted for in terms of Talmy's notion of palpability (Talmy, 2000), as recognized in several works (Gisborne, 2010; Lampert, 2011). More in general, data from LSC support the embodied cognition thesis, which claims that concepts and categories of human languages derive from the situated interaction of human bodies with their environment (Rohrer, 2007). In turn, language is a tool to interpret the environment, and interact with it and the language itself. Abstract categories arise from commonalities and dissimilarities among usage events. In short, borrowing from Lakoff, we can say:

[...] the structures used to put together our conceptual systems grow out of bodily experience and make sense in terms of it; moreover, the core of our conceptual systems is directly grounded in perception, body movement, and experience of a physical and social nature. (Lakoff, 1987, p. xiv).

Crucially, grammar is based on perceptual and general cognitive abilities and it is repeated experiences that lead to the emergence of patterns (Bybee, 2010). An important social experience is communicative interaction. We have stressed –as in Shaffer (2012)'s study on ASL– the importance of direct discourse in LSC for the expression of source of information. Constructed action/dialogue constitutes a discursive construction that allows the expression of different views, not only real but “imagined” or “fictive” views, thus signaling perspectivization.

Fictive interaction has provided a theoretical framework for connecting and explaining different phenomena that are related with discourse and linguistic structure. In other words, interaction provides language users with a conceptual frame not only for construing meaning and making sense of the world (Bakhtin, 1975 [1981]; Vygotsky, [1934] 1962; Zlatev, Racine, Sinha, & Itkonen, 2005), but also for building up pieces of the language system (Linell, 2009, 2012; Pascual, 2014; Verhagen, 2005).

12.3.3.3 Status of modality and evidentiality in LSC

RQ 9. Do modality and evidentiality constitute separate grammatical categories in LSC?

Our analysis reveals that modality and evidentiality constitute separate grammatical categories in LSC with specific forms and constructions. Hence, the relation between the two domains is disjunction, as in Aikhenvald (2004, 2018), de Haan (1999, 2002). In this respect, we agree with those scholars that distinguish between the encoding of evaluation (i.e. modality) and the encoding of source or the evidence for the evaluation (i.e. evidentiality) (Cornillie, 2009; 2005).

Our interest, thus, is oriented to the interface between these two domains: how modal forms have developed evidential meanings and vice versa and how they are combined in discourse, taking into account both the semantic and formal dimensions. We have identified only three elements that may display both modal and evidential meanings: SABER 'to know', SEMBLAR 'to seem' and PENSAR 'to think'. The overlap of SEMBLAR is similar to the equivalent situations in several languages, namely Catalan *semblar* (Cuenca, 2015; González, 2005), English *seem* (Aijmer, 2009) and Spanish *parecer* ('to seem') (Cornillie, 2007, 2016). However, there is no overlap with volitive constructions as Catalan *voler* (Antolí Martínez, 2015a, 2015b) or necessity constructions as *deure* in Catalan (Sentí-Pons, 2015, 2017).

Another focus of interest is the combination of both markings with respect to the same clause, that is, how language users can signal their commitment and simultaneously their source, as reported by Wilcox and Shaffer (2018).

Other questions related with evidentiality in LSC that have not been discussed in this dissertation and that may be avenues for future research are listed in (510).

(510) Issues for further research related to **RQ 9**

- (i) The status of the forms in terms of lexical/grammatical category, i.e., adopting labels used in typological and grammatical studies, whether they are verbs, free morphemes, markers or adverbs.
- (ii) The degree of formal fusion in the evidential construction between the manual form and the elements in proposition: pause, non-manual component, fixed syntactic structure, etc.
- (iii) The phonological analysis of the compounding forms or collocation constructions (OLORAR+TOCAR.AMBIENT, SEMBLAR+OMBRA, VEURE CLAR, VEURE+TOCAR.AMBIENT, and VEURE+DESTACAR), i.e. their degree of fusion and lexicalization process.
- (iv) The significance of non-manual expression for evidential coding: the interaction between manual and non-manual channels of expression in sign languages.
- (v) The distribution of evidential elements in argument and information structure constructions, and in parenthetical constructions and their use with lexical and grammatical meaning.
- (vi) A comparison with other evidential systems categories —as those that appear in Aikhenvald (2004), de Haan (2005), Hengeveld & Dall’Aglio Hattner (2015), Plungian (2010), San Roque & Loughname (2012) and Willet (1988), as reported in chapter 3.
- (vii) The interaction of evidentiality with other categories, such as tense and deixis as pointed out by Floyd 1999, de Haan (2001).

In this dissertation, we have shown that the encoding of evidentiality in a language is not a trivial issue. Language users need resources to specify the information source on which a statement or reasoning is based. This is even more important for learners at school to distinguish between the sources and evaluate the information according to them.

12.3.4 Modality and aspect

RQ 10. Which are the main elements signaling aspectual categories in LSC?

Chapter 9 has looked at the expression of the aspect domain in LSC. Eleven markers have been described. Also, we have distinguished the resources for encoding aspect from the expression of time. The latter are similar to those described for other signed languages from urban communities with left-to-right writing (Cabeza Pereiro & Fernandez Soneira, 2004; Elisabeth Engberg-Pedersen, 1993; E. Engberg-Pedersen, 1999; Meir & Sandler, 2008; Meurant, Sinté, Van Herreweghe, & Vermeerbergen, 2013).

The elements analyzed as well as the descriptions consulted concerning other sign languages agree with the general trend whereby process verbs are grammaticalized as auxiliaries signaling aspectual values (Bybee, et al., 1994; Heine, 1993; Heine & Kuteva, 2002).

We consider aspect the most grammaticalized functional domain in LSC since it is expressed morphologically in the verb. In fact, we consider it closer to a derivation process than to inflection, as it is generally assumed.

RQ 11. Which are the sources for aspectual manual markers in LSC?

Some of the manual markers under scrutiny are the result of a grammaticalization process that takes lexical items as the raw material, such as 'finish', similarly to what happens in processes described for spoken languages (Bybee, et al., 1994). Other markers are the product of language contact with written/spoken languages, whereas the origin of others is as yet unknown.

RQ 12. Does LSC express modal values through aspectual constructions? Do modal constructions express aspectual meanings?

Concerning the interaction between aspect and modality, recent surveys of the literature note some remarkably conflicting hypotheses. On one hand, an important

line of research reveals that perfective is associated with non-epistemic meanings – objective or factive information—, whereas imperfective is linked to epistemic modality –subjective, perspectivized or counterfactual information (Abraham, 2008; Boogaert & Janssen, 2007; Trnavac, 2006).

However, for other scholars the general tendency is to consider the relation between modality and aspect as marginal (Palmer, 1986: 209; Squartini, 2016). The research on LSC seems to confirm this second option with regard to lexical expression or free morphemes. From an empirical point of view, in LSC aspect appears independent from modality. There is only one marker that conflates a certainty value with an aspectual notion: ACABAR 'finish' may express modal values through pragmatic inferencing. We have traced back its origin to multimodal communication. We have argued that a certainty reading is triggered by the construction composed of a facial expression signaling mirativity values and the manual aspectual marker, facing an instance of constructionalization (Bybee, 2010; E. C. Traugott & Trousdale, 2013).

The second connection between aspect and modality refers to the process of lexicalization which has originated a stronger modal element by adding the bound morph that signals perfective/completive aspect. There are both semantic and formal changes. The process is similar to the process that took place in Latin with the infix -sc. This infix was used to express inchoative aspect and originated lexical-semantic differences like the *floreo* 'florece' – *floresco* 'empezar a florece'.

We have not documented diachronic evolutions from perfect markers to modal markers, nor to evidentials, as provided by research on Georgian and some Balkan languages (Comrie, 1976) or for Japanese (Narrog, 2008). Semantically modal notions as possibility, necessity, signer's attitudes and non-factuality are clearly distant from the external viewpoint on the shapes and limits of situations specified by aspect.

Nevertheless, concerning morphological marking –as described in Chapter 9— LSC differentiates between the perfective and imperfective forms of the verb in declaratives by means of a bound morph consisting of modifying the intensity and abruptness of the manual sign. While the perfective form is shorter and tenser than the imperfective, the latter is being signed with relatively longer duration and repetitive head nods. This formal marking coincides, thus, with the properties associated with imperatives in the languages where it has been examined.

The distinction is also applied to TID (Zeshan, 2003, pp. 49–55; Kubuş, 2008, pp. 75–76) and probably to a wider number of sign languages because of their cognitive base, that reveals diagrammatic iconicity. Therefore, the description of the connections between modality and aspect in sign languages necessarily implies a deep study of commands and perfective aspect.

All these characteristics lead to the consideration that the grammaticalization process for aspect in LSC, and in signed languages globally, appears to be “inchoate, if not incipient”, as evaluated for AUSLAN (Johnston et al., 2013). These authors suggest three factors as relevant in the grammaticalization process, as listed in (511):

(511) Factors in grammaticalization in signed languages (Johnston et al., 2013)

- (i) **Shallow historical depth:** there seems to have been insufficient time for the process of grammaticalization to produce a more marked change in form and function.
- (ii) **Sociolinguistics of deaf communities:** tightness/looseness of social networks, small community size, and a high degree of language contact (many adult L2 learners of Auslan, including teachers and parents) have all been implicated in restraining language (morphological) complexity.
- (iii) **Language borrowing/contact:** ready-to-use ambient spoken grammatical strategies appear to be calqued and/or mapped onto native strategies.

The three factors in (511) may justify why LSC, and signed languages, do not exhibit aspect as an inflectional category, and also why there is no overlapping of aspectual meanings and modal meanings in grams.

Some important questions not discussed in this chapter and that may be avenues for future research are listed in (512).

(512) Issues for further research related to **RQ 10, RQ 11** and **RQ 12**

- (i) In-depth analysis of morphological marking of aspect.
- (ii) The interaction between morphological marking and syntactic (constructional) marking for aspect in LSC.
- (iii) The coding of grammatical aspect and restrictions with respect to lexical aspect (Aktionsart).

- (iv) The characterization of criteria to ascertain the constructional status of the combinations of lexical verb and aspectual verb in LSC.
- (v) The interaction of the expression of time, aspect and modality in LSC concerning simultaneity of marking.

12.3.5 Other functional categories: time, mirativity and boulomaic modality

In this section we tackle three grammatical/functional categories that we reviewed theoretically in Chapter 3, namely time, mirativity and boulomaic modality. There is no room for an in-depth analysis. However, we consider necessary to make a brief reference to them, because of their importance.

In chapter 9, we examined briefly the expression of time. Concerning the interaction with modality, we have not identified signs expressing both values, as happens in LSA (Curiel & Massone, 2000; Massone, 1994).

Mirativity, as described in Chapter 3, corresponds to the marking of unexpected information, that shocks or surprises the issuer (de Haan, 2012; DeLancey, 1997, 2001, 2012; Estrada, 2013; Mocini, 2014; Peterson, 2013; Tournadre & LaPolla, 2014). In LSC, mirativity may be signaled by means of the resources listed in (513).

(513) Mirativity constructions in LSC

- (i) Suprasegmental marking signaled by facial expression (raised eyebrows, open mouth...), head (movement towards the interlocutor) and torso movements expressing surprise.
- (ii) Constructed action/dialogue.
- (iii) Question-answer focus.
- (iv) Lexical expressions: SORPRESA 'surprise' or adjective predicates, such as signs belonging to the paradigm of compounds with MENT ('mind') described in Jarque et al. (2012), meaning 'quedar desconcertat' (Figure 12.10).



Figure 12.10 QUEDAR.DESCONCERTAT (Jarque et al., 2012)

Facial expression is the most frequent of all these resources. Its characters as suprasegmental expression, besides, allows the combination with the manual expression of modality and evidentiality. The surprise facial marker may appear also in constructed action/dialogue, reporting somebody else's utterances or thoughts –as examined in Chapter 8. However, in this case the signer is simulating the reaction of the reported agent. This type of simulation has been documented also in ASL.

With respect to boulomaic modality –the expression of estimative or evaluative interpretation (Nuyts, 2016; Palmer, 1986) – there is no study on LSC. Boulomaic values may be signaled by means of the resources listed in (514)(513).

(514) Expression of boulomaic or estimative modality in LSC

- (i) Suprasegmental marking signaled by facial expression, head and torso movements expressing positive and negative evaluations, appropriateness/suitability.
- (ii) Constructed action/dialogue.
- (iii) Evaluative expressions such as MILLOR 'that's better', SER.ADEQUAT 'It is appropriate', MALA.SORT 'bad luck', LLÀSTIMA 'what a pity'.

In our corpus, modal constructions appear preceded or followed by facial expressions and body movements that communicate boulomaic values. Also, some modal elements are accompanied by facial expressions denoting evaluation.

Finally, from the perspective of the interaction with other functional/semantic domains, modality in LSC can be characterized as in (515)(202).

(515) Semantic space of modality in LSC

- (i) There are important semantic interactions between modality and negation, allowing for modal negators as well as the negation of positive polarity modal resources.
- (ii) Although modality and evidentiality are different categories, there are contact points and combination of both domains.
- (iii) Modal elements in LSC do not include values related with the boulomaic modality, i.e. estimative or evaluative interpretations.
- (iv) It does not comprise mirativity values as, for instant, surprise, but the display of some resources may trigger mirativity readings via pragmatics as well as the combination with suprasegmental resources (e.g. surprised facial expression).

12.4 Discussion of research goal 3: Modality and the emergence of grammar

The answer to the third goal includes the discussion of two different questions, related to an extension of the well-know Givon's slogan ("Today's morphology is yesterday's syntax" 1971) applied to the discourse. On the one hand, the chapter addresses the origin of the modal forms and constructions, grammaticalization processes and the possible paths. We consider that synchronic data on actual discourse may shed some light on the development grammatical functions from gestural forms. This is particularly relevant since there are no well-documented historical records allowing diachronic study on modality as conducted in some spoken language.

On the other hand, the lack of diachronic resources in LSC led us to examine the discourse dimension, concerning the possible discourse functions of modals and the modals functions developed by a prototypical gesture/discourse marker. As discussed by Ziegeler, "it is possible to derive the sources of modality from other functions still existing in the system, or from a range of lexical and pragmatic sources relating to all kinds of valuative functions" (Ziegeler, 2016, p. 404).

12.4.1 Grammaticalization and source of modal constructions

RQ 13. Which modal forms and constructions have their source in lexical items, grammatical items, manual and non-manual gestural items?

Our analysis suggests that some LSC modals have a lexical source with a more concrete meaning. Their origin can be traced back to a gesture in 77,5% of the examined signs. These findings add evidence to the hypothesis posited in several studies on ASL (Janzen & Shaffer, 2002; S. Wilcox, 2007; S. Wilcox, et al., 2010; S. Wilcox & Shaffer, 2006), LIBRAS (Xavier & Wilcox, 2014) and LIS (S. Wilcox, et al., 2010).

Furthermore, LSC data confirm some lexical sources for modal grams posited in the literature, e.g. in Bybee et al. (1994), Heine et al. (1993; 1991), Heine and Kuteva (2002): 'know' (LSC SABER) and 'suffice' (LSC SABER.JA) for participant-internal possibility; 'be' (LSC SER) and 'I don't know' (LSC SABER-NO) for epistemic possibility, 'be permitted' for deontic possibility. As for necessity, we have identified 'lack' (LSC NECESSITAR) for participant-internal and root necessity or 'truth' for epistemic necessity. In short, LSC supplies further evidence of lexical candidates to modal grams from a crosslinguistic perspective.

RQ 14. Does LSC exhibit prototypical modal grams?

Concerning the analysis of the candidates to auxiliaries in LSC, we have applied the prototypicality criteria discussed in the literature (Bybee, et al., 1994; Lehmann, 1982/1995) as systematized by Beijering (2012): number of modal values, relation with its lexical counterpart, semantic properties and use frequency.

Some of the criteria need further analysis since, for instance, we have not provided a statistical study of frequency. Moreover, our analysis is based on the variation displayed by synchronic LSC data, taking into account lexical and grammatical content from other sign languages from the same family. The lack of diachronic data has not allowed us to analyze changes along time.

RQ 15. Can we determine grammaticalization paths from the different synchronous properties modal constructions exhibit? Which cognitive mechanisms may have been at work? Do LSC data confirm the two routes proposed for signed language grams in the literature?

Research on grammaticalization claims that synchronic polysemy and ambiguity (vagueness) allow researchers to infer grammaticalization paths when historical data are missing. Polysemy may signal the different grammaticalization stages modals went through and, on the other hand, ambiguity may indicate a transition stage in the process (Bybee, et al., 1994; van der Auwera & Plungian, 1998). Following Sherman Wilcox's contributions, we have taken into account also gestural sources.

LSC data confirm some of the grammaticalization paths posed for spoken languages and for those of the few sign languages which have been studied. In particular, LSC confirms the path from participant-internal possibility to external and, then, to epistemic possibility posited by Bybee et al. (1994), as examined when discussing LSC PODER in Chapter 10.

With respect to (potential) specific paths for sign languages, LSC confirms a path described for LIBRAS by Xavier and Wilcox (2014): from deontic necessity to internal-participant necessity. The sign OBLIGAR has its origin in a manual gesture expressing obligation from an external source. SER.LLEI, on the other hand, refers to a deontic source, the law. Both signs signal prototypically deontic meanings, but they can be used for internal-agent necessity values. The semantic extension from external to internal necessity may be explained through a conceptual metaphor: THE BODY IS THE MIND, in the sense that the body signals the convenience of some action that the agent has not decided consciously.

This path is not predicted in the proposals by Bybee et al. (1994) or van der Auwera & Plungian (1998). Xavier and Wilcox indicate that "This may be indicative of a peculiarity of Libras or of signed languages in general" (2014, p. 468). However, this path posits more problems than only being exclusive for signed languages as they suggest, since its existence would violate the unidirectionality of the language change hypothesis.

Furthermore, it seems that NECESSARI would have its lexical origin in 'lack', thus signaling participant-external necessity through the metonymic chain "something that

is missing > something that is necessary". The source is the negative counterpart of the verb 'to have', also posited as a source in Bybee et al. (1994) framework.

However, LSC data, unlike ASL and LIBRAS data, do not confirm other paths proposed in the literature, such as the development of epistemic necessity out of non-epistemic necessity, as claimed in grammaticalization studies of spoken languages (Bybee, et al., 1994). On the basis of multimodal literature and our synchronic LSC data, we suggest that the only two necessity modals formally similar (HAVER.DE and SER.SEGUR) developed independently in LSC since the deontic and epistemic functions are already described for the precursory manual gestures (i.e. ring-family gestures) in gestural studies in Roman times, as examined in detail in Chapter 10.

Furthermore, building on the hypothesis developed by Wilcox and colleagues (Janzen & Shaffer, 2002; Shaffer & Janzen, 2000; S. Wilcox, 2004, 2007; S. Wilcox, et al., 2010; S. Wilcox et al., 2000), data from LSC confirm that grammatical expressions may develop from two routes.

In previous works we have described, at the lexical level, the complex interaction between conceptual metonymy, metaphor, and iconicity showing mappings in the conceptual space (Jarque, 2005; Jarque & Wilcox, 2000; S. Wilcox, Wilcox, & Jarque, 2003). This dissertation has widened this analysis to the grammatical level showing that conceptual metonymy – such as the potency for the action, the necessity for the absence, the obligation for the action – may contribute to the emergence of grammatical meaning, through invited inferencing (Bybee, 2009; Hopper & Traugott, 1993; E. C. Traugott, 2010).

In addition, data from LSC have shown that some present modal forms are the result of constructionalization, either lexical (as the signs SABER.DOMINAR or OBLIGAR.CANÓ) or grammatical (E. Traugott, 2008; E. C. Traugott & Trousdale, 2013). Also, some authors consider that the parenthetical constructions are product of pragmatization, defined as the development of discourse markers out of lexical items. However, for signed languages, evidence discussed in chapter 10 suggests a different path, according to the definition of pragmatization as "the kind of diachronic change where elements [...] assume functions on the discourse-pragmatic level" given by Günthner and Mutz (2004). In the case of signed languages, it would refer to a diachronic change where the sources may be elements from multimodal

communication. Nevertheless, this notion does not capture the linguistic facts in signed languages. Data from LSC suggest that the two processes are distinct, giving support to the arguments defended by Harder & Boye (2012).

The main question pending for future research are the following issues (516).

(516) Issues for further research related to **RQ 15**

- (i) Crosslinguistic fine-grained analysis of homophone modal forms in LSF, LIBRAS, LIS, LSE and LSC to establish lexicalization, grammaticalization and pragmaticalization trajectories.
- (ii) Detailed analysis of formal differences between lexical forms, modal grammatical forms and the identified gestural sources.
- (iii) Sources for the LSC predicates AGRADAR 'to like' and TENIR.GANES 'to fancy'.
- (iv) Confirmation of findings in a large corpus of LSC discourse.

12.4.2 Modal functions, pragmatics and discourse

Signers produce three types of elements in signed discourse: fully and partially lexicalized elements, and gestures. To add evidence for the process of building the modality functional category in LSC, we raised two issues/questions. First, we wanted to examine whether lexicalized non-modal elements can trigger modal meanings via pragmatics. Second, whether gestures express modal meanings and can be lexicalized and enter the language as discourse or grammatical markers. The final goal is to contribute to the discussion on the two routes posited by Wilcox from a synchronic perspective.

RQ 16. Do LSC forms adopt modal readings via pragmatics?

We have shown that some forms may adopt modal readings in natural discourse in LSC, and, thus, they are candidates to develop into grammatical elements.

RQ 17. Do gestures/discourse markers express modal nuances? Does this contribute to the discussion of grammaticalization paths for sign languages?

Research conducted on the palm-up forms in LSC shows that they can be considered as a cluster (or family) with several symbolic units consisting of a form and a meaning. Our data confirm the analysis of previous studies of the palm-up form in signed languages, which associate this form with several discourse functions (Amundsen & Halvorsen, 2011; Conlin, Hagstrom, & Neidle, 2003; E. Engberg-Pedersen, 2002; McKee & Wallingford, 2011; Waters & Sutton-Spence, 2005):

- (i) transition between topics,
- (ii) connecting discourse elements and focusing,
- (iii) interrogative function,
- (iv) conversation regulator,
- (v) prosodic function, and
- (vi) expressing modality and affect

With regard to organizational functions in discourse, the research conducted by Gavarró-López (2017) on LSC and LSFb focusses on their status as a discourse marker. Her results show that the palm-up gesture fulfils the three criteria to be considered a discourse marker, namely:

- (i) to be syntactically optional,
- (ii) to be non-truth-conditional, and
- (iii) to constrain the inferential mechanisms of interpretation processes.

Our analysis of the palm-up form in the corpus shows that the palm-up family of gestures accomplishes the modal functions conveying the signer's perspective on the certainty, possibility, and truth of information in the discourse as well as non-epistemic meanings. In fact, Rodríguez-González (1992), with respect to LSE, documented this form in its one-handed version as a sign signaling doubt and possibility, as illustrated in Figure 12.11.



Figure 12.11 LSE A.LO.MEJOR 'maybe'

(Rodríguez-González, 1992)

The analysis of the palm-up forms in LSC reveals that they can be considered a cluster (or family) with several symbolic units consisting of a form and a meaning. Two of them are particularly relevant because they seem to show less variability in the form and more concrete function. These modal functions have been mentioned in the multimodality literature (Kendon, 2005; Müller, 2013; Payrató, 2013).

Our data suggest a third path where gesture constitutes the source. The 'palm-up' family of gestures described in the literature on gesture have developed discourse functions related with the semantic domain of modality. This leads us to propose a third route where a manual and a non-manual gesture with discourse functions develop into a manual and non-manual discourse marker. Data from ASL (Conlin, et al., 2003), BSL (Waters & Sutton-Spence, 2005) and DSL (E. Engberg-Pedersen, 2002) seem to confirm this.

We argued that considering them as gestures with modal function that may enter the grammar would challenge the grammaticalization theory that claims that manual gestures enter the sign language as lexical morphemes and later develop a grammatical meaning (Cf. Wilcox et al. 2010).

Recall the definition of pragmaticalization as "the kind of diachronic change where elements [...] assume functions on the discourse-pragmatic level" given by Günthner and Mutz (2004). In the case of signed languages, it would refer to a diachronic change where the sources may be elements from multimodal communication. However, this notion does not capture the linguistic facts in signed languages.

The relation between grammaticalization and what has been called 'pragmaticalization' is a controversial issue in the area of linguistic change (Harder & Boye, 2012). Data from LSC suggest that the two processes are distinct, giving support to the arguments defended by Harder & Boye (2012). The distinction seems to reside in the different sources.

The main question pending for future research are listed in (517).

(517) Issues for further research related to **RQ 16** and **RQ 17**

- (i) Textual or interactive/intersubjective functions of developed modal constructions: expression of stance, mitigation and polite request.
- (ii) Confirmation of findings in a large corpus of LSC discourse.

The results contribute to our understanding of the typologically universal paths of grammaticalization and the semantic domain of modality.

12.5 Discussion of research goal 4: LSC modals and the grounding function

The definition of epistemic grounding proposed by Langacker can be approached from either the conceptual or the formal side. But, approaching it from both sides generates a conflict (Pelyvás, 2006). This conflict may be illustrated, for instance, with the data from LSC. The fourth goal is related to the grounding function and it is formulated in the question 18, as follows:

RQ 18. Do modal grams in LSC constitute grounding predications in Langacker's (1990, 2002, 2013b) terms?

According to Pelyvas (2006), the appearance of grounding predication "is a major development in the elaboration of a grammatical theory capable of dealing with a number of factors connected with language use" (2006, p. 121). However, some authors have pointed out that Langacker's definition of grounding predications is problematic for languages other than English as well as for English itself –as reviewed

in Chapter 2—, and we have shown that this is the case for signed languages, because of some of the reasons already discussed in the literature, but also for the reasons examined in Chapter 11.

We have argued that, formally speaking, modal markers in LSC (but also in ALS) serve the function of clause grounding due to their reference point function and to the subjectification they undergo. Specifically, we have shown that epistemic modals in LSC –as well as in ASL— constitute grounding predications since they exhibit the proposed properties. First, the nature of the grounded entity: they are (highly) grammaticalized. Second, the conceptual import is related to the epistemic notion of reality. Third, the nature of the grounding relation and the configuration of the ground: the ground is subjectively construed.

However, we have shown that the formal requirements for grounding predications are fulfilled. However, this is not a consequence of being highly grammaticalized, but simply because verbs in LSC are not marked for tense and, specifically, the modals under examination constitute the equivalent of spoken language bare infinitives. Thus, on the formal side, languages with little or no verbal morphology pose difficulties for grounding theory because of the following issues. What counts as a bare infinitive, a finite or a non-finite form? How can we distinguish between summary and sequential scanning? And between a grounded and non-grounded clause?

Moreover, we agree with Mortelmans (2006) and consider that a more gradual view on grounding and subjectification is needed and that it is fundamental to take into account local and constructional factors of the specific modal. Our analysis has looked at the syntactic environment in which the modal occurs: different semantic meanings of the modal appear in different constructional schemas, and, thus, impose different formal requirements of the grounded clause as well as the semantic content.

Also, we have pointed out differences between non-epistemic and epistemic possibility modals. We can consider LSC non-epistemic constructions less grammaticalized than the epistemic ones on the basis of their syntactic properties. This would be an argument in favour of Pelyvás (2006)'s exclusion of root modals from the category of grounding predications. However, in some uses of PODER in LSC, social norms or expectations have to be considered the implicit force behind the obligation. Hence, we can claim that the locus of potency is a subjective construal also in non-epistemic uses, as

Langacker claims for English deontic modals: “It is not necessarily a specific individual, but may instead be some nebulous, generalized authority” (Langacker, 1999, p. 308). Thus, this would suppose a counterproposal to Pelyvas’s defense of excluding non-epistemic modals (root, in his terminology) from being grounding predications.

On the contrary, we agree with Pelyvas (2006) in the sense that conceptual structures of some constructions where epistemic cognitive predicates appear are very similar to LSC prototype modals (HAVER.DE, PODER, PODER.EPIST, and SER.IMPOSSIBLE). As for modals, the LSC cognitive predicates are bare-infinitive, so it would make them candidates for grounding predications on the formal side. However, if we consider, as it has been the case throughout the dissertation, that the modal element is the whole construction (i.e. constructions such as [PRO.1 cognitive.predicate proposition]), this would imply that the ground will not be construed subjectively because of the presence of the personal pronoun. This adds a new issue of discussion to the concept of grounding predication. Our suggestion is that, instead of considering the modal by itself, we should take into account the modal construction also as a unit candidate for grounding predication status.

Probably the category of *anchoring relations* posited by Temürçü (2011) might solve some of the conflicting issues since they can also appear onstage and, therefore, allow to include cognitive predicates. In general terms, sign languages demand the elaboration of a theory of grounding function that distinguishes between epistemic, aspectual and temporal categories since their marking may have scope over different linguistic elements (being time, for instance, discourse oriented and modality clause-oriented) and none of them are mandatory on the clause. A proposal for the grounding function such as Nuyts (2002) –as explained in Chapter 2– is more comprehensive and inclusive for signed languages as well for spoken languages, closer to sign languages from a typological perspective than to English or Romance languages (e.g. Chinese).

On the other hand, in the parenthetical uses, the pronoun or any reference to the source of potency does not appear and, thus, it might be interesting to analyze their status as grounding predication at discourse level in the languages where clauses are mainly not grounded. This would be the case of sign languages where time and modality are not signaled inflectionally. Parentheticals are considered discourse elements. This leads us to consider the necessity of examining grounding at the textual/discourse level, besides the nominal and clause levels.

Moreover, as some examples have shown in the discussion of the palm-up gesture in Chapter 11, also gestures contribute to signal the conceptualizer's attitude toward what is being communicated. Thus they fulfill, to some extent, the epistemic grounding function.

We defend the concept of grounding predications in terms of a gradient category where there are prototypical members of the category, such as modals PODER in LSC, and less prototypical or peripheral ones, as for instance cognitive predicates.

The main issues pending for future investigation with respect to LSC and the function are the following (518).

- (518) Issues for further research on grounding and signed languages
- (i) Marking of **time and clausal grounding** in LSC.
 - (ii) Pointing and location for **nominal grounding** in LSC.
 - (iii) Crosslinguistic comparison of **clausal grounding effected by modals** in sign languages and their constructionalization.
 - (iv) Relations between **information-structure constructions** in LSC and the grounding function.
 - (v) **Dynamic conceptualization** of the ground in interaction, construction action/discourse in signed languages and the grounding function.
 - (vi) Characterization of **finite and non-finite forms** in sign languages.
 - (vii) Distinction between **summary and sequential scanning** in sign languages.

In short, data from LSC confirm some of the criticisms and proposals necessary to examine the concept of grounding in natural languages, but also, add new challenges and issues. A summary of different proposals is given in (519).

- (519) Issues for analyzing modals and the grounding function in natural languages
- (i) The analysis of individual modals in specific constructions, and not a whole class.

- (ii) The inclusion of epistemic cognitive predicates in the list of grounding predications.
- (iii) The contrast between deontic and epistemic readings of modals.
- (iv) The syntactic distribution of modals and the constructions (clause and discursive) where modals participate.
- (v) The different degrees of specificity: grammaticalization of individual modals in specific constructional schemas with low level information and in more abstract ones.
- (vi) The consideration of the grounding function, also, for discourse structures and constructions.
- (vii) The examination of gestures (such as palm-up gesture) and the grounding function in spoken and signed discourse.

Globally, this study has built upon and extended the work of Langacker (1985, 1990, 2009, 2013a), in the sense that, as pointed out by Langacker, grounding predications should be a universal and central feature of clause structure and therefore they should be documented also in signed languages.

12.6 Final remarks

This dissertation presented a discourse-based cognitive and functional exploration of the expression of modality in LSC. The investigation adopted a holistic examination of LSC because language elements are interconnected and interact. Furthermore, a comprehensive and broad approach was required since it is an understudied language and little research has been conducted on its phonological, morpho-syntactical and discourse dimension.

Our general question for the inquiry is: Does modality constitutes a grammatical category in LSC? We have approached it adopting the complexity perspective (Beckner, et al., 2009; Cameron & Larsen-Freeman, 2008; Ellis & Larsen-Freeman, 2006; Morin, 1994), i.e. by examining this conceptual domain as an entity formed by entities, and in interaction with its context –lexical items and the grammatical/functional categories— as well as the conditions for its emergence, rejecting a reductionist approach.

These three dimensions correspond to what Capra (1996) identifies as: (i) the study of the pattern of organization, (ii) the study of the structure, and (iii) the study of the vital process. Concerning the study of the pattern and the structure, the research revealed that LSC displays a rich constellation of modal resources, consisting not only in manual and non-manual elements, but displaying also a complex interplay of constructions with different levels of specificity. This dissertation has shown that the LSC resources expressing modal meanings do not constitute a system in the sense of Boye (2016), i.e. a distributionally delimited set. In other words, they do not constitute an inflectional paradigm or a set of expressions that are mutually exclusive.

From a crosslinguistic perspective, LSC would be closer to the group of languages (e.g. Chinese) where grammatical categories are not used obligatorily, without them being suspect of not having these categories (Leiss, 2008). Modality is scattered among a range of different expressions. Some modal meanings are expressed by cognitive predicate constructions, adjective constructions, modal markers and so on. They constitute a system based on their semantics and on the distribution of forms and functions.

Following Boye and Harder (2007, 2009), grammatical expressions exhibit the following properties. Firstly, they belong to a (limited) number of substantial domains relevant from a crosslinguistic perspective. Modal meanings are part of the limited set of what Slobin (1997) refers to as "grammaticizable notions". Empirical evidence comes from cross-linguistics surveys such as, among others, Palmer (1986), Bybee et al. (1994), Boye (2012).

Secondly, grammatical expressions imply a secondary predication with respect to the main predication, which constitutes the lexical part in the linguistic system. As Boye and Harder state:

[. . .] Secondariness is the fundamental property associated with grammatical status: grammaticalization occurs in all and only those cases where an element becomes coded as secondary in relation to another, thereby creating both a new, less prominent element, and a dependency relation with the associated primary element. Together, this provides a usage-based definition of grammatical status and grammaticalization (Boye and Harder 2009:38).

Moreover, the data we analyzed lead to some reflections and comments on the grammatical structure of LSC. Looking into the resources that express other semantic spaces or functional domains in LSC, namely aspect, negation and evidentiality, has allowed us to tease apart the grammatical realization of modality. All in all, the analysis

of the potential interfaces of modality and the functional categories of aspect, negation and evidentiality, has revealed that modality strongly interacts with negation. Modality and evidentiality share a few forms and, with respect to aspect, morphological aspectual morphemes give rise to the lexicalization of two modal forms. Moreover, the analysis provides input for the theoretical discussion of typology of evidential systems adding data from a signed language. Further, it contributes to controversial relationships between evidential and epistemic values.

Indeed, this dissertation reveals that the main manual and non-manual ingredients of linguistic constructions for expressing modality, negation and evidentiality in LSC, but also for aspect, are rooted in conventionalized gestures that are common in the hearing community that surrounds the signers. Our data helped uncover the linguistic properties that turned those gestures into elements of a complex and highly articulated linguistic system. Data from the constructions under scrutiny confirm the idea that “the processes which linguistic patterns arise and spread in languages are important for the understanding of why languages look the way they do” (Dahl, 2010, p. 32).

This process of grammar construction from gestural elements, most of them co-occurring as gestures and grammatical elements, adds evidence to the hypothesis that considers grammars as emergent, rather than fixed, discrete and a priori systems (Hopper, 1987), and to the universality of paths of change and the mechanisms underlying them (Bybee, 2010; Greenberg, 1969). Future cross-linguistic comparisons among sign languages will yield a robust picture of the emergence of grammatical categories in the signed mode and it will allow the analysis of paths of change against the background of spoken linguistic systems.

Chapter 13. Conclusions and directions for future research

13.1 Introduction

In this chapter, we present the main conclusions of our investigation. We will point out the main contributions and limitations of our study, trying to move toward a description and explanation of the expression of the semantic space of modality. Also, we will provide topics for further research about modality in education and language acquisition.

This chapter is structured in the following way. In section 13.2, we present the conclusions of the research. In Section 13.3 we review the main contributions of the dissertation, organized in subsections that correspond to the specific research goals. The following section addresses the limitations. Some paths for further investigation are given in Section 13.4. Finally, Section 13.5. closes the chapter with some final remarks.

13.2 Conclusions

The conclusions are organized following the four research goals: the category of modality, the interaction with other grammatical categories, the emergence of grammar, and the grounding function and grounding predication status.

13.2.1 Research Goal 1: The grammatical category of modality in LSC

- (i) LSC displays a complex constellation of linguistic forms to express the semantic domain of modality, conveying volitive meanings as well as possibility and necessity values, concerning the epistemic and non-epistemic subdomains.
- (ii) LSC modal forms can be aligned on semantic scales including volitive, non-epistemic modal, and epistemic values, both positive and negatives, structuring the semantic space of modality.
- (iii) Modality in LSC is a gradience domain with prototypical and peripheral elements.
- (iv) Modality in LSC is scattered among a range of different types of expressions: cognitive predicate constructions, adjective constructions, and modal markers.
- (v) LSC modal forms appear in different type of constructions, with different degrees of specificity (meso- and micro-constructions), that can be

information structure constructions and argumental syntactic constructions.

- (vi) Some forms appear in parenthetical structures behaving as adverbs (according to the authors defending secondary grammaticalization) or as discourse markers (according to the scholars arguing in favor of pragmaticalization or discursivization).

13.2.2 Research Goal 2: Interaction with other grammatical categories

- (i) LSC combines the use of the general negative mechanisms for negation with the use of modal negators.
- (ii) Some negative markers have their origin in the contraction of the positive counterpart and the sentential negative marker showing processes of cliticization and univerbation.
- (iii) As for the combination of two negative markers, we observe negative agreement but not double negation.
- (iv) Our description of LSC shows semantic overlap between modality and negation, particularly with respect to possibility and negation. The interaction is particularly clear when expressing counterfactuality.
- (v) LSC aspect appears independent from modality. The research on LSC confirms the general tendency of the relation between modality and aspect toward marginality. Semantical modal notions as possibility, necessity, signer's attitudes and non-factuality are clearly distant from the external viewpoint on the shapes and limits of situations specified by aspect.
- (vi) Modality and evidentiality constitute separate grammatical categories in LSC. Otherwise, they combine manually and non-manually in complex ways.

13.2.3 Research Goal 3: Modality and the emergence of grammar

- (i) Synchronic data on actual discourse shed light on the way gestural forms develop discursive and grammatical functions.

- (ii) Some linguistic elements may trigger modal readings via pragmatics, thus being candidates for future modal grams.
- (iii) The palm-up family of gestures accomplishes modal functions: conveying the signer's perspective on the certainty, possibility, and truth of information in the discourse as well as non-epistemic meanings such as deontic (permission, acceptance of ideas or actions).
- (iv) Some LSC modals have a lexical source with a more concrete meaning and their origins can be traced back to gestures.
- (v) Data from LSC confirm that modal grammatical expressions may develop following the two routes already proposed in the literature.
- (vi) Data suggests a third path where gesture constitutes the source for manual discourse markers accomplishing modal functions.
- (vii) Conceptual metonymys –such as the potency for the action, the necessity for the absence, the obligation for the action– may explain the emergence of modal grammatical constructions in LSC through invited inferencing. These metonymies constitute instances of a process of subjectification à la Traugott.
- (viii) Grammaticalization, constructionalization and pragmaticalization capture the linguistic facts analyzed in signed languages.

13.2.4 Research Goal 4: LSC modals and the grounding function

- (i) Epistemic modals in LSC constitute grounding predications, since they are grammaticalized, the conceptual import is related to the epistemic notion of reality and the ground is subjectively construed.

For all these reasons, we can conclude that modality constitutes a grammatical category in LSC since:

- (i) The semantic values under exam correspond to the values comprised in cross-linguistic studies.
- (ii) The number of linguistic resources expressing these values is limited.
- (iii) The linguistic resources express a secondary predication.

- (iv) The modal linguistic resources are different from other close categories, such as aspect, evidentiality and negation.

Moreover, the encoding of modality in LSC shows the richness and complexities attested in natural languages.

13.3 Contributions of this research

The issues discussed in this dissertation constitute an important contribution to research in linguistics, deaf education and knowledge transfer, as reviewed in sections 13.3.1 to 13.3.3.

13.3.1 Main contributions to the research in linguistics

We list now the major contributions to linguistics and explain them briefly in the following paragraphs:

- (i) The linguistic description of an understudied signed language, based on naturalistic data from a corpus.
- (ii) The expression of functional/grammatical categories in signed languages.
- (iii) The processes of grammaticalization and pragmaticalization, via mechanisms such as subjectification and intersubjectification.
- (iv) The conceptualization of grounding function and the characterization of clausal grounding and grounding predications from the perspective of sign languages modality.

This dissertation has offered a description of LSC modality as well as three other main functional categories, namely negation, evidentiality, and aspect. The incorporation of discourse into the analysis supports a holistic view of language.

Moreover, our analysis on LSC provides new data for the characterization of modality, a prominent notion in linguistics analysis related with a central and highly sophisticated domain of the linguistic system. Also, this dissertation has contributed to a better understanding of the expression of grammatical categories in signed languages, and to the theory of language and functional/grammatical categories from a typological

perspective. By addressing these issues, we hope to contribute to the crosslinguistic and cross-modal typology of aspect in the languages of the world.

Our dissertation contributes to the discussion of the process of grammar building. Specifically, it adds field data from a different modality to the theories of grammaticalization and pragmaticalization. Finally, it provides arguments for the discussion on the accomplishment of the grounding function and the properties of grounding predications.

13.3.2 Main contributions to deaf education

The most important contributions to the field of deaf education are related with the following issues:

- (i) The status of LSC as a true language since it leaves no doubts about the linguistic character of signed languages, already recognized by Descartes, cited in Copple (2013).
- (ii) LSC characteristics necessary to design interventions addressing the development of metalinguistic awareness in LSC.

13.3.3 Main contributions to knowledge transfer

We consider knowledge transfer an important phase in the research process. Along these years, we have contributed to knowledge transfer, mainly participating in activities related to the education field, that can be grouped as follows:

- (i) pre-service LSC teacher and LSC specialist training
- (ii) pre-service LSC interpreters training
- (iii) pre-service teacher training
- (iv) in-service speech-language therapists working in deaf education
- (v) elaboration of the instrument *Linguistic behaviours in LSC*, to detect and intervene in linguistic problems and disorders in LSC
- (vi) elaboration of LSC curriculum for Primary education
- (vii) direction of master's thesis and degree final projects
- (viii) knowledge diffusion in general talks

- (ix) consulting of specialists from several areas as well as PhD students.

In the activities of diffusion, we attempted to connect knowledge from several disciplines, namely education, psychology, linguistics and language teaching and help professionals and students building jointly knowledge in order to solve the challenges that they face in their activity.

13.4 Limitations and future directions

At the end of this dissertation, some questions have not received a complete answer, mainly because we have addressed a broad topic that had not been previously researched. This dissertation aimed at carrying out a qualitative study by observing and analyzing the tendencies or regularities that naturalistic, semi-spontaneous and elicited data from an ad-hoc and small-scale LSC corpus, based on a limited number of informants. We are confident that a follow-up study based on a large LSC corpus will confirm the generalizations and the analysis provided here.

A wider corpus and a **comprehensive corpus-based analysis** will allow us to discuss the syntactic distribution of linguistic elements. Also, it will pave the way to a **variationist analysis**. Focusing on age and generation of deaf signers will allow us to follow the grammaticalization processes. Studies on different cohorts of signers from new sign languages as Idioma de Señas Nicaragüense or Israeli Sign language (Meir, 2003) have shown grammatical differences between them. Different studies discuss evidence for change as communally as well as generationally motivated, among them Bergs (2005), Croft (2000), and Traugott & Dasher (2002).

As for LSC, we have already noticed differences comparing the expression of modality between young signers and adult signers. Moreover, we believe that we are at an inflection point, since for the first time in deaf education in Catalonia there is a generation of signers that is studying at university, after having received a cross-modal education. We wonder what impact will writing have on LSC structure, at grammatical and discourse level.

As for modal functions, the research may be widened by exploring what has been referred to as *covert modality* (Göksel & Kabak, 2012). To analyze this discursive resource, perspective shift and direct discourse must be focused on.

As far as for modality and **negation** is concerned, more research is needed with respect to the interaction of manual and non-manual elements, both at a lexical (phonological) and syntactic (prosodical) level. Also, it would be relevant to study the frequency and scope of non-manual elements produced without manual linguistic elements.

With regard to **evidentiality**, it would be interesting to explore the use of interactive structures such as direct discourse for grammatical functions. In this vein, Jarque & Pasqual (2013) discuss how viewpoint shift in signed languages constitute a linguistic resource to express non-quotational functions, as mental states and thoughts, intentions, emotions and evidential and epistemic nuances.

With respect to the grammaticalization of **aspectual values** in LSC and in signed language in general, research is incipient and should be extended to cover formational, semantic, grammatical, and usage factors for determining their degree of grammaticalization and to propose proper paths.

Another issue left for future research is the **acquisition of modal constructions**. The research conducted by Gee (Gee, 1985; Gee & Savasir, 1985) and Gerhardt (Gerhardt, 1990) shows interesting developmental paths. Other important studies have been Choi (2006) and, on mood, Hyams (2005). See Hickmann and Bassano (2016) for an overview. Indeed, some incipient research has been conducted on multimodality. For instance, Graziano (2014) examines the use of modal gestures by Italian children, i.e. “gestures indicating the interpretative frame of the utterance” (p. X). Regarding signed languages, there is only one study dealing with the topic of modality (Shaffer, 2006).

Moreover, research on the use of **evidential constructions** jointly with modal resources in LSC argumentative discourse will be a relevant research issue, both in naturalist discourse in deaf clubs or deaf media, as well in the educational context, where dialogic practices take place. This investigation must be accompanied necessarily by the developmental path (Cf. Guo, 2009), as well as the interaction of grammatical categories and cognition, in Slobin’s sense of “thinking for speaking”. This issue is particularly

relevant with respect to the role of direct discourse in signed language, commonly referred as shift role.

Another crucial area of research is the **interaction of language and social cognition in deaf children**. As discussed in chapter 1, deaf children with complete access to a sign language since first infancy show cognitive and linguistic profiles similar to those of their hearing peers. This is not the case for deaf children with language delay. However, most of deaf children are born in non-signing hearing families, that need close support to incorporate the strategies that promote linguistic and communicative development and social cognitive abilities. A further research project could consist in uncovering how signing deaf families and deaf teachers display these strategies in order to train other hearing and deaf parents and teachers who are not native in LSC.

Finally, it will be relevant to focus on the relationship between **LSC modal constructions and literacy**. One possibility will be to examine how deaf students construed the linguistic competence for understanding and producing modal and evidential constructions in the two languages (LSC and Catalan) in schools with cross-modal bilingual approach.

13.5 Final remarks

The perspective on deafness and sign languages has changed dramatically. This dissertation adopts the new paradigm of *Deaf Gain* (H Dirksen Bauman & Murray, 2010; H. Dirksen Bauman & Murray, 2014; H. D. L. Bauman & Murray, 2009). This term was coined and popularized by Dirksen Bauman and Joseph Murray, professors at Gallaudet University, in opposition to the concept of "hearing loss", an idea that contains in itself a negative connotation, something that is not available, something that has been lost: hearing.

Bauman and Murray (2009) discuss Deaf Gain as "a reframing of "deaf" as a form of sensory and cognitive diversity that has the potential to contribute to the greater good of humanity". In this vein, more and more research and evidence show how sign languages contribute in a wide variety of ways to the enrichment and development of all societies and human groups.

Deaf Studies can enhance the field of biocultural diversity itself by broadening its scope to include cognitive diversity. Sign language uses a different modality, and its visual, kinesthetic nature is a source of diversity. It represents a different way of perceiving the world and a different way of expressing oneself, and that is the heart of bio-cultural diversity. (Bauman, 2009, p. 4)

In October 2017, the Catalan Parliament passed the inclusive education decree. We hope that our research will contribute to enhance deaf education in Catalonia, not only in schools with a cross-modal bilingual project, but also, in schools with deaf children that use LSC or some type of signing support. The active participation of signing deaf children will promote the development of attitudes in favor of inclusion and diversity in their hearing peers.

Philosophically, bilingual education strives towards the humanitarian and democratic goals of social inclusion and diversity. It is an approach to education that recognises the unique and distinctive features of deaf language and culture, validates the linguistic and cultural choices of deaf people and celebrates this diversity (Swanwick, 2016, p. xx).

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Appendixes

Appendix 1. Informed consent

Documento de autorización

Investigadora: Maria Josep Jarque

Investigador colaborador: Josep Maria Segimon

ILLESCAT (Centre d'Estudis de la Llengua de Signes Catalana)

Dept. Psicologia Evolutiva i de l'Educació (Universitat de Barcelona, Espanya)

Dept. of Linguistics (University of New Mexico, USA)

Descripción del proyecto:

El objetivo de este estudio es investigar la expresión de la modalidad en la lengua de signos catalana (LSC). Su implicación en el proyecto consiste en responder un cuestionario sobre sus conocimientos y uso lingüísticos y participar en una conversación con el investigador colaborador en LSC acerca de temas de interés actual o relacionados con su situación profesional.

Autorización

Consiento participar en este proyecto de investigación llevado a cabo por las personas citadas anteriormente. He sido informado/a de sus objetivos, así como del procedimiento a seguir, y he tenido la oportunidad de formular las preguntas necesarias en relación con él.

Entiendo que mi identidad permanecerá confidencial en todo el proceso y que no se proyectaran las grabaciones sin previa autorización.

Autorizo a las personas reseñadas que

Nombre y apellidos:

Lugar y fecha:

Firma:

Appendix 2. Linguistic questionnaire




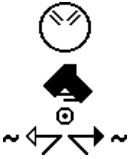

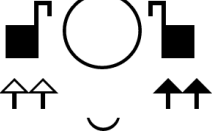

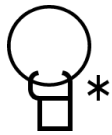


Cuestionario lingüístico









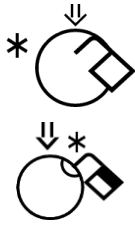
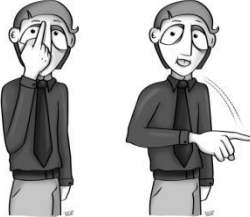
1. Nombre y apellidos:
2. Lugar y fecha de nacimiento:
3. Profesión:
4. Condición audiológica:
5. Lengua(s) materna(s):
6. Otras lenguas (de signos y orales):
7. Situación familiar (audiológica y lingüística):
8. ¿Eres socio de alguna asociación de Sordos?
9. Nivel de participación en actividades de la Comunidad de Sordos.


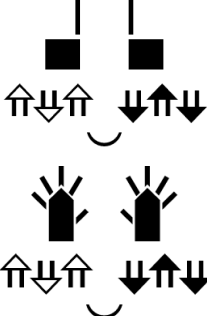

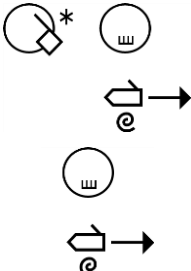

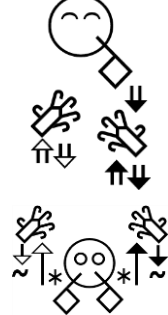


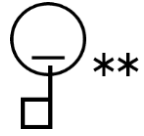
Appendix 3. Sign list












In this appendix we list the linguistic forms studied in this thesis and those of American Sign Language (ASL) relevant to the analysis. The gloss of each sign in Catalan is accompanied by the main Spanish and English equivalents, followed by the mouthing, the illustration and, finally, the SignWriting notation, from the SignPuddle Online (<http://www.signwriting.org/>).

a. LSC linguistic units


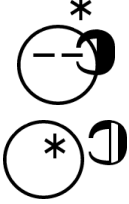









LSC gloss	Oral component	Illustration	SignWriting notation
1-CRIDAR-1 Cat. avisar Eng. Sp. me avisa	me avisa, me dice		
ACABAR 'to finish' palmell-avall palm-down	basta, ya, prou		
ACONSELLAR Cat. aconsellar Eng. to advise Sp. aconsejar	consejo		
AGRADAR Cat. agradar Eng. to like Sp. gustar	gusta		
ASSABENTARSE.ORELL A enterarse to hear	entero		


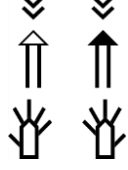

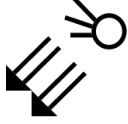





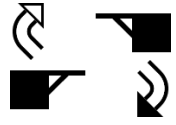

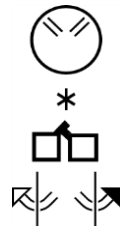
LSC gloss	Oral component	Illustration	SignWriting notation
<p>ASSABENTAR.SE.ULL Cat. assabentar-se Eng. to find out Sp. enterarse</p>	<p>enterarse</p>		<p>--</p>
<p>A.VEURE + ESPERAR Cat. ja veurem, ja es veur+a Eng. well see Sp. a ver, ya veremos</p>	<p>a ver</p>		
<p>CAPTAR Cat. captar, endevinar, Eng. to get, guess Sp. adivinar, captar, notar, pillar</p>	<p>tt</p>		
<p>CEDIR Cat. cedir Eng. to concede, to grant Sp. ceder, conceder, consentir</p>	<p>da</p>		
<p>CREURE 'to believe' Cat. creure que Eng. to believe Sp. creer que</p>	<p>pienso</p>		
<p>CREURE-NO Cat. no creu que Eng. to believe Sp. creer</p>	<p>no creo</p>		<p>--</p>




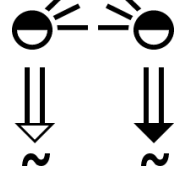

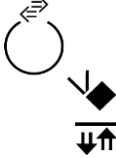

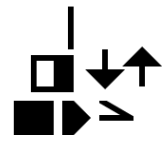

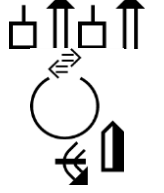




LSC gloss	Oral component	Illustration	SignWriting notation
<p>DEPENDRE según depending on</p>	<p>depende, según</p>		
<p>DESITJAR Cat. desitjar Eng. I wish Esp. desear</p>	<p>deseo</p>		
<p>DESTACAR Cat. ser evident que Eng. to be obvious, to be evident from, to be clear Sp. està claro que, es evidente que</p>	<p>brrr</p>		
<p>DEURE Cat. caldre, haver de, ser necessari. Eng. must, have to Sp. deber, tenir que</p>	<p>debe</p>		<p>--</p>
<p>DIR (dit índex) Cat. dir Engl. to say, to tell Sp. decir, contar</p>	<p>dice</p>		


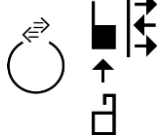

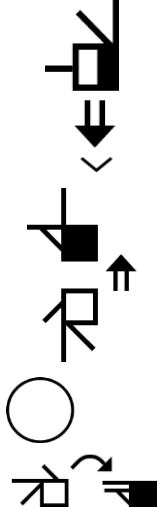

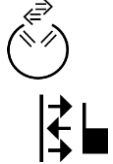



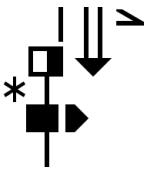
LSC gloss	Oral component	Illustration	SignWriting notation
<p>DIR.IX Cat. dir Engl. to say, to tell Sp. decir, contar</p>	<p>dice</p>		
<p>DIR.RESPONDRE Cat. dir Engl. to say, to tell Sp. decir, contar</p>	<p>dice responde</p>		
<p>DUBTE.INCERTESA Cat. dubtar que, Eng. to doubt Sp. dudar</p>	<p>--</p>		
<p>DUBTE.INDECISIÓ (FLAM) Cat. dubtar entre Eng. to doubt Sp. dudar entre</p>	<p>--</p>		
<p>DUBTAR.ANTIC Cat. dubtar Eng. to doubt Sp. dudar</p>	<p>--</p>		<p>--</p>
<p>ESCOLTAR.ORELLA Catl. escoltar que Eng. to listen, to pay attention Sp. escuchar, atender</p>	<p>escolta, escucha</p>		


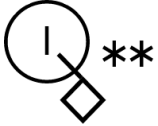
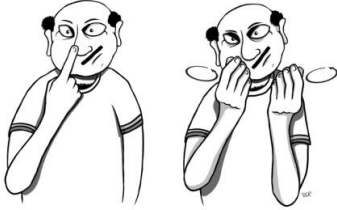


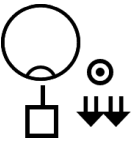


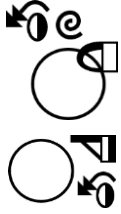
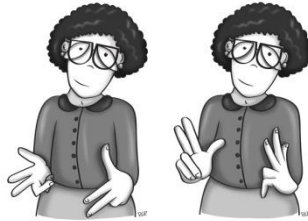
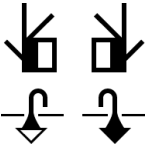
App. 3. Sign list


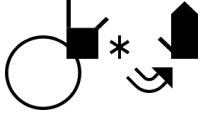





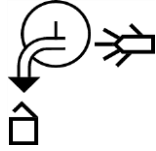

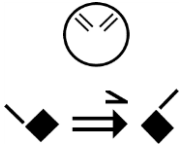
LSC gloss	Oral component	Illustration	SignWriting notation
<p>ESCOLTAR.ULL atender Eng. (lit. to pay attention)</p>	<p>escolta, escucha</p>		
<p>ESPERAR esperar expect (lit. to wait)</p>	<p>espero</p>		
<p>EXPLICAR explicar to explain</p>	<p>explica</p>		
<p>SER.FÁCIL fácil easy</p>	<p>fácil</p>		
<p>SER.CONEGUT fama well.known (Lit.fame)</p>	<p>fama</p>		
<p>FORÇAR a la fuerza by force</p>	<p>a la fuerza</p>		<p>-</p>



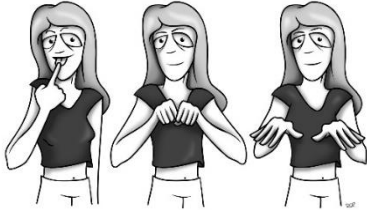
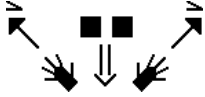

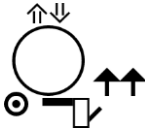

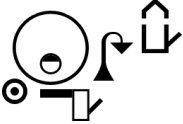

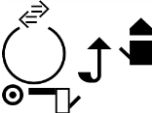

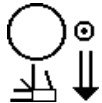
LSC gloss	Oral component	Illustration	SignWriting notation
<p>SER.HÀBIL saber can, to be able</p>	<p>capaz</p>		
<p>HAVER.DE tener que must, have to</p>	<p>debe</p>		
<p>HAVER.HI.NO</p>	<p>up</p>		
<p>SER.IMPOSSIBLE imposible impossible</p>	<p>imposible</p>		
<p>INTERROGAR.SE preguntarse to question (Lit. question mark)</p>	<p>--</p>		
<p>SER.INÚTIL 'be useless' Cat. ser inútil, no poder Eng. be useless Sp. no ser possible</p>	<p>inútil</p>		






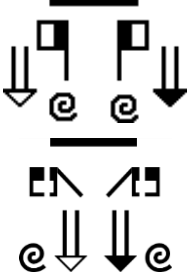


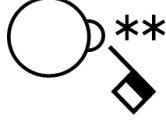

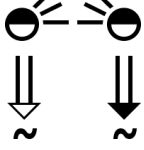
LSC gloss	Oral component	Illustration	SignWriting notation
<p>INVENTAR Cat. inventar-se Eng. to invent Sp. inventarse</p>	<p>me invento, m'invento</p>		
<p>JUST justo</p>	<p>justo</p>		
<p>MAI 'never' Cat. mai Eng. never Sp. nunca</p>	<p>nunca</p>		
<p>MANAR(canó) cañón</p>	<p>brfff</p>		
<p>MÉS+HAVER.HI.NO no hay más that's it</p>	<p>más no hay</p>		
<p>MIRAR 'to look at' Cat. mirar, veure Eng. to look, to see Sp. mirar, observar, ver</p>	<p>veo</p>		
<p>NECESSITAR 'need' Cat. necessitar, caldre, ser necessari Eng. need, to be needed</p>	<p>falta necessita</p>		



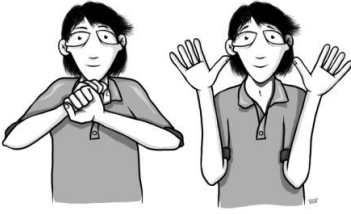
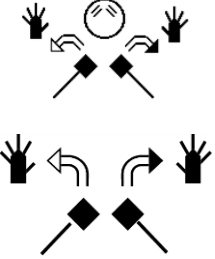

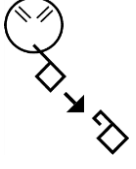



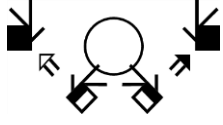

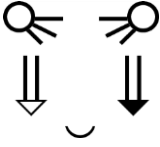
LSC gloss	Oral component	Illustration	SignWriting notation
Sp. necessitar			
<p>NECESSITAR.NO (FALTAR-NO) Cat. no necessitar Eng. not to need Sp. no necesitar, no ser necesario</p>	no falta		
<p>NEGAR Cat. negar-se a, dir que no, rebutjar Eng. to say not Sp. denegar, negar</p>	no		
<p>NO 'not' Cat. no Eng. not Sp. no</p>	no		
<p>NEGAR 'to deny' Cat. no Eng. not, to deny Sp. no</p>	no		
<p>OBLIGAR 'to oblige' Cat. obligar Eng. to force Sp. deber de, tener que</p>	brr		

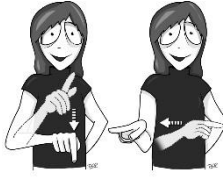


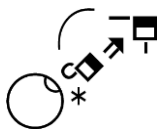




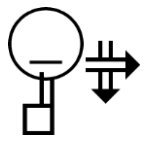

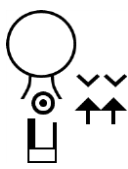

LSC gloss	Oral component	Illustration	SignWriting notation
<p>OLORAR 'to smell'</p> <p>Cat. oler, sospitar</p> <p>Eng. to smell, suspect</p> <p>Sp. oler, olerse, sospechar</p>	<p>--</p>		
<p>OLORAR+TOCAR.AMBI ENT</p> <p>oler, sospechar</p> <p>to smell, suspect</p>	<p>--</p>		
<p>TENIR.PACIÈNCIA 'be patient'</p> <p>Cat. tenir paciència</p> <p>Eng. to be patient</p> <p>Sp. tener paciencia</p>	<p>paciencia</p>		
<p>PALM-UP</p> <p>Cat. gest palmell-amunt</p> <p>Eng. palm-up gesture</p> <p>Sp. gesto palma arriba</p>	<p>--</p>		<p>--</p>
<p>PENSAR 'to think'</p> <p>Cat. creure, pensar</p> <p>Eng. to believe, to think</p> <p>Sp. creer, pensar</p>	<p>pienso, penso</p>		
<p>PERMETRE 'to allow'</p> <p>Cat. autoritzar, permetre</p> <p>Eng. to allow</p> <p>Sp. autoritzar, permitir</p>	<p>--</p>		





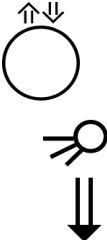

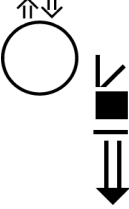




LSC gloss	Oral component	Illustration	SignWriting notation
<p>PER.SI.DE.CAS Cat. per si de cas, no fos el cas Eng. just in case Sp. por si acaso</p>	<p>brr</p>		
<p>PRESENCIAR 'to witness' Cat. presenciari Eng. to witness Sp. presenciar</p>	<p>--</p>		<p>--</p>
<p>PODER 'can' Cat. poder, saber, ser capaç de Eng. be able, can Sp. ser capaz de, poder, saber</p>	<p>puede</p>		
<p>PODER.EPIS 'may' Cat. poder, ser possible que Engl. may Sp. ser possible que, poder ser</p>	<p>puede</p>		<p>--</p>
<p>PODER.NO 'cannot' Cat. no poder Eng. cannot, not to be able Sp. no poder</p>	<p>no puedo</p>		
<p>PROHIBIR Cat. prohibir Eng. to prohibit Sp. prohibir, estar prohibido</p>	<p>nt</p>		


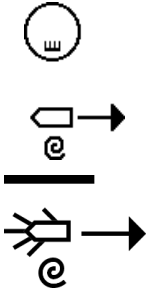
LSC gloss	Oral component	Illustration	SignWriting notation
<p>REQUERIR(sólo) requerir to call for</p>	<p>lo lo lo</p>		
<p>DIR+ESTENDRE 'to spread out' Cat. estendre's un rumor Eng. to spread out rumor</p>	<p>rumor</p>		
<p>SABER 'to know' Cat. saber Eng. to know Sp. saber</p>	<p>tt</p>		
<p>SABER-ASP.PERF. saber- ASP.PERF. to know-PERF.ASP.</p>	<p>zzz</p>		
<p>SABER-NO saber-NEG to know-NEG</p>	<p>no se</p>		
<p>SEMBLAR (CARA) Cat. semblar que Eng. to seem Sp. parecer que</p>	<p>parece</p>		

LSC gloss	Oral component	Illustration	SignWriting notation
<p>SEMBLAR+OMBRA Cat. semblar que Eng. to seem Sp. parecer que</p>	parece		
<p>SENTIR.COR Cat. sentir que Eng. to feel Sp. sentir que</p>	--		
<p>SENTIR.COS Cat. sentir que Eng. to feel Sp. sentir que</p>	siento		
<p>SENTIR.EMOCIÓ Cat. emocionar-se Eng. to feel Sp. emocionarse</p>	--		--
<p>SENTIR.ORELLA Cat. sentir que Eng. to hear Sp. oír, sentir</p>	--		
<p>SER ser to be</p>	es		


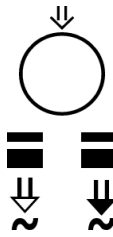

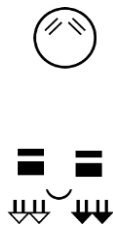

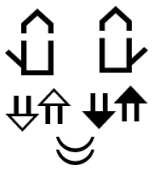


LSC gloss	Oral component	Illustration	SignWriting notation
<p>SER.CAPAÇ</p> <p>Cat. ser capaç de, poder</p> <p>Eng. to be able, can</p> <p>Sp. ser capaz de, poder</p>	<p>explosión labial</p> <p>capaz</p>		
<p>SER.CLAR</p> <p>Cat. és clar que, és evident que</p> <p>Eng. clear</p> <p>Sp. es evidente que, está claro que</p>	<p>claro</p>		
<p>SER.DIFÍCIL 'be difficult'</p> <p>Cat. ser difícil que, ser poc probable que</p> <p>Engl. to be unlikely</p>	<p>difícil</p>		
<p>SER.LLEI(tret)</p> <p>lei</p> <p>law</p>	<p>ley</p>		
<p>SER.LLIURE</p> <p>ser.libre</p> <p>freedom</p>	<p>libre</p>		
<p>SER.SEGUR</p> <p>Cat. ser segur que</p> <p>Eng. be sure</p> <p>Sp. ser seguro que</p>	<p>seguro</p>		

LSC gloss	Oral component	Illustration	SignWriting notation
<p>SÍ+NO Cat. sí o no? Eng. isn't it? Sp. ¿sí o no?</p>	<p>¿sí o no?</p>		
<p>SOMIAR soñar to dream</p>	<p>--</p>		
<p>SOSPITAR</p>	<p>--</p>	<p>--</p>	
<p>TANT.DE.BÓ 'I wish' Cat. tant de bó Eng. I wish Sp. ojalá</p>	<p>ojalá</p>		
<p>TENIR.COMPROMÍS Cat. tenir un compromís Eng. to have a commitment Sp. tener un compromiso</p>	<p>compromiso</p>		
<p>TENIR.GANES 'to fancy' Cat. desitjar, venir de gust, tenir ganes de Eng. desiderate Sp. apetecer</p>	<p>--</p>		
<p>TENIR.GANES-NO 'not to fancy' Cat. no tenir ganes, no venir de gust Eng. not to feel like, to not desiderate</p>	<p>th</p>		<p>--</p>

LSC gloss	Oral component	Illustration	SignWriting notation
Sp. no apetecer, no tener ganas de			
<p>TOCAR 'to touch'</p> <p>Cat. ser-hi, tocar</p> <p>Eng. to touch</p> <p>Sp. tocar</p>	toca		
<p>TOCAR.AMBIENT 'to touch the ambience'</p> <p>Cat. ser a l'ambient</p> <p>Eng. to be in the environment, context</p> <p>Sp. estar, percibirse en el ambiente</p>	ambiente		--
<p>SER.VERITAT</p> <p>Cat. ser cert, ser veritat</p> <p>Eng. be truth, truth</p> <p>Sp. ser verdad, verdad</p>	verdad		
<p>VERITAT.2</p> <p>Cat. ser cert, ser veritat, veritat</p> <p>Eng. to be truth, truth</p> <p>Esp. ser verdad</p>	--		
<p>UF (gesture, discourse marker)</p> <p>Cat. apa! Déu-n'hi-do!</p> <p>Eng. wow!</p> <p>Esp. iala!, ¡ostras!</p>	--		
<p>VEURE 'to see'</p> <p>Cat. mirar, veure</p> <p>Eng. to see</p> <p>Sp. mirar, ver</p>	conocer		

LSC gloss	Oral component	Illustration	SignWriting notation
<p>VOLER 'to want' Cat. voler, desitjar, Eng. to desire, to want Sp. desear, querer</p>	<p>querer</p>		

b. ASL forms

Gloss	Mouthing	Illustration	SignWriting notation
<p>CAN</p> <p>Cat. poder, ser capaç</p> <p>Eng. can, to be able</p> <p>Sp. poder, ser capaz</p>	<p>can</p>		
<p>COULD</p> <p>Cat. podria, seria capaç de, seria possible,</p> <p>Eng. could, would be able</p> <p>Sp. podria, podria ser que, sería capaz de</p>	<p>could</p>		
<p>MAYBE</p> <p>Cat. potser, ser possible</p> <p>Eng. to be possible, maybe</p> <p>Sp. ser posible que, posiblemente, tal vez</p>	<p>maybe</p>		
<p>MUST</p> <p>Cat. caldre, haver de, ser necessari</p> <p>Eng. have to, must</p> <p>Sp. deber de, tenir que</p>	<p>must</p>		

Appendix 4. Annotation conventions

a. General aspects

Example	Description
ANY CONTINUAR	Gloss: A word of the spoken/written language (SpL) written in uppercase that represents a sign of the sign language (SL). Its meaning may correspond – fully, partially, or not at all– with the meaning of the SpL word. Also free grammatical morphemes are represented with glosses.
CAP.DE.SETMANA	Equivalencies with the SpL: When we use more than one SpL word to gloss an SL sign, we separate these words by dots.
FALTAR-NO	Multimorpheme sign: If we want to make explicit that an SL sign comprises several morphemes, we write a gloss for each morpheme and we separate them by hyphens.
'cap de semana'	SpL translation: The words written in lowercase and in single quotes refer to SpL translations of LS signs.
[PLOURE]-p	Non-manual component with syntactic or discursive functions: Brackets refer to a non-manual component produced simultaneously with the manual sign included in the brackets. Examples are propositional modalities or constructed actions.

b. Lexical creation specifications

Example	Description
FESTA. <i>acte</i>	Mouthing: it is a vocalization that produces lexical differences. It is written in lower-case italics after the sign, separated by a dot.
METGE+ANIMAL 'veterinari'	Phrasal compounds: Words written in uppercase and joined by the symbol + represent signs created with the structure of a phrase.
ANY^NOU	Compounds: Uppercase words separated by the symbol ^ represent compound sign. They can be either sequential or simultaneous compounds. They display phonetic/phonological reduction.
O-N-U	Fingerspelling: Letters separated by hyphens denote a fingerspelled word, i.e. a word each letter of which is expressed manually.
<u>I</u> NSTITUT	Initialization: Initialized signs are represented with the letter that corresponds to the configuration of the underlined letter.
SETMANA-2	Number incorporation: Signs created incorporating a number are transcribed with a gloss joined with the number by a hyphen.
VEURE/VALORAR	Polysemic signs: we write the general gloss followed by one of the specific meanings.
DUBTAR.INDECISIÓ	Near synonyms: we write the general gloss followed by one of the specific meanings.

c. Morphosyntactic aspects

Example	Description
LLEGIR-ASP.DUR 'estava llegint'	Aspect: ASP indicates the morphological expression of aspect by the modification of the movement of the verb. The abbreviations for the different kinds of aspect are: ASP.INC = inchoative ASP.ING = ingressive ASP.DUR = durative ASP.PERF = perfective ASP.ITER = iterative ASP.FREC = frequentative ASP.PUNT = punctual ASP.GRAD = gradual
PERSONA-PLU 'persones' AMICS	Plural: PLU shows that the movement of the sign has been modified to express plurality, either by reduplication (for instance, repeating the sign) or by horizontal displacement. In case of using a different sign, that is semantically plural, the gloss is written as a plural.
GRAN-INTENS 'molt gran', 'enorme'	Intensifier: INTENS shows that the movement of the verbal or adjectival sign and/or its manual component expresses a higher degree of quality.
CAMINAR-LENTAMENT	Manner adverb expressed by the movement of the verbal signs are transcribed with uppercase letters and joined to the verb, adjective or adverb by a hyphen.
ANY-PASSAT DILLUNS-FUTUR SETEMBRE FUTUR COMENÇAR TREBALLAR	Time: temporal information is expressed joined to the sign by a hyphen if it consists of a modification of the place of articulation and/or movement. If it is expressed by free grammatical morphemes, they are transcribed with glosses: PASSAT.PROPER, PASSAT.LLUNYÀ PRESENT FUTUR.PROPER, FUTUR.LLUNYÀ
38 ANY-4	Quantification: free numeral morphemes are transcribed with numbers. Bound morphemes are joined by a hyphen to the sign they depend on.
1-EXPLICAR-2 'jo t'explico'	Deictic Verbs: the various morphemes that form deictic verbs are joined by hyphens. Numbers represent deixis of first (1), second (2) and third (3) person.
CL.DESC.objecte.rodó- EXIST.haver COTXE CL.PROF.cotxe- MOV.TRAY.córrer	Classifiers: they are transcribed showing the kind of classifying morpheme followed by the specification of the previously mentioned referent (person, animal, car, etc.) joined by a hyphen to the verbal morpheme. Classifier types: CL.DESC. = descriptive CL. PROF. = proform

<p>CAFÈ CL.MANIP.tassa.cafè- MOV.IMIT.beure</p> <p>HOME CL.PROF. persona-MOV.TRAY. saltar-RÀPIDAMENT</p>	<p>CL. MANIP. = handle</p> <p>Verb types:</p> <p>EXIST. = existence</p> <p>EST. = state</p> <p>LOC. = location</p> <p>MOV.TRAJ. = trajectory movement</p> <p>MOV. IMIT. = imitation movement</p> <p>Other morphemes, such as manner adverb, appear later in the gloss.</p>
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d. Syntactic and discursive aspects

Example	Description
CASA _{LOC:1} TREBALL _{LOC:2} ANAR _{LOC1.2}	Locative information: we use subindexes (numbers or locative loci) to refer to different loci in the signing space.
DEIX. PERS.3.associació	Locus: precise location in the signing space where participants or entities of an event are located. The referents remain stable unless there is a frame shift.
[VENIR DEMÀ]-p 'Vindràs demà?' [ANAR NO]-neg [FESTA]-excl [PLOURE]-cond [ESCRIURE]-ord	Sentence type: the scope of the non-manual component of propositional modality, simultaneous with the manual signs, is specified with brackets. The abbreviations are: Question: q Negative: neg Assertive: ass Exclamative: excl Conditional: cond Order: ord Doubt: dub
[PERE PITJOR ROSA]- comp	Constructions or structures: the scope of the non-manual component of propositional modality, simultaneous with the manual signs, is specified with brackets. The abbreviations are: Comparative: comp Superlative: super
[LLIBRE]-top INTERESSANT	Topicalization: the topicalized elements are surrounded by brackets followed by the symbol <i>top</i> .
[VENIR QUAN]p [DEMÀ]- focus PENSAR ANAR EXCURSIÓ [SORPRESA]-1pf [PLOURE]-focus	Focus: prominent information. The focus converts a proposition into an assertion. Contrastive Focus: the structure comprises a question followed by the focus. Both are denoted by brackets followed by p and focus, respectively. Split focus: 1pf is the label for the first part of the structure (tension) and focus, for the answer (release).
(ARBRE/DEIX.LLOC.arbre)	Both hands acting simultaneously: Brackets and a slash show that both hands are producing simultaneously different signs. The left one is signed by the non-dominant hand (generally, the left hand) and the right one is signed with the dominant hand (generally, the right).
[EXPLICAR]mir:Joan	Eye gaze: the signer's gaze is directed toward a specific entity of the context, specified after the label <i>mir</i> that follows the brackets.
CA:Pere<[VENIR DEMÀ]- q	Enactment (role shift): CA stands for constructed action, followed by the person's name and between < > the language production or the actions enactment.

Example	Description
	<p>a) Constructed dialogue: the signer reproduces what another person had expressed or thought.</p> <p>b) Constructed action: the signer adopts the gestural expression of another person.</p>
p	Pause: the abbreviation p indicates a pause.

