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Verb Doubling in Chinese

by

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Abstract

The present thesis aims to discuss verb doubling phenomenon in Chinese.

First, I offer doubling phenomenon in languages, which shows that doubling phenomenon is observed in different languages and in different domains. Then, I review the definition of syntactic doubling in Barbiers (2008). I define verb doubling by adjusting this definition: a lexical verb is expressed phonologically twice. I focus on Chinese data in this dissertation. The verb doubling patterns in this language is grouped into non-cleft ones and verb doubling cleft.

Second, I present general descriptions of different non-cleft verb doubling patterns in Chinese. These observations demonstrate that verb doubling phenomenon may be relevant to many aspects like topic/focus, delimitative aspect, polarity, presupposition and maximality. The discussions on these expressions concentrate on questions like what kinds of elements may undergo doubling in these patterns, in which situations these expressions appear, what are the similarities among different doubling patterns, etc.

Third, I offer an analysis on verb doubling cleft (VDC) in Chinese. Following Cheng and Vicente (2013), I claim that in VDC expressions the doubled verb undergoes A' movement to [Spec, TopP] through intermediate projections. Besides, the doubling effect is caused by the failure of chain reduction. I assume that the double element fuses with an aspect head based on Cinque's (1999) hierarchy of functional projections.

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Abbreviations

ACC/Acc	Accusative case
BSL	Brazilian Sign Language
CCD	Constraint on copy deletion
chap.	chapter
Cl	Classifier
Cop	Copula
Dur	Durative aspect
DS	Deep Structure
Eng.	English translation
Exp	Experience aspect
FEM/Fem	Feminine
GB	Government and binding
HMC	Head movement constraint
INF/Inf	Infinitive
LF	Logical form
LCA	Linearization Correspondence Axiom
LVM	Long head movement
Masc	Masculine
Part	Particle
p.c.	personal communication
Perf	Perfective aspect
PF	Phonetical Form
pg.	page
Q	Question marker

SC	Small Clause
SG	singular
SS	Superficial structure
Top	Topic marker
VC	Verb copying
VDC	Verb doubling cleft
1Pl	first person plural
1S	first person singular
3Pl	third person plural
3S	third person singular

To my parents

Chapter 1

Introduction

1.1 Doubling

Before introducing *doubling* in detail, some discussion on agreement, concord and doubling is needed. The discussion here aims to distinguish *doubling* from agreement and concord. See the examples in (1).

(1)   a.   Agreement

            Nosotros canta**mos**.
            we   sing.1Pl
            'We sing.'

                                                                  [Spanish]

    b.   Concord

            la chic**a** guap**a**
            the girl   beautiful
            'the beautiful girl'

                                                                       [Spanish]

    c.   Doubling

            Lo   vimos a **Juan**.
            Clitic saw   to Juan
            'I saw Juan.'

[Rioplatense Spanish from Anagnostopoulou 2005, pg. 520]

The sentence in (1-a) involves agreement, i.e., the first plural person feature of the subject *nosotros* (Eng. 'we') is presented by the morpheme *-mos* in the verb *cantamos* (Eng. 'sing') (Chomsky 2001 and subsequent works). The example in (1-b) includes a DP where the [+feminine] feature of the NP *chica* (Eng. 'girl') is transferred by the determiner *la* (Eng. 'the') and the adjective *guapa* (Eng. 'beautiful'). The example in (1-b) illustrates a process of concord, which indicates the phenomenon of adjectives agreeing with the nouns they modify (Baker 2008, pg. 65). Notice that agreement proper does not exist in (1-b).[1] The sentence in (1-c) is an example with doubling in which both the clitic *lo* (Eng. 'him') and the object *Juan* refer to the same entity. In other words, the object is expressed twice.

It has been observed that, in natural languages, certain element can be expressed more than once. These expressions are usually viewed as sentences involving doubling. See the examples in (2). [2]

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[1]Following the theory of Agree developed by Chomsky (2000 and subsequent works), Baker (2008) claims that agreement must satisfy the following conditions as in (i).

(i)   A functional head F agrees with XP, XP a maximal projection, only if:
  a.   F c-commands XP (the c-command condition).
  b.   There is no YP such that F c-commands YP, YP c-commands XP, and YP has φ-features (the intervention condition).
  c.   F and XP are contained in all the same phases (e.g., full CPs) (the phase condition).
  d.   XP is made active for agreement by having an unchecked case feature (the activity condition)

[from Chomsky 2000, cited in Baker 2008, pg. 40]

See the structures for the Spanish DP *la chica guapa* (Eng. 'the beautiful girl') in (ii).

(ii)   a. $[_{DP}$ D^0 las $[_{NP}$ N^0 chicas $[_{AdjP}$ Adj^0 guapas]]]
               *agreement

        b. $[_{DP}$ D^0 las $[_{NP}$ N^0 chicas $[_{AdjP}$ Adj^0 guapas]]]
               *agreement

Baker (2008) insists that nouns are lexical categories that have a referential index and functional heads are the loci of agreement (Baker 2008, pg. 28, pg. 34). The structure in (ii-a) shows that the functional head Adj^0 does not agree with the NP because the NP does not own any φ-features. The structure in (ii-b) shows that there is no agreement between the functional head Adj^0 and the DP because the former does not c-command the latter.

[2]The definition of doubling will be discussed in chapter 2.

(2)   a.   clitic doubling

Vimo-**lo** a **él**.
see-him to him
'We saw him.'

<div align="right">[Galician data from Uriagereka 1995, pg. 81]</div>

b.   strong pronoun doubling

Gianni verrà   **lui**
Giaanni will come he
'Gianni himself will come.'

<div align="right">[Italian data from Belletti 2005, pg. 6]</div>

c.   determiner doubling

ä ganz **ä** liebi frau.
a really a lovely wife
'a really lovely wife'

<div align="right">[Swiss German data from Glaser and Frey 2006, pg. 2]</div>

In (2-a) the clitic *lo* and the DP *él* (Eng. 'him') both indicate the same entity, i.e., the object.[3] Likewise, in (2-b) the subject is repeated twice and in (2-c) the indefinite article is pronounced twice. Sentences like (2) are considered to involve doubling. In (2-a) the object *él* is doubled by the clitic. In (2-b) the subject *Gianni* is doubled by a strong pronoun. In (2-c) the determiner is doubled by itself.

The present thesis is concerned about the place of doubling phenomenon like those in (2) in language design. At first sight, it seems that sentences with doubling contain redundancy in the sense that certain information is repeated. I will discuss the relation between syntactic doubling and principles of language design in section 2.3.

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[3]There is variation in clitic doubling, as seen in (i).

(i)   a.   **Lo**   vimos a **Juan**.
Clitic saw   to Juan
'I saw Juan.'

<div align="right">[Rioplatense Spanish data from Anagnostopoulou 2005, pg. 520]</div>

In (i) the clitic *lo* is located in an independent position instead of as a morpheme (cf. Uriagereka 1995, Torrego 1998).

More generally, doubling raises many questions that are still under research. It is not clear why people repeat the same information in their utterances and in what situation these expressions appear. Furthermore, it is still not well known whether doubling is always necessary and whether doubling changes the meaning of the sentence. In this present study, I will show that there are empirical data in Chinese that can shed light on some of these puzzles (see chapter 3 and chapter 4). Specifically, I will focus on verb doubling in Chinese.

The main contribution of the present thesis thus consists of two aspects. Empirically, I offer an overview of different non-cleft verb doubling patterns in Chinese. The discussion on these patterns helps understand when and where verb doubling appear and the semantic effect of these expressions. In addition, I offer a syntactic account for expressions with verb doubling cleft in Chinese. In the analysis I argue that movement occurs in these expressions and the doubling effect is also explained.

1.2   Verb Doubling

As seen in section 1.1, doubling exists in different domains, the present dissertation deals with verb doubling phenomenon. In section 1.2, I introduce expressions with verb doubling cross-linguistically.

In verb doubling expressions, a lexical verb is pronounced twice as defined in (3).[4] An example is given in (4).

(3)   Verb doubling
       A lexical verb is expressed phonologically twice.

(4)   Zhangsan **kan**   dianying **kan**-le   liang xiaoshi.
       Zhangsan watch movie   watch Perf two   hour
       'Zhangsan has watched movies for two hours.'

---

[4]Since I concentrate on verb doubling in Chinese, a language that lacks functional verbs except for modal verbs or auxiliary verbs, doubling of functional verbs will be discussed when it is necessary. See more discussions in section 2.2.

[Mandarin]

Notice that the study on verb doubling in the present thesis only concerns cases within a CP.

Similar phenomena exit in many other languages as shown in (5).

(5) a. **Leer**, Juan ha **leído** un libro.
         read   Juan has read   a   book
         'As for reading, Juan has read a book.'

                                    [Spanish data from Vicente 2009, pg. 159]

     b. **énekelni**, **énekelt** Mari.
         sing   sang   Mari
         'As far as singing is concerned, Mari did sing yesterday.'

                              [Hungarian data from Lipták and Vicente 2009, pg. 652]

     c. **Essen est** Maks fish
         to eat eats Max   fish
         'As for eating, Max eats fish.'

                                    [Yiddish data from Cable 2004, pg. 2]

     d. **Liknot**, hi **kanta** et   ha-praxim.
         to buy   she bought Acc the flower
         'Buy the flowers, she did.'

                                    [Hebrew data from Landau 2006, pg. 6]

The examples in (4) and (5) show that a lexical verb is expressed phonologically twice in a sentence. Thus, verb doubling phenomena exist cross-linguistically.

In this thesis I will mainly concentrate on Chinese verb doubling because many verb doubling patterns in this language are still under studied. After a careful study of the data, I classify these verb doubling patterns into two groups: non-cleft verb doubling (see section 1.2.1) and verb doubling cleft (see section 1.2.2).

The non-cleft verb doubling patterns that I discuss in this thesis include verb copying, verb reduplication, V neg V, *ai* V *bu* V, V *jiu* V, *shuo* V *jiu* V, V *jiu* V *zai*, verb doubling *lian...dou* and *bu* V *dou* V. The difference between non-cleft

verb doubling patterns and verb doubling cleft in Chinese lies in the position of the verbs. See the examples in (6).

(6)   a.   Non-cleft verb doubling

$[_{CP}$Zhangsan lian **kan** dou bu **kan**].
Zhangsan Lian look Dou not look
'Zhangsan didn't even have a look.'

    b.   Verb doubling cleft

$[_{CP}$**Chang**, $[_{vP}$Zhangsan **chang**-le liang bian]].
sing   Zhangsan sing Perf two   time
'As for singing, Zhangsan sang twice.'

[Mandarin]

In a non-cleft verb doubling sentence, none of the verb copies is located in a sentence peripheral position as in (6-a). But in an expression with verb doubling cleft one of the verb copies occupies a sentence peripheral position as in (6-b). Moreover, this peripheral position is "separated" from the rest of the expression by a comma.

In section 1.2.1 and section 1.2.2 I will discuss the two groups of verb doubling patterns in detail.

1.2.1   Non-cleft Verb Doubling

The non-cleft verb doubling patterns that I will discuss the following verb doubling patterns: verb copying as in (7), verb reduplication as in (8), V neg V as in (9), *ai* V *bu* V as in (10), V *jiu* V as in (11), *shuo* V *jiu* V as in (12), V *jiu* V *zai* as in (13), verb doubling *lian...dou* as in (14) and *bu* V *dou* V as in (15).

(7)   verb copying

Lili **kan** xiaoshuo **kan**-le   liang xiaoshi.
Lili read novel   read Perf two   hour
'Lili read novels for two hours.'

(8)   verb reduplication

Ni   qu **ting ting** ta de   baogao.
you go listen listen 3S Part report
'Go and listen to his report.'

(9)   V neg V

ni   **mai** bu **mai** yifu?
you buy not buy cloth
'Are you going to buy any clothes?'

(10)   *ai* V *bu* V

Zhangsan dui guke   zongshi ai **li**   bu **li**.
Zhangsan to   customer always love care not care
'Zhangsan doesn't care much for customers. / Zhangsan doesn't pay much

attention to customers.'

(11)   V *jiu* V

zou jiu   **zou**.
go   then go
'(Want to/saying) go? Then go.'

(12)   *shuo* V *jiu* V

Lisi shuo **pao** jiu   **pao**.
Lisi say   run then run
'Lisi ran immediately.'

(13)   V *jiu* V *zai*

Zhangsan **shu** jiu   **shu** zai celue   shang.
Zhangsan lose then lose at strategy above
'Zhangsan lost because of his strategy.'

(14)   verb doubling *lian...dou*

Ta lian **kan** dou bu **kan**.
3S Lian look Dou not look
'He didn't even have a look.'

(15)   *bu* V *dou* V

Zhangsan bu **xie**   dou **xie**-le.
Zhangsan not write Dou write Perf
'Zhangsan wrote it already (even though he shouldn't).'

The verb doubling patterns like verb copying in (7) (cf. Paul 2002, Gouguet 2006, Cheng 2007, etc.), verb reduplication in (8) (cf. Chao 1968, Li and Thompson 1981, Dai 1997, Smith 1997, Xiao and McEnery 2004, Liu 2012, etc.) and V neg V in (9) (cf. Huang 1991 and references cited there) have been studied a lot in the literature. Besides, the pattern V *jiu* V *zai* in (13) (cf. Zhao 1986, Hu 1989, Jiang 2006, Wan 2006, Xu and Lu 2008, Lu, Lu and Lu 2007) has been widely studied. But the other verb doubling patterns like *ai* V *bu* V in (10) (cf. Yu 2008, Li 2009b, Ding and Lei 2009), V *jiu* V in (11) (cf. Hu 1989), *shuo* V *jiu* V in (12) (cf. Pan 2009), verb doubling *lian...dou* in (14) (cf. Liu 2005, Li 2010, Cheng and Vicente 2013) and *bu* V *dou* V in (15) are under studied, which I will offer more discussion in this thesis. And similarities or differences among these verb doubling patterns are in lack of research. Further observations on non-cleft verb doubling patterns will be discussed in detail in chapter 3.

In section 1.2.1 I have introduced the non-cleft verb doubling patterns in Chinese that I will study in detail in chapter 3. In section 1.2.2 I will introduce verb doubling cleft (VDC) sentences in this language.

1.2.2   Verb Doubling Cleft

After the introduction of non-cleft verb doubling patterns in Chinese in section 1.2.1, I discuss verb doubling with a verb copy located in a sentence initial position in this language in depth. Following Cheng and Vicente (2013), I call these expressions verb doubling cleft (VDC) sentences. See the example in (16).

(16)   Verb Doubling Cleft

Xie, Lisi **xie**-le   liang-ben-shu, danshi...
write Lisi write Perf two Cl book   but
'As for writing, Lisi wrote two books, but...'

[Mandarin]

Similar verb doubling patterns have been studied in other languages like Spanish, Hungarian, Yiddish and Hebrew. See the examples in (17).

(17)   a.   **Leer**, Juan ha **leído** un libro.
             read   Juan has read a   book
             'As for reading, Juan has read a book.'

[Spanish data from Vicente 2009, pg. 159]

        b.   **énekelni**, **énekelt** Mari.
             sing   sang   Mari
             'As far as singing is concerned, Mari did sing yesterday.'

[Hungarian data from Lipták and Vicente 2009, pg. 652]

        c.   **Essen est** Maks fish
             to eat eats Max   fish
             'As for eating, Max eats fish.'

[Yiddish data from Cable 2004, pg. 2]

        d.   **Liknot**, hi **kanta** et   ha-praxim.
             to buy   she bought Acc the flower
             'Buy the flowers, she did.'

[Hebrew data from Landau 2006, pg. 6]

Like the Chinese example in (16), the sentences in (17) involve verb doubling. Besides, one of the two verb copies in each sentence is located in the left periphery of the clause. Moreover, all these examples include a topic reading, i.e., *as for* reading in translation.

Following Cheng and Vicente (2013), who have studied VDC in Chinese, in chapter 4 I will put forward a similar proposal with new arguments in order to account for the derivation of these expressions.

1.3   Structure of this Dissertation

The structure of this thesis is as follows.

In Chapter 2 I introduce doubling phenomenon in different domains. It is observed that the doubling phenomenon affects elements like determiners, pronouns, possessives, complementizers and more. Then, I review Barbiers' (2008) definition of syntactic doubling. I show that syntactic doubling is compatible with principles in language design. I also review different syntactic approaches to investigate syntactic doubling. Moreover, I introduce the definition of verb doubling by adjusting the definition of syntactic doubling. I show that verb doubling has semantic and syntactic effects. To conclude, I review Landau's (2006) and Vicente's (2007, 2009) analyses on verb doubling.

After reviewing previous studies on syntactic doubling and verb doubling, I concentrate on Chinese (non-cleft) verb doubling patterns in Chapter 3. I classify these different verb doubling patterns into five categories based on their usages. I show that these patterns appear in contexts with topic/focus, delimitative aspect, polarity, presupposition or maximality. The discussion includes that what kinds of verbs can be doubled in these patterns, whether doubling is always obligatory in each pattern and the pragmatic effects these expressions cause.

Chapter 4 is devoted to verb doubling cleft (VDC) expressions in Chinese. I illustrate general properties of these expressions. Following Cheng and Vicente (2013), I argue that the two verb copies in a VDC expression are spell out of different chain positions. The doubled verb moves to the specifier position of TopP. Moreover, based on Cinque's (1999) discussion on aspect heads I assume that the doubling effect in these sentences is because the lower verb copy fuses with a functional aspect head.

I conclude the thesis in Chapter 5. There I review the main research results in the dissertation and point out some remaining questions related to verb doubling.

Chapter 2

Doubling in Language

2.1 Chapter Outline

In Chapter 1 I have shown that languages manifest situation where linguistic elements can be doubled, as seen in (1).

(1) **Lo** vi   a **él**.
     Clitic see.1S to him
     'I saw him.'

<div align="right">[Spanish data from Gallego, p.c.]</div>

In (1) the object is expressed twice, i.e., both the clitic *lo* and the pronoun *él* (Eng. 'him') refer to same entity, i.e., the object of *vi* (Eng. 'see').

This chapter aims to introduce doubling phenomenon in language. First, I review Barbiers' (2008, 2014) view on doubling, which I will essentially follow. He correctly points out that doubling violates some principles that concerns economy, which states that no superfluous elements or steps are allowed in language design (cf. "inclusiveness" in Chomsky 1995). Second, according to Barbiers' definition of doubling, I show that doubling appears in different domains.

I also discuss the main syntactic approaches that have been proposed to analyze doubling. I assume Nunes' (2004) theory in order to account for verb doubling clefts in Chinese (see chapter 4). I also review Uriagereka's (1995) and Travis' (2003) analyses on some syntactic doubling cases, respectively.

After reviewing Barbiers' study on doubling and the main syntactic approaches, I focus on verb doubling, which is the primary topic in the following chapters.

The discussion is organised in the following way. In section 2.2, I illustrate doubling phenomena in different domains. In section 2.3, I present various principles of language design that are relevant to doubling. In section 2.4, I review Babier's (2008, 2014) definition of syntactic doubling. Later, in section 2.5, I review several syntactic approaches to investigate syntactic doubling. In section 2.6, I focus on verb doubling. I summarize this chapter in section 2.7.

2.2 Doubling in different domains

In this section, I present the doubling phenomenon in different domains. I largely base the discussion in Barbiers (2008). In most of these cases, doubling phenomenon indicates an element is pronounced twice in expressions.

Doubling is attested in nominal domain, for example, determiner doubling and possessive doubling. See the examples in (2) and (3).

(2)   Determiner Doubling

        ä ganz **ä** liebi   frau
        a really a lovely wife
        'a really lovely wife'

                            [Swiss German data from Glaser and Frey 2006, pg. 2]

In (2), the indefinite determiner *ä* (Eng. 'a') is pronounced twice in the expression. Other functional elements can also be doubled as in (3).

(3)   possessive doubling

       Su casa   de **usted**
       his house of he
       'his house'

[Spanish data from Ganivet 1898]

In (3) the possessive *su* (Eng. 'his') is expressed phonologically twice in the sense that the possessive relation is indicated not only by the possessive, but also by the preposition phrase *de usted* (Eng. 'of him').

    Another common doubling situation involves pronoun doubling, which is observed in languages with rich usage of clitics, e.g., Romance languages. See the examples in (4), (5) and (6).

(4)   subject pronoun doubling

    a.   **Gianni** verrà   **lui**
          Gianni will come he
          'Gianni himself will come.'

    b.   **Gil studenti** risponderanno **loro**.
          the students   will answer   they
          'The students themselves will answer.'

[Italian data from Belletti 2005, pg. 6]

(5)   direct object pronoun doubling

       Lo vi a **Juan**.
       him saw to Juan
       'I saw Juan.'

[Spanish data from Belletti 2005, pg. 2]

(6)   indirect object pronoun doubling

    a.   **Le**   di   un regalo a **mi madre**.
          to her give one gift   to my mother
          'I gave my mother a gift.'

[Spanish data from Barbiers 2008, pg. 13]

  b. Petre **mu** go dade proektot **nemu**.
    Peter him it gave project-the him
    'Peter did give the project to him.'

<div align="right">[Macedonian data from Barbiers 2008, pg. 13]</div>

In (4), (5) and (6), the subject or the object is expressed more than once in each sentence. Besides, one way to express the subject or the object is realized through a pronoun.

 Another pronoun doubling occurs with *wh*-pronouns, as shown in (7) and (8).

(7) *wh*-pronoun doubling

  a. **Wer** isch da gsi **wer**?
    who is there been who
    'Who was there?'

<div align="right">[Swiss German data from Barbiers 2008, pg. 13]</div>

  b. **Mit wem** glaubst du **mit wem** Hans spricht?
    with whom think you with whom Hans talks
    'With whom do you think Hans is talking?'

<div align="right">[German data from McDaniel 1986, pg. 182]</div>

  c. **Kas** misline **kas** o Demìri dikhlâ?
    whom you-think whom does Demir saw
    'Who do you think Demir saw?'

<div align="right">[Romani data from McDaniel 1986, pg. 182]</div>

In (7) wh-pronouns are pronounced more than once in each expression.

 Doubling in verbal domain is also attested in many cases. In many languages, a lexical verb can be pronounced twice in sentences. See the examples in (8).

(8) lexical verb doubling

  a. **Leer**, Juan ha **leído** un libro.
    read   Juan has read a   book
    'As for reading, Juan has read a book.'

<div align="right">[Spanish data from Vicente 2009, pg. 159]</div>

    b.   **énekelni**, **énekelt** Mari.
           sing   sang   Mari
           'As far as singing is concerned, Mari did sing yesterday.'

                                [Hungarian data from Lipták and Vicente 2009, pg. 652]

    c.   **Essen est** Maks fish
           to eat eats Max fish
           'As for eating, Max eats fish.'

                                  [Yiddish data from Cable 2004, pg. 2]

    d.   **Liknot**, hi **kanta** et   ha-praxim.
           to buy   she bought Acc the flower
           'Buy the flowers, she did.'

                                  [Hebrew data from Landau 2006, pg. 6]

In (8), a lexical verb is expressed twice in each expression. Notice that when a lexical verb is expressed twice, their phonological form may vary due to some morphological change.

    Apart from nominal domain and verbal domain, doubling is also observed in adjectival and prepositional domains (Barbiers 2008, pg. 8-10). See the examples in (9) and (10).

(9)   Doubling in comparative or superlative constructions

    a.   That was the **best-est** chocolate gravy I ever ate.

           [Colloquial American English data from Kortmann and Szmrecsanyi
                                          2006, pg. 10]

    b.   Then we can promote a **more healthi-er** environment.

            [Fiji English data from Kortmann and Szmrecsanyi 2006, pg. 10]

(10)   Doubling in prepositional domain

    Ich fahr **uff** Koostanz **uffi**.
    I   drive on Konstanz on
    'I'll drive to Konstanz.'

                                [Alemannic data from Brandner 2008, pg. 368]

In (9) the compartive or superlative information is expressed repeatedly. In (10) the preposition *uff* (Eng. 'on') is phonologically expressed twice.

Doubling can also appear in other functional domains. See the expressions in (11) and (12).

(11)   negation doubling

dat ek daardie man **nie** ken   **nie**.
that I   that   man not know not
'that I don't know that man.'

[Afrikaans data from Barbiers 2008, pg. 21]

(12)   complementizer doubling

a.   Me gritó   **que** cómo **que** no lo sabía
me shouted that how   that not it knew
'He shouted at me that how couldn't he know it.'

[Spanish data from Demonte and Soriano 2007, pg. 7]

b.   Não sei   **se** o   João **se** já   chegou.
not know if the João if already arrived
'I don't know if João already arrived.'

[European Portuguese data from Mascarenhas 2007, pg. 2]

In (11) negation is expressed twice by the same marker. In (12) the complementizers *que* (Eng. 'that') and *se* (Eng. 'if') are pronounced twice in the two sentences, respectively.

To sum up, in this section I have introduced doubling data in the nominal domain, the verbal domain including its extensions, the adjectival domain and the prepositional domain. Superficially, in doubling expressions an element or certain feature of an element is expressed phonologically twice. Sometimes more than one element in an expression can refer to one and the same entity. Therefore, as can be seen, the concept of "doubling" is used randomly in many different situations. In section 2.3 I will discuss several principles that doubling phenomenon seems to violate in language design.

2.3 Doubling in language design

After showing that doubling phenomenon is attested in different domains in section 2.2, I discuss the place of doubling in language design. According to Babiers (2014, pg. 204-205), doubling phenomenon seems to be an imperfection in language design. In this section I follow Barbiers in consider doubling as "syntactic doubling", a definition that I will discuss in section 2.4. He points out that syntactic doubling violates the following principles of good language design: i) Universality; ii) Compositionality; iii) Economy; iv) Expliciteness and v) Uniqueness. In this section, I review these principles and show that doubling is compatible with these principles.

Barbiers (2008, 2014) claims that according to the principle of *Universality*, i.e., the Universal Base Hypothesis, all languages have the same syntactic structure and the variety in syntactic doubling violates this principle. See (13).

(13)   Da-n-ze   in den lak (**goan**) **goan** vissen
        that.Pl-they in the lake go   go   fish
        'that they go fishing in the lake'

[West-Flemish data from Barbiers 2014, pg. 202]

In (13) the verb *goan* (Eng. 'go') is pronounced twice and doubling is involved. But the doubling is optional. This shows that there is variety in syntactic doubling.

However, Barbiers' interpretation of principle of *Universality* is incorrect or, at least, inaccurate. The Universal Base Hypothesis, a common notion of transformational grammar from the mid-1960s, indicates that "the grammar of every language had a base component which include included the same, or essentially the same, set of syntactic rules" (Matthews 1997, pg. 3346). This means that what is common among languages is syntactic rules. Such a definition seems problematic as Chinese does not seem to have a "wh-movement" rule. This does not imply that all languages have the same syntactic structure. Hence, the variety in syntactic doubling as in (13) does not violate the principle of *Universality*.

Moreover, Barbiers (2008, 2014) states that according to the principle of

Uniqueness, every type of semantic relation corresponds to exactly one type of syntactic configuration. If one assumes that doubling is a syntactic phenomenon, then the intralinguistic optionality and cross-linguistic variability of doubling is a problem. For example, the optionality of doubling shown in (13) indicates that if the semantic relation is not affected by the optionality of doubling, only one syntactic configuration exists regardless whether doubling exists or not.

However, that an expression with doubling has the same syntactic configuration as one without doubling is impossible because when doubling occurs, more elements must be introduced in the syntactic configuration. Therefore, it is not true that doubling violates the principle of *Uniqueness*. Instead, there must semantic difference between expressions with doubling and those without it.

Barbiers (2008, 2014) points out that syntactic doubling also seems to violate the principle of *Compositionality*. This principle implies that the meaning of a "complex object" results from the combination of smaller units and the way these combinations are formed. Thus, the presence of a doubled element, which has the same meaning, is redundant when there is no semantic effect. In other words, if a language has a certain construction without and with doubling, the variant with doubling is expected to add something to the semantic interpretation. See the examples in (14).

(14)   a.   Zhangsan **kan**-le   liang ci   na-ben-xiaoshuo.
              Zhangsan read Perf two   time that Cl novel
              'Zhangsan reads that novel twice.'
        b.   Zhangsan **kan** na-ben-xiaoshuo **kan**-le   liang ci.
              Zhangsan read that Cl novel   read Perf two   time
              'Zhangsan reads that novel twice.'

In (14) the verb *kan* (Eng. 'read') may appear without doubling as in (14-a) or with it as in (14-b). Assuming the task of the syntactic module is to combine simple meanings of individual morphemes into complex meanings of phrases and sentences, the doubling variant should add something more to the semantic interpretation. But it seems that the sentences in (14) do not differ in their meanings.

Nevertheless, expressions with syntactic doubling may contribute more in certain aspects. See the examples in (15).

(15)   a.   Zhangsan kan-le   liang ci   na-ben-shu.
                  Zhangsan read Perf two   time that Cl book
                  'Zhangsan has read that book twice.'

          b.   Zhangsan **kan** na-ben-shu   **kan**-le   liang ci.
                  Zhangsan read that Cl book read Perf two   time
                  'Zhangsan has read that book twice.'

The example in (15-b) contains doubling the verb *kan* (Eng. 'read'). Compared with the sentence in (15-a), it seems that the doubling does not contribute to the meaning of the sentence. However, the expression in (15-b) highlights the frequency of the event *kan na-ben-shu* (Eng. 'read that book'). In other words, sentences with syntactic doubling contribute to the compositionality of the sentence in some degree.[1] See more discussions in section 3.3.

Barbiers (2008, 2014) also mentions that the principle of *Economy* also seems to be violated by syntactic doubling. This principle indicates that superfluous elements should be forbidden in representations and no superfluous steps should be allowed in derivations (Chomsky 1995, 2004 and subsequent works). Barbiers (2014) claims that syntactic doubling violates this principle because a constituent is phonologically realized twice. Hence, superfluous elements are included in syntactic doubling. See the examples in (16).

(16)   a.   Ni   qu kan na-ben-shu.
                  you go read that Cl book
                  'Go to read that book.'

          b.   Ni   qu **kan** yi   **kan** na-ben-shu.
                  you go read one read that Cl book
                  'Go to read that book.'

The example in (16-b) involves syntactic doubling as the verb *kan* (Eng. 'read') is phonologically expressed twice. At first sight, this expression is less economical than the example in (16-a).

However, syntactic doubling may causes differences in other aspects with regarding to the interpretation of sentences. See the examples in (17).

---

[1]The question how the compositionality is represented in language design is not included in the discussions of this thesis.

(17)   a.   Zhangsan yinggai kan   na-ben-shu.
               Zhangsan should read that Cl book
               'Zhangsan should read that book.'

         b.   Zhangsan yinggai **kan kan** na-ben-shu.
               Zhangsan should read read that Cl book
               'Zhangsan should read that book.'

The sentence in (17-b) involves doubling of the verb *kan* (Eng. 'read'). The meaning of this sentence is *almost* the same as that of the sentence in (17-a). Nevertheless, the expression with doubling in (17-a) does not embrace any redundancy in the sense that the verb doubling indicates delimitative aspect, which means doing an action "a little bit" or for a short time (Li and Thompson 1981). Thus, syntactic doubling does not violate the principle of *Economy* because it is necessary in order to designate the delimitative aspect.

Moreover, Barbiers (2008; 2014) claims that the existence of doubling also seems to violate the principle of *Explicitness* according to which no elements should be hidden in a syntactic construction. See the example in (18).

(18)   a.   Yo nunca he   visto nada   igual
               I   never have seen nothing same
               'Never have I seen such a thing!'

         b.   Yo **nunca nunca** he   visto nada   igual
               I   never   never   have seen nothing same
               'Never, never have I seen such a thing!'

                                        [Spanish data from Uriagereka 2008, pg. 190]

If it is assumed that the example with syntactic doubling in (18-b) follows the principle of Explicitness, i.e., all the elements are expressed explicitly, then the example in (18-a) must contain a hidden element as *nunca* (Eng. 'never') is pronounced only once. That is to say, "another" *nunca* (Eng. 'never') is hidden in the sentence in (18-a). Thus, it seems that the example in (18-a) should be ungrammatical, which is contrary to the fact.

However, the principle of *Expliciteness* is not unproblematic. Theoretically, it is widely assumed that there can be "hidden" elements in syntactic configuration. In copy theory of movement after an element undergoes movement in syntactic

structure, the lower copies in the chain formed by this movement are usually phonetically deleted (Chomsky 1995). Therefore, the principle of *Expliciteness* is in lack of strong theoretical arguments against the copy theory of movement, which is well known in explaining empirical facts such as island sensitivity. In this present thesis, I follow Chomsky (1995) and many other works in assuming that elements can be expressed "unexplicitelly" in syntactic configurations.

In section 2.3, following Barbiers (2008, 2014), I have displayed that syntactic doubling mainly seems to violate the following principles in language design: i) Univesality; ii) Compositionality; iii) Economy; iv) Expliciteness and v) Uniqueness. However, I have shown that the existence of syntactic doubling is compatible with the these principles. In section 2.4, I will present Barbiers' (2008, 2014) definition of syntactic doubling, which I assume in this chapter.

2.4   Definition of Syntactic Doubling

In section 2.3, I have argued that doubling phenomenon is compatible with the following rules in language design: i) Univesality; ii) Compositionality; iii) Economy; iv) Expliciteness and v) Uniqueness. In section 2.4, I would like to present Barbiers' (2008, 2014) definition of syntactic doubling. I show that i) syntactic doubling must be phonologically expressed and that ii) there are no constraints with respect to doubling times. This definition covers a wide range of doubling structures such as "iteration" in Uriagereka (2008) and "syntactic reduplication" in Travis (2003).

According to Barbiers (2008, pg. 2), linguistic expressions in which a constituent (i.e., a morphosyntactic feature, morpheme, word, or phrase) is expressed two or more times involve *syntactic doubling*. An example of syntactic doubling is seen in (19).

(19)   Zhangsan **kan** xiaoshuo **kan**-le   san   xiaoshi.
Zhangsan read novel   read Perf three hour
'Zhangsan has read the novel during three hours.'

[Mandarin]

In (19) the verb *kan* (Eng. 'read') is expressed twice. Moreover, both verbs have the same semantic meaning and they are pronounced in the same way. In other words, the verb *kan* (Eng. 'read') is "doubled". Compared with expressions without verb doubling as in (20), the expression in (19) emphasizes more the duration of the event *kan* (Eng. 'read').

(20) a. Zhangsan **kan** xiaoshuo
          Zhangsan read novel
          'Zhangsan reads novels.'

    b. Zhangsan **kan**-le   san   xiaoshi.
        Zhangsan read Perf three hours
        'Zhangsan has read it for three hours.'

    c. *Zhangsan **kan**-le   xiaoshuo san   xiaoshi.
        Zhangsan read Perf novel   three hour
        'Zhangsan has read novels for three hours.'

[Mandarin]

The examples in (20) also show that verb doubling is obligatory in expressing the duration of an event in Chinese. The illegitimacy of the example in (20-c) is argued to be related to the Phrase Structure Constraint, according to which the verbal head in Chinese may branch to the left only once, and only on the lowest level (Huang 1982, 1984). Thus, the structure $[_{VP}$ $[_{V'}$ [read XP] YP]] is ungrammatical. See more discussion on similar constructions in section 3.3.

Regarding the definition about "(be) doubled", I present Barbiers' (2008, 2014) definition on *syntactic doubling*, which I assume in this chapter. [2] The definition is given in (21).

(21) Syntactic doubling
      (A subset of) the features of a morpheme are expressed phonologically twice or more.

[from Barbiers 2014, pg. 200]

According to this definition, what is doubled in syntactic doubling is *features or*

---

[2]In section 2.7 I will give the definition of verb doubling on the basis of this definition.

a subset of features. In other words, doubling of features or a part of features is considered as syntactic doubling. The concord phenomenon in Baker 2008 is also a kind of syntactic doubling. See the example in (22).

(22) a. **Zij**   heeft **zij**   daar niks   mee te maken.
          she.STRONG has   she.STRONG there nothing with to do
          'She has got nothing to do with it.'

      b. **Ze**   heeft **zij**   daar niks   mee te maken.
          she.WEAK has   she.STRONG there nothing with to do
          'She has got nothing to do with it.'

                                        [Dutch data from Barbiers 2014, pg. 197]

In (22-a) the pronoun *zij* (Eng. 'she') is fully doubled while in (22-b) it is partially doubled as only the features [+third person], [+singular] and [+feminine] of the pronoun *she* are doubled.[3]

According to the definition in (21), the doubled features are *expressed phonologically*. This means that the syntactic doubling is a result in the spell-out components. Regardless of their LF interpretation, they must be represented in PF. See the examples in (23).

(23) a. Yo estoy muy cansado.
          I   am   very tired
          'I am very tired.'

      b. Yo estoy **muy muy muy** cansado.
          I   am   very very very tired
          'I am really very tired.'

                                        [Spanish data from Uriagereka 2008, pg. 188]

Since syntactic doubling is phonologically realized, the example in (23-a) cannot be viewed as a case of syntactic doubling and only the example in (23-b) involves syntactic doubling because the adverb *muy* (Eng. 'very') is pronounced more than once.

---

[3]Both *Ze* and *Zij* can be translated as *she* in English. The difference lies in stress, which is illustrated by STRONG or WEAK in translation.

The example (23-b) also shows that the definition of syntactic doubling in (21) does not set any limits of doubling times. In other words, when a constituent, i.e., a morphosyntactic feature, morpheme, word, or phrase is expressed more than twice, these expressions are also cases of syntactic doubling.

If one assumes Barbiers' definition, the examples in (24) and (25) also contain syntactic doubling. The sentence in (24) is an example of *syntactic reduplication* in Travis (2003) and the utterance in (25) is an example of *iteration* in Uriagereka (2008).

(24)   The butterfly fluttered from **flower** to **flower**.

[syntactic reduplication from Travis 2003, pg. 238]

(25)   Yo **nunca nunca** he   visto nada   igual.
        I   never   never   have seen nothing same
        'Never, never have I seen such a thing!'

[Iteration from Uriagereka 2008, pg. 190]

The examples in (24) and (25) show that the features of the noun *flower* and the adverb *nunca* (Eng. 'never') are fully doubled, and can be considered as syntactic doubling cases. Following Barbiers' definition in (21), I consider both syntactic reduplication and iteration as cases of syntactic doubling based on the motivation of presentation. I will discuss syntactic reduplication and iteration in section 2.5.4.

In section 2.4, I have presented Barbiers' (2008, 2014) definition of syntactic doubling, which I assume in this chapter, see (21). Syntactic doubling must be realized phonologically and the doubled element can be pronounced more than twice. According to this definition, I have also illustrated that both syntactic reduplication in Travis (2003) and iteration in Uriagereka (2008) are cases of syntactic doubling, see section 2.5.1. In section 2.5 I will discuss syntactic approaches that have been used to study doubling phenomenon.

2.5 Syntactic Approaches

In section 2.4 I have presented Barbiers' (2008, 2014) definition of syntactic doubling. Doubling phenomenon has been studied in different linguistic areas, for example, Inkelas and Zoll (2005) study doubling in morphology.[4] In section 2.5 I concentrate on syntactic approaches. First, I discuss Travis' (2003) and Uriagereka's (2008) approach in investigating syntactic doubling. Moreover, several syntactic approaches are introduced in Barbiers (2008). They include i) doubling as multiple spell-out of chain positions; ii) doubling as big constituent splitting; and iii) doubling as agreement.

As one may notice, syntactic doubling is a broad label that will be used in this dissertation to cover a wide range of situation: from lexical iteration to chain formation, going through other doubling cases.

2.5.1 Accounts for Doubling in Lexicon

In section 2.5.1 I introduce two syntactic accounts for syntactic reduplication in Travis (2001, 2003) and iteration in Uriagereka (2008), which are quite different from those in section 2.5.2.

What relates Uriagereka's (2008) account and Travis' (2003) analysis is that the processes do not resort to phrase structure or transformational rules.

The particularity of syntactic reduplication and iteration lies in the component where these phenomenon appear. See the examples in (26).

(26)   The butterfly fluttered from **flower** to **flower**.

[Syntactic reduplication from Travis 2003, pg. 238]

---

[4]Inkelas and Zoll (2005) study a phenomenon in which (part of) a morpheme is doubled in order to form a new morpheme. I do not discuss this in this thesis. I leave the question how this phenomenon is related to syntax open.

(27)   Yo **nunca nunca** he   visto nada   igual.
           I   never never have seen nothing same
           'Never, never have I seen such a thing!'

[Iteration from Uriagereka 2008, pg. 190]

The expression in (26) includes syntactic reduplication and the sentence in (27) involves iteration. In both cases, the same element in lexicon is phonologically realized twice. That is to say, the "copies" in these expressions are two lexical tokens taken from the same lexical type (in the lexicon). This is different cases like clitic doubling where a clitic must be introduced in lexicon to realize doubling.

2.5.1.1   Copying Triggered in Syntactic Environments

In this section, I introduce Travis' (2003) accounts for two syntactic doubling cases. Travis names them as *syntactic reduplication* and *contrastive reduplication*, respectively. Travis (2003) argues that all reduplication is *phonological* copying triggered in *syntactic* environments.[5]

Syntactic reduplication in Travis (2003) implies cases of reduplication that have internal syntactic structure (cf. Pi 1995). They are arguably derived in the syntactic instead of in morphological or phonological component of the grammar. See the examples in (28).

(28)   a.   The butterfly fluttered from **flower** to **flower**.
          b.   John washed **plate** after **plate** for hours after the party.

[from Travis 2003, pg. 238]

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[5]Actually, Travis (2001) studies three types of reduplication: phonological reduplication, syntactic reduplication and contrastive reduplication. But in this thesis I do not discuss phonological reduplication as (i).

(i)   a.   saláma 'healthy'
        b.   sa**làma**+**láma** 'somewhat healthy'

[Malagasy data from Keenan and Razafimamonjy 1998, pg. 176]

In (i) a subpart of the word is repeated. No features or part of features of this word is phonologically realized more than once. Thus, it is not a case of syntactic doubling proposed in Barbiers (2008).

Later, Travis (2003) proposes that the deriving structure of syntactic redu-
plication is shown in (29). The Q head is realized as a reduplicative morpheme.

(29)

```
              QP
           /      \
        Spec       Q'
                 /    \
                Q      XP
                     /    \
                    X      ZP
                         /    \
                        Y      X
```
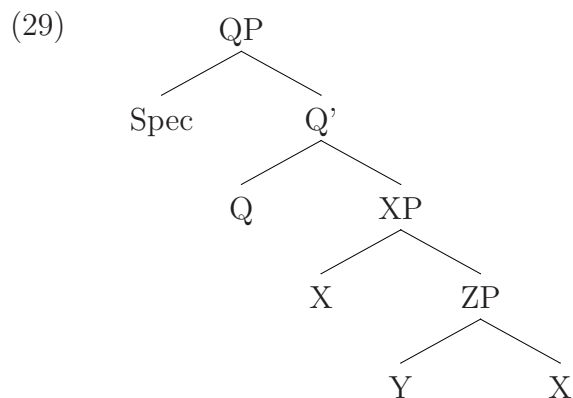
[adapted from Travis 2003, pg. 240]

In (29) the Q head copies a subpart of XP and the subpart is syntactically deter-
mined (cf. Pi 1995).[6] For example, in *cup of cup of coffee* the Q head copies a
subpart of *cup of coffee* and the copy is realized in [Spec, QP]. The Q head may
also contain an element such as *after*, *by* or *upon*.

So in syntactic reduplication the Q head copies a subpart of its sister, which
is an XP. The subpart will be syntactically determined. And the reduplicated
material is realized in [Spec, QP] (Travis 2003, pg. 241).

Travis (2003) also introduces contrastive reduplication, which is observed by
Ghomeshi, Jackendoff, Rosen and Russell (2004). See the examples in (30).

(30)   a.   I'll make the tuna salad, and you make the **salad salad**.
       b.   Oh, we're not **living together living together**.

[from Ghomeshi, Jackendoff, Rosen and Russell 2004, pg. 308]

Ghomeshi, Jackendoff, Rosen and Russell (2004) show that this type of reduplica-
tion is constrained and the constrains seem to be neither phonological as in (31-a)
and (31-b) nor syntactic reduplication as in (31-c) and (31-d).

---

[6]Traivs (2003, pg. 239) notices that such an analysis is perhaps wrong. Research on how Q
decides to copy which part of XP is needed.

(31) a. *She's not my **girl**-**girl**friend.

b. She's a **girl**-**girl**.

c. Do you **like him**-**like him**?

d. *Do you **like Bill**-**like Bill**?

<div align="right">[from Travis 2003, pg. 240]</div>

Ghomeshi, Jakendoff, Rosen and Kevin (2004) basically assumes that contrastive reduplication fills a slot that is syntactically available for other material as in (32).

(32) a. I'll make the <u>tuna</u> salad and you make the _____ [real/green] salad.

b. They weren't _____ [really] together, they were just <u>studying</u> together.

<div align="right">[from Travis 2003, pg. 240]</div>

Travis (2003) proposes the derivation in (33) for contrastive reduplication. The Q head behaves as a reduplicative morpheme.

(33)

```
          YP
         /  \
            Y'
           /  \
          Y    XP
              /  \
             Q    X
```
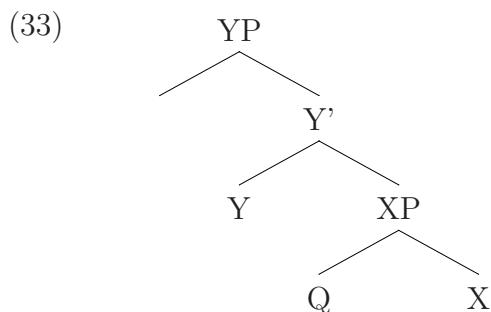
<div align="right">[adapted from Travis 2003, pg. 240]</div>

In (33) the copy is realized in the Q head. That is to say, the Q copies X and the copy is located in Q, for example, in *a salad salad* the two copies of *salad* merge at the bottom of the structure.

Travis (2003, pg. 241) claims that the syntactic slot appears to be a "pre-head adjective or adverb". Besides, Travis (1988) has argued that prehead modifiers are head adjoined to the elements they modify. Thus, the sister of the Q head is

a head that projects.[7, 8]

In section 2.5.1.1, I have illustrated Travis (2003) accounts for two syntactic doubling cases: syntactic reduplication and contrastive reduplication. She insists that these expressions are derived by introducing a reduplicative morpheme Q. In section 2.5.1.2 I will present Uriagereka's (2008) analysis for syntactic doubling.

2.5.1.2 Finite State Loops in Numeration

In section 2.5.1.1 I have introduced Travis' (2003) accounts for two syntactic doubling cases: syntactic reduplication and contrastive reduplication. In section 2.5.1.2 I illustrate Uriagereka's (2008) study on *iterative expressions* where certain elements are repeated several times. These iterative expressions are also cases of syntactic doubling based on the definition in (21). The author focus on how iteration expressions get their meaning.

In iterative expressions studied in Uriagereka (2008), the iterative elements can be repeated more than twice.[9] This is shown in (34).

(34)   Yo estoy **muy muy muy** cansada.
        I   am   very very very tired
        'I am really very tired.'

[Spanish data from Uriagereka 2008, pg. 188]

---

[7]Travis (2003, pg. 241) claims that she does not have an account for all contrastive reduplication cases. The head-adjunction in these cases is poorly understood.

[8]Roca and Suñer (1998) study similar phenomenon in Spanish. They call this phenomenon *lexical reduplication*. See the examples in (i).

(i)   a.   Quiero **café café**.
            want   coffee coffee
            'I want coffee, really. or 'I want real coffee.'
       b.   El   postre está **rico   rico**.
            the dessert is   delicious delicious
            'The dessert is really delicious.'

[Spanish data from Roca and Suñer 1998, pg. 47]

Roca and Suñer (1998) claim that lexical reduplication in Spanish like (i) show a constant interpretation regardless their syntactic category.

[9]Uriagereka (2008) distinguishes the iteration from *reduplicative* or *syntactic reduplication* in Pi (1995) and Travis (2003).

Uriagereka (2008, pg. 190) points out that the iteration of elements do not seem to be in strict correspondence with the meaning of the composed parts. This is shown in (35).

(35)   a.   **Ven**, **ven**, **ven**!
             come come come
             'Come, come, come!'

        b.   Yo **nunca nunca** he   visto nada   igual.
             I   never   never   have seen nothing same
             'Never, never have I seen such a thing!'

[Spanish data from Uriagereka 2008, pg. 190]

The iterative expression in (35-a) does not mean that one should come three times. Instead, it means that 'do come' (Eng.). Similarly, the iterative expression in (35-b) means that 'I *really never* saw it' (Eng.).

Thus, Uriagereka (2008) suggests that a special kind of syntactic operation needs to be introduced to explain these iterative expressions (cf. Travis 2001).

The grammatical explanation for iterations begins with the "finite-state" properties of iterative structures (Uriagereka 2008, pg. 193-196). Uriagereka (2008) points out that Chomsky examined three progressively more complex models as in (36).

(36)   a.   Finite -state models generating regular languages (strings of symbols)

        b.   Phrase structure grammars generating phrases (sets of strings of symbols)

        c.   Transformational grammars generating transforms (sets of sets of strings of symbols)

[from Uriagereka 2008, pg. 194]

In (36), (36-c) presupposes structures as in (36-b) while (36-b) presupposes structures as in (36-a). Therefore, Chomsky (1975) explicitly indicates that English, a context-sensitive language, may have fragments of the finite-state sort.

The finite state of the iteration of single words leads to a reasonable account

with finite-state loop. However, when the iteration correlates to a larger unit, i.e., more than one word, iterated cases are more difficult. See the examples in (37).

(37)   a.   Y   el   lobo **sopló casas**, **sopló casas**, hasta que se   murió.
            and the wolf blew   houses blew   house until that self died
            'And the wolf blew houses, blew houses, until he died.'

        b. *Y   **él sopló**, **él sopló**, **él sopló** casas   hasta que se   murió.
            and he blew   he blew   he blew   houses until that self died
            'And he blew, he blew, he blew houses until he died.'

[Spanish data from Uriagereka 2008, pg. 200-201]

The iteration of a unit formed by a verb and its object in (37-a), i.e., *sopló casas* (Eng. 'blew houses') is acceptable, while the iteration of a unit formed by subject and its predicate in (37-b), i.e., *él sopló* (Eng. 'he blew') is unacceptable. The contrast raises the question of what kind of iteration is legit. In order to answer this question, one must be clear where or to which level of representation *finite state loops* can situ. Recall that iteration processes do not mingle with transformational ones. Thus, *finite state loops* cannot be located in D-structure or S-structure. Uriagereka (2008, pg. 201) claims that *numeration* would be a candidate. *Numeration* refers to a collection of unordered lexical items that would enter into the derivation. Assuming that the derivation must be perfect in every step, the iterated unit in (37-b) *él sopló* (Eng. 'he blew') cannot be a constituent in the derivation. Therefore, iteration in (37-b) is ungrammatical (Uriagereka 2008, pg. 201).

Furthermore, Uriagereka (2008) observes that iteration is not allowed for pure functional items. See the examples in (38).

(38)   a.   Juan ha   (*ha) llegado.
            Juan has has   arrived
            'Juan has indeed arrived.'

        b.   Juan no sabe   que (*que) la   tierra es redonda.
            Juan not knows that that   the earth is round
            'Juan doesn't know that the earth is round.'

        c.   Las (*las) brujas han escapado.
            the the   witches have fled
            'The witches (not just some witches) have fled.'

As formal items like *haber* (Eng. 'have') in (38-a), *que* (Eng. 'that') in (38-b) and *las* (Eng. 'the') in (38-c) involve checking features, their derivations require a context-free system. It is also proposed that formal items involve transformationally driven event-quantification semantics. Thus, they are incompatible with finite-state syntax, which is context sensitive (Uriagereka 2008, pg. 203).

Nevertheless, if one follows Barbiers' (2008, pg. 17) definition of syntactic doubling as in (21), doubling of functional items are attested. See the examples in (39).

(39)   a.   On **a eu** mis de l'eau sur
    one has had put of the.water on
    'They have put water on the chairs.'

[Franco-Provençal data from Carruthers 1994]

    b.   Co **go bio** magnà,...
    when have had eaten
    'When I had eaten,...'

[Northern Italian data from Polletto 2008]

    c.   **Que que** come me gusta me gusta.
    that that eat me like me like
    'I like eating that I like.'

[Spanish data from Gallego, p.c.]

In (39-a) and (39-b) the perfective tense is phonologically realized twice, respectively. In (39-c) the functional item *que* (Eng. 'that') is repeated. These examples must be handled differently.

In sum, Uriagereka (2008) claims that the existence of iteration is due to the finite-state of the iterative element. The finite state of the iteration leads to an analysis with finite-state loop.

In section 2.5.1 I have introduced Travis' (2003) analysis for syntactic reduplication and contrastive reduplication and Uriagereka's (2008) proposal for iteration. The two cases of reduplication and iteration are doubling cases according to the

definition in (21). The doubling cases in these two analyses share the property that their formation doesn't have to resort to phrase structure, a state that requires transformational rules in language design. In section 2.6 I will introduce more analyses for doubling phenomenon. These accounts are related to phrase structure or transformational rules.

2.5.2 Doubling as Multiple Spell-Out of Chain Positions

I have presented doubling cases in different domains (see section 2.4). Moreover, doubling occurs in both heads, e.g., doubling of lexical verbs, and phrases, e.g., doubling of direct/indirect object pronoun. In other words, doubling can happen in all syntactic domains. The syntactic approaches discussed below are not limited to any specific doubling cases.

One way to analyze some cases of doubling is to consider doubling as multiple spell-out of chain positions. Specifically, the different representations of one constituent are occurrences in one chain. The spell-out of these chain occurrences causes doubling effect. Such a theory has been developed by Nunes (2004).

Following Chomsky (1995), Nunes (2004) adopts the copy theory of movement according to which movement or internal merge creates a copy of the moved constituent. Consider the example in (40).

(40)   [$_{CP}$ who was [$_{vP}$ loved who]]

In (40) the wh-pronoun *who* moves from vP to a CP. The chain [*who*, *who*] is formed. According to Kayne's (1994) Linear Correspondence Axiom (LCA) in (41), linear order is determined by hierarchical structure.

(41)   Linear Correspondence Axiom (LCA)
        Let X, Y be nonterminals and x, y terminals such that X dominates x and
        Y dominates y. Then if X asymmetrically c-command Y, x precedes y.

[from Kayne 1994, pg. 33]

Thus, the upper copy of *who* asymmetrically c-commands the copula *was* and the order would be <who, was>. Likewise, the copula asymmetrically c-commands the lower copy of *who*, the order <was, who>. Combining these two results, the partial PF sequence <who, was, who> is obtained. If the two copies in the chain [*who, who*] are the same, *was* is required to precede and be preceded by the same element. Such a sequence would be illegitimate and this is born by the fact **Who was loved who*?. Thus, Nunes (2004) argues that the lower copy is deleted in order to get a legitimate sequence. This process is called chain reduction and is realized in phonological component.[10]

Doubling phenomenon is considered as a result of failure of chain reduction. Analyses in line with Nunes (2004) are supported by cases with syntactic movement. See the examples with verb doubling in (42) and related facts in (43).

(42) **Leer**, Juan ha **leído** el libro.
  read Juan has read the book
  'As for reading, Juan has read the book.'

[Spanish data from Vicente 2009, pg. 185]

(43) a. **Leer**, Juan ha dicho que María ha **leído** un libro.
      read Juan has said that María has read a book
      'As for reading, Juan has said that María has read a book.'

  b. ***Comprar**, he oído [el rumor de que Juan ha **comprado** un
      buy   have heard the rumour of that Juan has bought   a
      libro].
      book
      'As for buying, I've heard the rumour that Juan has bought a book.'

  c. ***Comprar**, he visto [al hombre que ha **comprado** un libro].
      buy   have seen the man   that has bought   a book
      'As for buying, I've seen the man that has bought a book.'

---

[10]Regarding to PF-deletion of copies, Trinh (2009, 2011) proposes a constraint on copy deletion according to which the lower copy of a chain can be phonologically deleted only if it ends an XP as shown in (i).

(i) Constraint on Copy Deletion (CCD)
    A chain (α, β) is deletable only if β ends an XP.

[from Trinh 2009, pg. 184]

The CCD indicates that the phonetic material to be deleted must be at the right edge of a maximal projection.

d. *__Comprar__, he ido al cine   [después de __comprar__ un libro].
   buy   have gone to cinema after   of buy   a book
   'As for buying, I've gone to the movies after buying a book.'

[Spanish data from Vicente 2009, pg. 168-169]

In (42) the lexical verb *leer* (Eng. 'read') is doubled. Besides, the island effect shown in (43) (complex NP island in (43-a), relative clause island in (43-b), adjunct island in (43-c) and subject island in (43-d)) indicates that the doubled verb like the one in (42) undergoes movement. Hence, Vicente (2009) proposes that the verb *leer* (Eng. 'read') moves from vP to TopP through AspP. After the verb in vP moves to AspP, it fuses with Asp^0 to form *leído* (Eng. 'read'). As a result, the verb copy in AspP is different from the one in TopP and chain reduction cannot be realized in PF. So both *leer* and *leído* are pronounced.

In section 2.5.2, I have presented the multiple spell out analysis that can be used to explain why doubling appears. It blames the doubling phenomenon to the failure of chain reduction in phonological component. In Chapter 4 I will follow Nunes' (2004) analysis in explaining verb doubling clefts in Chinese. In section 2.5.3, I will discuss another syntactic approach to investigate doubling phenomenon.

2.5.3   Doubling as Big Constituent Splitting

In section 2.5.2, I have presented the approach doubling as multiple spell-out of chain positions. In section 2.5.3 I discuss another approach to study syntactic doubling. It comes from the assumption that multiple duplicates of one constituent originate from one big constituent. The Doubling effect is a consequence of splitting this big constituent (cf. Kanye 1994, Uriagereka 1995, Boeckx 2003, Belletti 2005 among others).

In order to accommodate doubling expressions like (44), Uriagereka (1995) assumes that the clitic and its double form a constituent as in (45).

(44)   __Lo__ vi a __él__.
        Clitic saw to him

'I saw him.'

(45)
```
            DP
          /    \
     Double    D'
             /    \
        clitic    pro
```
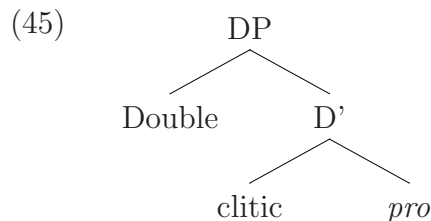
The sentence in (44) involves the clitic *lo* and the nominal phrase *él* (Eng. 'him'). According to the doubling as big constituent approach, they are originally located in a head position and a specifier position, respectively. In other words, the clitic and the whole DP forms a big DP. Then they split up during the derivation to form the expression in (44).

Barbiers (2008) points out that this approach often raises the question whether this big "constituent" can show up as a whole. See the example in (46).

(46)   ***lo**   vi   a   **Juan**.
        Clitic saw to Juan
        'I saw Juan.'

[European Spanish]

The example in (46) shows that the clitic and the DP *Juan* cannot be stay "locally", i.e., inside a big DP.

In section 2.5.3, I have illustrated the approach in which doubling phenomenon is a result of splitting a big DP. However, such a big DP is often ungrammatical in representation level. In section 2.5.4, I will introduce another approach where doubling is considered as agreement.

2.5.4   Doubling as Agreement

In section 2.5.3 I have reviewed the approach where doubling phenomenon a result of splitting a big DP. In section 2.5.4 I show that another analysis for syntactic doubling is to treat doubling as a kind of agreement. In subject-verb agreement languages, morphosyntactic features are repeated on the verb. According to the definition proposed by Barbiers (2014) shown in (21), subject-verb agreement is certainly a kind of doubling. For example, in English the [+third person] feature of the subject is repeated by -s in the verb as in (47).

(47)   John read**s** that article word by word.

Thus, there is doubling between the subject *John* and the verb *reads*.

This analysis can be described with the following schema as in (48).

(48)   F[x,y,..] ... XP[x,y,..] (agreement between F and XP)

[from Barbiers 2008, pg. 29]

As in (48) an (abstract) functional head F is in an agreement relation with a constituent or head that shares morphosyntactic features with F.

Barbiers (2008, pg. 29) claims that there are two potential kinds of doubling in (48). When no movement is involved, a functional element occupies a high position while an agreement-related constituent is located low in the structure. For example, in subject-verb agreement constructions no movement occurs between the subject and the verb, but doubling exists between them. When movement is involved, doubling includes a Spec-Head configuration in which the moved element is left adjacent to the agreeing functional head. For instance, verb doubling with topicalization as shown in (49).

(49)   **Reparada**,   la   puerta ha sido **reparada**.
        fixed.FEM.SG the door   has been fixed.FEM.SG
        'As for being fixed, the door has been fixed.'

[Spanish data from Vicente 2009, pg. 171]

In (49), the verb *reparada* (Eng. 'fixed') moves to the left of the functional head Top^0, which agrees with the constituent containing the lower copy (cf. Vicente 2007, 2009). As Barbiers (2008, pg. 30) points out, the multiple chain spell-out approach is often accompanied by the agreement approach.

Barbiers (2008) also points out agreement may exist in doubling cases that look like a "combination of an analytical and a synthetic construction". See superlative doubling in (50).

(50)   a.   most lively vs. liveliest
         b.   It is one of the **most** liveli-**est** towns that I know of. (Appalachian English)

[Kortmann and Szmrecsanyi 2006, pg. 10]

In sentences without doubling the superlative can be expressed analytically by *most lively* or synthetically *liveliest*. If doubling is involved as in (50) and it is considered as an agreement, one must assume agreement exists between them.

The agreement approach is controversial. As it is well known that agreement relations are quite common in Romance languages, i.e, subject verb agreement in (47). However, it is questionable whether syntactic doubling exists in these expressions when no subjects appear. See the example in (51).

(51)   Ha escrito una novela.
         has written one novel
         'He has written a novel.'

[Spanish]

In (51) no subject appears. The [+third person] feature of the subject is shown once in the functional verb *ha* (Eng. 'has'). So one cannot consider such expressions involve syntactic doubling.

In sections 2.5.4 I have introduced an approach according to which doubling is viewed as agreement. This approach based on the doubling of (part of) features. However, this approach is doubtful because in languages with optional presence of subject agreement does not entail apparent syntactic doubling.

In sum, I have introduced the following syntactic or syntax-related approaches for syntactic doubling in section 2.5: doubling as multiple spell-out of chain positions (Nunes 2004); doubling as big constituent splitting (cf. Uriagereka 1995, Belletti 2005 among others); doubling as agreement; doubling as copying triggered by a reduplicative morpheme (Travis 2003); and doubling as finite state loops in numeration (Uriagereka 2008). In section 2.6 I will focus on verb doubling.

2.6 Verb doubling

In section 2.5 I have presented different approaches to investigate syntactic doubling. In section 2.6 I concentrate on verb doubling. This section is organized as below: in section 2.6.1 I introduce the definition of verb doubling; in section 2.6.2 I show that verb doubling may have some semantic values; in section 2.6.3 I discuss the syntactic effect that often attested in verb doubling expressions; in section 2.6.4 I review two accounts for verb doubling sentences.

2.6.1 Definition of verb doubling

In this section I offer the definition of verb doubling in the present thesis. The definition is formed by adjusting the definition of syntactic doubling.

Recall that Barbiers (2014) defines syntactic doubling as in (52).

(52)   Syntactic doubling
        (A subset of) the features of a morpheme are expressed phonologically twice or more.

[from Barbiers 2014, pg. 200]

The definition in (52) covers too many cases, as I have shown in previous sections. In this thesis, I do not discuss doubling cases with doubled element phonologically realized more than twice. Thus, the definition of verb doubling can be phrased as in (53).

(53)   Verb doubling (1st version)
        (A subset of) the features of a lexical verb are expressed phonological twice.

Moreover, I focus on identical doubling of lexical verbs in this thesis. So doubling of lexical verbs with functional elements like *do* in English will not be discussed in the following sections. Therefore, the definition of verb doubling should be further adjusted as in (54).

(54)   Verb doubling (2nd version)
        A lexical verb is expressed phonologically twice.

The definition in (54) is the final version of verb doubling in this thesis. The discussion on verb doubling in the present dissertation limits on doubling of a *lexical verb* because in the following chapters I will focus on Chinese, a language that is in lack of functional verbs. Besides, a lexical verb in a sentence with verb doubling is pronounced only *twice*.[11]

In section 2.6.1 I have offered the definition of verb doubling in this thesis. In section 2.6.2 I will discuss semantic values that verb doubling expressions relate to.

2.6.2   Pragmatic effect

After having introduced the definition of verb doubling in section 2.6.1, I offer observations on pragmatic effect that verb doubling expressions are related to in

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[11]With respect to the mechanism of verb doubling patterns in Chinese, I will discuss in detail verb doubling clefts in Chapter 4. I leave the question how expressions with non-cleft verb doubling patterns are formed open.

their usages.

Generally, it is observed that doubling of lexical verbs emerges with topicalization, as shown in (55).

(55)   a.   **Leer**, Juan ha **leído** un libro.
           read   Juan has read a book
           'As for reading, Juan has read a book.'

                                  [Spanish data from Vicente 2009, pg. 159]

    b.   **énekelni**, **énekelt** Mari.
           sing   sang   Mari
           'As far as singing is concerned, Mari did sing yesterday.'

                   [Hungarian data from Lipták and Vicente 2009, pg. 652]

    c.   **Essen est** Maks fish
           to eat eats Max fish
           'As for eating, Max eats fish.'

                       [Yiddish data from Cable 2004, pg. 2]

    d.   **Liknot**, hi **kanta** et ha-praxim.
           to buy   she bought Acc the flower
           'Buy the flowers, she did.'

                       [Hebrew data from Landau 2006, pg. 6]

In the examples in (55) the main verbs are pronounced in sentence initial positions. These expressions are related with topics as shown in their translations.

It is also observed that doubling of verbs can be relevant to focus. This is shown in (56).

(56)   a.   **ngOnO** ǹ   **ngÓnÓ-O**?
           sleep   you sleep-Q
           'Are you SLEEPING?'

    b.   **ngOnU** ǹ ká   bǏ **ngÓnÙà**?
           sleep   you Fut-A now sleep-Q
           'Are you going to SLEEP now?'

                 [Caribbean Creole data from Koopman 1984, pg. 154]

In (56), the focused verbs are pronounced in sentence initial positions. They indicate focus or contrastive focus, which are presented by capital letters in translations.

Therefore, one might think that topic or focus is the cause or consequence of doubling of these verbs.

Nevertheless, not all doubling cases of lexical verbs imply the semantics of topic or focus. See the examples with reduplication and iteration of lexical verbs in (57).

(57)   a.   Y   el   lobo **sopló casas**, **sopló casas**, hasta que se   murió.
              and the wolf blew   houses blew   house   until that self died
              'And the wolf blew houses, blew houses, until he died.'

                                        [Spanish data from Uriagereka 2008, pg. 200-201]

        b.   Lili **kan kan** wo jiu   zou   le.
              Lili look look I   then leave Perf
              'Lili had a look at me and then left.'

                                                                          [Mandarin]

In (57-a) the doubling of the verb *sopló* (Eng. 'blew') indicates the iteration of the action. In (57-b) the doubling of the verb *kan* (Eng. 'look') conveys "delimitative" aspect (cf. Chao 1968, Li and Thompson 1981, Tsao 2001).

In section 2.6.2, I have shown that doubling of lexical verbs often emerges with pragmatic effects such as topic and focus. However, topic or focus is not the cause of verb doubling, for not all doubling of lexical verbs imply topic or focus. Thus, the question why doubling of lexical verbs may relate to other factors such as iteration, aspect, etc. will be discussed more in Chapter 3.

2.6.3   Island sensitivity

In what follows I show that expressions with verb doubling also show syntactic effects, which show that movement is involved. It is observed that when verb

doubling involves verb topicalization, the two verb copies are generally sensitive to islands. See Spanish examples in (58) and Hebrew examples in (59).

(58) a. *__Comprar__, he oído [el rumor de que Juan ha __comprado__ un
          buy   have heard the rumour of that Juan has bought   a
          libro]. (complex NP island)
          book
          'As for buying, I've heard the rumour that Juan has bought the book.'

      b. *__Comprar__, he   visto [al hombre que ha __comprado__ un libro].
          buy   have seen the man   that has bought   a   book
          (relative clause island)

          'As for buying, I've seen the man that has bought a book.'

      c. *__Comprar__, he   ido   al cine   [después de __comprar__ un libro].
          buy   have gone to cinema after   of buy   a   book
          (adjunct island)

          'As for buying, I've gone to the movies after buying a book.'

      d. *?__Ganar__, [que el   Athletic __ganara__ la Copa] sorprendería a mucha
          win   that the Athletic wins   the Cup   surprise   to many
          gente. (subject island)
          people
          'As for winning, that Athletic should win the Cup would surphrise
          many people.'

      e. *__Leer__, Juan ha [visto   una película y   __leí__ un libro.
          read Juan has watched a   film   and read a   book
          (coordination island)

          'As for reading, Juan has watched an film and read a book.'

[Spanish data from Vicente 2009, pg. 168-169]

The examples in (58) demonstrate that the verb copies in these verb doubling expressions are sensitive to the following islands: complex NP island in (58-a), relative clause island in (58-b), adjunct island in (58-c), subject island in (58-d) and coordination island in (58-e). Other island effects are also attested as in (59).

(59) a. ??__likro__ et   ha-sefer, sǎ'alti matay Gil kavar   __kara__. (Wh-island)
          read Acc the-book asked when Gil already read
          'As for reading the book, I asked when Gil had already read'

    b. ??**likro**, să'alti matay Gil kvar   **kara** et   ha-sefer. (Wh-island)
         read   asked when Gil already read Acc the-book
         'As for reading, I asked when when Gil had already read the book'

    c. *__le'hacbia__ la-avoda,   Gil amar/*laxaš/*hitcta'er   še-Rina
         vote   to-the-Labor Gil said/whispered/regretted that-Rina
         kvar   **hicbia**. (Factive/non-bridge island)
         already voted
         'As for voting to the Labor party, Gil said/*whispered/*regretted
         that Mary had already voted'

    d. *__le'hacbia__, Gil amar/*laxaš/*hitcta'er   še-Rina   kvar   **hicbia**
         vote   Gil said/whispered/regretted that-Rina already voted
         la-avoda.   (Factive/non-bridge island)
         to-the-Labor
         'As for voting, Gil said/*whispered/*regretted that Mary had already
         voted to the Labor party'

<div align="right">[Hebrew data from Landau 2006, pg. 12-13]</div>

These examples in (59) show that the verb copies in doubling expressions are sensitive to these islands: wh-island in (59-a) and (59-b), factive/non-bridge island in (59-c) and (59-d).

The island sensitivity attested in expressions with verb doubling often leads to the conclusion that movement occurs between the two verb copies. This is what I will assume for some doubling cases (see Chapter 4).

In section 2.6.3 I have shown that the two verb copies in verb doubling expressions are usually sensitive to islands: complex NP island, relative clause island, adjunct island, subject island, coordination island, wh-island and factive/non-bridge island. The island effect in these expressions implies that there is movement between the two verb copies, as I will discuss in section 2.6.4.

2.6.4   Two Syntactic Accounts

In section 2.6.2 and section 2.6.3 I have shown that verb doubling expressions usually have certain pragmatic effects and they are often sensitive to islands. In order to explain these facts, I review Vicente's (2007, 2009) and Landau's (2006) analyses below.

Vicente (2007, 2009) studies "partial predicate fronting" in Spanish, a phenomenon with verb doubling. See the example in (60).

(60)   **Leer** el   libro, Juan lo   ha **leído**.
       read the book Juan Clitic has read
       'As for reading the book, Juan has read it.'

[Spanish data from Vicente 2009, pg. 184]

In (60), the infinite form of the main verb *leer* (Eng. 'read') is pronounced twice. One copy is pronounced in a sentence initial position with its direct object.

According to Vicente (2009, pg. 183-185), the derivations of the example in (60) is shown in (61) and (62).

(61)

[adapted from Vicente 2009, pg. 184]

(62)

```
              TopP
             /    \
          ┌      Top′
          │      /    \
          │   Top⁰     TP
          │          /    \
          │       Juan    T′
          │             /    \
          │          lo ha   AspP
          │                 /    \
          │             leído    (vP)
          │                      /    \
          └──────────────── leer el libro
```

TopP, Top′, Top^0, TP, Juan, T′, lo ha, AspP, leído, vP, leer el libro
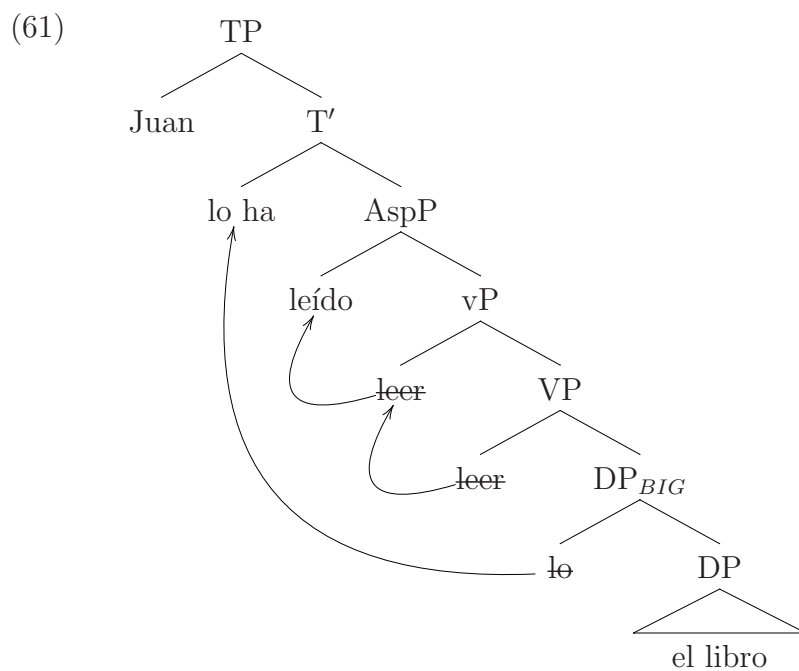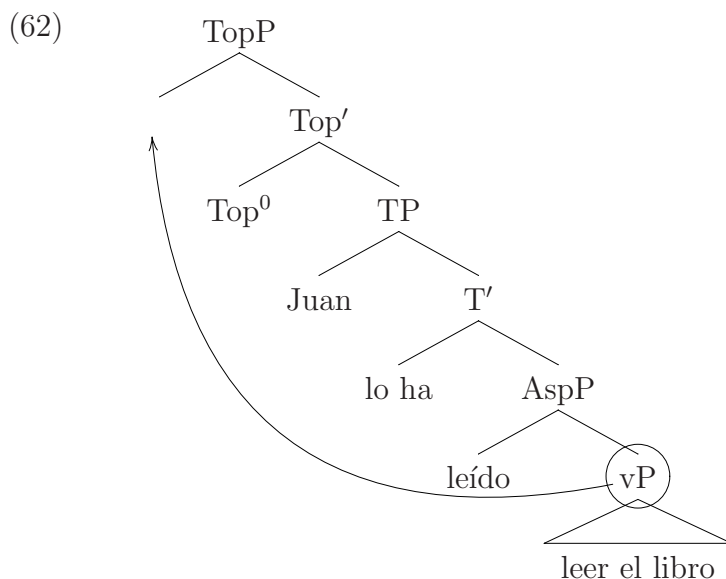
[adapted from Vicente 2009, pg. 185]

First, regarding the clitic doubling of the object, Vicente (2009) adopts the analysis in Uriagereka (1995), where the clitic is generated as a sister to the object in a "big DP" and later adjoins to T. Later, the object moves and the clitic is stranded as in (61). Second, following Zagona (2002), Vicente (2009) assumes the perfect participle moves to an aspectual position in order to get its morphology. Third, the entire vP moves to a topic position as in (62). Vicente (2009) also assumes that there is TopP and the movement of vP is triggered by feature checking needs. The fronted constituent in (62) is headed by a v head without any aspect or tense features. It is spelled out as an infinitive, the most unmarked form. Following Abels (2001) and Landau (2006), Vicente (2009) insists that infinitives are the minimal forms that can spell out all the features of the clefted category.

Another kind of partial predicate fronting is exemplified as in (63).

(63)   **Leer**, Juan ha **leído** el   libro.
       read   Juan has read   the book
       'As for reading, Juan has read a book.'

[Spanish data from Vicente 2009, pg. 185]

In (63), only the bare infinitive verb is pronounced in a sentence initial position. The derivation of this sentence is shown in (64).

(64)

TopP
TP
Juan   T′
ha   AspP
leído   vP
(leer)   VP
DP
el libro
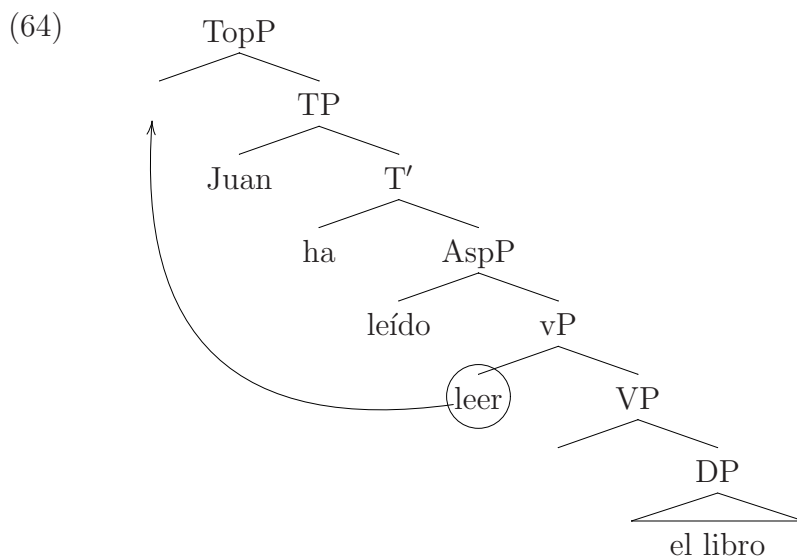
[adapted from Vicente 2009, pg. 186]

In this case, the topic feature attracts the bare v head instead of vP. Thus, the verb in vP (i.e., the v^0 head plus the lexical V^0) moves to a topic position. Moreover, the fronted consitituent is spelled out as an infinitive (Vicente 2009, pg. 185, footnote 26).

In sum, according to Vicente's (2009) analysis, the two verb copies in verb doubling are two heads of two chains. Moreover, the verb can move from a head position to a specifier position.

Landau (2006) observes that in Hebrew VP fronting, verb doubling also emerges. See the example in (65).

(65) **likod**, hu **rakad**.
      dance he danced
      'As for dancing, he danced.'

[Hebrew data from Landau 2006, pg. 30]

According to Landau (2006), the derivation of the sentence in (65) is shown in (66).

(66)

```
                            TopP
                   ┌─────────┴─────────┐
                 vP₃                  Top'
            ┌─────┴─────┐        ┌─────┴─────┐
          [DP₂]        v'      Top⁰          TP
            │        ┌──┴──┐            ┌─────┴─────┐
           hu     V₁+v   [√V]         DP₂          T'
            │                          │      ┌─────┴─────┐
         lirkod                       hu   √V₁+v+T⁰     [vP₃]
                                          │         ┌────┴────┐
                                        rakad      DP₂        v'
                                                    │     ┌────┴────┐
                                                   hu   √V₁+v      √V
```
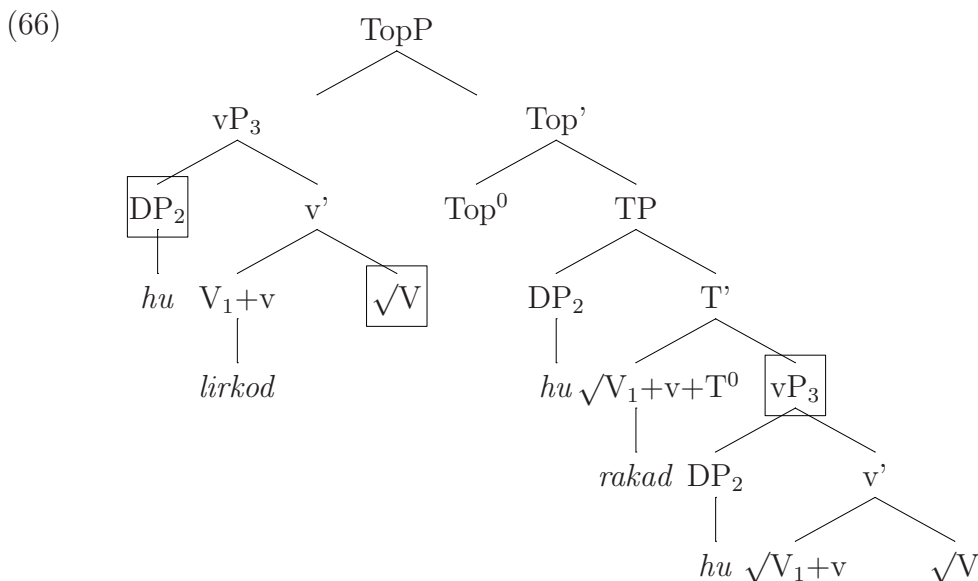
<div align="right">[adapted from Landau 2006, pg. 57-58]</div>

The $[\sqrt{V}+v]$ in (66) can be simply considered as V. V moves to T leaving a copy inside vP_3. Landau (2006) claims that two of the three V-copies are pronounced: the V copy adjoined to T and the V copy in TopP. The lower vP copy with its V copy head is deleted at PF. According to Landau (2006), PF-deletion applies to the nodes with squares, vP_3, DP_2 and $\sqrt{V}$.

Furthermore, the pronunciation of the two V copies in (65) is required by P-recoverability as in (67).

(67)   P-Recoverability
        In a chain $<X_1...X_i...X_n>$, where some X_i is associated with phonetic content, X_i must be pronounced.

<div align="right">[from Landau 2006, pg. 56]</div>

The T^0-adjoined copy is related to the phonological requirement to spell out tense and agreement features. The V-copy in TopP is associated with a phonological requirement imposed by Top^0 (or the characteristic intonation of fronted VPs in Hebrew). [12] Thus, both V-copies should be pronounced based on P-Recoverability

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[12]Landau (2006) shows that in Hebrew VP-fronting, the fronted (infinitival) verb bears high pitch accent (on its stressed syllable) and coincides with the left boundary of its intonational phrase.

in (81).

Besides, Landau (2006) also believes that the pronunciation of the two verb copies in VP fronting is required by P-recoverbility. The T head adjoined copy is pronounced in order to spell out tense and agreement features. The fronted verb copy is pronounced because of a phonological requirement imposed by Top^0. [13]

In sum, in Landau's (2006) analysis, VP fronting is resulted from remnant movement. The pronunciation of the two verb copies is due to the phonological requirements of T^0 and Top^0.

In section 2.6, I have discussed several aspects of verb doubling. First, I have defined verb doubling as doubling of lexical verbs, i.e., verb doubling contain two lexical verbs. Second, I have shown that verb doubling often involves semantic values like topic, focus, iteration, etc. Third, I have illustated that many verb doubling expressions are sensitive to islands. Forth, I have reviewed two previous accounts for verb doubling with topicalization. Landau (2006) proposes a remnant movement related analysis and insists that the doubling phenomenon is resulted from phonological requirements of functional heads. Vicente (2009) considers the two verb copies as heads of two different chains that own the same verb. He argues verbs can move from a head position to a specifier position.

2.7   Conclusions

In Chapter 2 I have described syntactic doubling in different aspects and outlined the main studies of syntactic doubling, which I have mainly focused on syntactic ones. I have shown that syntactic doubling phenomenon is observed in many domains like the nominal domain, the verbal domain, the extended verbal domain, the adjective domain and the prepositional domain. In these expressions an element or features of an element is pronounced more than once. *Doubling* may be used to refer to all these cases.

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[13]Landau (2006, pg. 9) observes that in Hebrew VP-fronting, the fronted verb copy bears high pitch accent and coincides with the left boundary of its intonational phrase.

In this thesis I follow Barbiers' (2008, 2014) view by considering doubling as *syntactic doubling*. According to the definition of syntactic doubling, (a subset of) the features of a morpheme are expressed phonologically twice or more. That is to say, in syntactic doubling features of a morpheme is phonologically realized more than once. When one element is pronounced more than once, the sentence involves syntactic doubling. Thus, cases like syntactic reduplication in Travis (2003) and iteration in Uriagereka (2008) are also expressions with syntactic doubling.

It seems that syntactic doubling violates the following principles of good language design: i) Universality; ii) Compositionality; iii) Economy; iv) Expliciteness and v) Uniqueness (cf. Barbiers 2008, 2014). But I have shown that the existence of syntactic doubling fits all these principles.

I have also reviewed several syntactic approaches that have been followed in the literature. According to Nunes (2004), doubling phenomenon is a result of the failure of chain reduction in phonological component. It is also argued that doubling phenomenon is derived through splitting a big constituent (Uriagereka 1995, Boeckx 2003, Belletti 2005 among others). Besides, Barbiers (2008) points out that doubling can be viewed as agreement. Travis (2003) tries to explain syntactic doubling by adopting a reduplicative morpheme. And Uriagereka (2008) claims that doubling phenomenon is due to the finite state loops in numeration. Following Nunes (2004), in Chapter 4 I will assume that the doubling effect in VDC expressions is multiple spell-out of different chain positions.

Based on the discussions on syntactic doubling, I have defined verb doubling as a phenomenon in which a lexical verb is phonologically expressed twice. I have illustated that verb doubling sentences often appear with certain pragmatic effect like topic/focus. More observations regarding to this aspect will be offered in Chapter 3 and Chapter 4 based on Chinese data. I have also shown that verb doubling expressions attested in many languages are sensitive to islands. I have also reviewed Landau's (2006) and Vicente's (2007) accounts on verb doubling cases with topicalization. In line with Landau and Vicente, I will argue that VDC expressions in Chinese are derived through movement.

In Chapter 3 I will give an overview on non-cleft verb doubling patterns in Chinese.

Chapter 3

Verb Doubling in Chinese: an Overview

3.1 Chapter Outline

In Chapter 2 I introduced doubling phenomena in different languages. Moreover, I showed that doubling phenomenon may appear in many domains, like the nominal domain, the verbal domain, the extended verbal domain, the adjective domain and the prepositional domain. In these expressions one element is pronounced more than once. The terminology *doubling* was used to refer to all these cases. In this aspect, I have followed Barbiers' (2008, 2014) in viewing doubling as *syntactic doubling* even though its definition is too general as discussed in section 2.4. Later, I showed that the existence of syntactic doubling is compatible with the following principles of language design: i) Universality; ii) Compositionality; iii) Economy; iv) Expliciteness and v) Uniqueness (cf. Barbiers 2008, 2014).

Based on these observations, I proposed the operative definition of verb doubling shown in (1).

(1)   Verb doubling (final version)
        A lexical verb is expressed phonologically twice.

Moreover, it was observed that verb doubling phenomena are usually related to topic or focus readings in many languages, e.g., verb fronting or VP fronting expressions (see section 2.6). In Chapter 2 I introduced Landau's (2006) and Vicente's (2007) approacheds for verb doubling phenomena. As I discuss there, they both follow Nunes (2004) in claiming that verb doubling phenomenon follows from the failure of chain reduction.

Certain verb doubling cases in Chinese are also observed to be related to a topic reading, for example, verb doubling clefts as in (2), which is discussed in detail in Chapter 4.

(2)   Verb Doubling Cleft

       Xie, Lisi **xie**-le   liang-ben-shu, danshi...
       write Lisi write Perf two Cl book   but
       'As for writing, Lisi wrote two books, but...'

However, verb doubling does not always display a topic/focus reading. In this chapter, I describe other verb doubling patterns in Chinese based on their semantic contribution. The verb doubling patterns presented in this chapter may be related to focus, delimitative aspect, polarity, presupposition and maximality.

This chapter aims to offer a descriptive overview of the following doubling patterns in Chinese: verb copying, verb reduplication, V neg V, *ai* V *bu* V, V *jiu* V, *shuo* V *jiu* V, V *jiu* V *zai*, verb doubling *lian...dou* and *bu* V *dou* V. The discussion about these patterns is related to the following general questions. In what situation do these expressions appear? Which verbs may undergo doubling in these patterns? Are there any similarities and differences among these patterns? What particularities does each pattern have?

Building on the different effects that verb doubling expressions trigger, the verb doubling patterns in this thesis can be divided into five general groups, as shown in (3).

(3)   a.   Group I: Topic/focus
           Verb doubling cleft

Verb Copying

b.   Group II: Delimitative Aspect

Verb Reduplicaton

c.   Group III: Polarity

V neg V

ai V *bu* V

d.   Group IV: Presupposition

V *jiu* V

shuo V *jiu* V

V *jiu* V *zai*

e.   Group V: Maximality

Verb doubling *lian...dou*

bu V *dou* V

In what follows, I would like to introduce all these verb doubling patterns in detail except for the verb doubling cleft pattern (within Group I), whose discussion is deferred until Chapter 4. That is to say, I focus on *non-cleft* verb doubling patterns (see section 3.2.1) in this chapter: in these doubling cases, doubling is limited to a clause-internal position.

The doubling pattern verb copying (VC, henceforth) (Group I), as illustrated in (4), is discussed in section 3.2.1. They may be used to emphasize information following the lower verb copy.

(4)   Verb Copying

Lili **kan** xiaoshuo **kan**-le   liang xiaoshi.
Lili read novel   read Perf two   hour
'Lili read novels for two hours.'

In (4) the lower verb copy is followed by a duration phrase, i.e., *liang xiaoshi* (Eng. 'two hours'). It indicates that the event *kan xiaoshuo* (Eng. 'read novels') has lasted two hours.

The pattern verb reduplication (VR, henceforth) (Group II), as in (5) will be introduced in section 3.3.1.

(5)   Verb Reduplication

      Ni qu **ting ting** ta de   baogao.
      you go listen listen 3S Part report
      'Go and listen to his report.'

Semantically, these expressions have the meaning similar to *have a …* in English, i.e., *kan kan* (Eng. 'look look') means 'have a look'. They also involve delimitative aspect. The perfective aspect marker *le* and the numeral *yi* (Eng. 'one') may appear between the two verb copies.

      Later on, I discuss two verb doubling patterns that are related to polarity (Group III), i.e., V neg V as in (6) and *ai* V *bu* V as in (7) in section 3.4.1 and section 3.4.2, respectively.

(6)   V neg V

      ni   **mai** bu **mai** yifu?
      you buy not buy cloth
      'Are you going to buy any clothes?'

(7)   *ai* V *bu* V

      Zhangsan dui guke   zongshi ai   **li**   bu **li**.
      Zhangsan to   customer always love care not care
      'Zhangsan doesn't care much for customers. / Zhangsan doesn't pay much attention to customers.'

Even though both V neg V expressions and *ai* V *bu* V expressions include negation, their contexts of use and meanings are quite different.

      Furthermore, I describe three verb doubling patterns that may embrace presupposition (Group IV), i.e., V *jiu* V as in (8) in section 3.5.1, *shuo* V *jiu* V as in (9) in section 3.5.2 and V *jiu* V *zai* as in (10) in section 3.5.3.

(8)   V *jiu* V

> **zou** jiu **zou**.
> go   then go
> '(Want to/saying) go? Then go.'

(9)   *shuo* V *jiu* V

> Lisi shuo **pao** jiu   **pao**.
> Lisi say   run then run
> 'Lisi ran immediately.'

(10)   V *jiu* V *zai*

> Zhangsan **shu** jiu   **shu** zai celue   shang.
> Zhangsan lose then lose at strategy above
> 'Zhangsan lost because of his strategy.'

All these three doubling patterns contain the adverb *jiu* (Eng. 'then'), which implies a presupposition/condition. But these doubling patterns behave differently in the domain of doubled verbs and the context where they appear.

Finally, I introduce two verb doubling patterns that involve the maximality operator *dou* (Eng. 'all') (Group V), i.e., verb doubling *lian...dou* as in (11) in section 3.6.1 and *bu* V *dou* V as in (12) in section 3.6.2.[1]

(11)   verb doubling *lian...dou*

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[1]*Dou* is usually considered as a universal quantifier because it indicates distribution of a predicate over a plural noun phrase preceding it. See the examples in (i).

(i)   a.   Zhangsan he Lisi *dou* mai-le   yi-ben-shu.
              Zhangsan and Lisi Dou buy Perf one Cl book
              'Zhangsan and Lisi each bought a book.' / *'Zhangsan and Lisi bought a book (together).'
       b.   Zhangsan he Lisi mai-le   yi-ben-shu.
              Zhangsan and Lisi buy Perf one Cl book
              'Zhangsan and Lisi each bought a book.' / 'Zhangsan and Lisi bought a book (together).'

The example in (i-a) shows that the presence of *dou* prohibits the collective reading, in contrast to the ambiguity in (i-b).

   However, in this thesis I adopt Xiang's (2008) view in claiming that *dou* is a maximality operator and it operates on any plural set and outputs a maximal plural individual. The maximality operator account is helpful in order to explain the presence of *dou* in verb doubling patterns. See more discussion in section 3.6.1.

Ta lian **kan** dou bu **kan**.
3S Lian look Dou not look
'He didn't even have a look.'

(12)   *bu* V *dou* V

Zhangsan bu **xie**   dou **xie**-le.
Zhangsan not write Dou write Perf
'Zhangsan wrote it already (even though he shouldn't).'

The maximality operator *dou* (Eng. 'all') is a fundamental element in the semantics of these expressions.

All in all, this chapter describes verb doubling patterns that are related to topic/focus, delimitative aspect, polarity, presupposition and maximality. Therefore, as already pointed out, this chapter is largely descriptive. I classified these verb doubling patterns into five groups: i) Group I: topic/focus, ii) Group II: delimitative aspect, iii) Group III: polarity, iv) Group IV: presupposition and v) Group V: maximality. Thus, empirically, the following pages offer a great deal of novel data to the study of verb doubling in languages. Some of these patterns, like *bu* V *dou* V, are under studied. The description in this chapter enriches the investigation on verb doubling. The different contexts in which these expressions appear also help understand the pragmatic effects that doubling phenomenon causes. Moreover, the discussion on the properties of different patterns can shed light on why doubling phenomenon exists in languages.[2]

This chapter is organized as follows. In section 3.2.1, I discuss the doubling pattern verb copying. There are four kinds of VC expressions: VC with resultative-*de* phrases, VC with resultative compounds, VC with manner-*de* phrases and VC with duratiion/frequency phrases. Group II involves a verb doubling pattern that is related to delimitative aspect: verb reduplication. In section 3.3.1 I introduce verb reduplication and discuss which verbs can undergo doubling in VR. I also show that VR expressions have different forms and the meaning of VR is related to delimitative aspect. Group III embraces two patterns that are relevant to polarity: V neg V and *ai* V *bu* V. In section 3.4.1 I discuss partial doubling where

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[2]Examples without specification of references are my own Mandarin data with original translation.

multisyllable verbs undergo doubling. When an object shows up, it may appear before or after the negation marker. The section 3.4.2 concerns the pattern *ai* V *bu* V. Not all verb copies are allowed to undergo doubling in this pattern and these expressions has its special usage. In Group IV there are three patterns. They all contain the adverb *jiu*, which implies presupposition. In section 3.5.1 I introduce the pattern V *jiu* V. Not only verbs can be doubled in this pattern and the doubled element must be mentioned in the context. In section 3.5.2 I discuss the pattern *shuo* V *jiu* V. I focus on which verbs may undergo doubling in these expressions and the meaning of these utterances. The section 3.5.3 deals with the pattern V *jiu* V *zai*. I discuss the doubled elements that appear in this pattern and the usage of these expressions. Group V is composed of two patterns that contain the maximality operator *dou*: verb doubling *lian...dou* and *bu* V *dou* V. The section 3.6.1 concerns the pattern verb doubling *lian...dou*. Island effect is observed in these expressions. In section 3.6.2 I discuss the pattern *bu* V *dou* V. The discussion concerns which verbs may be doubled in this pattern and in what situation these expressions emerge.

3.2   Group I: Topic

3.2.1   Verb Copying

In Chapter 2, I showed that verb doubling is present in other languages and is subject to topicality. Verb doubling phenomena in Chinese may also be related to topics. Specifically, verb doubling cleft and verb copying (Group I) in Chinese have been argued to be topic-related. See the examples in (13).

(13)   a.   **Xie**, Zhangsan **xie**-le   henduo,...
             write Zhangsan write Perf much
             'As for writing, Zhangsan wrote a lot,...'

       b.   Lisi **kan** xiaoshuo **kan**-le   liang xiaoshi.
             Lisi read novel   read Perf two   hour
             'Lisi read novels for two hours.'

The verb doubling cleft sentence in (13-a) involves topic reading of the clefted verb copy (Cheng and Vicente 2013). This is shown by *as for* in the translation. But the topic reading in the verb copying sentence in (13-b) is not so obvious.

The topic reading in a sentence with verb copying can be explained as below. See the examples in (14).

(14) a. Lisi kan-le   liang xiaoshi de   xiaoshuo.
          Lisi read Perf two   hour   Part novel
          'Lisi has read novels for two hours.'/ 'It is novels that Lisi has read for two hours.'

      b. Lisi **kan** xiaoshuo **kan**-le   liang xiaoshi.
          Lisi read novel   read Perf two   hour
          'Lisi has read novels for two hours.'/ 'Lisi has read novels for TWO HOURS.'

The example in (14-a) is a sentence without verb copying. The object *xiaoshuo* (Eng. 'novel') is located at the end of the sentence and is the focus of the sentence as shown in the translation. In (14-b) the verb *kan* (Eng. 'read') is doubled. in this sentence the object *xiaoshuo* (Eng. 'novel') precedes the duration phrase. More importantly, the focus of the sentence is the duration phrase instead of the object. Moreover, in (14-b) the phrase *kan xiaoshuo* (Eng. 'read novels') is the common ground of the utterance. Thus, it can be interpreted as a topic.

Notice that the order between the duration phrase and the object in (14-a) cannot be changed, as shown in (15).

(15) *Lisi kan-le   xiaoshuo liang xiaoshi.
       Lisi read Perf novel   two   hour
       'Lisi has read novels for two hours.'

The example in (15) shows that when a duration phrase and an overt object appear simultaneously in a sentence without verb copy, the duration phrase must precede the object. This will be discussed in the following paragraphs.

Verb copying (henceforth, VC) is a typical verb doubling phenomenon in Chinese. It has been studied a lot in the literature (cf. Paul 2002, Gouguet 2002, Cheng 2007 among many others). An often cited case of verb copying concerns duration/frequency expressions like (16-d) Generally, a verb like *kan* (Eng. 'watch') can be followed by either a nominal complement as in (16-a) or an adverbial phrase like a duration phrase in (16-b). However, when it is followed by both, the sentence is ungrammatical as in (16-c).
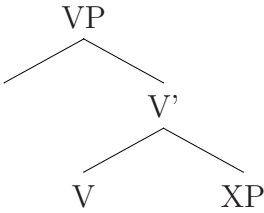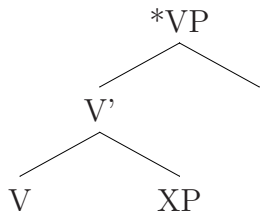
(16)   Duration/Frequency phrases

    a.   Zhangsan kan-le   dianshi.
         Zhangsan watch Perf TV
         'Zhangsan watched TV.'

    b.   Zhangsan kan-le   liang xiaoshi.
         Zhangsan watch Perf two   hour
         'Zhangsan watched it for two hours.'

    c. *Zhangsan kan-le   dianshi liang xiaoshi.
         Zhangsan watch Perf TV   two   hour
         'Zhangsan watched TV for two hours.'

    d.   Zhangsan **kan**   dianshi **kan**-le   liang xiaoshi.
         Zhangsan watch TV   watch Perf two   hour
         'Zhangsan has watched TV for two hours.'

In (16-d), the verb *kan* (Eng. 'watch') is pronounced twice. The (overt) object is located between the two verb copies. The lower verb copy is followed by a duration phrase *liang xiaoshi* (Eng. 'two hours'), which denotes the duration of the event *kan dianshi* (Eng. 'watch TV'). The examples in (16) also show that verb copying can avoid the ungrammaticality in (16-c). This leads Huang (1982; 1984) to propose the Phrase Structure Constraint for Chinese as in (17).

(17)   Phrase Structure Constraint (PSC)
        Within a given sentence in Chinese, the head (the verb or VP) may branch
        to the left only once, and only on the lowest level of expansion.

The PSC indicates that VPs in Chinese have the branching in (18-a). Besides, the branching in (18-b) is ungrammatical because the latter VP branches to the left twice.

(18)   a.

```
           VP
          /  \
             V'
            /  \
           V    XP
```

   b.

```
          *VP
          /  \
        V'
       /  \
      V    XP
```

[from Cheng 2007, pg. 153]

Therefore, it seems that the unacceptability of (16-c) is due to the violation of the PSC (Cheng 2007, pg. 153).

However, the PSC does not follow from any principled explanation. In other words, theoretically, nothing forbids VP from branching to the left twice. In addition, the sentence in (19) is a counterexample to the PSC.

(19)   Zhangsan mai-le   liang nian de   yu.
       Zhangsan sell Perf two   year Part fish
       'Zhangsan has sold fishes for two years.'

In (19) both the duration phrase *liang nian* (Eng. 'two years') and the object *yu* (Eng. 'fish') are located to the right of the verb *mai* (Eng. 'sell'). Obviously, this is unexpected for the PSC. Therefore, the PSC cannot explain why (16-c) is unacceptable. I leave the discussion on this question aside in this thesis.

Likewise, verb copying with Resultative-*de* phrases and Manner-*de* phrases may also be considered as expressions to avoid PSC as in (20).

(20)   Resultative-*de* phrases

   a. *Lisi xie   xin   de   hen lei.
       Lisi write letter Part very tired
       'Lisi got tired by writing letters.'

   b.   Lisi **xie**   xin   **xie**   de   hen lei.
       Lisi write letter write Part very tired

'Lisi got tired by writing letters.'

(21)   Manner-*de* phrases

    a. *Zhangsan kan wenzhang de   hen kuai.
        Zhangsan read article   Part very quickly
        'Zhangsan reads articles very quickly.'

    b. Zhangsan **kan** wenzhang **kan** de   hen kuai.
        Zhangsan read artical   read Part very quickly.
        'Zhangsan reads articles very quickly.'

Nevertheless, examples in (22) show that verb copying may not be a rescue strategy (Cheng 2007, pg. 154).

(22)   a. Wo kan-le   zhe-bu-dianying san   bian.
        I   watch Perf this Cl movie   three time
        'I watched this movie three times.'

      b. Wo **kan** zhe-bu-dianying **kan**-le   san   bian.
        I   watch this Cl movie   watch Perf three time
        'I watched this movie three times.'

In (22-a) the definite object *zhe-bu-dianying* (Eng. 'this movie') can follow the verb *kan* (Eng. 'watch') and this object is followed by the frequency phrase *san bian* (Eng. 'three times'). This is unexpected under the PSC. The sentence (22-b) containing verb copying does not need to rescue any violation of PSC. Note that there is no differences in the interpretation of the two expressions. That is to say, both indicate that the event *kan zhe-bu-dianying* (Eng. 'watch this movie') occurs three times.

In the next sections I will introduce four kinds of VC expressions: VC with Result-*de* phrases (section 3.2.1.2), VC with resultative compounds (section 3.2.1.3), VC with Manner-*de* phrases (section 3.2.1.3) and VC with Duration/Frequency expressions (section 3.2.1.4). The classification is based on the materials following the lower verb copy (cf. Gouguet 2006). Before I give detailed discussion on different kinds of VC expressions, I will focus on some preverbal and postverbal elements because they behave in the same way in different kinds of VC expressions (section 3.2.1.1).

3.2.1.1   Preverbal and Postverbal Elements

Before introducing in detail properties of each kind of VC expressions, I discuss some characters shared by all VC expressions. The observation in this section includes the compatibility of the two verb copies in VC exprssions with preverbal or post verbal elements like aspect markers, adverbs and modal verbs.

First, in all VC expressions the linearly first verb copy cannot be followed by any (overt) aspect marker (Paul 2002, pg. 139-140 among others).

In Chinese aspect markers like *zhe* 'durative aspect', *le* 'perfective aspect', *guo* 'experiential aspect' appear as suffixes following verbs as shown in (23) (Huang, Li and Li 2009, pg. 101-106).

(23)   a.   Zhangsan kan-*le*   na-ben-xiaoshuo.
              Zhangsan read Perf that Cl novel
              'Zhangsan read that novel.'

       b.   Lisi xue-*guo*   yingyu.
              Lisi learn Exp English
              'Lisi leared English.'

The examples in (23) show that aspect markers *le* and *guo* follow immediately verbs in Chinese.

However, in verb copying expressions the linearly first verb copy cannot be followed by any aspect markers. See the examples in (24).

(24)   a.   Zhangsan **kan**-(*le)   dianshi **kan**-le   liang xiangshi.
              Zhangsan watch Perf TV   watch Perf two   hour
              'Zhangsan watched TV two hours.'

       b.   Lisi **du**-(*guo) zhe-fen-baogao **du**-guo   san   ci.
              Lisi read Exp   this Cl report   read Exp three time
              'Lisi read this report three times.'

The examples in (24) show that the upper verb copy in VC expressions cannot be followed by aspect markers like *le* and *guo*. But the lower verb copy is compatible with these elements.

Second, the upper verb copy usually cannot be modified by VP level adverbs (Paul 2002, pg. 143-146).

VP-level adverbs in Chinese usually appear in preverbal positions as shown in (25).

(25)   a.   Ta zixi   de   kan-le   zhe-ben-shu (*zixi).
             3S carefully Part read Perf this Cl book carefully
             'He read this book carefully.'

         b.   Zhangsan manman de   pao-le   yi   xiaoshi (*manman).
             Zhangsan slowly   Part run Perf one hour   slowly
             'Zhangsan ran slowly for an hour.'

In (25) the VP level adverbs *zixi* (Eng. 'carefully') and *manman* (Eng. 'slowly') precede the verbs *kan* (Eng. 'read') and *pao* (Eng. 'run'), respectively.

Nevertheless, these VP level adverbs cannot precede the linearly first verb copy. See the examples in (26).

(26)   a.   Ta (*zixi)   **kan** zhe-ben-shu zixi   **kan**-le   liang bian.
             3S carefully read this Cl book carefully read Perf two   time
             'He read this book carefully twice.'

         b.   Ta (*manman) **pao** bu   manman **pao**-le   yi   xiaoshi.
             3S slowly   run step slowly   run step one hour
             'He ran slowly one hour.'

The examples in (26) show that the upper verb copies in VC expressions cannot be modified by pre-verbal adverbs like *zixi* (Eng. 'carefully') in (26-a) and *manman* (Eng. 'slowly') in (26-b).[3]

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[3]The incompatibility between the upper verb copy with VP-level modifiers in Chinese may remind one of the doubling cases in interrogative sentences in German or Romani. See the examples in (i).

(i)   a.   **Mit wem** glaubst du **mit wem**/dem Hans spricht?
          with whom think   you with whom/that Hans talks
          'With whom do you think Hans is talking?'
     b.   Das ist der Junge **mit dem** ich glaube **mit dem**   Hans spricht.
          that is the boy   with whom I   think   with whom Hans talks
          'That's the boy with whom (that) I think with whom Hans talks.'

[German data from McDaniel 1986, pg. 182]

Moreover, sentential adverbs like *ye* (Eng. 'also') may precede either of the two verb copies as in (27) (Paul 2002, pg. 144-145).

(27)   a.   Ta **chang** zhe-shou-ge *ye* **chang**-le san   bian.
                3S sing   this Cl song also sing Perf three time
                'He also sang that song three times.'

          b.   Ta *ye* **chang** zhe-shou-ge **chang**-le san   bian.
                3S also sing   this Cl song sing Perf three time
                'He also sang that song three times.'

The examples in (27) show that the sentential adverb *ye* (Eng. 'also') may precede either of the two verb copies in verb copying expressions.

However, the NP-adverbs like *jintian* (Eng. 'today') and *zuotian* (Eng. 'yesterday') can only precede the upper verb copy in VC expressions (Paul 2002, pg. 145). This is shown in (28).

(28)   Lisi jintian/zuotian **kan** na-ze-xinwen (*jintian/zuotian) **kan**-le
       Lisi today/yesterday read that Cl news   today/yesterday read Perf
       san   ci.
       three time
       'Lisi read that piece of news three times today/yesterday.'

In (28) the NP adverb *jintian* (Eng. 'today') and *zuotian* (Eng. 'yesterday') is only allowed to precede the upper verb copy.

(ii)   a.   **Kas** misline **kas** o Demìri dikhlâ?
                whom you.think whom the Demir saw
                'Who do you think Demir saw?'
          b.   Ake o ćhavo **kas**   mislinav **kas** o   Demìri dikhlâ.
                here the boy   whom I.think   whom Demir saw
                'Here's the boy whom I think whom the Demir saw.'

                                        [Romani data from McDaniel 1986, pg. 182]

    The examples in (i) show that *wh*-word can be doubled in interrogatives as well as in relative clauses in German. In the interrogative, the lower *wh*-word may be replaced by the relative pronoun. The similar doubling phenomenon is also observed in Romani, as shown in (ii). Mc Daniel (1986, pg. 182) points out that the lower *wh*-word in each sentence may be a resumptive form of the *wh*-phrase. Moreover, she indicates that maybe the lower *wh*-phrase is the true one while the first one is a scope-marker with the full set of features.

The negation markers *bu* and *mei(you)* cannot precede the upper verb copy in VC expressions (Paul 2002, pg. 145-146). See the examples in (29).

(29)   a.   ta (*bu) **kan** zhe-ben-shu (*bu) **kan**-le   san   bian.
                3S not   read this Cl book not   read Perf three time
                'He did't read this book three times.'

        b.   Ta (*meiyou) **kan**   dianying meiyou **kan**-le   san   xiaoshi.
                3S not   watch movie   not   watch Perf three hour
                'He didn't watch movies three hours.'

Considering the polarity of the event, it is expected that no negation markers can precede the upper verb copy as in (29). The lower verb copy in (29-a) cannot follow negation marker *bu* due to the semantics of the sentence, i.e., the perfective marker *le* is not compatible with the negation marker *bu*. But the negation marker *meiyou* (Eng. 'not have') may precede the lower verb copy as in (29-b).

Third, auxiliaries or modal verbs may also precede the lower verb copies in VC expressions. The default position for modal verbs in Chinese is between the subject and the VP as shown in (30).

(30)   a.   Zhangsan *keyi*   kan   dainshi.
                Zhangsan be.allowed.to watch TV
                'Zhangsan is allowed to watch TV.'

        b.   Lisi *yinggai*   qu-le xuexiao.
                Lisi be.probable return home
                'It is probable that Lisi has gone to school.'

The examples in (30) show that modal verbs like *keyi* (Eng. 'be allowed to') in (30-a) and *yinggai* (Eng. 'should') in (30-b) are located between the subjects and the predicates.

These modal verbs are also permitted to precede the lower verb copy in VC expressions as shown in (31) (Paul 2002, pg. 146-147). See the examples in (31).

(31)   a.   Ni (*keyi)   **kan** dianshi keyi   **kan**   san   xiaoshi.
                you be.allowed.to watch TV   be.allowed.to watch three hour
                'You are allowed to wathch TV for three hours.'

    b.   Zhangsan (yinggai)   **kan** shu yinggai   **kan** de   hen
          Zhangsan be.probable read book be.probable read Part very
          zixi.
          carefully
          'It is probable that Zhangsan read books very carefully.'

The example in (31-a) shows that the auxiliary *keyi* (Eng. 'be allowed to') can only precede the lower verb copy in VC expressions. But the auxiliary *yinggai* (Eng. 'be probable') can precede either of the two verb copies as in (31-b).

Notice that the modal verb precedes the linearly first verb copy, it must have a epistemic reading. See the example in (32).

(32)   Zhangsan (*keyi)   **xie**   baogao **xie** de   hen hao.
         Zhangsan be.able.to write report write Part very good
         'Zhangsan is able to write a very good report.'

The example in (32) shows that when *keyi* (Eng. 'be able to') has a non-epistemic reading, it is not allowed to precede the upper verb copy.

In this section I have discussed the compatibility of the two verb copies in VC expressions with preverbal or postverbal elements. With regard to the higher verb copy, it cannot be modified by (overt) aspect markers, VP level adverbs or negation markers. But sentential adverbials and modal verbs with epistemic reading may precede the higher verb copy in VC. In contrast, the lower verb copy in VC behave as normal predicate in the sense that it is compatible with these preverbal or postverbal elements. These results are shown in Table 3.1.

TABLE 3.1: Compatibility in VC

	higer verb copy	lower verb copy
overt aspect markers (*zhe, le, guo*)	incompatible	compatible
VP level adverbs	incompatible	compatible
sentential adverbs (*ye, bu, mei*)	incompatible	compatible
modal verbs	incompatible unless in epistemic modality	compatible

In the following pages I will describe the four kinds of VC expressions: i) VC with result-*de* phrases in section 3.2.1.2; ii) VC with resultative compounds in section 3.2.1.3; iii) VC with manner-*de* phrases in section 3.2.1.4; and iv) VC with duration/frequency phrases in section 3.2.1.5.

3.2.1.2   VC with Result-*de* phrases

In section 3.2.1.1 I discussed the compatibility of verb copies with preverbal or postverbal elements in VC. In this section I focus on VC expressions with result-*de* phrases.

In VC expressions with result-*de* phrases the element after the lower verb copy is a phrase that indicates a result of the event denoted by the verb. See the example in (33).

(33)   Zhangsan **kan** *(shu) **kan** [de   hen lei].
        Zhangsan read book   read Part very tired
        'Zhangsan got tired by reading books.'

In (33), the verb *kan* (Eng. 'read') is pronounced twice. The object *shu* (Eng. 'book') follows immediately the upper verb copy. The lower verb copy is followed by the particle *de*. The material *hen lei* (Eng. 'very tired') is used to indicate the result of the event *kan shu* (Eng. 'read books'). Notice that the presence of an overt object is obligatory for a VC sentence with a resultative-*de* phrase. That is to say, the doubled verb in these sentences must be a transitive one.

However, results-*de* phrases can follow either transitive or intransitive verbs when no VC appears. See the examples in (34).

(34)   a.   Zhangsan kan [de   hen lei].
             Zhangsan read Part very tired
             'Zhangsan got tired by reading.'

         b.   Xiao guniang ku [de   *(jingli) dou fan   le].
             little girl   cry Part manager Dou annoyed Perf
             'The little girl cried to the extend that the manager got annoyed.'

In (34-a) the result-*de* phrase *de hen lei* (Eng. 'very tired') follows the transitive verb *kan* (Eng. 'read'). In (34-b) the result-*de* phrase *de jingli dou fan le* (Eng. 'the manager got annoyed') follows the intransitive verb *ku* (Eng. 'cry'). According to Huang, Li and Li (2009, pg. 84), the post-*de* constituent is structurally a clausal complement (cf. Huang 1990, Cheng and Huang 1994). Note that when a result-*de* phrase follows an intransitive verb, the subject of the post-*de* clause must appear as in (34-b). The subject of the post-*de* clause in (34-a) may be Pro, i.e. *de Pro hen lei* (Eng. 'very tired') (Huang, Li and Li 2009, pg. 84-85). See more discussion on post-*de* phrases, i.e., manner-*de* phrases, in section 3.2.1.4.

Furthermore, it seems that verb doubling is not obligatory in (33). See the examples in (35).

(35)   a.   Shu, Zhangsan kan de   hen lei.
              book Zhangsan read Part very tired
              'As for books, Zhangsan got tired by reading them.'

        b. ??/***kan** shu, Zhangsan **kan** de   hen lei.
              read   book Zhangsan read Part very tired
              'As for reading books, Zhangsan got tired by doing it.'

In (35-a) the object of the verb *shu* (Eng. 'book') occupies a sentence initial position and has a topic reading. In this case there is no verb doubling. But topicalization of VP is marginally acceptable as in (35-b). This shows that VP fronting with verb doubling is weird.

Cheng (2007) observes that there may be two potential readings when VC expressions appear with a Result-*de* clause and the subject of this clause is omitted. See the example in (36).

(36)   Ta **qi** na-pi-ma   **qi** de   hen lei.
        3S ride that Cl horse ride Part very tired
        'He got tired by riding that horse.' (subject-result) or

        'He rode that horse and the horse got very tired.' (object-result)

[from Cheng 2007, pg. 155]

The sentence in (36) allows two readings: the sequence *hen lei* (Eng. 'very tired') can imply the status of the subject *ta* of the matrix verb or that of the object *na-pi-ma* (Eng. 'that horse').

However, some VC expressions with a Result-*de* phrase only allow object-result reading (Cheng 2007). See the examples in (37).

(37)   a.   Zhangsan **da** Lisi **da** de   hen can.
             Zhangsan hit Lisi hit Part very miserable
             'Zhangsan hit Lisi to the extent that Lisi became very miserable.'

         b.   Lisi **xi**   yifu **xi**   de   hen ganjing.
             Lisi wash cloth wash Part very clean
             'Lisi washed clothes to the extend that the clothes became very clean.'

In (37-a) the result phrase *hen can* (Eng. 'very miserable') can only be the result of the object *Lisi* of the matrix verb. It cannot be a status of the subject *Zhangsan* as *Lisi* is beaten by *Zhangsan*. Likewise, the subject of the Result-*de* clause in (37-b) is the object *yifu* (Eng. 'cloth') of the matrix verb. The subject result reading is forbidden because of semantic reasons. That is to say, *hen ganjing* (Eng. 'very clean') cannot be predicate of the subject *Lisi*, i.e., **Lisi hen ganjing* (Eng. 'Lisi is very clean.').

Cheng (2007) also notices that VC expressions with only object-result reading can be rephrased with *ba*-sentences. This is shown in (38).

(38)   a.   Zhangsan *ba* Lisi da de   hen can.
             Zhangsan Ba Lisi hit Part very miserable
             'Zhangsan hit Lisi to the extend that Lisi became very miserable.'

         b.   Lisi *ba* yifu xi   de   hen ganjing.
             Lisi Ba cloth wash Part very clean
             'Lisi washed clothes to the extend that the clothes became very clean.'

The examples in (38) reveal that in VC expressions with only object-result reading the upper verb copy can be replaced by *ba*. Moreover, *ba*-sentences only allow object-result reading.

The *ba* expressions have been studied in the literature (Huang, Li and Li 2009,

chap. 5 and references cited there). Generally, a structure like (39) represents a *ba* sentence.

(39)   [$_{baP}$ Subject [$_{ba'}$ *ba* [$_{vP}$ NP [$_{v'}$ v [$_{VP}$ V XP]]]]]

[from Huang, Li and Li 2009, pg. 195]

Moreover, with regard to the meaning of *ba*, the following generation in (40) is largely true with a typical *ba* sentence.

(40)   Though *ba* has no theta-role for the subject or the object after it, the subject of a *ba* sentence is associated with a causer reading and the post-*ba* NP tends to be associated with a disposal reading.

[from Huang, Li and Li 2009, pg. 195]

Let me introduce the following *ba*-sentences in (41), which are related to the discussion on VC in this section.

(41)   a.   Zhangsan *ba* zhe-ge-wenti   jiejue le.
               Zhangsan Ba this Cl problem solve Perf
               Zhangsan solved this problem.

         b.   Lisi *ba* Zhangsan ma   de   hen lihai.
               Lisi Ba Zhangsan scold Part very serious
               'Lisi scolded Zhangsan seriously.'

The examples in (41) show that *ba*, like the higher verb copy in VC, usually precedes the object. That is to say, the higher verb copy in a VC sentence with result-*de* phrase may be replaced by *ba*.

Nevertheless, the replacement between the higher verb copy in VC and *ba* is not without constraints. In other words, VC is not equivalent to *ba*-constructions. See the examples in (42).

(42)   a.   Ta ba shoupa   ku de   hen shi.
             3S Ba handkerchief cry Part very wet
             'He cried to the extend that the handkerchief got wet.'

        b.   *Ta **ku** shoupa   **ku** de   hen shi.
             3S cry handkerchief cry Part very wet
             'He cried to the extend that the handkerchief got wet.'

[from Cheng 2007, pg. 156]

The examples in (42) show that when the doubled verb is intransitive, the higher verb copy cannot be replaced by *ba*. Thus, not all VC expressions with result-*de* phrases have *ba* variants (Cheng 2007, pg. 156-157).

Return to discussion on VC with result-*de* phrases. Interestingly, VC expressions with result-*de* only allow subject-result reading when the verb copy is fronted to a sentence initial position with the object. See the example in (43).

(43)   (??)**Qi** ma, ta **qi** de   hen lei.
             ride horse 3S ride Part very tired
        'Ridng a horse, he got very tired.'

[from Cheng 2007, pg. 160]

In (43) the verb phrase *qi ma* (Eng. 'ride a horse') is fronted to a sentence-initial position. Only subject-result reading is allowed in this case. As I mentioned in this section, VP fronting in Chinese seems weired to me. So I put two question marks in front of the sentence.

In sum, VC with result-*de* may have two different readings in the sense that the material following the lower verb copy may be a result of the subject or the object. But in some cases the result can only be a result of the object. When VC with result-*de* have object-result reading, i.e., the VC expression contain a result of the object, the higher verb copy may be replaced by *ba*. In section 3.2.1.3 I will focus on another kind of VC expressions, which is also related to results of an event.

3.2.1.3 VC with resultative compounds

Another kind of VC expressions is VC with resultative compounds. Like VC with result-*de* in section 3.2.1.2, VC with resultative compounds in this section also indicate a result of the event denoted by the doubled verb. A supeficial difference between VC with result-*de* phrases and VC with resultative compounds lies on the presence/absence of the particle *de*.

In VC expressions with resultative compounds, the lower verb copy is also followed by materials that denote results. But the particle *de* does not appear in these expressions. See the example in (44).

(44)   Zhangsan **kan** *(shu) **kan**-[lei-le].
         Zhangsan read   book read tired Perf
         'Zhangsan got tired by reading books.'

In (44) the verb *kan* (Eng. 'read') is pronounced twice. The lower verb copy is followed by a predicate *lei le* (Eng. 'get tired') that indicates a result of the event *kan shu* (Eng. 'read books'). Like VC with result-*de* phrases, doubled verbs in VC with resultative compounds must be transitive. That is to say, the presence of the object *shu* (Eng. 'book') is obligatory in (44).

However, a resultative compound normally can follow either intransitive or transitive verbs in a sentence without VC. This is shown in (45).

(45)   a.   Zhangsan kan-[lei-le].
              Zhangsan read tired Perf
              'Zhangsan got tired by reading.'

         b.   Xiaohai ku-[lei-le].
              child   cry tired Perf
              'The child got tired by crying.'

In (45-a) the resultative compound *lei le* (Eng. 'get tired') follows the transitive verb *kan* (Eng. 'read') while in (45-b) it follows the intransitive verb *ku* (Eng. 'cry'). This is similar to VC with result-*de* phrases in section 3.2.1.2.

Moreover, verb doubling in (44) is not obligatory in VC. See the examples in (46).

(46)   a.   Shu, Zhangsan kan-lei-le.
            book Zhangsan read tired Perf
            'As for books, Zhangsan got tired by reading them.'

       b. ??/***kan** shu, Zhangsan **kan**-lei-le.
              read book Zhangsan read tired Perf
            'As for reading books, Zhangsan got tired by doing it.'

In (46-a) both the object *shu* (Eng. 'book') and the resultative compound *lei le* (Eng. 'get tired') are present in the sentence and no verb doubling exists. The object is located in a sentence initial position and has a topic reading. However, topicalization of a VP phrase is quite unacceptable, as shown in (46-b).

Notice that in VC expressions with resultative compounds, only subject-result reading is allowed (Cheng 2007, pg. 167). See the example in (47).

(47)   Zhangsan **qi**   na-pi-ma   **qi**-lei-le.
       Zhangsan ride that Cl horse ride tired Perf
       'Zhangsan got tired of riding that horse.'

       Not: 'Zhangsan rode that horse and the horse got tired.'

The example in (47) shows that only subject-result reading is acceptable in VC expressions with resultative compounds.

Unlike VC expressions with result-*de* phrases, the upper verb copy in VC expressions with resultative compounds cannot be replaced by *ba*. See the examples in (48).

(48)   *Zhangsan *ba* na-pi-ma   qi-lei-le.
        Zhangsan Ba that Cl horse ride tired Perf
        'Zhangsan got tired of riding that horse.'

However, when other nominal phrases follow the resultative compounds in VC expressions, they do not have a typical subject-result reading (Cheng 2007, pg.

171). See the examples in (49).

(49)   a.   Ta **kan** shu **kan**-lei-le   yanjing.
                3S read book read tired Perf eye
                'He tired his eyes by book reading.'

        b.   Ta **ti**   qiu **ti**-po-le   qiuxie.
                3S kick ball kick broken Perf sport.shoe
                'He broke his sport-shoes by ball-kicking.'

[from Cheng 2007, pg. 171]

In (49-a) the nominal phrase *yanjing* (Eng. 'eye') follows the resultative compound and it is the subject of the predicate *lei-le* (Eng. 'got tired'). Likewise, the nominal phrase *qiuxie* (Eng. 'sport shoe') is the subject of the predicate *po-le* (Eng. 'broken'). Note that verb doubling is obligatory in these sentences because it is impossible to topicalize the object of the doubled verb. This is shown in (50).

(50)   a.   *shu, ta kan-lei-le   yanjing.
                book he read tired Perf eye
                'As for books, his eyes got tired by reading them.'

        b.   *qiu, ta ti-po-le   qiuxie.
                ball he kick broken Perf sport.shoe
                'As for balls, he broke his sport-shoes by kicking them.'

The examples in (50) are unacceptable. This suggests that verb doubling is obligatory in (49).

Moreover, VC expressions with resultative compounds have variants with Result-*de* phrases. See the examples in (51).

(51)   a.   Lili **kan** wenzhang **kan**-lei-le.
                Lili read article   read tired Perf
                'Lili got tired by reading articles.'

        b.   Lili **kan** wenzhang **kan** de   hen lei.
                Lili read article   read Part very tired
                'Lili got tired by reading articles.'

The examples in (51) show that a VC expression with a resultative compound as in (51-a) can be rephrased by a VC sentence with a result-*de* phrase as in (51-b).

When another nominal phrase follows the resultative compounds in VC expressions, they can also be rephrased by a VC expression with result-*de* phrase as shown in (52).

(52)   a.   Lisi **kan** xiaoshuo **kan**-lei-le   yanjing.
              Lisi read novel   read tired Perf eye
              'Lisi tired his eyes by reading novels.'

          b.   Lisi **kan** xiaoshuo **kan** de   yanjing hen lei.
              Lisi read novel   read Part eye   very tired
              'Lisi tired his eyes by reading novels.'

In (52-a) the result of the event *kan xiaoshuo* (Eng. 'read novels') is represented by the resultative compound *lei-le yanjing* (Eng. 'eyes get tired') while by the result-*de* phrase *de yanjing lei-le yanjing* (Eng. 'eyes get tired'). Compared with (52-b), the sentence in (52-a) emphasizes that it is eyes that get tired.

In sum, VC with resultative compounds only have the subject-result reading. In other words, the materials following the lower verb copy denote a result of the subject (preceding the higher verb copy). Unlike VC with result-*de* phrases, the higher verb copy in these expressions cannot be replaced by *ba*. In section 3.2.1.4 I will concentrate on VC expressions that is related to manners, i.e., VC with manner-*de* phrases.

3.2.1.4   VC with Manner-*de* phrases

In VC expressions with manner-*de*, the elements following the lower verb copy indicate the manner of the event denoted by the doubled verb. See the example in (53).

(53)   Lili **kan** zhe-ben-xiaoshuo **kan** [de   hen kuai].
          Lili read this Cl novel   read Part very quickly
          'Lili read this novel quickly.'

In (53) the verb *kan* (Eng. 'read') is pronounced twice. The phrase *hen kuai* (Eng. 'very quickly') is introduced by the particle *de* to indicate the manner of the event/action *kan zhe-ben-xiaoshuo* (Eng. 'read this novel').

I mentioned in section 3.2.1.2 that the post-*de* constituent is structurally a clause (Huang, Li and Li 2009, pg. 84). The manner-*de* is superficially similar to the result-*de.* But Cheng (2007, pg. 166) points out that the counterpart in Cantonese of the former is *dak* while that of the latter is the verb *dou* (Eng. 'arrive'). There is also another difference between the manner-*de* and the result-*de.* In contrast to the result-*de*, the manner-*de* cannot be followed by the object of the verb. See the examples in (54).

(54)   manner-*de*

     a.   ta xie   de   tebie jingcai.
           he write Part very wonderful
           'He wrote in a wonderful way.'

     b. *ta xie   de   gushi tebie jingcai.
           he write Part story very wonderful
           'He wrote the stories in a wonderful way.'

(55)   result-*de*

     Ta da   de   Lisi hen can.
     he beat Part Lisi very miserable
     'He beat Lisi so that Lisi is very miserable.'

In (54-a) the phrase *tebie jingcai* (Eng. 'very wonderful') follows the manner-*de* immediately while in (54-b) the object NP of the verb, i.e, *gushi* (Eng. 'story') between them. The sentence in (55-b) is unacceptable with the intended reading shown in translation (Huang, Li and Li 2009, pg. 87).[4] In (55) the result-*de* is followed by the object NP *Lisi* and the sentence is acceptable.

Cheng (2007, pg. 166) claims that doubling is obligatory in VC expressions with a manner-*de* phrase whether the object is a definite or a non-definite noun

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[4]This sentence is acceptable when *de* is not the manner-*de* but indicates a relative clause. In this case the sentence can mean the stories that he wrote were specially wonderful. This is irrelevant to the current concern in this section.

phrase. See the examples in (56).

(56) a. Lili **kan** zhe-ben-xiaoshuo *(**kan**) de   hen kuai.
          Lili read this Cl novel   read Part very quickly
          'Lili reads this novel quickly.'

      b. Lili **kan** xiaoshuo *(**kan**) de   hen kuai.
          Lili read novel   read Part very quickly
          'Lili reads novels quickly.'

The examples in (56) show that the lower verb copy is obligatory when a manner-*de* phrase is involved. Nevertheless, this does mean that verb doubling is indispensable. See the examples in (57).

(57) a. Zhe-ben-xiaoshuo, Zhangsan kan de   hen kuai.
          this Cl novel   Zhangsan read Part very quickly
          'As for this novel, Zhangsan read it very quickly.'

      b. baozhi,   Lisi kan de   hen kuai.
          newspaper Lisi read Part very quickly
          'As for newspapers, Lisi reads (them) very quickly.'

The examples in (57) show that when the overt object is fronted to a sentence initial position, verb doubling does not appear.

One may wonder whether a VP phrase can be fronted to a sentence initial position. See the examples in (58).

(58) a. ??/***kan** zhe-ben-xiaoshuo, Zhangsan **kan** de   hen kuai.
            read this Cl novel   Zhansan   read Part very quickly
         'As for reading this novel, Zhangsan reads (it) very quickly.'

      b. ??/***kan** zazhi,   Lisi **kan** de   hen man.
            read magzine Lisi read Part very slowly
         'As for reading magzines, Lisi reads (them) very slowly.'

The examples in (58) sound very weird. This shows that VP fronting in Chinese is marginally acceptable. In other words, verb doubling in this language normally does show up with VP fronting.

In sum, VC with manner-*de* phrases are similar to VC with result-*de* phrases in the constraints of verb doubling. But they differ from each other in two aspects: i) the meaning of post-*de* constituents and ii) whether the particle *de* can be followed by the object of the doubled verb. In section 3.2.1.5 I will introduce VC expressions with duration/frequency phrases.

3.2.1.5 VC with Duration/Frequency phrases

Phrases that indicate duration or frequency can follow the lower verb copy in VC expressions. See the examples in (59).

(59)   a.   Zhangsan **xie**   *(lunwen) **xie**-le   san   xiaoshi.
            Zhangsan write thesis   write Perf three hour
            'Zhangsan has been writing thesis for three hours.'

       b.   Lisi **chang** *(na-shou-ge) **chang**-le san   ci.
            Lisi sing   that Cl song   sing Perf three time
            'Lisi sang that song three times.'

In (59-a) the duration phrase *san xiaoshi* (Eng. 'three hours') indicates that the event *xie lunwen* (Eng. 'write thesis') has lasted three hours. In (59-b) the frequency phrase *san ci* (Eng. 'three times') denotes the frequency of the event *chang na-shou-ge* (Eng. 'sing that song'). Obviously, the presence of an overt object is obligatory in these VC expressions. Therefore, the doubled verb in these sentences must be transitive.

Duration/frequency phrases normally can follow either transitive or intransitive verbs. This is shown in (60).

(60)   a.   Zhangsan kan-le   san   ci   / xiaoshi.
            Zhangsan read Perf three time   hour
            'Zhangsan has read it three times / three hours.'

       b.   Lisi ku-le   liang hui   / tian.
            Lisi cry Perf two   time   day
            'Lisi has cried twice / two days.'

In (60-a) the duration phrase *san ci* (Eng. 'three times') or the frequency phrase *san xiaoshi* (Eng. 'three hours') follow the transitive verb *kan* (Eng. 'read'). In (60-b) the duration phrase *liang hui* (Eng. 'twice') or the frequency phrase *liang tian* (Eng. 'two days') follow the intransitive verb *ku* (Eng. 'cry'). In both sentences no verb doubling emerges.

Like other kinds of VC expressions, the overt object in VC with duration/frequency can be fronted as well. But VP fronting is quite unacceptable. See the examples in (61).

(61) a. Zhe-ben-xiaoshuo, wo kan-le   san   bian / tian.
          this Cl novel   I   read Perf three time   day
          'As for this novel, I have read it three times / three days.'

     b. ??/*__kan__ zhe-ben-shu, ta kan-le   san   bian / tian.
          read this Cl book he read Perf three time   day
          'As for reading this book, he has read it three times / three days.'

In (61-a) the object *zhe-ben-shu* (Eng. 'this book') is located in a sentence initial position and no verb doubling exists. In (61-b) the VP phrase is fronted, but the sentence is very weired. These examples show that verb doubling is obligatory in a sentence with duration/frequency phrases and VP fronting is quite unacceptable in Chinese.

Cheng (2007) also observes that doubling is not always obligatory in VC expressions. See the examples in (62).

(62) a. Lisi kan-le   na-bu-dianying san   bian / shi fenzhong.
          Lisi watch Perf that Cl movie three time   ten minute
          'Lisi has watched that movie three times/ for ten minutes.'

     b. Lisi **kan**   na-bu-dianying **kan**-le   san   bian / shi fenzhong.
          Lisi watch that Cl movie   watch Perf three time   ten minute
          'Lisi has watched that movie three times/ for ten minutes.'

     c. Lisi ba na-bu-dianying kan-le   san   bian / *shi fenzhong.
          Lisi Ba that Cl movie   watch Perf three time   ten minute
          'Lisi has watched that movie three times/ for ten minutes.'

In (62-a) both the object *na-bu-dianying* (Eng. 'that novel') and the frequency phrase *san bian* (Eng. 'three times') or the duration phrase *shi fenzhong* (Eng. 'ten minutes') follow the verb *kan* (Eng. 'watch') together without verb doubling (cf. Cheng 2007, pg. 164). The sentence in (62-b) is a typical VC expression with duration/frequency phrase. In (62-c) the higher verb copy is replaced by *ba*. Notice the sentence in (62-c) is acceptable only when the post-*de* is a frequency phrase instead of a duration phrase. That is to say, in a VC expression with a duration phrase the higher verb copy cannot be replaced by *ba*. All these examples show that verb doubling is not obligatory.

Besides, Cheng (2007, pg. 164-165) points out that the absence of the overt aspect marker *le* does not affect the the doubling or VC as shown in (63).

(63)   Ta meitian   **kan** na-ben-shu   **kan** liang bian.
        3S everyday read that Cl book read two   time
        'He reads that book twice everyday.'

The example in (63) shows that VC does require the presence of overt aspect marker *le*.

Moreover, it is observed that the VC expressions in (59) have variants without VC as in (64) (cf. Ernst 1987).

(64)   a.   Zhangsan xie   lunwen *you* san   xiaoshi le.
              Zhangsan write thesis   have three hour   Perf
              'Zhangsan has been writing thesis for three hours.'
        b.   Lisi chang na-shou-ge   *you* san   ci   le.
              Lisi sing   that Cl song have three time Perf
              'Lisi has sang that song three times.'

The examples in (64) show that the lower verb copy in VC sentences with Duration/Frequency phrases can be replaced by the verb *you* (Eng. 'have').

In sum, doubling is not always obligatory in VC with Duration/Frequency phrases in the sense that some of them have variants without doubling. Whether doubling is obligatory in VC Duration/Frequency is relevant to the definiteness of

the object.

In the previous pages, I have discussed a typical verb doubling phenomenon: Verb Copying in Chinese. The two verb copies in these expressions behave differently. Many preverbal or postverbal elements like aspect markers, VP level adverbs, negation markers and modal verbs with non-epistemic reading are not allowed to modify the higher verb copy. But the lower verb copy behaves as a normal predicate. Based on the materials following the lower verb copy, VC expressions include VC with result-*de* phrases, VC with resultative compounds, VC with manner-*de* phrases and VC with Duration/Frequency phrases. VC expressions have variants without verb doubling. I have provided not only a description of VC expressions but also asymmetries between expressions with VC and those without VC. I believe this can shed a light on why verb doubling exists. In section 3.3 I will introduce a verb doubling pattern that is related to delimitative aspect.

3.3   Group II: Delimitative Aspect

3.3.1   Verb Reduplication

The discussion about verb copying (Group I) in section 3.2 shows that verb doubling may be relevant for the description of result, manner, duration or frequency of the event denoted by the doubled verb because VC expressions always appear with these information. In this section I introduce another verb doubling phenomenon which is related to delimitative aspect: verb reduplication (Group II) (Chao 1968, Li and Thompson 1981, Dai 1997, Smith 1997, Xiao and McEnery 2004, Liu 2012 among others).

Verb reduplication (VR, henceforth) contains a verb and its reduplicant with a tonal modification. When a verb is reduplicated in this way, it means doing an action "a little bit" or for a short period of time, as I show in the translation (Li and Thompson 1981, pg. 232). Following Li and Thompson (1981), Xiao and McEnery (2004, pg. 149-150) insist that delimitative aspect demonstrates

the features of transitoriness or presents "a holistic transitory situation". Specifically, reduplication of a [+durative] verb reduces the duration of events while reduplication of a [-durative] verb reduces the iteration frequency of events.

Verb reduplication is very popular in Chinese. See the examples in (65).

(65) a. Ni qu **kan kan** na-ben-xiaoshuo.
          you go read read that Cl novel
          'Go and read a little bit of that novel.'

      b. Xingdong qian **guancha guancha** xingshi.
          action   before observe   observe   situation
          'Observe a little bit before taking any action.'

The examples in (65) show that in verb reduplication, the same verb is pronounced twice. The two verb copies are located next to each other.

Notice that the examples in (65) is different from "iterative expressions" in Uriagereka (2008) (see section 2.5.1.2). In the latter case there can be more than two iterative copies, but this is unacceptable in the former case. See the examples in (66).

(66) a. Yo estoy **muy muy muy** cansada.
          I   am   very very very tired
          'I am very very very tired.'

                                  [Spanish data from Uriagereka 2008, pg. 188]

      b. *ni   qu **kan kan kan** na-ben-shu.
          you go read read read that Cl book
          'Go and read a little bit of that book.'

In (66-a) the adverb *muy* (Eng. 'very') is repeated and there are three copies in the sentence. In (66-b) the verb *kan* (Eng. 'read') is pronounced more than twice and the sentence is unacceptable.

In what follows I will discuss which verbs can undergo doubling in VR (section 3.3.1.1), other forms of VR (section 3.3.1.2) and the meaning of VR expressions (section 3.3.1.3).

3.3.1.1 Verb Copies

Verbs that undergo VR are usually monosyllable verbs as shown in (67).

(67)   a.   Zhangsan xiang **ting ting** ni   de   guandian.
Zhangsan want listen listen you Part opinion
'Zhangsan wants to listen a little bit of your opinion.'

         b.   Lisi xihuan zai huayuan li   **zou zou**.
Lisi like   at garden   inside walk walk
'Lisi likes walking a little inside the garden.'

The examples in (67) show that monosyllable verbs like *ting* (Eng. 'listen') and *zou* (Eng. 'walk') are allowed to be reduplicated.

However, monosyllable verbs that are [-dynamic] and [+result] are forbidden to be reduplicated as VV (cf. Li and Thompson 1981, pg. 234-235, Dai 1997, pg. 71, Xiao and McEnery 2004, pg. 150, Liu 2012). So individual-level state verbs and achievement verbs cannot be reduplicated (Vendler 1967). See the examples in (68).

(68)   a.   *Lisi **dao dao** xuexiao.
Lisi arrive arrive school
'Lisi arrived a little at school.'

         b.   *Zhangsan hen **gao gao**.
Zhangsan very tall tall
'Zhangsan is a little tall.'

The verb *dao* (Eng. 'arrive') in (68-a) is a [+result] verb and the verb *gao* (Eng. 'tall') is a [-dynamic] verb. Neither of them may be reduplicated.

With regards to multisyllable verbs, those that are [+dynamic] and [-result] can also be doubled as VV, as shown in (69).

(69)   a.   Ni you shijian jiu qu **jian-cha**   **jian-cha**   shenti.
you have time   then go examine-inspect examine-inspect body
'Go and have a little check of your body when you have time.'

> b. Lili xihuan **da-ban da-ban** zai chumen.
> Lili like hit-act hit-act again go.out
> 'Lili likes to dress up a little before going out.'

In sum, most verbs that undergo VR are monosyllable verbs. But multisyllabic verbs are also allowed to undergo VR. Verbs which are [-dynamic] and [+result] are forbidden to be reduplicated due to the delimitiveness of VR.

3.3.1.2 More forms

Following Xiao and McEnery (2004, pg. 151), I assume that the basic form of VR is VV. But it has also been observed that the perfective aspect marker *le* can be located between the two verb copies in verb reduplication as shown in (70).

(70) Zhangsan **kan**-le **kan** women jiu zou le.
Zhangsan look Perf look we then leave Perf
'Zhangsan looked at us for a little while and then left.'

Since expressions with verb reduplication imply that the action indicated by the verb *kan* (Eng. 'look') is repeated in a short time, it is expected that the perfective aspect marker *le* can be located between the two verb copies. Besides, according to Xiao and McEnery (2004, pg. 151), the form V *le* V indicates that a transitory event has been actualised.

Besides, the numeral *yi* (Eng. 'one') can be also inserted between the two verbs as in (71-a). [5] The insertion of *le* does not affect the insertion of *yi* as shown in (71-b).

(71) a. Ni qu **kan** yi **kan** na-ben-shu.
you go read one read that Cl book
'Go and read a little of that book.'

b. Ta **kan**-le yi **kan**, meiyou shuo shenme.
3S look Perf one look not say what
'He looked for a little while and didn't say a word.'

---

[5]Li and Thompson (1981) consider VV as a result of V *yi* V with the omission of *yi*.

The example in (71-a) shows that the numeral *yi* (Eng. 'one') can be located between two verb copies. In this sentence the right copy does not undergo tone modification (Li and Thompson 1981, pg. 234). Besides, the aspect marker *le* can be inserted at the same time as in (71-b).

Notice that multisyllabic verbs usually do not appear in the reduplication form V *yi* V. This is shown in (72).

(72) a. *Lili he Zhangsan **shang-liang** yi **shang-liang** jiu likai-le.
          Lili and Zhangsan trade-measure one trade-measure then leave Perf
          'Lili discussed a little with Zhangsan and left.'

      b. *Lisi yuanyi   **ji-hua**   yi **ji-hua**   xingcheng.
          Lisi be.willing.to count-paddle one count-paddle journey
          'Lisi is willing to plan a little bit of the journey.'

The examples in (72) show that multisyllabic verbs are not allowed to be reduplicated with the insertion of the numeral *yi* (Eng. 'one').

It is worthy to point out that reduplication of phrases like *xiang-zhe xiang-zhe* (Eng. 'thinking thinking'), *xiang-le you xiang* (Eng. 'think and think again') are beyond the discussion on VR (cf. Dai 1997, pg. 72). See the examples in (73).

(73) a. Ta **shuo-zhe shuo-zhe** jiu   shui zhao le.
          he say Dur   say Dur   then sleep Part Perf
          'He said and said, then got asleep.'

      b. Ta **kan**-le   you **kan**, haishi bu mingbai.
          he read Perf again read still   not understand
          'He read and read again, but still didn't understand it.'

In (73-a) the phrase *shuo-zhe* (Eng. 'say') is reduplicated. The sentence implies the duration of the event, but does not indicate any delimitativeness. In (73-b) the verb *kan* (Eng. 'read') is reduplicated. This indicates that the action is repeated. But it doesn't mean that the iteration is realized in a short time. Thus, strictly speaking, neither of the examples in (73) are VR expressions.

In sum, considering the basic form of VR as VV, it is observed that the aspect marker *le* and the numeral *yi* (Eng. 'one') may appear between the two

verb copies.

3.3.1.3   Meaning

In the literature the meaning of VR has raised controversy (Xiao and McEnery 2004, pg. 152). Apart from *delimitativeness*, other meanings related to VR have been proposed, for example, *tentativeness* in Chao (1968, pg. 204-205), *slightness*, *casualness* in Li (1996) and *"milder" requests* in Smith (1997, pg. 271). In line with Li and Thompson (1981) and Xiao and McEnery (2004), I believe that the central meaning of VR is delimitativeness and the other meanings are "pragmatic extensions" (Xiao and McEnery 2004, pg. 152).

The meaning is also an aspect that differ VR expressions from normal expressions. See the examples in (74).

(74)   a.   Zhangsan xiang kan   xiaoshuo.
              Zhangsan want read novel
              'Zhangsan wants to read novels.'

        b.   Zhangsan xiang **kan kan** xiaoshuo.
              Zhangsan want read read novel
              'Zhangsan wants to read a little bit of novels.' / 'Zhangsan wants to read novels for a little while.'

In (74-a) the expression has no VR and indicates the wish of reading novels. *Kan xiaoshuo* (Eng. 'read novels') designates the general event 'reading novels'. The sentence in (74-b) involves VR. It not only indicates the event 'reading novels', but also points out that the event doesn't last a long time. As I mentioned in section 3.3.1, VR form means doing an action "a little bit" or for a short period of time (Li and Thompson 1981, pg. 232). Therefore, the examples in (74) differ from each other in whether there is any limitation on the duration of the event.

Xiao and McEnery (2004, pg. 152-153) claim that the extension of delimitativeness to denote tentativeness needs three elements: a reduplicated volitional verb, an animate subject and a future event as in (75).

(75) Zhangsan hui xie   youjian qu **wen wen**.
      Zhangsan will write email   go ask   ask
      'Zhangsan will write an email to inquire a little.'

In (75), the volitional verb *wen* (Eng. 'ask') is reduplicated to denote a future event realized by the animate subject *Zhangsan*. However, Xiao and McEnery (2004, pg. 152) points out that VR expressions do not necessarily have a tentative meaning. See the example in (76).

(76) Ta **xiao xiao** shuo zuijin hen mang.
      3S smile smile say recently very busy
      'He smiled a little bit and said that he was busy recently.'

The example in (76) shows that VR may be used to denote an event in the past and it does not imply tentativeness. Likewise, slightness or casualness in (77) and mild requests in (78) are also extensions of delimitativeness (Xiao and McEnery 2004, pg. 153-154).

(77) Zhoumo wo jingchang **kan kan** dianying, **ting ting** yinyue.
      weekend I often watch watch movie listen listen music
      'I often watch a little bit of movies and listen a little bit of music during weekend.'

(78) **jiu jiu** ta erzi ba.
      save save 3S son Part
      'Save his son, please.'

Both examples in (77) and (78) indicate the repetition of the event denoted by the reduplicated verb. The slightness, casualness and mild imperativeness are pragmatic extensions of delimitativeness. Thus, delimitativeness is the central meaning of VR.

Regarding to the delimitativeness of VR, Xiao and McEnery (2004, pg. 155) claims that a short duration or a low iteration frequency are the basic qualities.

However, the temporal property of transitoriness is an abstract concept that cannot be measured on a time scale. Therefore, VR is not compatible with a duration phrase that modifies the denoted event as shown in (79).

(79) a. *Wo **kan   kan**   dianying liang xiaoshi.
          I   watch watch movie   two   hour
          'I watch movies a bit during two hours.'

      b. *Zhangsan **ting   ting** zhe-shou-ge liang ci.
          Zhangsan listen listen this Cl song two   time
          'Zhangsan listened to this song a bit twice.'

The examples in (79) show the transitory events denoted by the reduplicated verbs in VR are not "measurable" (cf. Dai 1997, pg. 75). This is implied by the delimitativeness of VR. Speakers of expressions with VR consider the length of time an even takes as a whole thing (Xiao and McEnery 2004, pg. 156). See the examples in (80).

(80) a. Lili kan-zhe   wo.
          Lili look Dur me
          'Lili stared at me / kept looking at me.'

      b. Lili **kan kan** wo.
          Lili look look me
          'Lili took a look at me./ Lili looked at me for a little while.'

In (80-a), the speaker indicates that *Lili* is staring at him/her at the time of speech. In (80-b), *Lili* just takes a glance when the speaker is uttering the sentence. So VR focuses on the delimitativeness of the event.

Xiao and McEnery (2004) also claim that delimitativeness marked by VR demonstrates the features of holisticity and dynamicity. That is to say, VR may present a situation as a holistic whole as in (81). And VR emphasizes the dynamicity of the event as in (82).

(81) Women ye   qu **guo   guo   yin**.
      1Pl   also go experience experience addiction
      'Let's go and enjoy ourselves.'

(82)   a.   Zhangsan kan-le   Lisi de   boke,...
            Zhangsan look Perf Lisi Part blog
            'Zhangsan read Lisi's blog,...'

       b.   Zhangsan **kan**-le   **kan** Lisi de   boke,...
            Zhangsan look Perf look Lisi Part blog
            'Zhangsan took a brief look at Lisi's blog,...'

[adapted from Xiao and McEnery 2004, pg. 157-158]

In (81) the verb *guo* (Eng. 'experience') undergoes reduplication. The event is considered as a holistic situation. Besides, the event convey by a VR expression in (82-b) is "more dynamic" than that presented in (82-a).

In sum, expressions with VR indicate the delimitativeness of the event denoted by the reduplicated verb. Meanings like tentativeness, casualness, mild requests are extensions of delimitativeness. Besides, delimitativess demonstrates the features of holisticity and dynamicity.

In conclusion, VR is a verb doubling phenomenon relevant to the delimitiveness of an event. The doubled verbs in VR must be [+dynamic] and [-result]. The basic form of VR is VV and the aspect marker *le* and the numeral *yi* (Eng. 'one') may appear between the two copies. The central meaning of VR is delimitativeness and it shows the holisticity and dynamicity of an event.

3.4   Group III: Polarity

3.4.1   V neg V

I have introduced two verb doubling phenomena in the previous sections: verb copying (Group I) and verb reduplication (Group II). The former is often used to indicate results, manners, duration or frequency of an event. The latter is related to delimitative aspect or telicity. One may notice that the semantic contributions that verb doubling patterns in Group I and Group II make concern the VP level. In Group III I will introduce verb doubling patterns whose semantic contributions concern a higher level than VP.

It has been observed that verb doubling may be related to polarity (Group III). According to Laka (1990), information like polarity is located in $\sum$P, a projection higher than VP. Specifically, two verb doubling phenomena are related to polarity: V neg V and *ai* V *bu* V. The discussion begins with the pattern V neg V as it is very common in Chinese and it relates directly to polarity.

The verb doubling pattern V neg V usually raises a polarity question. See the example in (83).

(83)   Ni **qu** bu **qu** xuexiao?
        you go not go school
        'Are you going to school?'

The example in (83) shows that verb doubling may appear in a polarity question. Moreover, the two verb copies must be "separated" by the negation marker *bu*.

Notice that in Chinese a polarity question often ends with the question marker *ma* (Huang, Li and Li 2009, pg. 238). See the example in (84).

(84)   a.   Ni   qu xuexiao ma?
              you go school   Q
              'Are you going to school?'

        b.   Ni   bu qu xuexiao ma?
              you not go school   Q
              'Aren't you going to school?'

The examples in (84) show that a polarity question in Chinese can be marked by the question marker *ma* and the negation marker *bu* is optional. So doubling of verbs is not obligatory in polarity questions.

There are semantic differences between a polarity question with verb doubling as in (83) and those in (84). The sentences in (84) are typical *yes-no* questions. These questions asks for a confirmation or denial of a single proposition, which may be positive or negative. But a question like (83) requires one to choose between a positive and a negative alternative provided by the speaker (Huang, Li and Li 2009, pg. 236).

V neg V expressions are included in the discussion about the "A-not-A" questions (Huang, Li and Li 2009 and references there). Generally, "A-not-A questions" is another saying of V neg V expressions (cf. section 3.4.1.3). Besides, "A-not-A" questions are considered to include a paradigm as in (85).

(85)   a.   Lili **xihuan** zhe-shou-ge haishi Lili bu **xihuan** zhe-shou-ge?
            Lili like   this Cl song or   Lili not like   this Cl song
            'Does Lili like this song or doesn't Lili like this song?'

          b.   Lili **xihuan** zhe-shou-ge bu **xihuan** zhe-shou-ge?
            Lili like   this Cl song not like   this Cl song
            'Does Lili like this song or doesn't (Lili) like this song?'

          c.   Lili **xihuan** bu **xihuan** zhe-shou-ge?
            Lili like   not like   this Cl song
            'Does Lili like or doesn't (Lili) like this song?'

          d.   Lili **xihuan** zhe-shou-ge bu **xihuan**?
            Lili like   this Cl song not like
            'Does Lili like this song or doesn't (Lili) like (it)?'

          e.   Lili **xi**-bu-**xihuan** zhe-shou-ge?
            Lili like not like   this Cl song
            'Does Lili like or not like this song?'

Based on the discussion in Wang (1967), the sentences in (85-b), (85-c), (85-d) and (85-e) are results of deletion of identical elements from a full sentence like (85-a) (cf. Li and Thompson 1981). The A-not-A question is viewed as a special type of disjunctive question.

Following Huang (1991), the discussion below on verb doubling pattern V neg V concentrates on expressions like (85-c) (V-not-VP pattern), (85-d) (VP-not-V pattern) and (85-e) (partial doubling) because they exist extensively in Chinese. Therefore, the discussion will be distributed into the following sections: negation word in V neg V (section 3.4.1.1), partial doubling (section 3.4.1.2) and V-not-VP and VP-not-V (section 3.4.1.3).

3.4.1.1 Negation

When verb doubling is used to express a polarity question, a negation word must present between the two verb copies. This is shown in (86).

(86)   Ta **kan** *(bu) **kan**?
         3S read not   read
         'Is he going to read (it)?'

The example in (86) shows that the negation word *bu* is obligatory in V neg V expressions.

Huang Li and Li (2009, pg. 253) observe that when the verb is an accomplish verb like *kanjian* (Eng. 'see') or *kandong* (Eng. 'read-understand'), the negation word must be *mei*. This is shown in (87).

(87)   a.   Ni   **kan** mei/*bu **kan-jian**?
               you look not/not look-see
               'Have you seen it?'

         b.   Ni   **kan** mei/*bu **kan-dong**?
               you read not/not read-understand
               'Have you understood it (after reading it)?'

The examples in (87) show that the selection of negation words is related to the verb categories. [6]

In all, negation word *bu* or *mei* is obligatory when verb doubling emerges in a polarity question.

3.4.1.2   Partial Doubling

When a multiple verb is doubled in a polarity question, partial doubling may occur (cf. Liu 2012). See the examples in (88).

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[6]Li (2009a) notices that in Huaiyin dialect there is no V *bu* V expressions. Similar meaning can be expressed without any negation. This is shown in (i).

(i)   **zou zou**?
       go   go
       'Are you going?'

[Huaiyin dialect, from Li 2009a]

In (i), no negation word is located between the two verb copies in the polarity question.

(88) a. Ni **xi**   bu **xi-huan**   mao?
          you happy not happy-happy cat
          'Do you like cats?'

      b. Zhangsan **can**   bu **can-jia**   huiyi?
          Zhangsan participate not participate-add meeting
          'Is Zhangsan going to participate in the meeting?'

The multisyllabic verbs *xi-huan* (Eng. 'happy-happy'/'like') in (88-a) and *can-jia* (Eng. 'participate-add'/'participate') in (88-b) undergo partial doubling in (88). Only the first syllable is doubled in these sentences.

Notice that the lower copy in partial doubling cannot be a partial copy. See the examples in (89).

(89) a. *Ni **xi-huan**   bu **xi**   mao?
          you happy-happy not happy cat
          'Do you like cats?'

      b. *Zhangsan **can-jia**   bu **can**   huiyi?
          Zhangsan participate-add not participate meeting
          'Is Zhangsan going to participate in the meeting?'

In (89-a) the lower copy of the multisyllabic verb *xi-huan* (Eng. 'happy-happy'/'like') is a partial one. Likewise, in (89-b) the lower copy of *can-jia* (Eng. 'participate-add'/'participate') is also a partial copy. Both sentences are unacceptable.

Actually, full doubling of multisyllabic verbs in V neg V expressions are also marginally acceptable. See the examples in (90).

(90) a. ?Ni **xi-huan**   bu **xi-huan**   mao?
          you happy-happy not happy-happy cat
          'Do you like cats?'

      b. ?Zhangsan **can-jia**   bu **can-jia**   huiyi?
          Zhangsan participate-add not participate-add meeting
          'Is Zhangsan going to participate in the meeting?'

The multisyllabic verbs *xi-huan* (Eng. 'happy-happy'/'like') in (90-a) and *can-jia* (Eng. 'participate-add'/'participate') in (90-b) undergo full doubling. Besides,

they are marginally acceptable. [7] [8]

In sum, when a multisyllable verb is doubled in a polarity question in Chinese, only the first part is doubled and the negation word appears between the two copies.

3.4.1.3 V-not-VP and VP-not-V

Huang (1991) presents a detailed discussion on "A-not-A" questions. The discussion in this section is based on these observations (cf. Huang, Li and Li 2009, sec. 7.3).

A typical disjunctive question involves two options, A and B, in either the form [A or B] with *haishi* (Eng. 'or'), or the form [A B] without it. If B is realized in the form of not-A, then one gets either an "A or not-A" question or an "A-not-A" question.

Huang (1991) distinguishes "A or not-A" questions from "A-not-A" questions. The former is marked by *haishi* (Eng. 'or') as in (91) while the latter appear without *haishi* (Eng. 'or') as in (92) (cf. Wang 1967). Superficially, one can assume that "A-not-A" questions are formed by eliminating *haishi* (Eng. 'or') in "A or not-A" questions. See the examples in (91) and (92).

(91)　　"A or not-A" questions / disjunctive questions

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[7]Verb doubling patterns in polarity questions have distinct preferences in different dialectal zones (Zhu 1991).

[8]In some dialects, multisyllabic verbs are allowed to undergo doubling without negation. But only the first syllable is doubled (Liu 2012). See the examples in (i).

(i)　　a.　**Xi**　**xi**-huan　　wo?
　　　　　happy happy-happy me
　　　　　'Do you like me?'
　　　b.　Ni　**da da**-suan　　qu?
　　　　　you hit hit-calculate go
　　　　　'Do you plan to go?'

[Yudu dialect, from Liu 2012, pg. 6]

The examples in (i) show that in Yudu dialect only the first syllable of a disyllabic verb is doubled when they are used to express a polarity question. Liu (2012) also points out that the doubling in these utterance results in change of intonations (cf. Wang 2003).

    a.   Ta **mai** yifu *haishi* ta bu **mai** yifu?
          3S buy cloth or   3S not buy cloth
          'Did he buy clothes or didn't he buy clothes?'

    b.   Ta **mai** yifu *haishi* bu **mai** yifu?
          3S buy cloth or   not buy cloth
          'Did he buy clothes or not buy clothes?'

    c.   Ta **mai** *haishi* bu **mai** yifu?
          3S buy or   not buy cloth
          'Did he buy or not buy clothes?'

    d.   Ta **mai** yifu *haishi* bu **mai**?
          3S buy cloth or   not buy
          'Did he buy clothes or not buy them?'

(92)   "A-not-A" questions

    a. ??Ta **mai** yifu ta bu **mai** yifu?
          3S buy cloth 3S not buy cloth
          'Did he buy clothes or didn't he buy clothes?'

    b.   Ta **mai** yifu bu **mai** yifu?   [VP-not-VP]
          3S buy cloth not buy cloth
          'Did he buy clothes or not buy clothes?'

    c.   Ta **mai** bu **mai** yifu?   [V-not-VP]
          3S buy not buy cloth
          'Did he buy or not buy clothes?'

    d.   Ta **mai** yifu bu **mai**?   [VP-not-V]
          3S buy cloth not buy
          'Did he buy clothes or not buy them?'

In (91) all the sentences contain *haishi* (Eng. 'or') while in (92) none of the examples include it. The sentences in (91) are "A or not-A" questions and those in (92) are "A-not-A" questions. According to Huang (1991), there are two categories of "true" "A-not-A" questions: V-not-VP questions as in (92-c) and VP-not-V questions as in (92-d) (Huang 1991).

Both "A or not-A" questions and "true" A-not-A questions can occur in an embedded clause and they may take either embedded scope or matrix scope (Huang, Li and Li 2009, pg. 246). See the examples in (93) and (94).

(93)   a.   Ni renwei [Lili hui **lai**   haishi bu hui **lai**] (ne)?
               you think Lili will come or   not will come Q

'Do you think Lili will come or not?'

    b.   Ni   renwei [Lili **hui** bu **bui** lai?] (ne)?
          you think Lili will not will come Q
          'Do you think Lili will or will not come?'

(94)   a.   Zhangsan bu zhidao [Lisi **lai**   haishi bu **lai**].
            Zhangsan not know Lisi come or   not come
            'Zhangsan does not know whether Lisi will come or not.'

       b.   Zhangsan bu zhidao [Lisi **lai**   bu **lai**].
            Zhangsan not know Lisi come not come
            'Zhangsan does not know whether Lisi will come or not.'

The examples in (93) show that both disjunctive questions and "true" "A-not-A" questions may take matrix scope. The examples in (94) show that they may take embedded scope.

However, disjunctive questions and "true" "A-not-A" questions behave differently when they are embedded in islands (Huang, Li and Li 2009, pg. 246). See the examples in (95).

(95)   a. *[ta **lai**   bu **lai**] bijiao hao (ne)?
            3S come not come more good Q
            'Is it better that he comes or that he doesn't?'

       b. *Ni bijiao xihuan [**lai** bu **lai** de   na-ge-ren]   (ne)?
            you more like   come not come Part that Cl person Q
            'Do you prefer the person that will come or the one who will not?'

                                   [from Huang, Li and Li 2009, pg. 246]

The examples in (95) show that a direct question reading is not allowed when a "true" "A-not-A" question is embedded in a subject clause as in (95-a) or a relative clause in (95-b).

When a "true" "A-not-A" question is an embedded clause, an indirect question is required (Huang, Li and Li 2009, pg. 247). This is shown in (96).

(96)   a. [Ta **lai**   bu **lai**] gen wo mei guanxi (*ne).
            3S come not come with I   not relation   Q

'Whether he comes or not has nothing to do with me.'

    b.   Women taolun-le   [Zhangsan **qu** bu **qu** de   wenti]   (*ne).
         we   discuss Perf Zhangsan go not go Part question   Q
         'We discussed the question of whether Zhangsan will go or not.'

In contrast, a disjunctive question (with *haishi*) in a subject clause or a relative clause turns the matrix clause into a real question. This is shown in (97).

(97)   a.   [ta **lai**   haishi bu **lai**]   bijiao hao (ne)?
            3S come or   not come more good Q
            'Is it better that he comes or that he doesn't?'

        b.   ni   bijiao xihuan [**lai**   haishi bu **lai**   de   na-ge-ren]   (ne)?
            you more like   come or   not come Part that Cl person Q
            'Do you prefer the person that will come or the one who will not?'

[from Huang, Li and Li 2009, pg. 247]

Notice that island sensitivity is exhibited in all kinds of "true" "A-not-A" questions as shown in (98).

(98)   a.   *Ta bijiao xihuan [**mai** yifu bu **mai** yifu de   ren]? [VP-not-VP]
            3S more like   buy cloth not buy cloth Part person
            'Does he prefer people who buy clothes or (those) don't buy clothes?'

        b.   *Ta bijiao xihuan [**mai** yifu bu **mai** yifu de   ren]?   [V-not-VP]
            3S more like   buy cloth not buy cloth Part person
            'Does he prefer people who buy or not buy clothes?'

        c.   *Ta bijiao xihuan [**mai** yifu bu **mai** de   ren]?   [VP-not-V]
            3S more like   buy cloth not buy Part person
            'Does he prefer people who buy clothes or (those) do not?'

McCawley (1994) also points out another difference between disjunctive questions (with *haishi* 'or') and "true" "A-not-A" questions. See the examples in (99).

(99)   a.   Zhangsan **zou** (haishi) bu **zou**?
            Zhangsan go   or   not go
            'Is Zhangsan going or not?'

        b.   Zhangsan bu **zou** *(haishi) **zou**?
            Zhangsan not go   or   go

'Is Zhangsan going or not?'

The examples in (99) show that in disjunctive questions (with *haishi*) the order between A and not-A is free. So both sentences are acceptable when *haishi* (Eng. 'or') is present. But in "true" questions the order must be "A-not-A". Thus, the sentence in (99-b) is ungrammatical when *haishi* (Eng. 'or') is absent.

Notice that there are also differences between V-not-VP and VP-not-V questions. When a two syllable verb is doubled, VP-not-V questions are not grammatical if the lower verb copy is not a full copy (Huang, Li and Li 2009, pg. 248). See the examples in (100).

(100)   a. *Ta **xi-huan**   meigui bu **xi**?
            3S happy-happy rose   not happy
            'Does she like roses?'

        b. *Ta **ren-shi**   zhe-ge-ren   bu **ren**?
            3S recognize-know this Cl person not recognize
            'Does he know this person?'

The examples in (100) show that the verb copy following the negation word must be a full copy.

In sum, negation word is obligatory in all V neg V expressions. When a multisyllabic verb is doubled, only the first syllable is doubled. Moreover, when an overt object appears, it may follow either of the two copies. That is to say, there are two kinds of doubling patterns when an overt object is involved: V-not-VP and VP-not-V. In section 3.4.2 I will introduce another verb doubling pattern that is relevant to polarity: *ai* V *bu* V.

3.4.2   *ai* V *bu* V

In section 3.4.1 I introduced verb doubling pattern V neg V, which is a form of polarity questions. Another verb doubling pattern relevant to polarity is *ai* V *bu* V in this section. It is obvious that both doubling patterns, i.e., V neg V and *ai* V *bu* V, involve negation.

Nevertheless, there are also apparent differences between V neg V and *ai* V *bu* V. First, the verb *ai* (Eng. 'love') precedes the two verb copies in *ai* V *bu* V. Second, the negation word in V neg V may be *bu* or *mei*, but in *ai* V *bu* V the negation word must be *bu*. Third, V neg V expressions raise polarity questions while *ai* V *bu* V expressions do not raise any questions. In other words, the two patterns contain different semantic contents.

A typical expression with *ai* V *bu* V is shown in (101).

(101) wo gen ni shuo-le henduo ci, ni ai **ting** bu **ting**.
       I   with you say Perf many   time you love listen not listen
       I have said it to you many times. Whether you have listened to me, (its
       not my business).

In (101) the verb *ting* (Eng. 'listen') is doubled. The negation marker *bu* is located between the two verb copies. The upper verb copy follows the verb *ai* (Eng. 'love').

The discussion on *ai* V *bu* V includes i) verbs that are allowed to be doubled in this pattern (section 3.4.2.1), ii) preverbal and postverbal elements (section 3.4.2.2) and iii) the meaning of *ai* V *bu* V (section 3.4.2.3).

3.4.2.1   Verb copies

Generally, doubled verbs in *ai* V *bu* V are monosyllable verbs as shown in (102).

(102) a. Mingtian ta ai **lai**   bu **lai**!
           tomorrow 3S love come not come
           'Tomorrow whether he comes or not is not my business.'
       b. Wo yijing gaosu ni le, ni ai **xin**   bu **xin**.
           I   already tell   you Perf you love believe not believe
           'I have already told you. Whether you believe it or not is not my
           business.'

In (102), the monosyllable verbs *lai* (Eng. 'come') and *xin* (Eng. 'believe') are doubled.

Besides, like in other verb doubling patterns, the two verb copies in *ai* V *bu* V are the same one as in (103).

(103) Zhe-ben-shu, ni ai **kan**/***du** bu **kan**.
        this Cl book you love read read neg read
        'Whether you read this book or not is not my business / depends on you.'

The verb *kan* (Eng. 'read') in (103) must be doubled with the same verb. Doubling of a semantically similar verb *du* (Eng. 'read') would lead to an ungrammatical result. [9]

Furthermore, certain monosyllable verbs are not allowed in the pattern *ai* V *bu* V. First, Verbs that denote status cannot be doubled in *ai* V *bu* V expressions. See the examples in (104).

(104) a. *Ta ai **shi** bu **shi**, wo bu xiang zhidao.
            3S love be not be I   not want know
            'I don't want to know whether he is (a teacher) or not.'

       b. *Ta ai **xiang** bu **xiang** ta fuqin, Lisi bu hui duo kan yi
            3S love be.like not be.like 3S father Lisi not will more look one
            yan.
            eye
            'Whether he is like his father or not, Lisi will not take a look at him.'

---

[9]Notice that certain semantically similar verbs can occur in *ai* V *bu* V. A typical example is shown in (i).

(i) Lili xiang gen ta fenxiang lüxing jingli, ta que ai **da** bu **li**.
      Lili want with 3S share   travel experience 3S but love care not care
      'Lili wants to share travel experience with him, but he is not interested.'

In (i) the verbs in '*ai* V *bu* V are not the same one. Actually, the verb *da* and *li* here have the same meaning 'care'. Besides, *ai da bu li* functions as *ai **li** bu **li*** (Li 2009b).

The examples in (104) show that verbs that denote status, i.e., *shi* (Eng. 'be') and *xiang* (Eng. 'be like'), cannot be doubled in *ai* V *bu* V expressions.

Second, Ding and Yi (2009, pg. 139) point out that verbs that denote "unusual" actions cannot appear in *ai* V *bu* V. This is shown in (105).

(105)   a. *ai **qiang** bu **qiang**
         love rob   not rob
         'whether one robs or not'

    b. *ai **zhuang** bu **zhuang**
         love hit   not hit
         'whether one hits or not'

    c. *ai **wang** bu **wang**
         love forget not forget
         'whether one forgets or not'

    d. *ai **xia** bu **xia**
         love scare not scare
         'whether one scares or not'

The verbs *qiang* (Eng. 'rob') in (105-a), *zhuang* (Eng. 'hit') in (105-b), *wang* (Eng. 'forget') in (105-c) and *xia* (Eng. 'scare') in (105-d) cannot be doubled in *ai* V *bu* V. According to Ding and Yi (2009), these verbs are less used in Chinese.

Third, those verbs that denote actions which are not realized by human beings cannot undergo doubling in *ai* V *bu* V (2009, pg. 139). See the examples in (106).

(106)   a. *Na-zhi-niao ai **fei** bu **fei**, wo bu xiang qu zhuo.
         that Cl bird love fly not fly I   not want go catch
         'Whether the bird flies or not, I don't want to catch it.'

    b. *Shui ai **liu** bu **liu**, wo bu guanxin.
         water love flow not flow I   not care
         'Whether the water flows or not, I don't care.'

The verbs *fei* (Eng. 'fly') in (106-a) and *liu* (Eng. 'flow') in (106-b) indicate actions which are normally realized directly by human beings. None of them can be doubled in *ai* V *bu* V.

Note that multisyllabic verbs in Chinese usually cannot be doubled in *ai* V *bu* V (Ding and Yi 2009). See the examples in (107).

(107)   a. *Zhe shi shishi, ni ai **xiang-xin**   bu **xiang-xin**.
            this be fact   you love mutually-believe not mutually-believe
            'This is the fact. Whether you believe or not is not my business.'

        b. *Ta ai **can-jia**   bu **can-jia**.
            3S love participate-add not participate-add
            'Whether he participates or not is not my business.'

The multisyllabic verbs *xiangxin* (Eng. 'mutually-believe'/'believe') in (107-a) and *canjia* (Eng. 'participate-add'/'participate') in (107-b) cannot be doubled in *ai* V *bu* V.

Nevertheless, Yu (2008) observes that certain multisyllabic verbs may undergo doubling in *ai* V *bu* V. See the examples in (108).

(108)   a. Ta ai **hui-lai**   bu **hui-lai**.
            3S love return-come not return-come
            'Whether he returns or not is not my business.'

        b. ?Zhangsan dui guke zongshi ai **da-li**   bu **da-li**.
            Zhangsan to client always love together-care not together-care
            'Zhangsan doesn't care the clients much.'

                                          [adapted from Yu 2008, pg. 286]

In (108) the disyllabic verbs *hui-lai* (Eng. 'return-come'/'return') and *da-li* (Eng. 'together-care'/'care') are doubled. But the doubling of *da-li* (Eng. 'together-care'/'care') is marginally acceptable.

In sum, most doubled verbs in *ai* V *bu* V are monosyllable verbs. Only certain multisyllabic verbs may be doubled in *ai* V *bu* V. Besides, the following verbs cannot be doubled in this pattern: verbs that denote status; verbs that indicate unusual actions and action verbs that cannot be predicates of human beings.

3.4.2.2   Preverbal and Postverbal Elements

The two verb copies in *ai* V *bu* V cannot be modified by any elements. See the examples in (109) (cf. Li 2009b).

(109)   a.   modal verbs

        *Zhangsan ai   keyi **lai**   bu keyi **lai**,...
        Zhangsan love can come not can come
        'whether Zhangsan can come or not,...'

    b.   preverbal VP level adverbs

        *Zhangsan ai   manman **xue** bu manman **xue**,...
        Zhangsan love slowly   learn not slowly   learn
        'whether Zhangsan learns slowly or not,...'

    c.   postverbal adverbials

        *Lisi ai **kan** de   kuai   bu **kan** de   kuai,...
        Lisi   love read Part quickly not read Part quickly
        'whether Lisi reads quickly or not,...'

    d.   aspect markers

        *Lisi ai **shuo**-le bu **shuo**-le,...
        Lisi   love say Perf not say Perf
        'Whether Lisi said it or not,..'

The examples in (109) show that the two verb copies in *ai* V *bu* V cannot be modified by modal verbs like *keyi* (Eng. 'be permitted to') in (109-a), preverbal VP adverbs (adverb phrases) like *manman* (Eng. 'slowly') in (109-b), *de kuai* (Eng. 'quickly') in (109-c) or aspect markers like *le* in (109-d).

Moreover, it seems that neither verb copies may be followed by (overt) objects, as shown in (110).

(110)   a. *Lisi ai   **chi** pingguo bu **chi**,...
         Lisi love eat apple   not eat
         'Whether Lisi eats apples or not,...'

    b. *Zhangsan ai   **kai** bu **kai** chuang,...
         Zhangsan love open not open window
         'Whether Zhangsan opens the window or not,...'

The examples in (110) show that neither of the two verb copies in *ai* V *bu* V can take (overt) objects.

Actually, when overt "objects" appear, they behave like topics, as shown in (111).

(111)   Zhexie juzi, ni ai **chi** bu **chi**.
          these   orange you love eat not eat
          'Whether you eat oranges depends on you (and it's not my business).'

In (111), the overt "object" *zhexie juzi* (Eng. 'these oranges') emerges in a sentence initial position as a topic.

In sum, the two verb copies in *ai* V *bu* V cannot be modified by any preverbal or postverbal elements like modal verbs, adverbs and aspect markers. Besides, they cannot be followed by overt objects.

3.4.2.3   Meaning

Generally, expressions with *ai* V *bu* V are used to indicate one's carelessness on the event denoted by the doubled verb.

First, expressions with *ai* V *bu* V can be used to express the carelessness of the speaker on the realization of the action denoted by the doubled verb. See the examples in (112).

(112)   a. ni ai **lai**   bu **lai**, bu guan wo shi.
            you love come not come not close I   thing
            'Whether you come or not is not my business.'

        b. Wo jieshi   de   hen qingchu, tamen ai   **ting** bu **ting**.
            I   explain Part very clear   they   love listen not listen
            'I have explained it very clearly. Whether they listen to it is not my business.'

The sentence in (112-a) shows that the speaker cares little whether the event/action denoted by the doubled verb *lai* (Eng. 'come') happens or not. Likewise, the speaker of the sentence in (112-b) doesn't care whether the event/action denoted by the verb *ting* (Eng. 'listen') occurs or not.

Second, *ai* V *bu* V expressions imply that the speaker is unsatisfied because of the carelessness of the agent that realizes the action denoted by the doubled verb. In this case, the segment with *ai* V *bu* V is used as attributive clause. See the example in (113).

(113)   ta ai   **ting** bu **ting** de   taidu   rang wo hen shengqi
          3S love listen not listen Part attitude let   I   very angry
          'The attitude that he listens little makes me very angry.'

In (113) the nominal phrase (agent), i.e., *ta*, preceding *ai* V *bu* V cares little the action denoted by the doubled verb *ting* (Eng. 'listen'). Actually, it could be interpreted as he is not willing to realize the action. However, whether the speaker cares or not is unknown.

In all, expressions with *ai* V *bu* V are used to express either the speaker's carelessness of an action or the speaker's unsatisfaction of one's carelessness on certain event.

In sum, most of the verbs in *ai* V *bu* V are monosyllable verbs that denote "usual" actions from human beings. Only certain multisyllabic verbs may be doubled in *ai* V *bu* V. Both verb copies in these expressions are not compatible with modal verbs, VP level adverbs or objects. These expressions are used to express either the speaker's carelessness of an action or the speaker's unsatsifaction of one's carelessness on certain event. In next sections I will introduce verb doubling patterns that involve presupposition. There are three kinds of such patterns: V *jiu* V, *shuo* V *jiu* V and V *jiu* V *zai*.

3.5 Group IV: Presupposition

3.5.1 V *jiu* V

Apart from topic/focus, delimitatitve aspect and polarity, verb doubling in Chinese may be relevant to presupposition (Group IV). In this section I introduce the following three patterns: V *jiu* V, *shuo* V *jiu* V and V *jiu* V *zai*.

Apparently, the adverb *jiu* (Eng. 'then') exists in all the three doubling patterns. Besides, this adverb has much to do with presupposition. I follow Stalnaker (1973) in believing that presupposition is *pragmatic* notion. The basic presupposition relation is between a person and a proposition. A person's presuppositions are the propositions whose truth he takes for granted in a conversation, an inquiry, or a deliberation.[10] See an example with presupposition in (114).

(114)   If John discovers that his son runs away, then he will be upset.

The sentence in (115) contains a presumption that the speaker presupposes that John's son runs away.

In Chinese sentences with presupposition usually show up with the adverb *jiu* (Eng. 'then'). The adverb *jiu* (Eng. 'then') appears frequently in "complex clauses" as shown in (115).

(115)   a. Ruguo mingtian xiayu, wo *jiu*   bu chumen.
             if   tomorrow rain   I   then not go.out
             If it rains tomorrow, I will not go out.

         b. Jiran ni lai-le,   women *jiu* tan   yi tan   ba.
             since you come Perf we   then discuss one discuss Part
             'Since you came, then we could have a discussion.'

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[10]See semantic definition of presupposition in Horn 1969, Lakoff 1971 and Karttunen 1974). The semantic interpretation of presupposition is states roughly as the following: "if a statement A has particular presupposition, then so does the denial of A, as well as the statement that says that it *might be* A" (Stalnaker 1973, pg. 448).

The examples in (115) show that *jiu* (Eng. 'then') often shows up in a sentence with a subordinate clause. These subordinate clauses may indicate a presupposition/condition as in (115-a) or a cause/reason as in (115-b).

The discussion on verb doubling related to presupposition begins with the pattern V *jiu* V. An expression with V *jiu* V is shown in (116).

(116)　　A: Jintian wo xiang qu tiaowu.
　　　　　　today　I　want go dance
　　　　　　'Today I want to go to dance.'

　　　　　B: **Qu** jiu　**qu** ba!
　　　　　　go　just go　Part
　　　　　　'(Fine.) Then go.' / 'Since you want to go, then go.'

The example in (116) shows that a verb may be doubled with the adverb *jiu* (Eng. 'then') between the two copies.[11] Besides, it implies that a reason or cause is involved based on the conversation as shown in the translation. Speaker A is asking Speaker B for a permission to go to dance.

(117)　　A: Zhangsan keneng　hui ying.
　　　　　　Zhangsan probably will win
　　　　　　'Zhangsan probably will win.'

　　　　　B: **ying** jiu　**ying**.
　　　　　　win　then win
　　　　　　'(If he will win,) then win.'

In (117) the verb *ying* (Eng. 'win') is doubled with the adverb *jiu* (Eng. 'then') between the two copies. Moreover, *jiu* (Eng. 'then') in the answer indicates a presupposition or condition because Speaker A believes that the event *ying* (Eng. 'win') will happen.

In the following subsections, I discuss different aspects that concerns the use of the V *jiu* V pattern. The discussions on V *jiu* V include i) what elements may

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[11]Notice that the adverb *jiu* (Eng. 'then') is obligatory in the answer in order to indicate presuppositions of the speaker. A sentence with verb reduplication pattern *qu qu* (Eng. 'go go') (see section 3.3) cannot be a correct answer.

be doubled in this doubling pattern (section 3.5.1.1), ii) how an expression with V *jiu* V is related to discourse (section 3.5.1.2), iii) the presuppositon or cause involved in expressions with V *jiu* V (section 3.5.1.3) and iv) how moderate tone is got in these expressions (section 3.5.1.4).

3.5.1.1 Doubled Elements

It is observed that verbs are allowed to be doubled in V *jiu* V (Hu 1989). See the examples in (118).

(118)   a.   **Shuo** jiu   **shuo**, wo bu xiang ting.
                say   then say   I   not want listen
                'Then say (it). I don't want to listen.'

         b.   **Xi-huan**   jiu **xi-huan**,   zhe ye bu qiguai.
                happy-happy then happy-happy this also not strange
                'Then like (it). This is not strange.'

The examples in (118) demonstrate that both monosyllable verbs like *shuo* (Eng. 'say') and multisyllabic verbs like *xi-huan* (Eng. 'happy-happy'/'like') may be doubled in V *jiu* V.

Hu (1989) observes that not only verbal elements can be doubled with the adverb *jiu.* This is shown in (119).

(119)   a.   **juzi**   jiu **juzi**   ba, dou shi shuiguo.
                orange then orange Part all   be fruit
                '(Fine.) Then oranges. Both are fruits.'

         b.   **Pang** jiu   **pang** ba.
                fat   then fat   Part
                '(Fine.) Then be fat.'

         c.   **Wu-gongjin** jiu   **wu-gongjin**.
                five kilo   then five kilo
                '(Fine.) Then five kilo.'

         d.   **Gei mantou** jiu   **gei mantou**, zanmen jiu   chi mantou.
                give bread   then give bread   we   then eat bread
                'It is OK that they gave us bread. Then we eat bread.'

The examples in (119) show that non-verbal elements like nominal phrase *juzi* (Eng. 'orange') and *wu gongjin* (Eng. 'five kilos') in (119-a) and (119-c), adjective like *pang* (Eng. 'fat') in (119-c) and verb phrase like *gei mantou* (Eng. 'give bread') in (119-d) are permitted to undergo doubling in V *jiu* V pattern.

Notice that the doubled copies must be exactly the same. In other words, the constituents that precede the adverb *jiu* (Eng. 'then') must be identical to those following it. This is shown in (120).

(120)   a. ***zou**-le jiu   **zou**.
            go Perf then go
            'Then go.'

         b. **zou**-*le* jiu *zou-le.*
            go Perf then go Perf
            'Then go.'

(121)   a. ***chi** pinguo jiu   **chi**.
            eat apple   then eat
            'Then eat apples.'

         b. **chi pingguo** jiu **chi pingguo**
            eat apple   then eat apple
            'Then eat apples.'

The examples in (120-a) and (121-a) show that when the elements preceding the adverb *jiu* (Eng. 'then') are different from those following it, sentences are unacceptable. Notice that when the constituents preceding *jiu* (Eng. 'then') and those following it are exactly the same, doubling is acceptable, as shown in (120-b) and (121-b).

In sum, apart from verbs, i.e., both monosyllable verb and multisyllabic verbs, many non-verbal elements may be doubled in V *jiu* V. Moreover, the elements preceding the adverb *jiu* (Eng. 'then') must be identical with thsose following it. I speculate that this has to do with the syntactic structure of the doubled constituents.

3.5.1.2 Discourse related

It has been observed that V *jiu* V expressions often appear in discourse situations (Hu 1989). The doubled element must be mentioned before the presence of a V *jiu* V expression (cf. Hu 1989). This is shown in (122) and (123).

(122)   A: wo xiang chi pingguo.
          I   want eat apple
          'I want to eat an apple.'

          B: Meiyou pingguo le.   Gei ni   yi-ge-**juzi**.
             not   apple   Perf give you one Cl orange
             'There are no apples. Give you an orange.'

          A: **juzi**   jiu **juzi**   ba, dou shi shuiguo.
             orange then orange Part all   be fruit
             '(Fine.) Then an orange. Both are fruits.'

(123)   A: Zhangsan **shu**-le   na-chang-bisai.
          Zhangsan lose Perf that Cl game
          'Zhangsan lost in that game.'

          B: **shu** jiu **shu**, mei guanxi.
             lose just lose not matter
             'Well, it doesn't matter (that he lost).'

The examples in (122) and (123) show that the doubled element, a non-verbal element as in (122) or a verbal element as in (123), in V *jiu* V must be mentioned previously in the conversation.

Note that the answers in (122) and (123) can be replaced by sentences without doubling pattern V *jiu* V shown in (124) and (125).

(124)   Na jiu juzi   ba/ hao ba, dou shi shuiguo.
          that then orange Part good Part all   be fruit
          'Then an orange / fine. Both are fruits.'

(125)   na   jiu   shu   ba/ hao ba, mei guanxi.
         that then book Part good Part not matter
         'Then he lost / well. It doesn't matter.'

The sentences in (124) and (125) do not involve doubling. Compared with these sentences, those with doubling imply an attitude of the speaker: he cannot change anything, but has to accept what happens. See more discussion in section 3.5.1.3.

In sum, the doubled element in V *jiu* V must be mentioned before in the conversation. These expressions must be discourse related.

3.5.1.3   Presupposition or Cause

Hu (1989) points out that the upper copy in V *jiu* V implies a presupposition of the speaker. Moreover, the speaker does not care about the event denoted by the verb or whether he can change anything. To see what this means, see the conversation in (126).

(126)   A: chao   de   zheme lihai, tamen yao   lihun   ma?
            quarrel Part so   heavy they   want divorce Part
            'They quarrelled a lot. Do they want to divorce each other?'

         B: **lihun** jiu   **lihun**   ba.
            divorce then divorce Part
            'If they want to divorce, then divorce.'

The dialogue in (126) shows that Speaker B's expression with V *jiu* V includes a presupposition that the event *lihun* (Eng. 'divorce') may happen. Thus, Hu (1989) indicates that V *jiu* V is a compressed form of expressions with conditional clause.

But it seems that V *jiu* V may contain a reason or cause in the conversation. See the example in (127).

(127)   A: Zhangsan shuo zhunben zou le.
            Zhangsan say   prepare go   Perf

'Zhangsan says that he is going.'

> B: **zou** jiu **zou**.
> go then go if he prepare go you then let he go Part
> 'Then go.' / 'Since Zhangsan prepares to go, then let's go.'

The conversation in (127) shows that an expression with V *jiu* V may indicate a cause or reason. In the conversation the doubled verb has been mentioned by Speaker A and accordingly Speaker B offers an answer.

In sum, expressions with V *jiu* V may include presupposition/condition or cause/reason. This depends on one's interpretation and the context in which these expressions appear.

3.5.1.4 Moderate tone

Generally, particles like *ba* may be added at the end of an expression with V *jiu* V in order to get a moderate tone in the sense that a sentence with this particle shows more politeness that one without it (cf. Hu 1989).[12]

(128) A: Zhang laoshi, ni gei women chang yi-shou-ge?
       Zhang professor you give we sing one Cl song
       'Professor Zhang, why not sing a song?'

> B: **chang** jiu **chang** (ba).
> sing then sing Part
> 'OK. I will sing.'

The example in (128) shows that the particle *ba* is optional in the answer. But an answer with this particle would be more moderate.

In all, the particle *ba* may be added at the end of an sentence with V *jiu* V to get a moderate tone.

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[12]Notice that the particle *ba* here is different from the *ba* in *ba*-constructions. The former is pronounced without tone.

In conclusion, many doubled elements that appear in V *jiu* V expressions are verbal elements including both monosyllable verbs and multisyllable ones. Besides, non-verbal elements may also be doubled in these expressions. In either case the doubled elements must be mentioned in previous context and the elements preceding the adverb *jiu* (Eng. 'then') must be the same as those following it. These expression must be discourse related as the doubled element is mentioned before the utterance of these expressions. Moreover, these expressions usually include one's presupposition/condition or reason/cause and the particle *ba* may be added at the end to get a moderate tone.

3.5.2   *shuo* V *jiu* V

Another verb doubling pattern related to presupposition in Chinese is *shuo* V *jiu* V. See the example in (129).

(129)   Laoban shuo **hao** jiu   **hao**, wo bu huaiyi.
         boss   speak good then good, I   not doubt
         'If the boss says that it is good, then it is good. I don't doubt that.'

The example in (129) contains a presupposition of the speaker *if the boss says that it is good* indicated by *shuo* V.

Actually, many *shuo* V *jiu* V expressions do not have to contain presupposition. They may also indicate that the action denoted by the doubled verb happens immediately. See the example in (130).

(130)   Ta shuo **zou** jiu   **zou**, shi fenzhong hou jiu   xiaoshi-le.
         3S speak leave then leave ten minute   after then disappear Perf
         'He left immediately and disappeared in ten minutes.'

In (130) the verb *zou* (Eng. 'leave') is doubled with one copy following *shuo* (Eng. 'speak') and the other following the adverb *jiu* (Eng. 'then'). *Shuo* V *jiu* V expressions indicate that the action/event denoted by the doubled verb happens in a short time.

In order to understand better sentences with *shuo* V *jiu* V, it is necessary to study the doubled constituent, the meaning of these sentences and some preverbal and postverbal elements. The discussion on *shuo* V *jiu* V includes i) what elements may be doubled in this doubling pattern (section 3.5.2.1), ii) the meaning of *shuo* V in these expressions (section 3.5.2.2), and iii) how preverbal and postverbal elements modify the two copies (section 3.5.2.3).

3.5.2.1   Verb Copies

Both monosyllable and disyllabic verbs may be doubled in *shuo* V *jiu* V. See the examples in (131).

(131)   a.   Zhangsan shuo **chang** jiu   **chang**.
             Zhangsan speak sing   then sing
             'Zhangsan sang immediately'

        b.   Lisi shuo **pi-ping**   jiu   **pi-ping**.
             Lisi speak slap-comment then slap-comment
             'Lisi criticizes immediately.' / 'Lisi said he would criticize, then he certainly would do it.'

The examples in (131) show that both monosyllable verbs like *chang* (Eng. 'sing') in (131-a) and multisyllabic verbs like *pi-ping* (Eng. 'slap-comment'/'criticize') in (131-b) may undergo doubling in *shuo* V *jiu* V.

Pan (2009) notices that non-verbal elements like adjectives may also be doubled in *shuo* V *jiu* V expressions. See the examples in (132).

(132)   a.   Zheli de   tianqi   shuo **qing** jiu   **qing**.
             here Part weather speak sunny then sunny
             'The weather here turns out to be sunny quickly.'

        b.   Ta ganggang shuo yao   he   wo chifan, xianzai zenme shuo **bao**
             3S just   say   want with me eat   now   how   speak full
             jiu   **bao**-le?
             then full Perf
             'He wanted to eat with me just now, but now he is full?'

The examples in (132) show that the adjectives like *qing* (Eng. 'sunny') and *bao* (Eng. 'full') may be doubled in *shuo* V *jiu* V. This is expected because adjectives in Chinese can behave as predicates (cf. Chao 1968 among others).

In sum, both monosyllable verbs and multisyllabic verbs may undergo doubling in *shuo* V *jiu* V. Besides, adjectives may also be doubled in these expressions.

3.5.2.2 Meaning of *shuo* V

Pan (2009) points out that there are two categories of *shuo* V *jiu* V expressions in terms of the meaning of *shuo* V. See the examples in (133).

(133)   a.   Lingdao shuo **dui**   jiu   **dui**.
              leader   speak correct then correct
              'If the leader says that it is correct, then it is correct.'

         b.   Na-jia-yinhang zenme hui shuo **daobi**   jiu **daobi**
              that Cl bank   how   will speak go.bankrupt the go.bankrupt
              ne?
              Part
              'How could that bank go bankrupt so quickly?!'

According to Pan (2009), *shuo dui* (Eng. 'say correct') in (133-a) contains a presupposition of the speaker: if the leader says that it is correct. In this expression *jiu dui* means that what the leader says is correct, then it is correct. However, In (133-b) *shuo daobi* does not indicate any presupposition or anyone has mentioned *daobi* (Eng. 'go bankrupt'). Pan (2009) claims that *shuo* (Eng. 'speak') is used to emphasize the timing, the immediacy of the occurrence of the action/event denoted by the doubled verb.

Notice that there are other differences between the two expressions in (133). First, the doubled element in (133-a) is an adjective while it is a verb in (133-b). Second, more importantly, the logic subject of the adjective in (133-a) is not the apparent *lingdao* (Eng. 'leader'), but what the leader says. However, the logic subject of the doubled verb in (133-b) is the subject *na-jia-yinhang* (Eng. 'that bank'). Therefore, the distinct interpretation (of *shuo* V), i.e., 'say V' or 'speak of V', is the cause of these differences.

In sum, the meaning of *shuo* V may indicate one's presupposition that the action denoted by the doubled verb may occur. Moreover, many *shuo* V *jiu* V expressions may mean that the action occurs immediately.

3.5.2.3 Preverbal and Postverbal Elements

Pan (2009) observes that some modification can be added to the lower verb copy in *shuo* V *jiu* V. See the examples in (134).

(134) a. Piaoliang de   yifu, Lili shuo **mai** jiu   [hui] **mai**.
           beautiful Part cloth Lili speak buy then will buy
           'As of beautiful clothes, Lili (certainly) will buy them.'

       b. ni   yiwei shuo **tiao** jiu   [neng] **tiao** de   hao a?
           you think speak jump then can   jump Part well Part?
           'Speaking of jumping, you think he/she can jumps well?'

       c. Zhangsan shuo **pao** jiu   [cong bangongshi] **pao**-le   [chulai].
           Zhangsan speak run then from office   run Perf out
           'Zhangsan ran out from the office immediately.'

The examples in (134) show that the lower verb copy in *shuo* V *jiu* V may be modified by other elements. In (134-a) the modal verb *hui* (Eng. 'will') modifies the lower verb copy *mai* (Eng. 'buy'). In (134-b) the lower verb copy *tiao* (Eng. 'jump') is modified by the modal verb *neng* (Eng. 'can'). Besides, the lower verb copy is followed by a *De*-phrase to indicate the manner of jump. In (134-c) the lower verb copy *pao* (Eng. 'run') follows a preposition phrase *cong bangongshi* (Eng. 'from office') and it is modified by the aspect marker *le*.

Notice that the examples in (134-a) and (134-b) are more complicated than usual *shuo* V *jiu* V expressions because the lower verb copy is preceded by modal verbs *hui* (Eng. 'will'). In (134-a) the expression does not imply that the action *mai* (Eng. 'buy') occurs immediately. The expression *shuo mai* implies a condition or presupposition of the speaker: if Lili wants to buy them. Likewise, the expression *shuo tiao* in (134-b) indicates the presupposition of the speaker: if someone jumps.

Notice that in (134) only the verb copy following the adverb *jiu* (Eng. 'then') is modified by preverbal or postverbal elements. The preceding copy is not accompanied by any elements.

It is observed that no elements can modify *only* the verb copy preceding *jiu* (Eng. 'then'). This is shown in (135).

(135)   a. *Zhangsan shuo [hui] **bangmang** jiu   **bangmang**.
            Zhangsan speak will help   then help
            'Zhangsan will help immediately.'

        b. *Lisi shuo [cong xuexiao] **zou** jiu   **zou**
            Lisi speak from school   go   then go
            'Lisi leaves from school immediately.'

        c. *Ta shuo **chang** [de hao] jiu **chang**.
            3S speak sing   Part well the sing
            'He sings well immediately.'

The examples in (135) show that the upper verb copy in *shuo* V *jiu* V cannot be modified by any elements. In other words, the upper verb in *shuo* V *jiu* V must be bare.

When the copy preceding the adverb *jiu* (Eng. 'then') is modified by any element, the copy following it must be modified in the same way. See the example in (135).

(136)   A: Zhangsan chang-guo KTV ma?
         Zhangsan sing Exp   KTV Q
         'Has Zhangsan ever sung in KTV?'

        B: Ta shuo **chang**-guo jiu   **chang**-guo. Wo bu zhidao.
         3S say   sing Exp   then sing Exp   I   not know
         'If he says he has, then he has sung in KTV. I don't know.'

The example (136) shows that both verb copies in a *shuo* V *jiu* V expression can be modified at the same time by the same element like the aspect maker *guo*. That is to say, the element preceding *jiu* (Eng. 'then') and that following it must be exactly the same like those in V *jiu* V in section 3.5.1.

An interesting aspect of the lower verb copy is that it usually does not take any (overt) objects unless the object is also doubled. See the examples in (137).

(137) a. *Zhangsan shuo **chang** jiu **chang**-le ji-shou   yingwen ge.
           Zhangsan speak sing   then sing Perf several Cl English song
           'Zhangsan sang several English songs immediately.'

     b. Lisi shuo **mai** pinguo jiu   **mai** pingguo.
           Lisi speak buy apple   then buy apple
           'Lisi buys apples immediately.' / 'If Lisi says that one should buy apples, then we buy apples.'

When an overt object emerges, it may also be located before *shuo* V *jiu* V. In this case, the expression only means that the action denoted by the doubled verb occurs immediately. See the examples in (138).

(138) a. Yingwen ge, Lili shuo **chang** jiu   **chang**.
           English   song Lili speak sing   then sing
           'As for English songs, Lili begins to sing immediately.'

     b. Zhe-chang-zhang, bu neng shuo **da** jiu   **da**.
           this Cl battle   not can   speak fight then fight
           'As for this battle, one cannot fight immediately.'

In (138-a) and (138-b), *yingwen ge* (Eng. 'English song') and *zhe-chang-zhang* (Eng. 'this battle') can be viewed as the overt object of *chang* (Eng. 'sing') and *da* (Eng. 'fight'), respectively, or the topics of the two utterances (cf. Huang, Li and Li 2009).

In sum, the verb copy following the adverb *jiu* may be modified by preverbal or postverbal elements. When the verb copy preceding the adverb is modified by any elements, these elements must be doubled after the adverb as well.

In conclusion, both verbs and adjectives are allowed to be doubled in *shuo* V *jiu* V expressions. *Shuo* V in these expression may be interpreted as 'say V' or 'speak of V'. In the former case, the expressions contain the speaker's presupposition. Otherwise, it indicates that the action denoted by the doubled verb occurs immediately. Moreover, both verb copies may be modified by other elements. When the copy preceding the adverb *jiu* (Eng. 'then') is modified by other

elements, these elements must also be doubled.

3.5.3 V *jiu* V *zai*

A third doubling pattern related to presupposition in Chinese is V *jiu* V *zai*. See the examples in (139).

(139) Zhangsan **shu** jiu **shu** zai hulüe xijie shang.
       Zhangsan lose then lose at ignore detail on
       'Zhangsan lost because he ignored details.' / 'If Zhangsan would lose, that would because he ignored details.'

In (139) the verb *shu* (Eng. 'lose') is doubled. The adverb *jiu* (Eng. 'then') is located between the two verb copies and the lower verb copy is followed by the preposition *zai* (Eng. 'at'). The material after *zai* (Eng. 'at') might be the cause of the event denoted by the doubled verb.

Note that the event denoted by the doubled verb may occur before or after the utterance of the sentence. In the former case, the expression indicates the speaker's opinion on the cause of the event. In the latter case, the expression contains the speaker's presupposition on the cause.

In this theis I introduce some general properties of sentences with V *jiu* V *zai* in order to give a basic description of these expressions. The discussion on V *jiu* V *zai* includes the following sections: i) the doubled elements in V *jiu* V *zai* (section 3.5.3.1), ii) whether the two verb copies in these expressions can be modified by any preverbal or postverbal elements (section 3.5.3.2), iii) the discourse related property of these expressions (section 3.5.3.3), and iv) the usages and functions of these expressions (section 3.5.3.4).

3.5.3.1   Doubled Elements

It has been observed that many verbs that undergo doubling in V *jiu* V *zai* are verbs that denote results as shown in (140).

(140) a. Lili **shibai** jiu **shibai** zai panduan xingshi shang.
Lili fail then fail at judge condition up
'Lili failed because of the wrong judgment of the condition.'

  b. Zhangsan **chikui** jiu **chikui** zai meiyou shou-guo
Zhangsan suffer.loss then suffer.loss at not receive Exp
jiaoyu.
education
'Zhangsan suffered losses because he hadn't received any education.'

In (140-a) the verb *shibai* (Eng. 'fail') is doubled and the verb *chikui* (Eng. 'suffer loss') is also doubled in (140-b). Both verbs denote the result of certain event that the subjects experience. [13]

Actually, many doubled elements in V *jiu* V *zai* are adjectives because they are usually used to describe qualities or states (cf. Zhao 1986, Hu 1989, Jiang 2006, Wan 2006, Xu and Lu 2008 among others). See the examples in (141).

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[13]According to Xu and Lu (2008), apart from verbs that denote results, psychological verbs may also be doubled in V *jiu* V *zai* expressions as in (i).

(i) ?Women **xihuan** Lili jiu **xihuan** zai ta jingchang bangzhu bieren.
we like Lili then like at 3S often help the.others
'We like Lili because she often helps the others.'

In (i) the psychological verb *xihuan* (Eng. 'like') is doubled. Sentences like (i) are acceptable in Xu and Lu (2008). However, these expressions are weird for me. Thus, it is marked with a question mark in (i).

Moreover, Xu and Lu (2008) also points out that certain monosyllable verbs that denote actions can be doubled in V *jiu* V *zai*. In this case, the material following *zai* is often a location. See the examples in (ii).

(ii) a. Ni *(yao) **reng** jiu **reng** zai lajitong li.
you want throw then throw at garbage.can inside
'If/Once you throw it, throw it into the garbage can.'
  b. Ta *(yi) **dao** jiu **dao** zai shafa shang.
3S one fall.down the fall.down at sofa on
'He falls down right on the sofa.'

The verbs *reng* (Eng. 'throw') and *dao* (Eng. 'lie down') indicate actions instead of results. They both are doubled in (ii-a) and (ii-b).

Notice that in (ii-a) the upper verb copy *reng* (Eng. 'throw') is preceded by a conjunction word *yao* (Eng. 'want') which indicates a condition or a presupposition/condition. The upper verb copy *dao* (Eng. 'lie down') in (ii-b) is preceded by the numeral *yi* (Eng. 'one') that indicates the continuity between the action *dao* (Eng. 'lie down') and the status/result *zai shafa shang* (Eng. 'on the sofa'). Thus, they don't behave like typical expressions with V *jiu* V *zai*. Besides, neither the sentences in (ii) is acceptable without the conjunction word or the numeral.

(141) a. Zhe-ge-gushi **jingcai** jiu **jingcai** zai zhe-ge-qingjie.
           this Cl story fantastic then fantastic at this Cl plot
           'This story is fantastic because of this plot.'

       b. Shiqing **guai** jiu **guai** zai zheli.
           thing   strange then strange at here
           'This thing is strange here.'

In (141) the adjectives *jingcai* (Eng. 'fantastic') and *guai* (Eng. 'strange') are doubled. The doubling of adjectives in V *jiu* V *zai* is expected as many adjectives in Chinese function as predicates. The subjects of these sentences are often non-animate.

Note that when a multisyllabic verb is doubled in V *jiu* V *zai* and it can be viewed as a verb phrase with a cognate object like *chi-kui* (Eng. 'eat-loss'/'suffer loss') and *dao-mei* (Eng. 'fall-mold'/'have bad luck'), partial doubling might happen though it is not obligatory (cf. Wan 2006, Jiang 2006). This is shown in (142) and (143).

(142) a. Ta **chi-kui** jiu **chi** zai bu dong   kuaiji.
           3S eat-loss then eat at not understand accounting
           'He suffered loss because he didn't understand accounting.'

       b. Ta **chi-kui** jiu **chi-kui** zai tai shanliang.
           3S eat-loss then eat-loss at too kindhearted
           'He suffered loss because he is too kindhearted.'

(143) a. Ni **dao-mei** jiu **dao** zai jinqu tai zao.
           you fall-mold then fall at enter too early
           'You had bad luck because you entered too early.'

       b. Ta **dao-mei** jiu **dao-mei** zai zhidao-le mimi.
           3S fall-mold then fall-mold at know Perf secret
           'He had bad luck because he knew the secret.'

The examples in (142) show that the disyllabic verb *chi-kui* (Eng. 'eat-loss'/'suffer loss') can undergo "full doubling" as in (142-a) or "partial doubling", i.e., doubling of the first syllable, as in (142-b). Likewise, the verb *dao-mei* (Eng. 'fall-mold'/'have bad luck') undergoes "full doubling" in (143-a) and "partial doubling" in (143-b), respectively. To my knowledge, no semantic differences exist between full doubling an partial doubling.

Moreover, when partial doubling occurs, the copy preceding the adverb *jiu* (Eng. 'then') must be a full copy. See the example in (144).

(144)   a. *Ta **chi** jiu   **chi-kui** zai tai shanliang.
               3S eat then eat-loss at too kindhearted
               'He suffered loss because he is too kindhearted.'

        b. *Ta **dao** jiu   **dao-mei** zai zhidao-le   mimi.
               3S fall then fall-mold at know Perf secret
               'He had bad luck because he knew the secret.'

The examples in (144) show that the linearly first copy in V *jiu* V expressions must be a full copy.

In sum, verbs that denote results in Chinese may undergo doubling in V *jiu* V *zai* pattern. Many adjectives that indicate quality or status are observed to be doubled in this doubling pattern. Moreover, when a multisyllabic verb may undergo partial doubling in these expressions, i.e., only the first syllable of the verb is doubled. In this case, the copy preceding the adverb *jiu* (Eng. 'then') must be a full copy.

3.5.3.2   Preverbal and Postverbal Elements

The two copies in V *jiu* V *zai* are not compatible with any preverbal or postverbal elements. See the examples in (145).

(145)   a. *Zhangsan **shu**-le   jiu   **shu** zai jishu shang.
               Zhangsan lose Perf then lose at skill on
               'Zhangsan lost because of his skill.'

        b. *Lisi **shibai** jiu   hui **shibai** zai celüe   shang.
               Lisi fail   then will fail   at strategy on
               'If Lisi fails, that would because of his strategy.'

        c. *Zhe-dong-lou   hen **tebie** jiu **tebie** zai ta de   sheji.
               this Cl building very special the special at 3S Part design
               'This building is very special because of its design.'

In (145-a) the verb *shu* (Eng. 'lose') is doubled with the linearly first copy followed by the aspect marker *le*. In (145-b) the verb *shibai* (Eng. 'fail') is doubled and the copy following *jiu* (Eng. 'then') is preceded by the modal verb *hui* (Eng. 'will'). In (145-c) the adjective *tebie* (Eng. 'special') is doubled and the copy preceding *jiu* (Eng. 'then') is modified by an adverb *hen* (Eng. 'very'). None of these sentences are acceptable. Therefore, the two copies in V *jiu* V *zai* cannot be modified by any preverbal or postverbal elements.

In sum, no preverbal or postverbal elements are allowed to modify the two copies in V *jiu* V *zai* expressions.

3.5.3.3   Discourse related

The doubled element in V *jiu* V *zai* often appears in previous context (cf. Lu, Lu and Lu 2007). See the examples in (146).

(146)   a.   Lisi **shu** de   hen can.   Ta **shu** jiu   **shu** zai jishu shang.
             Lisi lose Part very miserable 3S lose then lose at skill up
             'Lisi suffered a devastating defeat. He lost because of his skill.'

        b.   Zhe-zhang-zhaopian hen **mei**.   Zhaopian **mei**   jiu
             this Cl photo   very beautiful photo   beautiful then
             mei   zai qujing hen hao.
             beautiful at view   very good
             'This photo is very beautiful. It is beautiful because of the good view.'

The examples in (146) show that the doubled element in V *jiu* V *zai* are often mentioned before the utterance of these sentences.

However, a previous context with the doubled element is not obligatory given that the adverb *jiu* (Eng. 'then') may indicate a presupposition as in (147) (cf. Hu 1989).

(147)   Zhe-jian-shi   **guai** jiu   **guai** zai Zhangsan bu huaiyi Lisi.
        this Cl matter weird then weird at Zhangsan not doubt Lisi
        'This matter is weird as Zhangsan does not have doubts on Lisi.'

In (147) there is no previous context with the doubled element *guai* (Eng. 'weird'). The expression involves the speaker's presupposition (on the cause of being weird).

In sum, the doubled element in V *jiu* V *zai* is often mentioned in previous context. When it is absent in previous context, the expression includes the speaker's presupposition.

3.5.3.4   Contexts and Functions

Compared with expressions without doubling, these expressions emphasize the result/quality indicated by the doubled element. See the examples in (148) and (149) (cf. Lu, Lu and Lu 2007).

(148)   a.   Ta shu-le   yinwei ta jishu hen cha.
                3S lose Perf because 3S skill very poor
                'He lost because of his poor skill.'

            b.   Ta **shu** jiu   **shu** zai jishu shang.
                3S lose then lose at skill up
                'He LOST because of his skill.'

(149)   a.   Zhe-zhang-zhaopian hen mei   yinwei qujing hen hao.
                this Cl photo   very beautiful because view   very good
                'This is photo is very beautiful because it has a very good view.'

            b.   Zhe-zhang-zhaopian **mei**   jiu   **mei**   zai qujing hao.
                this Cl photo   beautiful then beautiful at view   good
                'This is photo is BEAUTIFUL because of the good view.'

The examples in (148) and (149) show that in expressions with V *jiu* V *zai* the result or quality denoted by the doubled element is outlined, compared with those expressions without doubling. In other words, the doubling pattern highlights the result or the quality of the doubled element. It is marked with capital letters in the translation.

Another obvious usage of expressions with V *jiu* V *zai* is to introduce the reason or the cause of the result or the status denoted by the doubled verb. See the examples in (150).

(150)   a.   Ta **shibai** jiu   **shibai** zai meiyou zhunbei hao.
             3S lose   then lose   at not   prepare well
             'He lost because he didn't prepare well.'

        b.   Wo **xianmu** Lili jiu   **xianmu** zai ta you boshi xuewei.
             I   envy   Lili then envy   at 3S have doctor degree
             'I envy Lili because she has a doctoral degree.'

The translations of the examples in (150) show that the discourse focus of these expressions are the material following *zai* (Eng. 'at'). It is the (only) reason or cause of the result denoted by the doubled elements. These doubling verbs indicate result or status as in (150-a) or express people's psychology as in (150-b). It is also observed that the verbs denoting result or status are usually verbs used in a derogatory sense (cf. Jiang 2006, Wan 2006 among others).

In sum, V *jiu* V *zai* expressions emphasize the doubled element, i.e., a result or a quality, compared with those without doubling. Moreover, these expressions has the function to point out the cause or reason of certain reuslt or quality.

In conclusion, the discussion on V *jiu* V *zai* concerns the following aspects. Verbs that appear in these expressions are ones that denote a result. Many adjectives undergo doubling in these expressions as well. When a multisyllabic verb is doubled, partial doubling might occur. Neither of the two copies can be modified by any preverbal or postverbal elements. Besides, the doubled element is probably mentioned in previous context; otherwise, the sentence involves the speaker's presupposition. Compared with expressions without doubling, V *jiu* V *zai* expressions emphasize the result or quality indicated by the doubled element. A basic function of these expressions is to point out the cause or reason of certain result or quality.

3.6   Group V: Maximality

3.6.1   Verb doubling *lian...dou*

I have shown that verb doubling in Chinese may be relevant to topic/focus, delimitative aspect, polarity and presupposition. Actually, verb doubling in Chinese

may also be related to maximality (Group V). Below I will introduce two doubling patterns related to maximality: verb doubling *lian...dou* and *bu* V *dou* V.

In both doubling patterns, the maximality operator *dou* is present. Following Xiang (2008), I assume that *dou* is a maximality operator.[14]

> It operates on any plural set and outputs a maximal plural individual. The critical thread that joins the seemingly different uses of *dou* is the context sensitivity of this plural set. It can be a set of covers over a plural noun phrase, in which case the covers themselves are context sensitive, or it can be a set of alternative degrees determined by a contextually defined scale.

> [from Xiang 2008, pg. 228-229]

The arguments in Xiang (2008) for the maximality operator claim of *dou* include the scalar inferences and exhaustivity on alternatives. See the examples in (151).

(151) a. Liuyue dou guo-le. Ta hai mei lai kan wo.
            June   Dou pass Perf 3S still not come visit I
            'June has passed. He still hasn't come to visit me.'

      b. Lian Lili dou bu chuxian.
          Lian Lili Dou not appear
          'Even Lili didn't appear.'

The sentence in (151-a) expresses a high degree of unexpectedness. The speaker expects that one would have visited him/her before or during June. By using

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[14]*Dou* is traditionally analyzed as having universal quantification power (Cheng 1995 and Wu 1999). This is based on the fact that *dou* indicates distribution of a predicate over a plural noun phrase preceding it as shown in (i).

(i) a. Tamen *dou* mai-le yi-ben-shu.
        they   Dou buy Perf one Cl book
        'They each bought a book.' / *'They bought a book (together).'
      b. Tamen mai-le yi-ben-shu.
        they buy Perf one Cl book
        'They each bought a book.' / 'They bought a book (together).'

In (i-a) the presence of *dou* makes the collective reading unavailable, in contrast to the ambiguity in (i-b).

dou, the speaker expresses a strong emotion of disappointment. The sentence in (151-b) not only indicates that the least likely event *Lili didn't appear* is true, it also emphasizes that the alternatives are true as well, i.e., other people didn't appear. Xiang's (2008) analysis converges with the account in Giannakidou and Cheng (2006) based on the licensing of polarity items.

The discussion on verb doubling related with maximality in Chinese begins with the pattern verb doubling *lian...dou*. See the example in (152).

(152)   Ta lian **kan** dou bu **kan**.
         3S Lian look Dou not look
         'He doesn't even have a look.'

In (152) the verb *kan* (Eng. 'look') is pronounced twice. The upper copy follows immediately *lian* while the lower copy is to the right of *dou*.

The description on verb doubling *lian...dou* starts with the introduction on *lian...dou*, known as the *even* structure in Chinese (section 3.6.1.1). Then, following Cheng and Vicente's (2013) account, I discuss the similarities and differences between verb doubling *lian...dou* and general *lian...dou* (section 3.6.1.2). Moreover, I talk about the dependencies between the two verb copies in verb doubling *lian...dou* (section 3.6.1.3 and section 3.6.1.4). The discussion also includes observations on the compatibility of the two copies with overt objects (section 3.6.1.5).

3.6.1.1   Properties of *lian...dou*

The properties of verb doubling *lian...dou* that I make in this section are based on the observations in Cheng and Vicente (2013). Expressions with *lian...dou* in Chinese are semantically similar to English *even* (cf. Shyu 1995, Badan 2007 among others). See the example in (153).

(153)   Zhangsan lian [zhe-ben-shu] dou kan-le.
         Zhangsan Lian this Cl book Dou read Perf
         'Zhangsan reads even this book.'

English *even* selects an entity (or entities) lying at one of the extremes of a scale and asserts a property shared by this entity as well as the other entities in the scale. So English *even* combines scalarity and additivity (cf. Cheng and Vicente 2013).

In Chinese *lian* is considered to be a focus particle (cf. Shyu 1995, Badan 2007 among others). It indicates additivity. Besides, Cheng and Vicente (2013) consider *dou* as a maximality operator (cf. Giannakidou and Cheng 2006, Xiang 2008, Cheng 2009).

Generally, the element following *lian* is a nominal phrase and it can be fronted to a sentence initial position with *lian*. Besides, it is optionally pronounced. This is shown in (154).

(154)   a.   Zhangsan (lian) zhe-bu-dianying dou kan-le.
             Zhangsan Lian   this Cl movie   Dou watch Perf
             'Zhangsan watched even this movie.'

        b.   (Lian) zhe-bu-dianying, Zhangsan dou kan-le.
             Lian   this Cl movie   Zhangsan Dou watch Perf
             'Zhangsan watched even this movie.'

In (154-a) the nominal phrase *zhe-bu-dianying* (Eng. 'this movie') immediately follows *lian*. The example in (154-b) shows that it can be fronted to a sentence-initial position with *lian*. In addition, *lian* is optionally pronounced.

The distinct positions of *lian*+focus lead to some differences. The first difference is related to the resumptive pronoun *ta*. See the examples in (155).

(155)   a.   (Lian) Zhangsan, Lisi dou kanjian (ta) le.
             Lian   Zhangsan Lisi Dou see   he   Perf
             'Even Zhangsan, Lisi saw him.'

        b.   Lisi (lian) Zhangsan dou kanjian (*ta) le.
             Lisi Lian   Zhangsan Dou see   he   Perf
             'Lisi even saw Zhangsan.'

The example in (155-a) shows that when *lian*+focus occupies a sentence initial position, the presence of the resumptive pronoun *ta* is optional. However, when

lian+focus is located in a sentence internal position, the presence of the resumptive pronoun is illegitimate as in (155-b).

Another difference has to do with the topic marker *a*. See the examples in (156).

(156)   a.   Wo lian zhe-ben-shu (*a) dou kan-le.
              I   Lian this Cl book Top Dou read Perf
              'I read even this book.'

          b.   Lian zhe-ben-shu a,   wo dou kan-le.
              Lian this Cl book Top I   Dou read Perf
              'I read even this book.'

The example in (156-a) show that the topic marker *a* is not compatible with a sentence with sentence internal *lian*+focus. But it is compatible when *lian*+focus occupies a sentence initial position.

Based on the two differences, Shyu (1995) and Badan (2007) argue that the sentence initial *lian*+focus is a contrastive topic while the sentence internal one is a simple focus. But Cheng and Vicente (2013) follow Krifka (2007) in assuming that contrastive topics is a subtype of focus, which emphasizes a contrast.

Furthermore, the distinct positions of '*lian*+focus causes its different sensitivity to clause-boundess. See the examples in (157).

(157)   a.   *Lili lian zhe-ben-shu xiangxin wo dou kan-le.
              Lili Lian this Cl book believe   I   Dou read Perf
              'Lili believes that I have read even this book.'

          b.   Lian zhe-ben-shu, Lili xiangxin wo dou kan-le.
              Lian this Cl book Lili believe   I   Dou read Perf
              'Even this book, Lili believes that I have read.'

The sentence in (157-a) shows that sentence internal *lian*+focus is clause-bound. But this sensitivity doesn't appear when *lian*+focus occupies a sentence initial position as in (157-b).

In sum, in general *lian...dou* expressions *lian* indicates additivity and its pronunciation is optional. It may be located in a sentence initial or a sentence internal position. The element after *lian* is often a nominal phrase. The distinct locations of *lian*+NP cause differences on the following aspects: the presence of the resumptive pronoun *ta*, the topic marker *a* and the clause-boundness.

3.6.1.2 Verb doubling *lian...dou*

Cheng and Vicente (2013) observe that verb doubling *lian...dou* show similarities with general *lian...dou*. First, *lian* and the copy following it can occupy a sentence initial or a sentence internal position as in (158). Second, *lian* is optionally pronounced as in (158) and (159). Third, the topic marker *a* can follow the sentence initial *lian*+focus but it cannot when *lian*+focus is in a sentence internal position as in (159).

(158) a. Ta (lian) **kan** dou mei **kan**.
           3S Lian look Dou not look
           'He didn't even have a look.'

       b. (Lian) **kan** ta dou mei **kan**.
           Lian   look 3S Dou not look
           'He didn't even look.'

(159) a. Ta (lian) **kan** (*a) dou bu **kan**.
           3S Lian look Top Dou not look
           'He didn't even look.'

       b. (Lian) **kan** (a) ta dou bu **kan**.
           Lian   look Top 3S Dou not look
           'He didn't even look.'

Moreover, verb doubling *lian...dou* expressions are clause-bounded only when *lian*+focus is located in a sentence internal position as in (160).

(160) a. *Wo lian **xie** renwei ta dou mei **xie**.
           I   Lian write think 3S Dou not write
           'I thought that he didn't even write.'

    b.   Lian **xie**   wo renwei ta dou mei **xie**.
              Lian write I   think 3S Dou not write
              'I thought that he didn't even write.'

Based on these similarities, Cheng and Vicente (2013) conclude that the sentence initial and internal versions of verb doubling *lian...dou* pattern with the sentence initial and internal versions of general *lian...dou*. The initial *lian*+focus has a contrastive topic reading.

Nevertheless, certain differences between general *lian...dou* and verb doubling *lian...dou* are also attested (cf. Cheng and Vicente 2013).

There are no (overt) resumptive pronominal predicates in Chinese. Thus, the lower verb copy cannot be replaced by any other element or deleted, which is different from general *lian...dou*. See the examples in (161).

(161)   a.   Lian pingguo Lisi dou chi-le.
              Lian apple   Lisi Dou eat Perf
              'Lisi even ate apples.'

           b.   Lian **Zhangsan**, Lisi dou kanjian (**ta**).
              Lian Zhangsan   Lisi Dou see   him
              'Lisi even saw Zhangsan.'

           c.   Lian **kan**, Lisi dou bu *(**kan**)/*__**qiao**__.
              Lian look Lisi Dou not   look/look
              'Lisi didn't even look.'

The example in (161-a) shows that the nominal phrase following *lian* doesn't have to appear after *dou*. Or it can appear as a resumptive pronoun as in (161-b). But in verb doubling *lian...dou* the lower verb copy cannot be deleted or replaced by any other verb as in (161-c).

Furthermore, Cheng and Vicente (2013, pg. 16) point out that verb doubling *lian...dou* sentences require the presence of either sentential negation or a superlative. See the examples in (162).

(162)   a.   Lili lian **kan** dou *(bu) **kan**.
              Lili Lian look Dou   not look

‘Lili didn't even look.’

b. Lian **kan** Lili dou *(bu) **kan**.
    Lian look Lili Dou   not look
    ‘Lili didn't even look.’

c. Lisi lian **chi** dou **chi** *(zui-hao   de).
    Lisi Lian eat Dou eat   Sup-good Part
    ‘Lisi even eats the best (food).’

d. lian **chuan** Lisi dou **chuan** *(zui-gui   de).
    Lian wear   Lisi dou wear   Sup-expensive Part
    ‘Lisi even wears the most expensive (cloth).’

The examples in (162-a) and (162-b) show that the presence of sentence negation is obligatory. The sentences in (162-c) and (162-d) show that the superlative is required.

Cheng and Vicente (2013, pg. 17) speculate that the obligatory presence of sentence negation or superlative is relevant to the scalarity requirement exercised on the verb. Semantically, general *lian...dou* is similar to English *even*, which combines scalarity and additivity. Likewise, when *lian* is followed by a verb, scalarity and additivity must be applied to the verb, which can be realized by polarity (e.g., negation) or by superlatives.

Another difference between verb doubling *lian...dou* and general *lian...dou* consists on the placement of *dou* (Cheng and Vicenete 2013, pg. 20). See the examples in (163) and (164).

(163)   a. Lian zhe-ben-shu, wo yiwei [Zhangsan *dou* kan-le].
            Lian this Cl book I   think Zhangsan Dou read Perf
            ‘Even this book, I thought Zhangsan has read.’

        b. Lian zhe-ben-shu, wo *dou* yiwei [Zhangsan kan-le].
            Lian this Cl book I   Dou think Zhangsan read Perf
            ‘Even this book, I thought Zhangsan has read.’

(164)   a. Lian **kan**, wo yiwei [Zhangsan *dou* mei **kan**].
            Lian look I   think Zhangsan Dou not look
            ‘I thought that Zhangsan didn't even look.’

        b. ?/*Lian **kan**, wo *dou* yiwei [Zhangsan mei **kan**].
               Lian look I   Dou think Zhangsan not look
               ‘I thought that Zhangsan didn't even look.’

The sentences in (163) show that in general *lian...dou* sentences *dou* can be placed in the matrix or embedded clause. However, in verb doubling *lian...dou* sentences it can only be located in the embedded clause as in (164).

Compared with general *lian...dou* sentences, verb doubling *lian...dou* expressions show both similarities and differences. Like general *lian...dou* sentences, the topic marker *a* can follow the sentence initial *lian*+focus(V) while it cannot follow the sentence internal one. Besides, the sequence *lian*+focus(V) is clause bounded only when it is located in a sentence internal position. Regarding the differences, the verb copy after *dou* cannot be replaced or deleted in verb doubling *lian...dou*. Furthermore, these expressions require the presence of either sentential negation or a superlative. The location of *dou* in these expressions is also different from that in general *lian...dou*. This is shown in the table in 3.2.

TABLE 3.2: General *lian...dou* vs. Verb doubling *lian...dou*

	General *lian...dou*	Verb doubling *lian...dou*
Similarities	The topic marker *a* can follow the sentence initial *lian*+focus/V, but it cannot follow the sentence internal one.	
	The sequence *lian*+focus/V is clause bounded only when it is located in a sentence internal position.	
Differences	The NP following *lian* is not doubled	The verb following *lian* must be doubled
	Negation or superlative is not required	Sentential negation or a superlative is required

3.6.1.3 Exact Copy

It has been observed that the two verb copies in verb doubling *lian...dou* sentences are not clause-bounded when *lian*+focus is in a sentence initial position as in (165).

(165)   Lian **kan** Zhangsan xiangxin wo dou mei **kan**.
          Lian look Zhangsan believe   I   Dou not look
          'Zhangsan believes that I didn't even look.'

However, Cheng and Vicente (2013, pg. 18) notice that the dependency between the two verb copies cannot be intervened by a *wh*-island as in (166-a) or an adjunct island as in (166-b).

(166) a. *Lian **kan** wo zhidao ta weishenme dou mei **kan**.
           Lian look I know 3S why   Dou not look
           'I know why he didn't even look.'

       b. *Lian **kan** ta bei che zhuang-le yinwei ta dou mei **kan**.
           Lian look 3S by car hit Perf bcause 3S Dou not look
           'He was hit by a car because he didn't even look.'

                                        [from Cheng and Vicente 2013, pg. 18]

Another dependency between the two verb copies consists on that the lower verb copy cannot specify the upper one as in (167).

(167) a. *Lian **gao** qingjie, Zhangsan dou mei **ca** chuanghu.
           Lian do cleaning Zhangsan Dou not wipe window
           'Zhangsan didn't even wipe windows.'

       b. *Lian **duanlian**, Zhangsan dou mei **youyong**.
           Lian do.exercise Zhangsan Dou not swim
           'Zhangsan didn't even swim.'

Therefore, Cheng and Vicente (2013) assume that there is A-bar dependency between the two verb copies in verb doubling *lian...dou* sentences.

In sum, the location of the two verb copies in verb doubling *lian...dou* is sensitive to *wh*-islands and adjunct islands.

3.6.1.4 Island Sensitivity

The upper verb copy in verb doubling *lian...dou* sentences is a bare verb as it is incompatible with any aspect marker (cf. Li 2010). See the examples in (168).

(168) a. *Zhangsan lian **kan**-le dou bu **kan**.
           Zhangsan Lian look Perf Dou not look

'Zhangsan didn't even look.'

b. *Zhangsan lian **kan**-guo dou mei **kan**.
Zhangsan Lian look Exp Dou not look
'Zhangsan didn't even look.'

The examples in (168) show that the verb copy following *lian* cannot be modified by aspect markers.

However, the lower verb copy can be followed by aspect markers. See the examples in (169).

(169)   a.   Zhangsan lian **chang** dou bu **chang**-le.
Zhangsan Lian sing   Dou not sing Perf
'Zhangsan didn't even sing.'

b.   Zhangsan lian **xie**   dou mei **xie**-guo.
Zhangsan Lian write Dou not write Exp
'Zhangsan didn't even write.'

The examples in (169) show that the lower verb copy in verb doubling *lian...dou* expressions is compatible with aspect marker.

In sum, the verb copy after *dou* is compatible with overt aspect markers while the one before it is not.

3.6.1.5   Overt Objects

It is observed that the upper verb copy in verb doubling *lian...dou* can take objects (cf. Liu 2005). See the examples in (170).

(170)   Zhangsan lian **mai** shui   dou bu **mai**.
Zhangsan Lian buy water Dou not buy
'Zhangsan didn't even buy water.'

The example in (170) shows that in verb doubling *lian...dou* the upper verb copy can take the object *shui* (Eng. 'water').

Besides, Liu (2005) observes that in verb doubling *lian...dou* sentences, the object cannot be doubled as in (171-a) and the overt object must follow the upper verb copy as in (171-b).

(171) a. *Zhangsan lian **mai** shui   dou bu **mai** shui.
           Zhangsan Lian buy water Dou not buy water
           'Zhangsan didn't even buy water.'

       b. *Zhangan lian **mai** dou bu **mai** shui.
           Zhangsan Lian buy Dou not buy water
           'Zhangsan didn't even buy water.'

However, when the overt object is a specific nominal phrase, the situation is different. See the examples in (172).

(172) a. ?Zhangsan lian **kan** zhe-ben-shu dou bu **kan**.
           Zhangsan Lian read this Cl book Dou not read
           'Zhangsan didn't even read this book.'

       b. Zhangsan lian **kan** dou bu **kan** zhe-ben-shu.
           Zhangsan Lian read Dou not read this Cl book
           'Zhangsan didn't even read this book.'

The examples in (172) show that when the overt object is a specific one, it should follow the lower verb copy instead of the upper one. When the sentence in (172-a) is acceptable, it could be interpreted as *Zhangsan didn't even READ this book, (not mention to RECITE it).* Additionally, Liu (2005) points out that the scalarity that *lian...dou* denotes applies to the whole VP indicated by the doubled verb. The question mark before the sentence in (172-a) is added because topicalization of a nominal phrase is more acceptable, i.e., *Zhangsan lian zhe-ben-shu dou bu kan* (Eng. 'Zhangsan Lian this book Dou not read') (cf. Liu 2005).

In sum, when the overt object is a specific one, it may follow either of the two verb copies in verb doubling *lian...dou.* When it is a non-specific nominal phrase, it may only follow the verb copy after *lian.*

In conclusion, the discussion on verb doubling *lian...dou* includes the following aspects: i) some properties of general *lian...dou* sentences, ii) the differences and similarities between verb doubling *lian...dou* and general *lian...dou*, iii) the island

sensitivity between the two verb copies in verb doubling *lian...dou*, iv) the distinct compatibility of the verb copies with overt aspect markers and v) the location of an overt object in these expressions.

3.6.2 *bu* V *dou* V

Another verb doubling phenomenon in Chinese related to maximality is *bu* V *dou* V. Like verb doubling *lian...dou*, the maximality operator *dou* appears in these expressions as well. See the example in (173).

(173)   A: ni bu yinggai kan na-ben-shu.
         you not should read that Cl book
         'You shouldn't read that book.'

        B: bu **kan** dou **kan**-le.
          not read Dou read Perf
          'But I've already read it.'

In (173) the verb *kan* (Eng. 'read') is pronounced twice. The upper copy follows the sentence negation marker *bu* while the lower verb copy follows the maximality operator *dou*.

The discussion on *bu* V *dou* V expressions contains the following aspects: i) the context that these expressions appear (section 3.6.2.1), ii) the negation marker *bu* and modal verbs (section 3.6.2.2), iii) verb copies (section 3.6.2.3) and iv) the asymmetry of the two verb copies (section 3.6.2.4).

3.6.2.1 Contexts

Bu V *dou* V expressions are used to express certain contrast with some advice or recommendations on the event denoted by the doubled verb. See the conversation in (174).

(174)   A: Zhangsan bu neng xie   zhe-fen-baogao
          Zhangsan not can   write this Cl report
          'Zhangsan cannot write this report.'

         B: bu **xie**   dou **xie**-le.
            not write Dou write Perf
            'But he has already written it.'

In (174), the answer with *bu* V *dou* V means that the action denoted by the doubled verb is realized even though it is not recommended according to Speaker A. The negation in the answer is related to the information given by Speaker A. That is to say, negation must appear before the presence of a *bu* V *dou* V expression.

When there is no negation on the doubled verb in the conversation, an answer with *bu* V *dou* V would be odd. This is shown in (175).

(175)   A: Zhangsan bu xiangxin wo kan-le   na-ben-shu.
          Zhangsan not believe   I   read Perf that Cl book
          'Zhangsan doesn't believe that I read that book.'

         B: *bu **kan** dou **kan**-le.
            not read Dou read Perf
            'But I've read it already.'

In (175), no negation applies to the doubled verb *kan* (Eng. 'read') in the expression of Speaker A. In Speaker A's expression the negation apply to the verb *xiangxin* (Eng. 'believe'). So the answer of Speaker B with *bu* V *dou* V is weird.

Generally, no (overt) subject presents in expressions with *bu* V *dou* V. See the example in (176).

(176)   a. (Lisi) bu **kan** dou **kan**-le.
             Lisi   not read Dou read Perf
             'But Lisi has read it.'

         b. ?bu **kan** Lisi dou **kan**-le.
             not read Lisi Dou read Perf
             'But Lisi has read it.'

The sentence in (176-a) shows that the subject *Lisi* is optional in a sentence with *bu* V *dou* V. Besides, it precedes the negation word *bu*. The sentence in (176-b) shows that the presence of a subject following the linearly first copy is not fully acceptable.

In sum, *bu* V *dou* V expressions often appear to express contrasts with some advices or recommendations on the event denoted by the denoted verb. They indicate that this event happens even though it is unrecommended. Besides, the subject is usually omitted in these expressions.

3.6.2.2 Negation and Modal Verbs

I have shown that the negation marker *bu* is relevant to the conversation in which a *bu* V *dou* V expression appears. This negation marker cannot be deleted or replaced. See the examples in (177).

(177)   a. *(bu) **xie**   dou **xie**-le.
             not   write Dou write Perf
             'But he has written it.'

         b. *mei/meiyou **xie**   dou **xie**-le.
             not   write Dou write Perf
             'But he has written it.'

The example in (177-a) shows that the negation word *bu* cannot be omitted. I assume this has to do with the topic character of *bu* V. The sentence in (177-b) shows that it cannot be replaced by other negation markers like *mei* or *meiyou*.

Modal verbs can be located between the negation marker and the verb copy following it. See the example in (178).

(178)   A: ni   bu gai/neng   kan zhe-ben-shu.
            you not should/be permitted to read this Cl book
            'You shouldn't read this book.'

         B: bu (gai/neng)   **kan** dou **kan**-le.
            not should/be permitted to read Dou read Perf

'(Though I shouldn't/can't,) I have read it already."

The example in (178) shows that modal verbs like *gai* (Eng. 'should') and *neng* (Eng. 'be permitted to') can be located between the negation marker *bu* and the upper verb copy. These modal verbs must appear in the conversation.

In sum, the negation marker *bu* is obligatory in *bu* V *dou* V expressions. Moreover, modal verbs that appear in previous context may be repeated in these expressions.

3.6.2.3 Verb Copies

Generally, verbs that denote actions appear in *bu* V *dou* V expressions. See the examples in (179).

(179)　　a.　Lisi bu **kan** dou **kan**-le.
　　　　　Lisi not read Dou read Perf
　　　　　'Lisi has read it already.'

　　　　b.　Zhangsan bu **xie**　dou **xie**-le.
　　　　　Zhangsan not write Dou write Perf
　　　　　'Zhangsan has written it already.'

The verbs *kan* (Eng. 'read') in (179-a) and *xie* (Eng. 'write') in (179-b) denote actions. So they are allowed to appear in *bu* V *dou* V expressions.

Verbs that denote status are forbidden to present in *bu* V *dou* V expressions. See the examples in (180).

(180)　　a.　*ta bu **shi** dou **shi**-le.
　　　　　　3S not be　Dou be Perf

　　　　b.　*ta bu **xiang** dou **xiang**-le.
　　　　　　3S not be.like Dou be.like Perf

The verbs *shi* (Eng. 'be') in (180-a) and *xiang* (Eng. 'be like') in (180-b) denote status. The are not allowed to appear in the *bu* V *dou* V expressions.

In sum, verbs in *bu* V *dou* V are usually action-denoted. Verbs that denote status are not allowed to be doubled in these expressions.

3.6.2.4 Preverbal and Postverbal Elements

As I mentioned previously, the upper verb copy in *bu* V *dou* V can be modified by modal verbs that appear in the conversation as in (181).

(181)   A: Ni bu gai   wen zhexie wenti.
             you not should ask these question
             'You should not ask these questions.'

          B: Wo bu (gai)   **wen** dou **wen**-le
             I   not should ask Dou ask Perf
             'But I have asked them.'

In (181) the verb *wen* (Eng. 'ask') is doubled by Speaker B with a *bu* V *dou* V expression. The upper verb copy can be preceded by the modal verb *gai* (Eng. 'should'), which is mentioned by Speaker A.

Notice that the verb copy after *dou* cannot be preceded by any modal verbs as in (182).

(182)   *Wo bu **wen** dou gai   **wen**-le.
        I   not ask Dou should ask Perf
        'But I have asked them.'

However, this verb copy cannot be modified by any aspect marker or take any (overt) objects. See the examples in (183).

(183)   a. *Wo bu **wen**-le dou **wen**-le.
           I   not ask Perf Dou ask Perf
           'But I have asked them already.'
    b. *Wo bu **wen** zhexie wenti   dou **wen**-le.
           I   not ask these questions Dou ask Perf
           'But I have asked them already.'

The example in (183-a) shows that the upper verb copy in *bu* V *dou* V expressions cannot be modified by the aspect marker *le*. I assume this incompatibility is related to the semantic meaning of *bu* V *dou* V expressions because *bu* V implies advise, i.e., the event is assumed to occur in the future. The sentence in (183-b) shows that the upper verb copy cannot take any (overt) objects.

Nevertheless, the lower verb copy in *bu* V *dou* V expressions is compatible with both aspect markers and (overt) objects. See the example in (184).

(184)   a.   Wo bu **wen** dou **wen**-le.
              I   not ask Dou ask Perf
              'But I have asked them.'

         b.   Wo bu **wen** dou **wen**-le   zhexie wenti.
              I   not ask Dou ask Perf these   question
              'But I have asked these questions.'

The example in (184-a) shows that the lower verb copy in *bu* V *dou* V expressions can be modified by aspect marker like *le*. The sentence in (184-b) shows that this verb copy can take (overt) objects.

In sum, the linearly first verb copy in *bu* V *dou* V may be modified by modal verbs that appear previously while the other cannot be modified by these modal verbs. But this verb copy is not allowed to take any overt objects or aspect markers while the other one is compatible with these elements.

In conclusion, the discussion on *bu* V *dou* V expressions include several aspects. These expressions are used to express some contrasts with certain advice or recommendation. The negation marker *bu* cannot be omitted and modal verbs appear previously may follow it. Moreover, verbs that denote status are not allowed to appear in *bu* V *dou* V expressions. And the two verb copies behave differently in compatibility with modal verbs, aspect markers and overt objects.

3.7   Conclusions

In Chapter 3 I have described different verb doubling patterns in Chinese. I concentrate on the doubling of verbs in distinct patterns. The observations of these verb doubling patterns show that verb doubling in Chinese may be related to not only topic/focus, but also delimitative aspect, polarity, presupposition and maximality.

I classified the discussed verb doubling patterns into five groups based on certain similarities shared by the different types of verb doubling. These groups are Group I: Topic/focus, Group II: Delimitative aspect, Group III: Polarity, Group IV: Presupposition and Group V: Maximality.

The two verb doubling patterns in **Group I**, i.e., verb doubling clefts and verb copying, are observed to be related to topic/focus. Verb copying (VC) is a typical doubling phenomenon in Chinese. They are classified into four categories: VC with Result-*de* phrases, VC with resultative compounds, VC with Manner-*de* phrases and VC with Duration/Frequency phrases.

The doubling pattern verb reduplication (**Group II**) in Chinese is relevant to delimitative aspect. The delimitative aspect indicates a short duration or a low iteration frequency of certain event. These expressions often have the meaning equivalent to *have a...* in English.

Verb doubling patterns in **Group III**, i.e., V neg V, *ai* V *bu* V, have closed relation with polarity. V neg V expressions are used to raise a polarity question in Chinese. There are two kinds of "true" A-not-A questions: V-not-VP and VP-not-V. Another verb doubling pattern with negation is *ai* V *bu* V. These expressions are used to express one's carelessness on the event denoted by the doubled verb.

Moreover, verb doubling patterns with the adverb *jiu* in Chinese may relate to one's presupposition (**Group IV**). V *jiu* V expressions often appear in discourses. The higher verb copy indicates presuppositions. In *shuo* V *jiu* V expressions the sequence *shuo* V can be interpreted differently, i.e., 'say V' or 'speak of V'. So presuppositions may be included in these expressions. The asymmetry in the two verb copies is related to the meaning of *shuo* V. The pattern V *jiu* V *zai* is used to introduce the cause or reason of the event denoted by the doubled verb.

The two doubling pattern with the maximality operator *dou* (**Group V**), i.e., verb doubling *lian...dou* and *bu* V *dou* V, are relevant to the maximality. Verb doubling *lian...dou* is similar to general *lian...dou*. The sequence *lian*+V has topic reading while the lower verb copy is a focus. The two verb copies are sensitive to islands. Like verb doubling *lian...dou*, *bu* V *dou* V expressions include the maximality operator *dou*. The negation marker *bu* and the doubled verb behave as topics.

Verb doubling with clefts in Chinese will be discussed in Chapter 4. The discussions include both the properties of these expressions and an approach of their derivations.

A summary of verb doubling patterns discussed in this thesis can be seen in Table 3.3 and Table 3.4. The classification is shown in the column Group in these tables. The classification also implies similarities among certain verb doubling patterns.

Apart from the similarities shown in the two tables, I would point out some main properties shared by all these verb doubling patterns.

First, many expressions with verb doubling patterns in Chinese appear in discourses. The doubled element is usually mentioned in previous context.

Second, the higher verb copy in verb doubling patterns in Chinese is quite bare in the sense that it usually cannot be modified by any preverbal or postverbal elements like aspect marker, modal verbs, VP-level adverbs, etc. There are exceptions like V *jiu* V and V neg V. However, in these two patterns, when preverbal or postverbal elements appear with the higher verb copy, these elements must be doubled as well.

Third, the two copies in verb doubling in Chinese are often the same element. In other words, doubling is realized with a full copy. Nevertheless, partial doubling is allowed in certain doubling pattern like V neg V when the doubled element is multisyllable.

TABLE 3.3: Verb Doubling Patterns in Chinese (Summary I)

Verb Doubling Patterns in Chinese			
Group	Pattern	Example	Property
I: Topic/ Focus	Verb doubling cleft	**Kan**, ta **kan**-guo, ... 'As for reading, he has read it...'	[see Chapter 4] discourse related, information Introducing, literal meaning, etc.
	Verb Copying (VC)	Ta **kan** xiaoshuo **kan**-le san tian. 'He read novels for three days.'	VC with Resultative-*de*, VC with resultative compounds, VC with Manner-*de*, VC with Duration/Frequency, etc.
II: Delimitative Aspect	Verb Reduplication (VR)	Wo qu **ting ting** baogao. 'I go to listen to reports.'	Delimitative aspect, V *le* V, V *yi* V, etc.
III: Polarity	V neg V	Ni **kan** bu **kan** dianying? 'Do you watch movies?'	Negation, V-not-VP, VP-not-V, etc.
	ai V *bu* V	Ni ai **lai** bu **lai**! 'Whether you come or not is not my business.'	Bare verbs, Carlessness, etc.

TABLE 3.4: Verb Doubling Patterns in Chinese (Summary II)

Verb Doubling Patterns in Chinese			
Group	Pattern	Example	Property
IV: Presupposition	V *jiu* V	**Zou** jiu **zou**. 'If you want to leave, then leave.'	Discourse related, Moderate tone, etc.
	shuo V *jiu* V	Ta shuo **pao** jiu **pao**. 'He ran immediately.'	Verb copies, Meaning of *shuo* V, etc.
	V *jiu* V *zai*	Ta **shu** jiu **shu** zai celue shang. 'He lost because of the strategy.'	Doubled element, Reason/cause, etc.
V: Maximality	Verb doubling *lian...dou*	Ta lian **kan** dou bu **kan**. 'He doesn't even have a look.'	*lian...dou* Isalnd sensitivity, Overt objects, etc.
	bu V *dou* V	Bu **chi** dou **chi**-le. 'Though I shouldn't, but I ate it.'	Discourse related, Negation, etc.

Chapter 4

Verb Doubling Clefts in Chinese

4.1   Chapter Outline

In Chapter 3 I offered an overview of non-cleft verb doubling patterns in Chinese. These patterns are classified into give groups as shown in (1).

(1)   a.   Group I: Topic/focus
            Verb doubling cleft
            Verb Copying
       b.   Group II: Delimitative Aspect
            Verb Reduplicaton
       c.   Group III: Polarity
            V neg V
            ai V *bu* V
       d.   Group IV: Presupposition
            V *jiu* V
            shuo V *jiu* V
            V *jiu* V *zai*
       e.   Group V: Maximality
            Verb doubling *lian...dou*
            bu V *dou* V

In this chapter I concentrate on the pattern verb doubling cleft (VDC, henceforth). As I mentioned in Chapter 3, expressions with this pattern show topic/focus reading (like VC in Group I).

VDC expressions refer to sentences in which one verb is pronounced twice with one copy located in a sentence initial position and the other is located in a sentence internal position, as in (2).[1]

(2)   **Chi**, wo **chi**-le   yixie mianbao,...
       eat   I   eat Perf   some bread
       'As for eating, I ate some bread,...'

[Mandarin]

In this chapter not only I offer a description of VDC expressions, I also propose an analysis for these expressions. On one hand, a description on properties of VDC expressions is necessary in order to justify the point that these expressions involves a topic reading. On the other hand, a syntactic account for VDC expressions helps to understand why doubling exists in languages.

In Chapter 2 I showed that verb doubling phenomena in many languages are equivalent to verb fronting or verb phrase fronting (see section 2.6). Moreover, following Nunes (2004), Landau (2006) and Vicente (2007) provide detailed accounts for these phenomena. The proposal I offer in this chapter is in line with these approaches in which I argue that doubling effect follows the failure of chain reduction. This failure comes from the morphological fusion occurred between a verb copy and an aspect head instead of a focus head as proposed in Cheng and Vicente (2013).

The discussion in this chapter includes three aspects: general properties and some constraints of VDC, Cheng and Vicente's (2013) account on VDC expressions and my account for the derivation of these expressions. In section 4.2 I introduce several general properties of VDC sentences. First, VDC expressions usually show up in conversations and speakers provide more information after the utterance of a VDC expression. Second, the doubled verb in VDC must have its literal meaning.

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[1]In this chapter, examples without any citation of references are my own Mandarin data and my original translation.

Third, not all modal verbs can undergo doubling in VDC expressions. In section 4.3 I present Cheng and Vicente's (2013) account for VDC expressions, in which the lower verb copy does not take any overt object. In section 4.4 I show that the copular verb *shi* (Eng. 'be') is optional in VDC expressions. The section 4.5 includes a discussion on the debate of movement of a head or a phrase. I argue that it is a head that undergoes movement in these expressions. Later, I argue in section 4.6 that the doubled verb in VDC expressions undergoes long-distance head movement. In section 4.7 I propose that the upper verb copy occupies in the specifier position [Spec, TopP]. I concentrate on the doubling effect in VDC in section 4.8. I assume that the pronunciation of two verb copies is due to the failure of Chain Reduction (Nunes 2004). I suggest that the lower verb copy fuses with an Asp^0 (Cinque 1999) in the morphological component and the fusion causes the failure of Chain Reduction. I conclude this chapter in section 4.9.

4.2 General Properties

In this section I introduce four properties of VDC expressions. They are the following: i) VDC often appears in discourses and the sentence initial verb copy is interpreted as a topic; ii) more information is introduced after phrasing a VDC expression; iii) the doubled verbs in VDC maintain their literal meanings; iv) Not all modal verbs allowed to be doubled in VDC.

4.2.1 Discourse Related

It has been observed that verb doubling clefts can be used to answer a polarity question (Cheng and Vicente 2013). See the example in (3).

(3)   A: Ni chi-le   ma?
          you eat Perf Q
          'Have you eaten?'

       B: **Chi**, wo **chi**-le,   buguo...
          eat   I   eat Perf but
          'As for eating, I have indeed eaten, but...'

In (3) the VDC expressions appear to answer a polarity question. This example also shows that VDC expressions appear in discourses. The sentence-initial verb copy is a topic because it is mentioned in previous context. A VDC expression without previous context is weird as shown in (4).

(4)   A: Wo zuotian   kan-le   yi-bu-dianying.
            I   yesterday watch Perf one Cl movie
            'I watched a movie yesterday.'

        B: ??**Chi**, wo zuotian   **chi**-le   xia,   buguo...
            eat   I   yesterday eat Perf shrimp but
            'As for eating, I ate shrimps yesterday, but...'

In (4), Speaker A does not mention the verb *chi* (Eng. 'eat'). An answer with doubling of this verb is quite weird. Thus, the doubled verb in a VDC expression must be mentioned previously.

A VDC expression may also appear in conversations with a *wh*-question. See the conversation in (5).

(5)   A: Ta kan-le   shenme?
            3S read Perf what
            'What did he read?'

        B: **Kan**, ta **kan**-le   zhe-ben-xiaoshuo, buguo, ta kan de   bu kuai /
            read   3S read Perf this Cl novel   but   3S read Part not fast
        buguo, ta bu xihuan
        but   3S not like
            'As for reading, he read this novel, but he didn't read it fast / but he didn't like (it).'

[Mandarin]

In (5), the VDC expression is used to answer the *wh*-question with *shenme* (Eng. 'what'). The overt object *zhe-ben-xiaoshuo* (Eng. 'this novel') is the information focus of the expression. The sentence-initial verb copy *kan* (Eng. 'read') is interpreted as a topic.

In sum, what these few examples show is that VDC expressions often appear in discourses. The doubled verb is mentioned in previous context and it is interpreted as a topic. In section 4.2.2 I will show that a VDC expression often shows up with "additional" information.

4.2.2   Information Introducing

In section 4.2.1 I showed that VDC expressions usually appear in discourse situations and the sentence initial verb copy has a topic reading. In this section, I show that when a VDC expression appears, the sentence ends with more information.

That is to say, speakers resorting to VDC expressions often "say" more after the utterance of a VDC expression. See the example in (6).

(6)   A: Ni kan-guo shu le   ma?
           you read Exp book Perf Part
           'Have you read the book?'

        B: **Kan**, wo **kan**-le,   buguo, wo mei kan wan.
           read I   read Perf but   I   not read finish
           'As for reading, I have read it, but I haven't finished it.'

[Mandarin]

The example (6) shows that after the utterance of a VDC expression, more information appears. In (6) Speaker B points out the result of the event *mei kan wan* (Eng. 'not finish reading'). Besides, these information is often introduced with *but*. Similar phenomenon is also attested in other languages like Brazilian Portuguese and Spanish (cf. Bastos 2001, Vicente 2007). See the example in (7).

(7)   **Leer**, Juan ha **Leído** un libro, (pero...)
       read   Juan has read   a   book but
       'As for reading, Juan has read a book, but...'

[Spanish data from Vicente 2007, pg. 66]

The example in (7) shows that the "but-effect" also appears in Spanish when a verb is doubled in a sentence initial position. It is called as "adversative implicature" in Bastos (2001, pg. 58-67). In other words, when a verb is fronted to a sentence initial position, the conversational contribution of this sentence is more than what is required. Notice that in (7) the "adversative implicature" in the sentence is optional.

However, in Chinese a VDC sentence without the "adversative implicature" part is odd, as in (8).

(8)   ?**Kan**, wo **kan**-le.
       read   I   read Perf
       'As for reading, I read it.'

[Mandarin]

The example in (8) shows that in Chinese when a VDC expression appears and no information is introduced after its utterance, the sentence sounds weird.

In this section I have shown that when a VDC expression emerges, "adversative implicature" information usually follows. In section 4.2.3 I will illustrate that the doubled verb in a VDC expression must keep its literal meaning.

4.2.3   Literal Meaning

In section 4.2.2 I have argued that "adversative implicature" usually follows the utterance of a VDC expression. In this section I discuss the meaning of the doubled verb in VDC expressions.

It is observed that in Spanish when a verb is used in an idiom, a VDC expression with this verb is not always acceptable. See the examples in (9) and (10).

(9) a. Juan ha estirado la pata.
         Juan has stretched the leg
         'Juan has died.' (idiom reading) / 'Juan has stretchd his leg.'

     b. **Estirar**, Juan ha **estirado** la pata.
         stretch Juan has stretched the leg
         *'Juan has died.' (idiom reading) / 'Juan has stretched his leg.'

                                        [Spanish data from Vicente 2009, pg. 182]

(10) a. Juan nos ha tocado las pelotas.
         Juan us has touched the balls
         'Juan has been annoying us.' (idiom reading)

     b. **Tocar**, Juan nos ha **tocado** las pelotas.
         touch Juan us has touched the balls
         'Juan has been annoying us.' (idiom reading)

                                        [Spanish data from Vicente 2009, pg. 182]

In (9), *esirar la pata* can have both its literal meaning 'stretch the leg' and idiom reading 'die', but the idiom reading disappears when the verb *estirar* (Eng. 'stretch') is doubled as those in VDC expressions as in (9-b). However, the idiom *tocar las pelotas* keeps its idiom reading when the verb *tocar* (Eng. 'touch') is doubled in (10-b) like VDC expressions.

In Chinese when a verb in an idiom is doubled in VDC, the sentence is ungrammatical. This is shown in (11).

(11) a. ***Chi**, Zhangsan **chi**-kui le,...
          eat Zhangsan eat-loss Perf
          'As for suffering, Zhangsan suffered loss,...'

     b. ***Kai**, Lisi bu jingchang **kai**-wanxiao
          open Lisi not often open-joke
          'As for playing, Lisi doesn't play jokes often,...'

                                                              [Mandarin]

In (11-a), the verb phrase *chi kui* means 'suffer loss' (Eng.) in which the verb *chi* cannot maintain its literal meaning 'eat' (Eng.). Thus, the verb cannot be pronounced in the sentence-initial position. Likewise, the verb phrase *kai wanxiao* in (11-b) means 'play jokes' (Eng.) in which the verb *kai* does not have its literal meaning 'open' (Eng.). Thus, it is obligatory for the doubled verb in VDC expressions to keep its literal meaning.

Following Landau (2006) and Vicente (2009), I believe that fronted verb copy causes alternatives to the verb meaning instead of the meaning of a verb phrase. Hence, idiomatic reading is blocked in VDC expressions.[2]

In sum, when a verb undergoes doubling in VDC expressions, it must have its literal meanings. In section 4.2.4 I will focus on the question whether modals can be doubled in VDC expressions.

4.2.4 Modals

In section 4.2.3 I have illustrated that the doubled verb in a VDC expression must keep its literal meaning. Thus, verbs in idioms cannot be doubled in a sentence initial position. In this section I concentrate on whether modal verbs can be doubled in VDC expressions.

It is observed that in Spanish the fronted verb in an expression similar to VDC must be a "felicitous topic" (Vicente 2009, pg. 166). This is proved by examples in (12).

(12)   a. *__Haber__, Juan __ha__ leído un libro.
            have   Juan has read a   book
            'As for something being done, Juan has read a book.'

       b. *__Ser__, la   puerta __fue__ reparada.
            be   the door   was fixed
            'As for being (done something), the door was fixed.'

[Spanish data from Vicente 2009, pg. 166]

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[2]The ungrammaticality of these sentences may be also explained if one assumes that the idiom is one lexical unit (p.c. Ángel J. Gallego).

The auxiliaries *haber* (Eng. 'to have') (perfect tense) and *ser* (Eng. 'to be') (passive voice) in Spanish in (12) do not have any lexical content. This implies that they cannot be semantically well-formed topics. So these verbs cannot be doubled in VDC expressions.

However, the acceptability of a VDC expression with doubled modal verbs may be relevant to its modality (cf. Kratzer 1981). See the examples in (13).

(13)   a. ??**Poder**,   Juana **puede**   volver a casa. (Epistemic modality)
           be.possible Juana be.possible return to home
           'It is possible that Juana has returned home.'

        b.   **Poder**,   no **puedo**,   pero lo haré. (Deontic modality)
           be.able.to not be.able.to but it do
           'As for being able, I am not able, but I will do it.'

                                       [Spanish data from Carme Picallo p.c.]

The examples in (13) show that in Spanish only modal verbs with deontic modality may undergo doubling in verb fronting sentences.

Modal verbs in Chinese are classified into raising modals and control modals (Lin and Tang 1995, Huang, Li and Li 2009). A control modal imposes a selective restriction on the semantics of the subject while a raising modal has no such restriction. See the examples in (14) and (15).

(14)   Raising modals

        a.   Lisi *yinggai* kan zhe-ben-shu. (Deontic modality)
           Lisi should read this Cl book
           'Lisi should read this book.'

        b.   zhe-ben-shu *yinggai* hen jingcai.   (Epistemic modality)
           this Cl book should very wonderful
           'This book should be wonderful.'

                                               [Mandarin]

(15)   Control modals

        a.   Zhangsan *neng*   youyong. (Deontic modality)
           Zhangsan be.able.to swim

'Zhangsan is able to swim.'

  b. *Zhe-ben-shu *neng* hen jingcai.
    this Cl book be.able.to very wonderful
    'This book is able to be wonderful.'

[Mandarin]

It is observed that not all modal verbs can undergo verb doubling in VDC expressions. See the example in (16) and (17).

(16) Raising modals in VDC

  a. **yinggai**, Lisi **yinggai** youyong.
    should Lisi should swim
    'Lisi should swim.'

  b. ***yinggai**, zhe-ben-shu **yinggai** hen jingcai.
    should this Cl book should very wonderful
    'This book is should be wonderful'

[Mandarin]

(17) Control modals in VDC

  a. **neng**, Lisi **neng** youyong.
    be.able.to Lisi be.able.to swim
    'Lisi is able to swim.'

  b. ***neng**, zhe-ben-shu **neng** hen jingcai.
    be.able.to this Cl book be.able.to very wonderful
    'This is book is able to be wonderful.'

[Mandarin]

The examples in (16) and (17) show that only when a verb is used with deontic modality, it can undergo verb doubling in VDC expressions.

In sum, only modal verbs with deontic modality may undergo doubling in VDC expressions.

In all, in section 4.2 I have presented the following properties of VDC expressions. VDC expressions generally appear in discourses. Moreover, these expression

often show up with more information introduced by *buguo* (Eng. 'but'). The doubled verb in VDC must have its literal meaning. Only modal verbs with deontic modality are allowed to be doubled in a VDC expression. In section 4.3 I will introduce Cheng and Vicente's (2013) account for VDC expressions.

4.3 Cheng and Vicente's (2013) analysis

In section 4.2 I illustrated these properties of VDC expressions in Chinese: i) VDC expressions usually appear in a discourse interaction and the sentence initial verb copy is interpreted as a topic; ii) "but-effect" is attested in these expressions; iii) the doubled verb in a VDC expression must maintain its literal meaning; iv) not all modal verbs may undergo doubling in VDC. In this section, I review Cheng and Vicente's (2013) account for VDC expressions in Chinese. Cheng and Vicente (2013) study the syntactic structure of VDC expressions.

Before I introduce Cheng and Vicente's (2013) account in detail, I would like to point out a difference between the data I present in previous sections and those in Cheng and Vicente's (2013) paper. Examples without language specification from Cheng and Vicente (2013) are Mandarin data. See the example in (18).

(18)   a.   **Chi**, wo *shi* **chi**-guo le,   bubuo...
                eat   I   Cop eat Exp Perf but
                'As for eating, I have (indeed) eaten, but...'

[from Cheng and Vicente 2013, pg. 2]

    b.   **Kan**, wo **kan**-le,   buguo...
                read   I   read Perf but
                'As for reading, I read (it), but...'

[Mandarin]

The sentence in (18-a) shows that the VDC expressions Cheng and Vicente (2013) present in their paper always contain the copula *shi* (Eng. 'be'). But, notice that in other cases I offer VDC expressions withoug this copula as in (18-b). Since both sentences are acceptable, the presence or absence of the copula *shi* (Eng. 'be') does not affect the grammaticality of a VDC expression. I believe this difference comes

from speakers' dialectal distinctions. That is to say, whether a VDC expression contains *shi* (Eng. 'be') or not depends on the habits of individual speakers that speak different dialects.

In this section I follow Cheng and Vicente (2013) in providing examples with the copula *shi* (Eng. 'be') in order to facilitate the explanation. The optional presence of *shi* will be discussed in section 4.4.

Cheng and Vicente (2013) claim that VDC expressions have the same internal syntax as general clefts with the copula *shi* (Eng. 'be') based on the distribution of topic/focus in the two constructions. The topic(s) and focus in the expression are marked with subscripts T and F, respectively. See the examples in (19) and (20).

(19)   General cleft

   [$_T$ Zhe-ben-shu], shi   [$_F$ Zhangsan] kan,   bu   shi   Lisi kan.
      this Cl book   Cop   Zhangsan   read not Cop Lisi read
   '(As for) this book, it is Zhangsan who is going to read it, not Lisi.'

[Mandarin]

(20)   Verb doubling cleft

   [$_T$ **Chi**], [$_T$ wo] shi   [$_F$ **chi**]-le,   buguo...
      eat   I   Cop   eat Perf but
   'As for eating, I have (indeed) eaten, but...'

[Mandarin]

The sentence in (19) is a general cleft sentence with *shi* (Eng. 'be'). The authors insist that *shi* (Eng. 'be') is a copular verb (Cheng 2008 and references cited there). The constituent immediately following *shi* (Eng. 'be') is the focus of the sentence. The elements precede *shi* (Eng. 'be') are interpreted as topics. The expression in (20) is a verb doubling cleft expression. The clefted verb and the subject are topics and the verb copy after *shi* (Eng. 'be') is focus.

Moreover, the authors also claim that the lower verb copy in VDC is a *verum*

focus, which affirms the truth of the proposition (Krifka 2007). Besides, they indicate the *verum* focus meaning via the use of the modifier *indeed* in the translation. Besides, verb doubling clefts trigger an "adversative implicature", which can be lexicalized by adding *buguo* (Eng. 'but') after the cleft (Vicente 2007 and references cited there, see also section 4.2).

4.3.1 Basic Properties of Clefts

Following Cheng (2008), the authors claim that general clefts with *shi* have the derived structure in (21).

(21)   Structure of clefts

    a.   shi [$_{SC}$ [$_{SUBJECT}$ XP] [$_{PRED}$ *pro*]]

    b.   [*pro*]$_i$ shi [$_{SC}$ [$_{SUBJECT}$ XP] t_i]

                                            [adapted from Cheng and Vicente 2013, pg. 4]

Shi is a copular verb and takes a small clause (SC) with *pro* predicate as in (21-a). The *pro* predicate undergoes predicate raising to the left of the copular verb as in (21-b), making general cleft sentences with *shi* inverse predication structures, i.e., "structurally equivalent to English *it is x* sentences (Moro 1997, Mikkelsen 2004), with the *pro* predicate being the counterpart of *it*."[3]

---

[3]Moro (1997, pg. 63-67) explores the possibility that in structure like *pro sono io* (Eng. 'pro am I') *pro* is an argument specifically the subject of the small clause selected by the copula as shown in (i).

(i)   [$_{IP}$ *pro$_i$* [$_{I'}$ *sono$_j$* [$_{VP}$ t$_j$ [$_{SC}$ t$_i$ *io*]]]]

                                [Italian data from Moro 1997, pg. 64]

The presentation in (i) corresponds to canonical copular sentences, i.e., *pro* is the subject and *io* is the predicate left *in situ*. However, it is observed that this presentation does not share properties of canonical sentences. This is proven by the fact that agreement is sensitive to the features of the predicate DP as in (ii).

(ii)   a.   pro sono io
             pro am   I
    b.   *pro sono noi
             pro am   we
    c.   pro siamo   noi
             pro are.first plur.we

In general clefts the focus immediately follows *shi* (structurally, the subject of the SC). Moreover, some sub-constituents of the SC subject may precede *shi*. These constituents are interpreted as topics. See the example in (22).

(22)   [$_T$ Zhangsan] [$_T$ zuotian] shi [$_F$ gai]   lunwen, bu shi xie   lunwen.
          Zhangsan   yesterday Cop   correct thesis   not Cop write thesis
          'It is correcting thesis that Zhangsan did yesterday and not writing it.'

[Mandarin]

In (22) the focus is the verb *gai* (Eng. 'correct') because it is the constituent immediately to the right of the copula *shi* (Eng. 'be').

Notice that the focus element must be adjacent to *shi* as shown in (23).

(23)   *Shi Zhangsan [$_F$ jintian] xie   lunwen, bu shi mingtian.
        Cop Zhangsan   today   write thesis   not Cop tomorrow
        'It is today that Zhangsan writes the thesis, not tomorrow.'

[Mandarin]

In (23) the focus cannot be *jintian* (Eng. 'today') as it is not adjacent to the copula. The star before the sentence indicates that the element in brackets isn't a focus.

[from Moro 1997, pg. 64]

Thus, *io* cannot be considered a predicate in *sono io*. Moro (1997, pg. 65), then, changes the representation for *pro sono io* (Eng. 'pro am I'):

(iii)   [$_{IP}$ pro_i [$_{I'}$ $sono_j$ [$_{VP}$ t$_j$ [$_{SC}$ io t$_i$]]]]

[from Moro 1997, pg. 65]

The presentation in (iii) show that *pro sono io* (Eng. 'pro am I') is an instance of the inverse copular sentence where the subject *io* is left *in situ* and the predicative DP is raised to [Spec, IP]. The *pro* element is normally considered to play the role of 'null subject' (cf. Rizzi 1982 among others). However, the presentation in (ii) implies that *pro* can also play the role of 'null predicate', i.e., a 'propredicate', linking the position occupied by t_i. Notice that no special assumption is needed here because playing the role of predicate is a general property of DPs.

Therefore, the upper verb copy in VDC is interpreted as a topic and the lower verb copy is interpreted as a (part of the) focus as shown in (24).

(24)   [$_T$ **Kan**], [$_T$ wo] shi [$_F$ **kan**-guo], buguo...
             read   I   Cop   read Exp but
         'As for reading, I have indeed read, but...'

<div align="right">[Mandarin]</div>

Note that the focus verb *kan* (Eng. 'read') is not interpreted as a contrastive focus (compare to *gai* (Eng. 'correct') in (22), which is a contrastive focus). In (24) *kan* (Eng. 'read') is interpreted as a *verum* focus, which affirms the truth of the propositiion (cf. Krifka 2007). Cheng and Vicente (2013, footnote 5) explain this as follows: the upper verb copy highlights old, presupposed information. The comment on this topic involves a focus on the lower verb copy. This lower verb copy cannot be either new information focus or contrastive/corrective focus because these tow kind of focus add new information to the Common Ground. The focus reading of the lower verb copy is to assert presupposed information. In VDC expressions, such information is an event (assuming that verbs contain the event argument of the sentence). Thus, the lower verb copy contains *verum* focus reading.

In order to achieve verum focus, the lower verb copy does not have to be adjacent to *shi* (Eng. 'be') (Cheng and Vicente 2013, pg. 6). Adverbs like *yiding* (Eng. 'certainly') and *tiantian* (Eng. 'every day') may appear between *shi* and the lower verb copy, the whole VP is focused. This is shown in (25).

(25)   a.   **Chi**, Lili shi [xiang **chi**],...
                 eat   Lili Cop want eat
             'As for eating, Lili do want to eat; but...'

         b.   **Kan**, ta shi [yiding   hui **kan**],...
                 read 3S Cop certainly will eat
             'As for eating, I will certainly eat; but...'

         c.   **Xie**, wo shi [tiantian **xie**],...
                 write I   Cop daily   write
             'As for writing, I do write every day; but...'

<div align="right">[Mandarin]</div>

Furthermore, the authors observer that the intervening materials between *shi* and the lower verb copy cannot be a subject or an adverb which is assumed to be above IP. See the examples in (26).

(26)   a. *[$_T$ **Kan**], shi   Lisi [$_F$ **kan**-guo], buguo...
                read   Cop Lisi   read Exp but
              'As for reading, Lisi did read, but...'

        b. *[$_T$ **Chi**], Lisi shi   xianran   [$_F$ **chi**-guo], buguo...
                eat   Lisi Cop obviously   eat Exp   but
              'As for eating, Lisi ate obviously, but...'

[Mandarin]

The contrast between (25) and (26) leads the authors to conclude that in the case of verum focus, the subject of the SC must be a *v*P (assuming that *hui* (Eng. 'will') and *yiding* (Eng. certainly) are generated in vP). Why? Verum focus asserts the truth of the proposition. In other words, when the verb is interpreted as verum focus, the focal alternative is 'not read' (Eng.) instead of 'buy' (Eng.), 'write' (Eng.) or the like.

Therefore, Cheng and Vicente (2013, pg. 6) propose that the verum focus reading requires "focalizing not the lexical verb itself but rather the event argument" and they assume the event argument is located in *v* in the structure (Kratzer 1996, Herburger 2000, Irurtzun 2007). Thus, the upper verb copy turns the proposition into a topic, on which comments can be made and by "focalizing the event argument inside the comment", one asserts that the event in question did take place (or not) (Cheng and Vicente 2013, pg. 6-7).

4.3.2   Locality Constraints and Lexical Identity

Later on, Cheng and Vicente (2013) show that the two verb copies in VDC form an A'-chain. See the examples in (27) and (28).

(27)   **Pao**, wo renwei ta shi   **pao**-guo,...
        run   I   think   3S Cop run Exp
        'As for running, I think he indeed ran,...'

[Mandarin]

(28)   a. *__Chi__, ta shi __chi__-guo yihou, baba cai hui   jia
            eat   3S Cop eat Exp after   father then return home
            'As for eating, father returned home after he has indeed already eaten'

        b. *__Kan__, Lulu tongyi Lisi shi __kan__-le   san ci   de   shuofa
            read Lulu agree Lisi Cop read Perf three time Part saying
            'As for reading, I agree with the saying that Lisi has indeed read (it)

            three times'

[Mandarin]

The example in (27) shows that the upper verb copy can cross clause boundary. The examples in (28) show that the locality of the two verb copies is sensitive to adjunct islands as in (28-a) and complex NP islands as shown in (28-b).

With regard to what has moved, the authors point out that there are two possibilities.

First, a null operator moves. This operator licenses merger of the leftmost instance of the verb as a topic as shown in (29) (cf. Cable 2004 for Yiddish).

(29) $[_{CP}$ Verb$_i$ $[_{OP_i}$ XP pro$_{PRED}$ *shi* $[_{SC}$ $[_{vP}$ ... t$_i$ Verb ...] t$_{PRED}$]]]

[from Cheng and Vicente 2013, pg. 8]

The authors assume the base position of the operator is right before the lower verb copy. This is similar to Hoge's (1998) proposal for Yiddish verb doubling where there are two VPs and each contain an independent verb. The verb heading the upper VP moves to a topic position. Cheng and Vicente (2013) replace Hoge's upper verb copy with a phonetically null operator.

But Cheng and Vicente (2013) dismiss this possibility. Rather, they proposes that the doubled verb moves from a small clause to a topic position as in (30). See Abels (2001), Landau (2006) and Vicente (2009) for similar phenomenon in other languages.

(30) $[_{CP}$ Verb$_i$ [XP pro$_{PRED}$ *shi* [$_{SC}$ [$_{vP}$ ... Verb$_i$ ...] t$_{PRED}$]]

The possibility of verb movement plus spell out of multiple chain links is supported by the lexical identity effects in VDC sentences. See the examples in (31).

(31)   a. ***Kan**, ta shi **du**-guo.
            read 3S Cop read Exp
            'As for reading, he did read (it)'

      b. ***Xue**, wo shi **lian**-guo   wudao.
            learn I   Cop practice Exp dance
            'As for learning, I did practice dance.'

[Mandarin]

Cheng and Vicente (2013) follow Cable (2004) and Vicente (2007) in assuming lexical identity effects as a consequence of movement. That is to say, when both verb copies in VDC are links of one and the same movement chain, the lexical identity effect results from the copy theory of movement.

4.3.3   Movement in VDC

Based on these observations, Cheng and Vicente (2013) propose that the derivation of a VDC expression may be described as in (32).

(32) $[_T$ **Chi**$_i$] wo pro$_{PRED}$ *shi* [$_{SC}$ [$_F$ **chi**$_i$ -guo] t$_{PRED}$]

Nevertheless, Cheng and Vicente (2013) notice that movement in (32) seem problematic.

First, moving a constituent from a focus position to a topic position may look weird. [4] However, Cheng and Vicente (2013, footnote 10) point out that such movement is attested in other languages. See the example in (33).

(33) Diesen   Frosch, den   hat die Prinzessin gestern   geküβt.
       this.Acc frong   it.Acc has the princess   yesterday kissed
       'As for this frog, the princess kissed it yesterday.'

[German data from Boeckx and Grohmann 2005, pg. 131]

In (33) the resumptive pronoun *den* (Eng. 'it') occupies [Spec, CP], a position typically reserved for focalized phrases. The dislocated phrase *diesen Frosch* (Eng.

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[4]Notice that Rizzi's (2006) Criterion Freezing effect may prohibit a focalized element moves further. See the examples in (i).

(i) a. Mi   domandavo $[_{CP}$ quale RAGAZZA$_i$ avessero scelto t$_i$], non quale
         Clitic.me wonder.1Sg   which GIRL   had.3Pl chosen   not which
         ragazzo
         boy
         I wondered which GIRL they had chosen, not which boy.
     b. *$[_{CP}$Quale RAGAZZA$_i$ mi domandavo $[_{CP}$t$_i$ avessero scelto t$_i$], non quale ragazzo
         which GIRL Clitic.me wonder   had.3Pl chosen not which boy
         Which GIRL I wondered they had chosen, not which boy

[Italian data from Rizzi 2006, pg. 113]

The *wh*-phrase *quale ragazza* (Eng. 'which girl') can be contrastively focused in its criterial position, i.e., in the embedded CP as in (i-a). But it cannot be moved the left periphery of the main clause. Rizzi (2006) claims that since (i-a) shows that contrastive focus clearly is compatible with a wh-phrase, it does not seem plausible to assume that (i-b) is ruled out for interpretive reasons.

However, Gallego (2009, pg. 46) points out that the unacceptance of (ib) is caused by the requirement of the verb *domandavo* (Eng. 'wonder') instead of criterial freezing. Interrogative verbs like *wonder* requires "an overt mark indicating the interrogative nature of the clause they select (see Cheng 1991 for much relevant discussion)." See the examples in (ii).

(ii) a. María ha dicho $[_{CP}$ qué   CHICA$_i$ han   elegido t$_i$] no qué   chico.
          María has said   which GIRL   have.3Pl chosen   not which boy
          'Mara has said which girl they have chosen, not which boy.'
      b. $[_{CP}$ Qué   CHICA$_i$ ha dicho María $[_{CP}$ que t$_i$ han   elegido t$_i$] no qué
              which GIRL   has said María   that have..3Pl chosen   not which
          chico
          boy
          'Which girl has Mara said that they have chosen, not which boy?'

[Spanish data from Gallego 2009, pg. 46-47]

The difference between (i) and (ii) lies on the matrix verb. So the contrast between (i-b) and (ii-b) is caused by this difference. Interrogative verb like *wonder* requires overt mark of interrogative nature in the embedded CP while the verb *say* does not have such requirement.

'this frog') appears in a topic position. Boeckx and Grohmann (2005) show that *diesen Frosch* (Eng. 'this frog') and *den* (Eng. 'it') are related by movement based on tests on case matching, reconstruction, island sensitivity, etc. Then, Boeckx and Grohmann (2005) proposes that *diesen Frosch* (Eng. 'this frog') moves from its thematic position to [Spec, CP] and later to a topic position. The copy in [Spec, CP] is spelled out as a pronoun rather than as a full DP for independent reasons. Likewise, in principle, nothing forbids movement from a focus position into a topic position.

Second, A-bar extraction of the post-copular subject in inverse predication constructions is prohibited (cf. Moro 1997, Den Dikken 2006). See the example in (34).

(34)   *What do you think the cause of the riot may have been the photograph of?

[from Cheng and Vicente 2013, footnote 11]

The example in (34) is an example of inverse predication: the noun phrase *the photograph of* is the subject of the small clause, which is the complement of the copula; and *the cause of the riot* is the raised predicate. The sentence shows that extraction of the subject is not allowed.

According to Cheng (2008), the copular sentence in (35) has its internal structure in (36).

(35)   [$_T$ Zhangsan] shi [$_F$ jintian] qu xuexiao, bu shi   mingtian.
         Zhangsan Cop   today go school   not Cop tomorrow
        'It is today that Zhangsan goes to school, not tomorrow.'

[Mandarin]

(36)   Zhangsan$_i$ pro$_{PRED}$ shi [$_{SC}$[pro$_i$ jintian qu xuexiao] t$_{PRED}$]]

The topic *Zhangsan* binds a *pro* in the SC subject. The question arises: how can a verb in the SC subject be extracted?

In general clefts with *shi*, it is observed that the *wh*-phrases can be in the subject position of the SC, which is shown in (37).

(37)   a.   Shi [$_{SC}$ [**shui** mai-le   yi-ben-shu] *pro$_{PRED}$*]?
                 Cop   who buy Perf one Cl book
                 'Who is it that bought a book?'

         b.   Zhangsan$_i$ shi [$_{SC}$ [*pro$_i$* **shenme shihou** dao]   *pro$_{PRED}$*]?
                 Zhangsan Cop   what   time   arrive
                 'What time is it that Zhangsan will arrive?'

         c.   Zhangsan$_i$ shi [$_{SC}$ [*pro$_i$* mai-le   **shenme** shu] *pro$_{PRED}$*]?
                 Zhangsan Cop   buy Perf what   book
                 'Which book is it that Zhangsan bought?'

                                      [from Cheng and Vicente 2013, pg. 11]

The examples in (37) show that the narrow focus can be informational focus on the *wh*-phrase and *shi* does not have to be linearly adjacent to the *wh*-phrase, as seen in (38c). Moreover, based on the interpretation of these sentences, the *wh*-phrase take scope out of the SC. Thus, if *wh*-phrases undergo movement at LF, the extraction out of the SC subject should be permitted.

Notice that when the subject is located between *shi* and a *wh*-phrase, the sentence is ungrammatical as shown in (38).

(38)   *Shi [$_{SC}$ [Zhangsan mai-le   **shenme**] *pro$_{PRED}$*]?
         Cop   Zhangsan buy Perf what
         'What is it that Zhangsan bought?'

                                      [from Cheng and Vicente 2013, pg. 11]

Why does the contrast between (37-c) and (38) exist?

Cheng (2008) observes that a non-canonical word order is possible in the SC subject. See the examples in (39).

(39)   a.   Shi [zhe-bu-dianying]$_F$ Zhangsan mei kan-guo
                 Cop this Cl movie   Zhangsan Not watch Exp
                 'It is this movie that Zhangsan hasn't watched (not that one).'

b. Shi [zuotian]$_F$ ta mei qu xuexiao
    Cop yesterday he Not go school
    'It is yesterday that he didn't go to school (not other days).'

<div align="right">[adapted from Cheng and Vicente 2013, pg. 11]</div>

The examples in (39) show that fronted elements, i.e., *zhe-ben-shu* (Eng. 'this book') and *zuotian* (Eng. 'yesterday'), are focused in small clauses.

Moreover, it is observed that when a fronted element follows *shi*, *wh*-clefts are not allowed. See the examples in (40).

(40)   a. *Shi zhe-ben-shu$_i$ shui kan-guo   t$_i$
           Cop this Cl book who read Exp

        b. *Shi qunian$_i$ ta $_i$ xie-le   shenme wenzhang
           Cop last year 3S   write Perf what   article

<div align="right">[adapted from Cheng and Vicente 2013, pg. 12]</div>

Thus, Cheng and Vicente (2013) believe that the left periphery of the subject in SC is occupied. For example, when a subject does not appear as a matrix topic, it must be fronted (within the subject clause). See the structure in (41).

(41)   shi [$_{SC}$ [$_{CP}$ Zhangsan$_i$ [$_{CP}$ [t$_i$ mingtian qu xuexiao]]] pro$_{PRED}$]
        Cop   Zhangsan   tomorrow go school

<div align="right">[adapted from Cheng and Vicente 2013, pg. 12]</div>

In (41) the copular verb *shi* takes a small clause as its complement. The subject of this SC is a CP as it is not a verum focus. Following Cheng (2008), the size of the subject in SC may vary depending on the type of focus. [5]

Therefore, when a *wh*-phrase is extracted from the SC subject, it must occupy the left periphery of the SC subject. See the structures in (42).

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[5]Cheng (2008) claims the subject of a post-copular small clause is a CP because the whole sentence may be in the scope of contrastive focus. If what is focalized in VDC is the vP, this indicates the subject of the SC may vary in size (Cheng and Vicente 2013 footnote 7, footnote 13).

(42)   a.   Zhangsan$_i$ shi [$_{SC}$ [$_{CP}$ [pro$_i$ mai-le **shenme shu**] pro$_{PRED}$]]

     b.   *shi [$_{SC}$ [$_{CP}$ Zhangsan$_i$ [t$_i$ mai-le **shenme**]] pro$_{PRED}$]]

<div align="right">[from Cheng and Vicente 2013, pg. 12]</div>

The example in (37-c) has the structure in (42-a), with the movement of the *wh*-phrase. The example in (38) has its structure in (42-b). If the left periphery of the CP is occupied by element like *Zhangsan*, the *wh*-phrase cannot undergo movement and the sentence is ungrammatical.

Return to VDC expressions. If the lower verb copy in a VDC expression has moved through the peripheral position of the *v*P, the subject of the SC, it should be incompatible with *wh*-clefts. See the examples in (43).

(43)   a.   **Chi**, ta shi **chi**-le   yixie shuiguo, buguo...
             eat   3S Cop eat Perf some fruit   but
             'As for eating, he indeed eaten some fruits, but...'

     b. ***Chi**, ta shi **chi**-le   shenme shuiguo, buguo...
             eat   3S Cop eat Perf what   fruit   but
             'As for eating, what is it that he indeed ate? but...'

<div align="right">[adapted from Cheng and Vicente 2013, pg. 13]</div>

The examples in (43) show that the lower verb copy in an VDC expression must have been fronted. Specifically, the sentence in (43-b) shows that the left periphery of the SC is occupied. Thus, when the verb undergoes movement, it has to move through the left periphery of the *v*P at LF.

4.3.4   Doubling Effect

Regarding to the doubling effect, Cheng and Vicente (2013) argue that the pronunciation of both verb copies in VDC expressions is attributed to morphological fusion, according to which two independent but linearly adjacent syntactic terminals are combined into one (cf. Marantz 1984, Embick and Noyer 2001, Nunes 2004, Matushansky 2006). Morphological fusion is shown in the structure in (44).

(44)   Morphological fusion of α and β (linear order irrelevant)
         $[\alpha]\ [\beta] \rightarrow [\alpha\ \beta]$

[from Cheng and Vicente 2013, pg. 30]

Furthermore, according to Nunes (2004), the authors assume that the result of morphological fusion $[\alpha\beta]$ is invisible for syntactic purposes. When either α or β moves, the morphological fusion of the moved terminal with a linearly adjacent constituent causes the failure of Chain Reduction. [6] See the structure in (45).

(45)   Morphological fusion of α and β (linear order irrelevant)
         $[\alpha]\ [\beta]\ ...\ [\beta] \rightarrow [\alpha\ \beta]\ ...\ [\beta]$

[from Cheng and Vicente 2013, pg. 30]

As shown in (45), after β moves to a higher position, it fuses with the terminal α. By hypothesis, the morphological fusion is invisible to the linearization algorithm. So only the lower β copy is "syntactically relevant". Thus, Chain Reduction fails to apply and both copies are pronounced.

Assuming this much, Cheng and Vicente (2013) argue that the pronunciation of both verb copies in VDC expressions is due to the failure of Chain Reduction. See the example in (46).

(46)   **Chi**, Zhangsan shi   **chi**-guo, buguo ...
         eat   Zhangsan Cop eat Exp but

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[6]Nunes (2004) argues that if the two copies in a nontrivial chain are the same, they must precede and follow the elements between them based on Kayne's Linearization Correspondence Axiom (LCA). This is impossible for chain linearization. Thus, Chain Reduction in (i) applies to nontrivial chains.

(i)   *Chain Reduction*
        Delete the minimal number of constituents of a nontrivial chain CH that suffices for CH to be mapped into a linear order in accordance with the LCA.

[from Nunes 2004, pg. 27]

Following Nunes (2004), Chain Reduction should apply to the chain formed by A'-movement in verb doubling clefts. If Chain Reduction applies to the two verb copies, the lower verb copy would be deleted due to economy considerations.

'As for eating, Zhangsan did eat, but...'

The example in (46) shows that the lower verb copy *chi* (Eng. 'eat') might fuse with another terminal. Specifically, it can fuse with either the copula *shi* (Eng. 'be') or the aspect marker *guo*.

However, the authors notice that i) the copula *shi* (Eng. 'be') does not have be adjacent to the lower verb copy; ii) not all verb doubling clefts contain aspect markers. See the examples in (47).

(47)   a.   **Chi**, Lili shi   xiang **chi**,...
               eat   Lili Cop want eat
               'As for eating, Lili do want to eat; but...'

        b.   **Kan**, ta shi yiding   hui **kan**,...
               read   3S Cop certainly will eat
               'As for eating, I will certainly eat; but...'

        c.   **Xie**, wo shi   tiantian **xie**,...
               write I   Cop daily   write
               'As for writing, I do write every day; but...'

The VDC sentences as in (47) indicate that neither the copula nor overt aspect markers fuse with the lower verb copy.

Since Nunes and Quadros (2006) propose that a phonetically null focus head can play a role in morphological fusion, Cheng and Vicente (2013) assume that the lower verb copy might fuse with a phonetically null focus head due to the verum focus reading. See the example in (48) from Brazilian Sign Language (BSL).

(48)   I LOSE BOOK [LOSE]$_F$
         'I did lose the book'

[from Cheng and Vicente 2013, pg. 32]

In BSL, the focus-related doubling is realized via morphological fusion between the focused element and a phonetically null focus head. In (48) the left edge verb *LOSE* fuses with a null focus head. So the Chain Reduction cannot apply and both verb copies are pronounced. Likewise, the lower verb copy *chi* 'eat' in (46) fuses with a null focus head. Then, Chain Reduction fails to apply and both verb copies are pronounced.

However, Cheng and Vicente (2013) notice that it is not without problem to blame the doubling effect in VDC expressions to morphological fusion with a null focus head. In BSL the doubling effect is also attested when a nominal constituent is focused as in (49). But this is not true in Mandarin as shown in (50).

(49)   JOHN SEE WHO YESTERDAY [WHO]$_F$
        'Who exactly is it that John saw yesterday?'

(50)   Shu, wo shi kan-le   (*shu),...
        book I   Cop read Perf book
        'Books, I have read,...'

[from Cheng and Vicente 2013, pg. 33]

If the BSL paradigm can explain the doubling effect in verb doubling clefts, morphological fusion should cause doubling effect regardless the categorial differences as in (48) and (49). But the ungrammaticality in (50) suggests that morphological fusion cannot be the cause of doubling effect. If the morphological fusion is the cause of doubling effect, the contrast between (49) and (50) needs to be explained.

To summarize, Cheng and Vicente (2013) claims that the two verb copies in VDC involve A'-movement. The derivation is shown as the structure in (51).

(51) $[_T \mathbf{V}_i]$ subject pro$_{PRED}$ *shi* $[_{SC} [_F \mathbf{V}_i]$ t$_{PRED}$]]

[from Cheng and Vicente 2013, pg. 28]

The lower verb copy moves from a lower position to a topic position via the edge of a small clause and the doubling effect is "epiphenomenal", which is an example of Spell-out of more than one chain occurrence. In what follows I will provide more analysis for VDC expressions based on the discussion in Cheng and Vicente (2013). The analysis begins with the question whether the copula *shi* (Eng. 'be') is obligatory in VDC expressions (section 4.4).

4.4   Optional *shi*

In section 4.3, I have presented Cheng and Vicente's (2013) analysis for VDC expressions. The analysis is based on cleft sentences with the copular verb *shi* (Eng. 'be') in Chinese. The authors argue that VDC expressions and general cleft sentences with *shi* (Eng. 'be') have the same topic and focus structure. Specifically, the sentence initial verb copy is interpreted as a topic while the sentence internal one, a focus. Moreover, the doubling effect is considered as multiple spell out of chain copies (cf. Nunes 2004).

As I mentioned in section 4.3, in Cheng and Vicente's (2013) work the copula *shi* (Eng. 'be') exists in all the examples.

Nevertheless, it is observed that *shi* (Eng. 'be') is not obligatory in VDC expressions. See the examples in (52).

(52)   a.   **Chi**, wo **chi**-guo, buguo...
               eat   I   eat Exp but
               'As for eating, I have eaten, but....'

         b.   **Kan**, Zhangsan **kan**-guo zhe-ben-xiaoshuo,...
               read   Zhangsan read Exp this Cl novel
               'As for reading, Zhangsan has read this novel,...'

         c.   **Xie**, Lisi **xie**-le   yi-fen-baogao,...
               write Lisi write Perf one Cl report
               'As for writing, Lisi worte one report,...'

                                                              [Mandarin]

The examples in (52) show that the absence of the copular verb *shi* doesn't affect

the grammaticality of VDC expressions. I believe that the difference between VDC expressions with copula *shi* (Eng. 'be') and those without it lies in speakers' different habits that may be affected by their dialects.

Since the doubling phenomenon is not affected by *shi* (Eng. 'be'), I do not assume the presence of *shi* (Eng. 'be') in the following VDC expressions. Thus, the derivation of VDC expressions may not be relevant to that of clefts with *shi* (Eng. 'be').

In sum, the presence of *shi* (Eng. 'be') is not obligatory in a VDC expression. Therefore, it will not appear in examples in the following sections. In section 4.5, I follow Cheng and Vicente (2013) in assuming that a head, instead of a phrase, has moved in VDC expressions.

4.5 Movement of a Head

Even though it is argued that there is movement between the two verb copies in a VDC expression, it is not easy to detect whether it is a verb or a verb phrase with the trace of the overt object that has moved. In the latter case, a verb phrase moves to a sentence-initial position after the overt object is extracted from VP. In other words, remnant movement must be assumed.

Actually, remnant VP-movement analysis has been proposed for German VP topicalization (Müller 1998, 2002). This is shown in (53) and (54).

(53) $[_{\beta_2} \dots t_1 \dots] \dots [\dots \alpha_1 \dots [\dots t_2 \dots]]$

(54) $[_{VP_2} \; t_1 \; \text{Gelesen}]$ hat das Buch$_1$ keiner $\; t_2$
           read   has the book   no-one
        'No-one read the book'

[German data from Müller 2002, pg. 210]

As shown in (53), the topicalization of β_2 follows the movement of α_1 outside the

original position of β_2. Consequently, the element β_2 contains a trace of α_1. In (54), first, the object *das Buch* (Eng. 'the book') scrambled out of VP. Then VP (with the trace of the object) is topicalized. This analysis requires that object scrambling and VP topicalization are attested independently in German (Müller 2002). [7]

Cheng and Vicente (2013, pg. 24-25) point out that remnant movement seems to be a reasonable choice for VDC in Mandarin. However, they also notice that scrambling in Mandarin is not as rich as that in German even though it does exist (Soh 1998, cf. also Tang 1994, Sybesma 1999). See the examples in (55).

(55) a. Zhangsan jian-guo [na-ge-ren] [ji ci].
    Zhangsan see Exp that Cl person several time
    'Zhangsan saw that person several times.'

  b. Zhangsan jian-guo [ji ci] [na-ge-ren].
    Zhangsan see Exp several time that Cl person
    'Zhangsan saw that person several times.'

[Mandarin]

Soh (1998) proposes that (55-a) is derived from (55-b) by scrambling of the object *na-ge-ren* (Eng. 'that person') across the adverb phrase *ji ci* (Eng. 'several times'). The argument is based on the scope possibilities observed in each case. See the examples in (56).

(56) a. wo qing-guo [liang ci] [quanbu de xuesheng].
    I invite Exp two time all Part student
    'I have invited every student twice.' [unambiguous: only all >two]

  b. wo qing-guo [quanbu de xuesheng] [liang ci].
    I invite Exp all Part student two time
    'I have invited every student twice.' [ambiguous: all >two/two >all]

[from Cheng and Vicente 2013, pg. 24]

The examples in (56) shows that the [adverb-object] order in (56-a) only allows direct scope while the [object-adverb] order in (56-b) allows both direct and inverse

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[7]Abels (2001) argues that predicate cleft construction in Russian is derived through remnant movement.

scope. Soh (1998) claims that inverse scope in (56-b) arises through reconstruction of the quantified object *quanbu de xuesheng* (Eng. 'all students') to its base position below the adverb *liang ci* (Eng. 'two times').

Although Cheng and Vicente (2013) agrees with Soh (1998) that scrambling is possible in Mandarin, they claim that typically objects do not scramble to the left of the verb. But it is possible to move the object to a position between the subject and the verb as shown in (57).

(57)   Zhangsan na-ben-shu   kan-guo.
        Zhangsan that Cl book read Exp
        'Zhangsan has read that book (but not other books).'

[Mandarin]

Now return to VDC expressions. When an overt object follows the lower verb copy, a remnant movement analysis will require scrambling of the overt object to the left of the lower verb copy. Assuming that Mandarin has SVO as its basic order, it is observed that object scrambling is constrained because of the specificity of the object. This is shown in (58) and (59).

(58)   a.   **Kan**, wo ZHE-BEN-SHU **kan**-le,...
              read I   this Cl   book read Perf
              'As for reading, I read THIS BOOK,...'

        b.   ZHE-BEN-SHU, **kan**, wo **kan**-le,...
              this Cl   book   read I   read Perf
              'THIS BOOK, as for reading, I read (it),...'

[Mandarin]

(59)   a.   ***Chi**, wo yixie shuiguo **chi**-le,...
               eat I   some fruit   eat Perf
               'As for eating, I ate some fruits,...'

        b.   *Yixie shuiguo, **chi**, wo **chi**-le,...
               some fruit   eat I   eat Perf
               'As for eating, I ate some fruits,...'

[Mandarin]

The examples in (58) and (59) show that only specific objects can undergo scrambling in Mandarin (cf. Zhang 2000). Besides, scrambled objects are often stressed and have contrastive topic/focus readings (cf. Badan 2007). When the overt objects are non-specific, scrambling is not allowed as shown in (59).

Notice that it is also impossible for the overt object to move to a position between the clefted verb and the subject as in (60) and (61).

(60)   ***Kan**, ZHE-BEN-SHU, wo **kan**-le,...
     read   this Cl book   I   read Perf
     'As for reading, this book, I read (it),...'

[Mandarin]

(61)   ***Chi**, yixie shuiguo, wo **chi**-le,...
     eat   some fruit   I   eat Perf
     'As for eating, some fruit, I ate,...'

[Mandarin]

The examples in (60) and (61) show that no overt objects can be fronted to a position between the clefted verb and the subject.

In sum, object scrambling in Chinese is restricted. Thus, a remnant movement based analysis is not plausible for VDC expressions. In section 4.6 I will argue that a head can move further to a left periphery position in VDC expressions.

4.6   Long-distance Head Movement

In section 4.5 I showed that object scrambling in Chinese is restricted. So an analysis based on remnant movement is not plausible. In this section I follow Cheng and Vicente (2013) in arguing that it is a verb that undergoes long distance movement in a VDC expression. the arguements include i) the sentence initial verb copy in a VDC sentence behaves as a "bare" verb, and ii) the Head Movement Constraint does not exist (Roberts 2010).

Long distance head movement has been proposed to account for predicate construction, for example, Landau's (2006) analysis for Hebrew data and Vicente's (2007, 2009) account for Spanish data. Following Koopman (1984), Cheng and Vicente (2013, pg. 26-27) claims that bare heads must be allowed to move long distance, in a way as regular A'-movement. The authors distinguish between "local head movement" and "*long-distance* head movement". The former is regular head-to-head movement and is arguably driven by selectional and/or morphological factors (Travis 1984, Baker 1985) as shown in (62). The latter is a mechanism that a head moves to a left periphery position, potentially across clause boundaries (Koopman 1984). The implementation of long-distance head movement is seen in Toyoshima (2001), Matushansky (2006), Vicente (2007) and Roberts (2010) as shown in (63).

(62)   John [$_{IP}$ reads$_i$ [$_{vP}$ t$_i$ [$_{VP}$ t$_i$ the book]]]

(63)   [$_{TopP}$ **Leer**$_i$, [$_{TP}$ Juan ha [$_{AspP}$ **leído**$_i$ [$_{vP}$ t$_i$ [$_{VP}$ t$_i$ el   libro]]]]]
         read   Juan has   read   the book
         'As for reading, Juan has read the book'

[Spanish data adapted from Vicente 2009]

The examples (62) and (63) illustrate "local head movement" and "long-distance head movement", respectively. The example in (62) displays standard V-to-T movement while in (63) the verb moves from *v* to a CP peripheral position (Rizzi 1997 among others).

However, when a VP-external constituent is fronted with an infinitive verb, it seems that a long-distance based account does not work. See the example in (64).

(64)   **Leer** ayer,   María no **leyó** ayer,...   (Spanish)
         read yesterday María not read yesterday
         'As for reading yesterday, María didn't read (it) yesterday,...'

[Spanish data from Ángel J. Gallego p.c.]

This is not unexpected since Vicente (2009, pg. 167) also notices that many VP-internal constituent can be pied-piped under full predicate clefting. This is shown in (65).

(65)   a. ?**Leer** el libro, Juan ha **leído** el libro.
           read the book Juan has read the book
           'As for reading the book, Juan has indeed read it.'

    b. ?**Salir** con Clara, Juan ha **salido** con Clara.
           go out with Clara Juan has gone out with Clara
           'As for going out with Clara, Juan has indeed gone out with Clara.'

    c. **Ver** a María desnuda, Juan la ha **visto**.
           see to María naked Juan Clitic has seen
           'As for seeing María naked, Juan has seen (her naked).'

    d. **Pensar** que mañana va a llover, Juan lo **piensa**.
           think that tomorrow goes to rain Juan Clitic thinks
           'As for thinking that it is going to rain tomorrow, Juan thinks (it).'

    e. **Mandarle** una carta a María, Juan se la ha **mandado**.
           send a letter to María Juan Clitic Clitic has sent
           'As for sending a letter to María, Juan has sent it to her.'

    f. **Entrar** en la casa, Juan **entró**.
           enter in the house Juan entered
           'As for going into the house, Juan did go.'

                          [Spanish data from Vicente 2009, pg. 167-168]

Vicente (2009) does not put forward any phrase movement based analysis for the sentences in (65) but just focus on arguing for the existence of head-to-Spec movement with infinite clefting. He insists that bare infinitive clefting in Spanish can be accounted by a long-distance movement based analysis.

Nevertheless, it is observed that in Chinese fronting of a verb with any other elements in VDC expressions are unacceptable. This is shown in (66).

(66)   a. ?/***Chi** pingguo, wo **chi**-le (pingguo),...
           eat apple I eat Perf apple
           'As for eating apples, I ate them,...'

    b. ***Digei** Lisi yi-ping-shui, Zhangsan **digei**-le,...
           pass Lisi one Cl water Zhangsan pass Perf
           'As for passing Lisi a bottle of water, Zhangsan passed,...'

[Mandarin]

The example in (66-a) shows that the overt object *pingguo* (Eng. 'apples') cannot be fronted with the verb *chi* (Eng. 'eat'). Topicalization of a verbal phrase in Mandarin is not usual. Liu (2005, pg. 8) points out that topicalization of a nominal phrase is more often than topicalization of a verbal phrase even though the latter may occur when the object is not "complicated". [8] Thus, the sentence in (66-a) may be marked by a question mark. Likewise, the upper verb copy cannot take double object as in (66-b).

It is also observed that the upper verb copy cannot be modify other postverbal elements. See the examples in (67).

(67)   a. *__Kan__ san ci, Zhangsan __kan__-le na-ben-shu,...
        read three time Zhangsan read Perf that Cl book
        'As for reading three times, Zhangsan read that book,...'

    b. *__Kan__ liang xiaoshi, Lisi __kan__ dianshi,...
        watch Perf two hour Lisi watch TV
        'As for watching two hours, Lisis watched TV,...'

    c. *__Xie__ de kuai, ta __xie__ zhe-pian-wenzhang,...
        write Part quickly 3S write this Cl article
        'As for writing quickly, he wrote this article,...'

    d. *__Kan__ de yanjing hen lei, Lisi __kan__ dianying,...
        watch Part eye very tired Lisi watch movie
        'As for eyes getting tired by watching, Lisi watched TV,...'

    e. *__Kan__-lei le, Lisi __kan__ xiaoshuo,...
        read tired Perf Lisi read novel

---

[8]Liu (2005) observes that both topicalization of the object and the verb phrase exist in *lian...dou* expressions. See the examples in (i).

(i)   a.   Ta bu he shui.
        3S not drink water
        'He doesn't drink water.'
    b.   Ta lian [shui] dou bu he.
        3S Lian water Dou not drink
        'He doesn't even drink water.'
    c.   Ta lian [he shui] dou bu he.
        3S Lian drink water Dou not drink
        'He doesn't even drink water.'

[Mandarin]

In (i) either the object *shui* (Eng. 'water') or the verb phrase *he shui* (Eng. 'drink water') can be topicalized.

'As for getting tired by reading, Lisi read novels,...'

[Mandarin]

The sentences in (67-a) and (67-b) show that the upper verb copy in VDC cannot be followed by frequency phrases like *san ci* (Eng. 'three times') or duration phrases like *liang xiaoshi* (Eng. 'two hours'). The upper verb copy in VDC cannot be followed by *de*-phrases as shown in (67-c) and (67-d). Neither a resultative compound like *lei* (Eng. 'tired') is allowed to be fronted with the verb copy as in (67-e). This suggests that the sentence initial verb copy in a VDC expression behaves as a "bare" verb.

One possible counterargument for a long distance head movement based analysis for VDC might be the Head Movement Constraint (HMC) (cf. Travis 1984). However, recent works show that the local constraint of head movement is not quite predicted by the HMC (cf. Koopman 1984, Roberts 1994 among many others). Roberts (2010, pg. 193) even claims that HMC does not exist. Head movement is the same as phrase movement regarding to locality. Therefore, head movement is expected to target head/specifier position in CP. This is shown in (68).

(68)   a.   Lennet   en   deus Yann al   levr.
            read.Past.Participle 3Sg.Masc has   Yann the book
            'Yann has read the book.'

                [Breton data from Borsley, Rivero and Stephens 1996, pg. 53]

       b. $[_{CP}$ lennet $[_{IP}$ en deus $[_{vP}$ Yann $[_{VP}$ ~~lennet~~ al levr]]]]

                [Breton data from Borsley, Rivero and Stephens 1996, pg. 56]

Breton is a VSO language and the finite verb or auxiliary cannot be first in the clause (Roberts 2010, pg. 194). In (68-a) the past participle has been fronted and the finite auxiliary *en deus* is a form of *have*. According to Borsley, Rivero and Stephens (1996), the verb *lennet* (Eng. 'read') moves to the head position of CP skipping T as in (68-b). Moreover, the long head movement in Breton is discourse-neutral, which means it is not related to any topic or focus interpretations (Schafer 1994, pg. 146-147).

Another evidence that suggests the non-existence of HMC comes from the

predicate cleft constructions (cf. Roberts 2010 and references cited there). This is shown in (69).

(69) a. $[_{TopP}$ **Leer**$_i$, $[_{TP}$ Juan ha $[_{AspP}$ **leído** $[_{vP}$ t$_i$ $[_{VP}$ t$_i$ el   libro]]]]]
        read   Juan has   read   the book
      'As for reading, Juan has read the book'

[Spanish data from Vicente 2009, pg. 185]

      b. $[_{TopP}$ **Leer**$_i$ $[_{TP}$ Juan ha $[_{AspP}$ **leído**$_i$ $[_{vP}$ ~~**leer**$_i$~~ $[_{VP}$ t$_i$ el libro]]]]]

[from Vicente 2009, pg. 186]

According to Vicente (2007, 2009), the verb *leer* (Eng. 'read') in predicate cleft construction moves from V to [Spec, TopP] as shown in (69-b) (ignoring V-to-v and v-to-Asp movements) due to a discourse feature, topic. Notice that what moves to a sentence initial position is complex verb head V-v (see more discussion in section 2.6.4). Therefore, Roberts (2010) shows that long distance head movement does exist and HMC should not exist.

Another counterargument for a long distance head movement comes from Chomsky's (2000) analysis (see additional arguments in Gallego and Uriagereka 2015, Roberts 2010). Chomsky (2000) treats head movement as an operation in Phonetic Form (PF). The argument beyond this assumption is the fact that head movement does not make any semantic change to the moved head. In other words, traditional head movement like V-to-T seems to be largely a morpho-phonological process, but the cases of long distance head movement discussed in this thesis involve a topic reading, hence it should be syntactic (and, in fact, for empirical reasons, one needs for a non-trivial chain to be created in order to account for the doubling effect). Moreover, Vicente (2007, pg. 53-58) shows that Chomsky's hypothesis raises problems like how to build "syntax" in PF (cf. Matushansky 2006): PF should be able to distinguish heads from non-head constituents. PF is also expected to identify local syntactic positions. In this thesis I simply adopt that long distance head movement is an option to analyze VDC expressions.

Therefore, the verb copies in VDC expressions in Mandarin undergo *long-distance* movement, i.e., a bare verbal head moves to a focus/topic position in the left periphery.

Since the upper verb copy in VDC expressions have topic reading, it is natural to assume that it is located in a topic position.

According to Rizzi (1997) and many subsequent cartographic work, CP has its fine structure as shown in (70).

(70) $[_{ForceP}$ $[_{TopP*}$ Top^0 $[_{FocP}$ $[_{TopP*}$ Top^0 $[_{FinP}$ $[_{IP}$ ... $]]]]]]$

[from Rizzi 1997, pg. 297]

The structure in (70) displays that topics in a sentence occupy CP peripheral positions. Besides, it is possible that they occupy distinct positions, which is marked with stars.

In sum, VDC in Chinese may be derived via long-distance head movement to a topic position as in (71).

(71) $[_{TopP}$ $\mathbf{V}_i$ $]$ ... $[_{vP}$ $[_{VP}$ $\mathbf{V}_i$ object $]]$

In (71), the movement is indicated by an arrow. I use a dashed line in order to indicate that the verb does not move directly from VP to TopP. That is to say, there are intermediate steps in the process. See more discussion in section 4.8.

With regard to the motivation of the movement, I follow Chomsky (2000, 2001) in assuming that movement is triggered by features. Specifically, movement from V to T is triggered by the φ features of T while movement from T to C is by the φ features of C (Gallego and Uriagereka 2015). In section 4.8 I will argue that after the verb in VP moves to vP, it moves to an aspect projection, which is located lower than TP or IP. This V-to-Asp movement is triggered by the φ features of Asp^0. Then the complex V-v head in Asp^0 moves to [Spec, TopP] and this movement is triggered by the topic feature in C.

In sum, supeficially, the doubled verb in VDC moves from a sentence-internal position to a left peripheral topic position. The movement is justified by the discourse-related topic feature. In section 4.7 I will argue that the sentence-initial

verb in VDC expressions is located in [Spec, TopP].

4.7   Top or [Spec, TopP]?

In section 4.6, following Cheng and Vicente (2013), I argued that in VDC expressions the doubled verb moves to a sentence initial position. In this section I argue that this sentence initial position is [Spec, TopP] instead of Top. I show that VDC expressions in Chinese shared properties with verb fronting sentences in the following aspects: clause bound-ness, island effect and topic reading.

Following Toyoshima (2001), Matushansky (2006) and Vicente (2007), Cheng and Vicente assume that the sentence-initial verb copy in VDC occupies the specifier position in TopP.

Since Roberts (2010) observes that a verb in Breton may move from V to C occupying the head position of CP as in Breton, one may wonder the upper verb copy in VDC expression is located in Top like verb movement in Breton (Borsely, Rivero and Stephens 1996) or [Spec, TopP] like verb fronting in Hebrew (Landau 2006) and Spanish (Vicente 2007, 2009) (cf. Roberts 2010, pg. 201).

Recall that VDC expressions in Chinese are not clause bounded and show island effects (see section 4.3). Moreover, the upper verb copy has topic reading. These properties are shared with verb fronting in Hebrew as in (72) and Spanish as in (73).

(72)   a.   Non clause bounded

la'azor, eyn   li   safek še-Gil   hivtiax   še-hu
to-help   there-isn't to-me doubt that-Gil promised that-he
ya'azor le-rina.
will-help to-Rina
'As for helping, I have no doubt that Gil promised he would help Rina.'

   b.   Complex NP island

***likro**, Gil daxa   et ha-te'ana še-hu kvar   **kara** et
to-read Gil rejected Acc the-claim that-he already read Acc
ha-sefer.
the-book

'As for reading, Gil rejected the claim that he had already read the book.'

c. Subject island

***likro**, še-yevakšu   me-Gil **še-yikra**   et   ha-sefer
to-read that-will-ask.3Pl from-Gil that-will-read.3Sg Acc the-book
ze ma'aliv.
it insulting

'As for reading, that they would ask Gil to read the book is insulting.'

d. Adjunct island

***likro**, nifgašnu axarey še-kulam   **kar'u**   et   ha-sefer
to-read met.1Pl after   that-everybody read.3Pl Acc the-book

'As for reading, we have met after everybody read the book.'

[Hebrew data from Landau 2006, pg. 42-43]

(73) a. Non clause bounded

Leer,   Juan ha dicho que María ha **leído** un libro.
read.Inf Juan has said   that María has read a   book

'As for reading, Juan has said that María has read a book.'

b. Complex NP island

***Comprar**, he oído el rumor de que Juan ha **comprado** un
buy.Inf   have heard the rumor of that Juan has bought   a
libro.
book

'As for buying, I've heard the rumour that Juan has bought a book.'

c. Subject island

*?**Ganar**, que le Athletic **ganara** la Copa sorprendería a
win.Inf   that the Athletic wins   the Cup surprise   to
mucha gente.
many people

'As for winning, that Athletic should win the Cup woudl surprise many people.'

d. Adjunct island

***Comprar**, he ido al cine   después de **comprar** un libro.
buy.Inf   have gone to cinema after   of buy.Inf   a   book

'As for buying, I've gone to the movies after buying a book.'

[Spanish data from Vicente 2009, pg. 168-169]

The examples in (72) and (73) show that expressions verb fronting in Hebrew and Spanish behave like VDC expressions in clause bound-ness and island effect. Like in VDC expressions, the upper verb copy in these examples also contains topic reading.

Thus, following Landau (2006), Vicente (2007, 2009), Cheng and Vicente (2013) assume the upper verb copy in VDC in Chinese occupy [Spec, TopP].

Now consider long head movement (to a head position, LVM henceforth) in Breton. Even though Breton is a VSO language, the finite verb or auxiliary cannot be first in the clause, but must be preceded by some other constituent. The default order of a clause with just the notional verb (which must be periphrastic), a subject and an object is V-Aux-Subject-Object as in (74).

(74) a. Lenn   a   ra   Anna al levr.
          read.Inf Part does Anna the book
          'Anna reads the book.'

              [Breton data from Borsley, Rivero and Stephens 1996, pg. 54]

      b. Lennet   en   deus Yann al levr.
          read.Past.Participle 3Sg.Masc has Yann the book
          'Yann has read the book.'

              [Breton data from Borsley, Rivero and Stephens 1996, pg. 53]

In (74-a) the infinitive *lenn* (Eng. 'read') is fronted and the finite auxiliary is a form of *ober* (Eng. 'do'). In (74-b) the past participle is fronted and the finite auxiliary, i.e., the compound element *en deus*, is a form of *have*.

First, LVM in Breton cannot cross clause boundaries as in (75) (Roberts 2010, pg. 195).

(75) *Desket am eus klevet he   deus Anna he c'hentelioù. (LVM)
       learned 1Sg have heard 3Sg.Fem has Anna her lessons
       'I have heard that Anna has learned her lessons.'

In (75) the initial verb *desket* (Eng. 'learned') has been extracted from a subordinate clause and the sentence is ungrammatical.

Second, Breton LVM is blocked by negation as in (76-a). This is contrary to Spanish verb fronting in (76-b) or Mandarin VDC in (76-c).

(76)   a.   *Lennet   n' en   deus ket Tom al levr.
               read.Past.Participle Neg 3Sg.Masc has Neg Tom the book
               'Tom has not read the book.'

    b.   **Leer**,   Juan no ha leído ningún libro.
         read.Inf Juan not has read any   book
         'As for reading, Juan hasn't read any book.'

    c.   **Kan**, Zhangsan bu **kan** xiaoshuo,...
         read Zhangsan not read novel
         'As for reading, Zhangsan doesn't read novels,...'

[Mandarin]

The examples in (76) show that Breton LVM behave differently from verb fronting in Spanish or VDC in Mandarin.

Third, LVM in Breton is impossible with progressive *bezañ* as in (77-a).[9] This is different from VDC in Mandarin as in (77-b).

(77)   a.   *O   leen emañ Yann al lever.
         Prog read is   Yann the book
         'Yann is reading the book.'

    b.   **Xie**, Zhangsan zai **xie** yi-pian-wenzhang,...
         write Zhangsan Prog write one Cl article
         'As for writing, Zhangsan is writing an article,...'

---

[9] *O* is a progressive auxiliary in Breton.

These differences show that VDC in Mandarin behave differently from LVM in Breton. Rather VDC in Mandarin functions like verb fronting in Hebrew and Spanish. Thus, it is logical to assume that the upper verb copy is located in [Spec, TopP].

Furthermore, it is observed that the clefted verb can be followed by a topic marker *a* as in (78).

(78)　　　[$_{TopP}$ **Chi** [$_{Top'}$ a,　[$_{IP}$ Zhangsan **chi**-le　yixie yu,...]]]
　　　　　　　　eat　　　　Top　　Zhangsan eat Perf some fish
　　　　　　'As for eating, Zhangsan ate some fish,...'

[Mandarin]

In (78) the clefted verb *chi* (Eng. 'eat') occupies [Spec, TopP] in the derivation. In other words, the topic feature overtly attracts the verb and the verb undergoes A'-movement.

In addition, the topic marker *a* cannot adjunct to the upper verb to form a complex head. See the example in (79) and (80).

(79)　　　**Goumai** a,　Zhangsan **goumai**-le yixie youpiao,...
　　　　　buy　　　Top Zhangsan buy Perf　some stamp
　　　　　'As for buying, Zhangsan bought some stamps,...'

[Mandarin]

(80)　　　A: Zhangsan xihuan goumai youpiao haishi chushou youpiao?
　　　　　　Zhangsan like　　buy　　stamp　or　　sell　　stamp
　　　　　　'Zhangsan likes to buy or to sell stamps?'

　　　　　B: goumai he　chushou a,　　ta dou xihuan,...
　　　　　　buy　　and sell　　Part 3S all　like
　　　　　　'As for buying and selling, he likes both,...'

[Mandarin]

In (80), the topic marker *a* follows a conjunction formed by two different verbs *goumai* (Eng. 'buy') and *choushou* (Eng. 'sell'). Thus, the topic marker *a* in (79) cannot be adjoined to the verb *goumai* (Eng. 'buy').

In sum, VDC expressions in Mandarin behave like verb fronting in Hebrew and Spanish. The topic marker *a* can be adjoined to the upper copy. Therefore, I follow Cheng and Vicente (2013) in assuming the upper verb copy is located in [Spec, TopP]. In section 4.8 I will discuss the doubling effect in VDC expressions.

4.8 Doubling Effect in VDC

In section 4.6 and section 4.7 I argued that VDC in Mandarin is derived through long-distance head movement. The verb moves from a sentence-internal position to the topic position [Spec, TopP]. In this section I follow Cheng and Vicente (2013) in assuming that the doubling effect in VDC expressions follows from the failure of Chain Reduction (Nunes 2004). Moreover, in line with Cheng and Vicente (2013), I believe that the failure of Chain Reduction is due to the morphological fusion of the lower verb copy in VDC with a functional head, a phonetically null head.

However, adopting Cinque's (1999) analysis, I argue that the failure is due to the morphological fusion with an aspect head instead of a focus head. This is different from Cheng and Vicente's (2013) analysis.

The discussion embraces: i) possible causes of the doubling effect and the problem that appear in Cheng and Vicente's (2013) account (section 4.8.1), ii) morphological fusion with functional heads (section 4.8.2), iii) the advantages of my account for doubling effect (section 4.8.3) and iv) some challenges that my account faces (section 4.8.4).

4.8.1 Possible Causes and Problems

Cheng and Vicente (2013) have discussed that there are two possible causes of the doubling effect in VDC. The first one is called "morphological repair mechanism"

(Cheng and Vicente 2013, pg. 29-30, cf. Landau 2006 among others). Movement of a verb separates a lexical root from some morphemes. These morphemes require the pronunciation of a low copy of the root in order to avoid a morphologically deviant structure.

Landau (2006) argues that the pronunciation of the two verb copies is related to the PF algorithm that has two ingredients: a PF-internal recoverbility constraint as in (81), preserving phonetic information; and an economy preference principle as in (82), eliminating redundant copies.

(81)   P-Recoverability
        In a chain $<X_1...X_i...X_n>$, where some X_i is associated with phonetic content, X_i must be pronounced.

        [from Landau 2006, pg. 56]

(82)   Economy of Pronunciation
        Delete all chain copies at PF up to P-recoverability.

        [from Landau 2006, pg. 57]

The derivation of the Hebrew sentence with verb fronting in (83) is illustrated (84).

(83)   **lirkod**, hu **rakad**.
        to dance he danced
        'As for dancing, he danced.'

(84)

```
                              TopP
                    ┌──────────┴──────────┐
                  vP₃                     Top'
              ┌────┴────┐          ┌────────┴────────┐
            DP₂         v'       Top⁰               TP
             │      ┌────┴────┐            ┌──────────┴──────────┐
            hu   V₁+v      √V           DP₂                    T'
             │                           │          ┌───────────┴───────────┐
          lirkod                        hu   √V₁+v+T⁰              vP₃
                                         │        │        ┌────────┴────────┐
                                       rakad    DP₂              v'
                                                 │        ┌──────┴──────┐
                                                hu   √V₁+v          √V
```
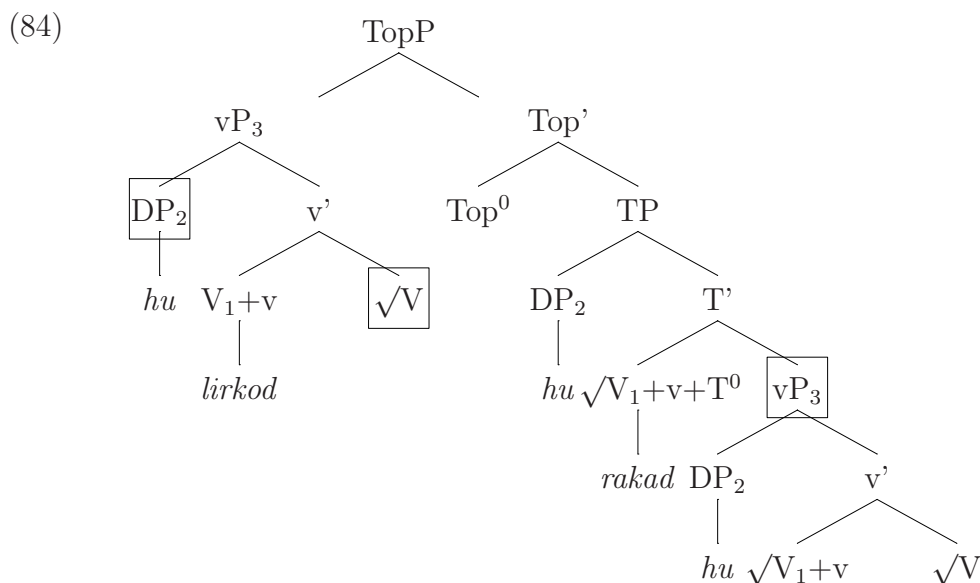
[Hebrew data adapted from Landau 2006, pg. 57-58]

According to Landau (2006), PF-deletion applies to the nodes with squares, vP_3, DP_2 and $\sqrt{V}$. The $[\sqrt{V}+v]$ can be simply considered as V. V moves to T leaving a copy inside vP_3. Landau (2006) claims that two of the three V-copies are pronounced: the V copy adjoined to T and the V copy in TopP. The lower vP copy with its V copy head is deleted at PF.

Furthermore, the pronunciation of the two V copies in (83) is required by P-recoverability. The T^0-adjoined copy is related to the phonological requirement to spell out tense and agreement features. The V-copy in TopP is associated with a phonological requirement imposed by Top^0 (or the characteristic intonation of fronted VPs in Hebrew). [10] Thus, both V-copies should be pronounced based on P-Recoverability in (81).

Cheng and Vicente (2013, pg. 29-30) point out that "morphological repair mechanism" cannot be the cause of doubling as Mandarin verbs do not carry bound tense or agreement morphemes that can be stranded. Thus, no morpho-phonological deviance can arise. [11]

---

[10]Landau (2006) shows that in Hebrew VP-fronting, the fronted (infinitival) verb bears high pitch accent (on its stressed syllable) and coincides with the left boundary of its intonational phrase.

[11]Cheng and Vicente (2013, footnote 23) also indicates explicitly that stranding a null morpheme like T in VDC cannot trigger doubling.

Recall that Cheng and Vicente (2013) claim that VDC expressions have the same topic-focus structure as general cleft sentences with the copula *shi* (Eng. 'be'). Thus, in the following VDC examples in this section, I keep the copula *shi* (Eng. 'be') in the sentences in order to facilitate the explanation.

In addition, Cheng and Vicente (2013, pg. 29) claim that treating aspectual morphemes as bound morphemes cannot be a possible solution. Especially, aspectual morphemes cannot be the driving force of verb doubling because the presence of aspectual markers is not required for doubling, as shown in (85).

(85)   **Chi**, ta shi   tiantian **chi**,...
        eat   3S Cop daily   eat
        'As for eating, he certainly eats every day, but...'

[Mandarin]

Therefore, Cheng and Vicente (2013) conclude that the doubling effect in verb doubling clefts cannot be attributed to a morphological repair process.

The second possible cause of the doubling effect discussed in Cheng and Vicente (2013) is called "morphological fusion mechanism" (Nunes 2004 among others) (see also section 4.2). One of the chain links fuses with an adjacent constituent to form a complex head, as shown in (86) and (87).

(86)   Morphological fusion of α and β (linear order irrelevant)
        $[\alpha]\ [\beta] \rightarrow [\alpha\ \beta]$

(87)   Morphological fusion of α and β (linear order irrelevant)
        $[\alpha]\ [\beta]\ ...\ [\beta] \rightarrow [\alpha\ \beta]\ ...\ [\beta]$

[from Cheng and Vicente 2013, pg. 30]

As the internal structure of the formed head as $[\alpha\beta]$ in (86) or (87) is invisible for the linearization algorithm by hypothesis, chain reduction cannot apply and multiple chain links are pronounced.

Nunes and Quadros (2006) show that a morphological fusion based analysis can account for the doubling effect in Brasilian Sign Language (BSL). See the example in (88).

(88)   I **LOSE** BOOK [$_F$**LOSE**]
        'I did lose the book.'

In (88), the verb *lose* appears twice in BSL. BSL realizes focus on the right edge of the sentence. Nunes and Quadros (2006) argue that in (88) the upper copy *LOSE* fuses with a phonetically null focus head. Thus, doubling effect emerges.

Since Cheng and Vicente (2013) argue that the lower verb copy in VDC has *verum focus* reading, the authors argue that this verb copy also fuses with a phonetically null focus head. This is shown in (89).

(89)   **Chi**, ta shi **chi**-guo, buguo...
        eat   3S Cop eat Exp but
        'As for eating, he did eat, but...'

                                                                [Mandarin]

The lower verb copy *chi* (Eng. 'eat') fuses with a phonetically null focus head. As a result, chain reduction cannot apply and the two verb copies in (89) are pronounced.

There are two potential candidates to trigger fusion in (89) (Cheng and Vicente 2013). One is the overt aspectual marker *guo* and the other is the copular verb *shi*. Cheng and Vicente (2013) deny the possibility of the first candidate because verb doubling doesn't require the appearance of any overt aspect maker as shown in (90).

(90)   **Chi**, wo shi tiantian **chi**,...
        eat   I   Cop daily   eat
        'As for eating, I do eat every day (but...)'

                                                                [Mandarin]

The example (90) also shows that the lower verb copy is impossible to fuse the second candidate *shi* with as it is not linearly adjacent to the verb.

Following Nunes and Quadros (2006), Cheng and Vicente (2013) assume that the lower verb copy fuses with a phonetically null head, i.e., a focus head. Nevertheless, Cheng and Vicente (2013) point out that such an explanation has a problem (see also section 4.3). In Brazilian Sign Language, nouns behave as verbs in doubling as shown in (91). But in Chinese no nouns are allowed to undergo doubling as verbs in VDC, as illustrated in (92).

(91)   JOHN SEE WHO YESTERDAY [WHO]$_F$
         'Who exactly is it that John saw yesterday?'

(92)   ***Shu**, wo shi   kan-le   **shu**,...
         book I   Cop read Perf book
         'Books, I have read,...'

[from Cheng and Vicente 2013, pg. 33]

The examples in (91) and (92) show that nouns in Chinese do not behave as those in Brazilian Sign Language in doubling. The former cannot be doubled like verbs in VDC expressions. That is to say, if the doubling effect in VDC is due to that that the lower copy fuses with a focus head, it is expected that nouns in Chinese can be doubled. However, this is contrary to the fact. Thus, it seems that the fusion with a focus head is not the trigger of the doubling effect in VDC expressions.

In section 4.8.1 I follow Cheng and Vicente (2013) in assuming that morphological fusion is the cause of the doubling effect. But Cheng and Vicente's (2013) account is problematic considering the asymmetry of doubling between nouns and verbs in Chinese. In section 4.8.2, differently from Cheng and Vicente (2013), I argue that the lower verb copy fuses with an aspect head instead of a focus head.

4.8.2 Morphological Fusion with Aspect Heads

In section 4.8.1 I mentioned that the doubling effect in VDC expressions can be accounted for by morphological fusion (Nunes 2004). Differently from Cheng and Vicente (2013), in this section I assume that in VDC expressions the lower verb copy fuses with an aspect head.

My account for the doubling effect in Mandarin VDC expressions is that the lower verb copies fuse with a functional head based on Cinque's (1999) study on adverbs.

Cinque (1999, pg. v) shows that "the different classes of AdvPs enter into a transparent Spec/head relation with the different functional heads of the clause." In other words, Cinque's (1999, pg. v-vi) suggestion is that "adverbs are the overt manifestation of (the specifiers of) different functional projections, which in certain languages may also manifest themselves via overt material in the corresponding head positions."

Here I skip the detailed analysis in Cinque (1999) but adopt Cinque's idea that adverbs are the overt manifestation of (the specifiers of) different functional projection, which in some languages may also manifest themselves via overt material in the corresponding head positions. According to Cinque (1999), the universal hierarchy of clausal functional projections are represented as in (93).

(93)   [*frankly* Mood$_{speech\ act}$ [*fortunately* Mood$_{evaluative}$ [*allegedly* Mood$_{evidential}$
[*probably* Mod$_{epistemic}$ [*once* T(Past) [*then* T(Future) [*perhaps* Mood$_{irrealis}$
[*necessarily* Mod$_{necessity}$ [*possibly* Mod$_{possibility}$ [*usually* Asp$_{habitual}$
[*again* Asp$_{repetitive(I)}$ [*often* Asp$_{frequentative(I)}$ [*intentionally* Mod$_{volitional}$
[*quickly* Asp$_{celerative(I)}$ [*already* T(Anterior) [*no longer* Asp$_{terminative}$
[*still* Asp$_{continuative}$ [*always* Asp$_{perfect(?)}$ [*just* Asp$_{retrospect}$
[*soon* Asp$_{proximative}$ [*briefly* Asp$_{durative}$
[*characteristically(?)* Asp$_{generic/progressive}$ [*almost* Asp$_{prospective}$
[*completely* Asp$_{SgCompletive(I)}$ [*tutto* Asp$_{PlCompletive}$ [*well* Voice
[*fast/early* Asp$_{celerative(II)}$ [*again* Asp$_{repetitive(II)}$ [*often* Asp$_{frequentative(II)}$
[*completely* Asp$_{SgCompletive(II)}$
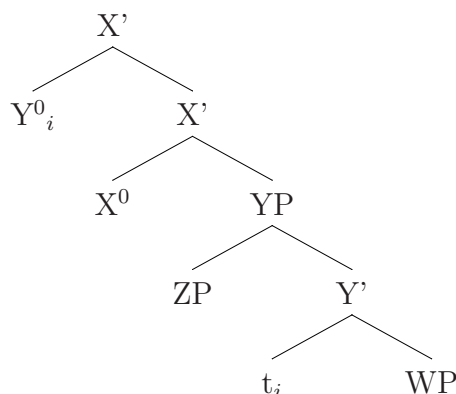
[from Cinque 1999, pg. 106]

It is observed that in many VDC sentences the lower verb copy may be followed by an overt aspect marker. See the example in (94-a) and the structure in (94-b).

(94)   a.   **Chi**, Zhangsan **chi**-le   san-ge-juzi,...
           eat   Zhangsan eat Perf three CL orange
           'As for eating, Zhangsan ate three oranges,...'

       b. $[_{TopP}$ eat$_i$ $[_{IP}$ Zhangsan ... $[_{AspP_{perfect(?)}}$ *le* eat$_i$ ... $[_{vP}$ t$_i$ $[_{VP}$ t$_i$ three oranges]]]]]

In (94-b) the verb in V moves to v to form a complex head V-v. Then it moves to Asp where the aspect marker *le* occupies [Spec, AspP]. Then V-v moves to [Spec, TopP]. This is triggered by Top. Assuming fusion occurs between the aspect head $Asp_{perfect(?)}$ and V-v in $AspP_{perfect(?)}$, chain reduction cannot apply to the chain [eat, eat] formed by movement from AspP to TopP. So both verb copies are pronounced. Moreover, I assume that "m(orphological)-merger" occurs between *le* in [Spec, $AspP_{perfect(?)}$] and V-v-$Asp_{perfect(?)}$ to get the correct order *chi-le* (Eng. 'eat Perf'). Irrelevant projections (AspPs) are omitted in (94-b).

     The assumption of "m(orphological)-merger" between an aspect marker in [Spec, AspP] and the complex head V-v-Asp comes from Matushansky's (2006) analysis on head movement. The author argues proposes that a bare head can move to the inner specifier position of the immediately next head up (cf. Toyoshima 2000, 2001), resulting in the structure in (95-a). Then, the two adjacent heads are rebracketed into a single constituent via a process of m(oprhological)-merger (cf. Halle and Marantz 1993) as in (95-b). Actually, the resulting structure is identical to tradition head-to-head movement.
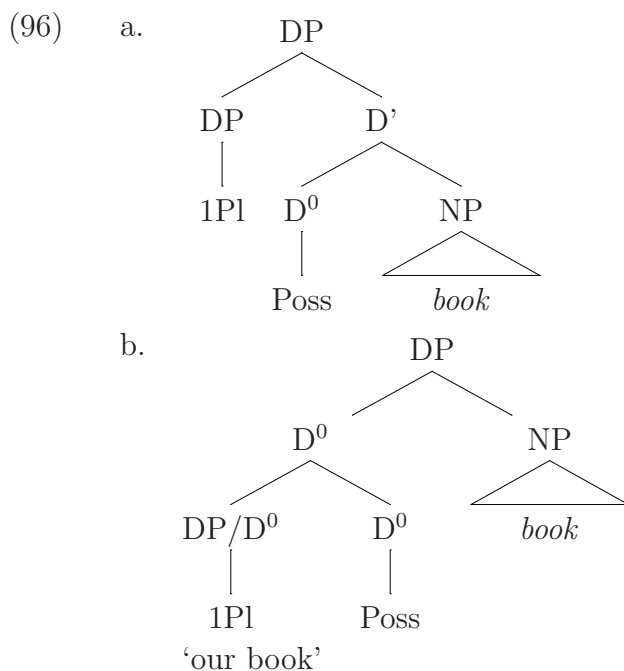
(95) a. head-to-spec movement

```
                    X'
                 /     \
              Y⁰ᵢ        X'
                      /     \
                    X⁰       YP
                          /      \
                        ZP        Y'
                               /     \
                             tᵢ       WP
```

  b. m(orphological)-merger

```
                    XP
                 /      \
              X⁰          YP
           /     \      /    \
         Y⁰ᵢ     X⁰    ZP      Y'
                             /    \
                           tᵢ      WP
```
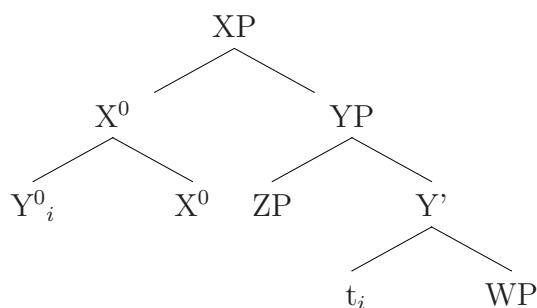
[from Matushansky 2006, pg. 81]

Here I focus on the m(orphological)-merger process. Matushansky (2006, pg. 83, 86-89) claims that m-merger is an independent operation, i.e., it can occur independently of head(-to-spec) movement. For example, Saxon genitives is a possible candidate for m-merger without prior movement. Assuming the possessor DP is located in [Spec, DP] and the genitive 's is a phrasal affix occupying D^0 (Abney 1987), suppletive lexical insertion may target both DP and D^0 as in (96-a). [12] Matushansky observes that a pronominal possessor DP is simultaneously a maximal projection (DP) and a head (D^0). Their local adjacency permits m-merger as in (96-b).

---

[12]The m-merged D^0-D^0 head may serve as a target for the Distributed Morphology operation of Fusion (Halle and Marantz 1993, 1994), which generates a single syntactic node for lexical insertion and therefore for suppletion (Matushansky 2006, pg. 87, footnote 23).

(96)   a.

```
              DP
           /      \
        DP          D'
         |        /    \
        1Pl     D⁰       NP
                 |      /    \
               Poss    book
```

   b.

```
              DP
           /      \
        D⁰           NP
       /    \       /   \
   DP/D⁰    D⁰      book
     |       |
    1Pl     Poss
   'our book'
```

[from Matushansky 2006, pg. 86-87]

Therefore, m(orphological)-merger may occur (with or without movement). It is possible for elements in [Spec, AspP] and Asp undergo m(orphological)-merger.

Since I assume that V-v-Asp moves from AspP to [Spec, TopP], i.e., a head-to-specifier movement as Matushansky (2006) proposes, one may wonder whether m(orphological)-merger applies to elements in [Spec, TopP] and Top.

I suppose that there is no m(orphological) merger after this movement. This possibility/assumption is also discussed in Matushansky's (2006, pg. 89-93) work. She points out that if head(-to-spec) movement without m-merger is possible, there will be no evidence for the Head Movement Constraint. In Matushansky's (2006, pg. 89) approach, "a head raised to a specifier and not m-merger could theoretically continue to move to the specifier of the next head (and maybe m-merger there)."

Consider raising of the main auxiliary across negation in English. See the examples in (97).

(97)   a.   Shouldn't Miranda sail a yacht across the Atlantic?
       b.   Should Miranda not sail a yacht across the Atlantics?

The example in (97-a) shows that negation can be a head while the example in (97-b) shows that it does not have to raise along with the main auxiliary to C^0. Suppose that Germanic negation is a specifier of some IP layer rather than the head of its own projection as in (98-a). This assumption is plausible based on data in languages like Icelandic, Faroese, and Old Scandinavian, where negation is a phrasal adverb (Holmberg 2006). Then, English negation, being both a head and a maximal projection, may undergo m-merger with the head in whose specifier it appears and the main verb that raises to this head as in (98-b). When m-merger occurs, $NegP/Neg^0$ is pronounced as *n't*.

(98)   a.

        b.
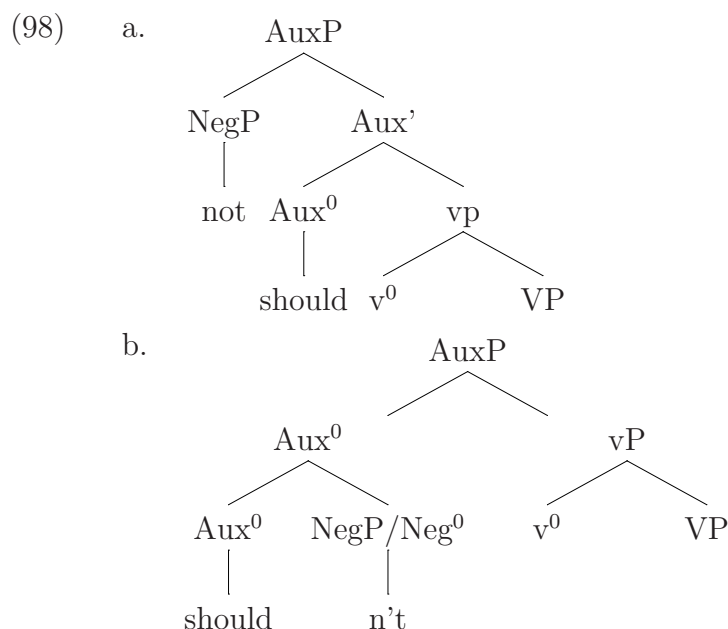
But in German and Dutch, separable prefixes/particles are left behind when the lexical verb moves. If these prefixes/particles are heads taking VP as a complement, their "stranding" would be an evidence against the Head Movement Constraint. Thus, it is possible that head(-to-spec) movement is not followed by m(orphological)-merger. This supports the assumption that no m-merger occur between the verb in [Spec, TopP] and Top in VDC sentences.

Therefore, m(orphological)-merger is an independent morphological operation. In VDC expressions like (94), after V-v fuses with Asp, the resulting complex head V-v-Asp m-merges with an overt aspect maker in [Spec, AspP] to get the right order. No such merger is assumed between [Spec, TopP] and Top.

Return to VDC expressions. It is also observed that in some VDC expressions both overt aspect markers and adverbs are present. That is to say, more than one overt aspects are involved in VDC expressions See the example in (99-a) and the structure in (99-b).

(99) a. **Xie**, ta xunsu **xie**-le   liang-pian-wenzhang,...
         write 3S quickly write Perf two Cl article
         'As for writing, he wrote two articles quickly,...'

                                                                    [Mandarin]

  b. $[_{TopP}$ write$_i$ $[_{IP}$ he ...$[_{AspP_{celerative(I)}}$ quickly ...$[_{AspP_{perfect(?)}}$ *le* write$_i$
      ...$[_{vP}$ t$_i$ $[_{VP}$ t$_i$ two articles]]]]]]

In (99-a) the lower verb copy *xie* (Eng. 'write') appears between the preverbal adverb *xunsu* (Eng. 'quickly') and the overt postverbal aspect marker *le*. Like other VDC expressions, I assume that the doubled verb moves from VP to AspP$_{perfect(?)}$. Later, V-v-Asp$_{perfect(?)}$ moves to [Spec, TopP] as in (99-b). Like in other VDC expressions, V-v fuses with *le* in Asp$_{perfect?}$. Since linear adjacency is a precondition for fusion, V-v cannot fuse with Asp$_{celerative(I)}$ regardless whether V-v moves to Asp$_{celerative(I)}$ or not. Moreover, "m(orphological)-merger" occurs between the aspect marker *le* in [Spec, AspP$_{perfect(?)}$] and the complex head V-v-Asp$_{perfect?}$ to get the right order.

However, there are VDC expressions without any overt aspect markers, but with an overt adverb. See the example in (100-a) and the structure in (100-b).

(100) a. **Chi**, wo tiantian **chi** shuiguo,...
          eat   I   daily   eat fruit
          'As for eating, I eat fruits everyday,...'

                                                                    [Mandarin]

  b. $[_{TopP}$ eat$_i$ $[_{IP}$ I ...$[_{AspP_{habitual}}$ daily eat$_i$ ...$[_{vP}$ t$_i$ $[_{VP}$ t$_i$ fruits]]]]]

In (100-a), the lower verb copy *chi* (Eng. 'eat') is not adjacent to any overt aspect marker. However, this verb copy is next to the preverbal adverb *tiantian* (Eng. 'everyday'). Following Cinque (1999), I assume that the adverb occupies [Spec, $\text{Asp}_{habitual}$P] based on the meaning of the adverb *tiantian* (Eng. 'everyday'). The doubled verb moves to $\text{Asp}_{habitual}$ and later V-v-$\text{Asp}_{habitual}$ to [Spec, TopP] as in (100-b). Then V-v fuses with $\text{Asp}_{habitual}$. Therefore, the fusion causes the failure of chain reduction and both copies are pronounced.

Notice that VDC expressions may also appear without either overt aspect markers or overt adverbs. See the example in (101).

(101)   **Xue**, ta **xue** wudao,...
learn 3S learn dancing
'As for learning, he learns dancing,...'

[Mandarin]

In (101), none of overt aspect markers or adverbs appear to be adjacent to the lower verb copy *xue* (Eng. 'learn').

In this thesis I adopt Xiao and McEnery's (2004, pg. 236-240) analysis in assuming that aspect is covertly marked in sentences like (101). The corpus-based study in Xiao and McEnery (2004) leads to the following claim:[13]

---

[13]Smith (1997) involves a "neutral viewpoint" to discuss Chinese data. This viewpoint is "weaker than the perfective in allowing open readings" but "stronger than the imperfective because it allows closed readings" (Smith 1997, pg. 78). Smith (1997, pg. 277) also claims that "viewpoint morphemes are syntactically optional" in Chinese and sentences may not be marked aspectualy. These sentences are argued to have the neutral viewpoint. In other words, they are "neither perfective nor imperfective" (Smith 1997, pg. 278).

Nevertheless, Xiao and McEnery (2004) observes that Chinese has a lot of aspect makers in their corpus based study. They do not find any instance of aspectually unmarked sentence that is "neither perfective nor imperfective" (Xiao and McEnery 2004, pg. 236). They agree with Smith in that neutral viewpoint does not apply to stative sentences (Smith 1997, pg. 278). However, for dynamic situations, Xiao and McEnery (2004) claims that there re two types of aspectually unmarked sentences in discourse. They are "either imperfective as *irrealis* (e.g. future, habitual or conditional) or as having a perfective aspect deleted for discourse reasons" (Chu 1987, pg. 4). See the examples in (i).

(i)   a.   Wo tongchang he   putaojiu.
I   usually   drink wine
'I usually drink wine.'
    b.   ruguo ta taopao, women jiu   baojing.
if   3S escape 1Pl   then call.police
'If he escapes, we will call the police.'

Sentences unmarked for viewpoint aspect typically occur in three contexts. Stative situations normally do not take an aspect marker because statives do not have to be marked aspectually. For dynamic situations, there are two types of aspectually unmarked sentences in discourse. They are either *irrealis* imperfectives or perfectives without overt aspect marking. We assume that sentences without overt aspect marking have the 'zero aspect', because they convey aspectual meanings but take the zero form. When taken in isolation, these aspectually unmarked sentences may be ambiguous between perfective and imperfective readings; but in discourse, their aspecual meanings are made explicit by context. As such, the zero aspect can be either perfective or imperfective, depending on context. It is not an independent viewpoint aspect.

[from Xiao and McEnery 2004, pg. 239-240]

Note that stative verbs are not allowed to be doubled in VDC expressions as in (102).

(102) a. *__Shi__, Zhangsan **shi** laoshi,...
be   Zhangsan be teacher
'As for being, Zhangsan is a teacher,...'

b. *__Xiang__, Lisi **xiang** ta fuqin,...
be.like   Lisi be.like 3S father
'As for being like, Lisi is like his father,...'

[Mandarin]

Therefore, VDC expressions indicate "dynamic situations". According to Xiao and McEnery (2004), when VDC expressions are not aspectually marked, they

c. ta zouru   fangjian, suo men, sikao-le   hen jiu.
3S walk.into room   lock door think Perf very long
'He walked into the room, locked the door and thought for a long time.'

[Mandarin]

The example in (i-a) denotes a habitual situation and the subordinate clause in (i-b) is a conditional clause. These situations have the imperfective viewpoint. The example in (i-c) is a segment in which a series of actions happen. Only the last verb *sikao* (Eng. 'think') is marked with *le*. These actions are taken as a whole. Actually, *le* may be added to the verbs *zouru* (Eng. 'walk.into') and *suo* (Eng. 'lock'.)

are either irrealis imperfctives or perfectives without overt aspect marking. I follow Xiao and McEnery (2004) in assuming these VDC expressions have the zero aspect. In addition, since they may be ambiguous between perfective and imperfective reading, I assume that in these sentences the lower verb copy is located in AspP$_{perfective(?)}$. See the example in (102-a) and its structure in (102-b).

(103) a. **xue**, ta **xue** wudao,...
           learn 3S learn dancing
           'As for learning, he learns dancing,...'

           [Mandarin]

       b. $[_{TopP}$ learn$_i$ $[_{IP}$ he...$[_{AspP_{perfect(?)}}$ learn$_i$ ...$[_{vP}$ t$_i$ $[_{VP}$ t$_i$ dancing]]]]]

In (103-b) the verb *xue* (Eng. 'learn') moves from VP to Asp$_{perfect(?)}$ and later, to [Spec, TopP]. Then, V-v fuses with Asp$_{perfect(?)}$ and chain reduction cannot apply. Thus, both verb copies are pronounced.

what advantages does my account have over Cheng and Vicente's (2013) analysis?

At first sight, it seems that fusion with an aspect head is nothing better than fusion with a focus head.

Recall that Cheng and Vicente (2013) point out that when a noun follows the verb, it cannot be doubled like verbs in VDC as in (104).

(104) **shu**, ta kan-le   (***shu**),...
       book 3S read Perf book
       'As for books, he read books,...'

           [Mandarin]

The example in (104) shows that assuming fusion with a focus head as the cause of the doubling effect is problematic because no doubling effect shows when a focus head fuses with a nominal phrase.

In other words, Cheng and Vicente (2013) must answer the question why the focus head cannot fuse with a noun so that a noun can be doubled like the verbs in VDC (see more in section 4.8.1).

Can a nominal phrase fuses with an aspect head like a verb in VDC?

Since I adopt Cinque's analysis for adverbs and I assume that the verb moves until an "appropriate" aspect head position, a nominal phrase cannot be adjacent to any of these aspect heads because it does not move to any position nearby. That is to say, when an overt object appear in a VDC expression, it is not be able to be adjacent to any aspect head assuming that it merges with the verb copy at the bottom of the structure (cf. Soh 1998). See the example in (105).

(105)   *$\mathbf{shu}$, Zhangsan [$_{AspP}$ kan-le   [$_{vP}$ [$_{VP}$ $\mathbf{shu}$,...]]
        book Zhangsan   read Perf   book
        'As for books, he read books,...'

[Mandarin]

In (105), the overt object shu (Eng. 'book') is inside VP and it cannot be adjacent to the aspect head in the sentence. Thus, no morphological fusion is allowed. So there is no doubling effect when a nominal phrase is topicalized as the doubled verb in VDC expressions.

In sum, adopting Cinque's (1967) analysis for adverbs, in this section I have argued that the lower verb copy in a VDC expression can fuse with an aspect head, more exactly, the closest one. Thus, chain reduction fails and the doubling effect follows. In section 4.8.3 I will show some challenges that my account faces.

4.8.3   Challenges

In section 4.8.2, adopting Cinque's (1999) analysis for adverbs, I argued that in VDC expressions the lower verb copy fuses with an aspect head. As a result, chain reduction fails and the doubling effect follows. In this section, I discuss some challenges that my account faces. Most of these challenges come from the question

whether Cinque's (1999) account for adverbs is suitable for data in Chinese. The discussion is largely based on Tang's (2001) and Cinque's (1999) works. All the examples from Tang (2001) are Mandarin data.

Tang (2001) claims that compared with Cinque's (specifier) approach, a non-specifier analysis is more plausible for Chinese adverbs. Tang's (2001) counter-arguments for applying Cinque's (1999) analysis to Chinese data embrace these aspects: i) circumstantial adverbials of place, time, manner and the like occupy preverbal position in Chinese; ii) preverbal adverbs in Chinese have flexible orders.

Next, I will introduce Tang's (2001) arguments against Cinque's (1999) account.

Tang (2001) observes that manner adverbs, locatives and temporals cannot appear postverbally in Chinese. This is shown in (106).

(106)   a. *Ta da-le   wo henhen de.
            he beat Perf I   fierce   Part
            'He beat me fiercely.'

        b. *wo chifan   zai ta de   jia.
            I   eat.rice at 3S Part home
            'I ate at her house.'

        c. *ta kanjian ni   zuotian.
            3S see   you yesterday
            'He saw you yesterday.'

                                        [from Tang 2001, pg. 215]

The examples in (106) show that manner adverb *henhen de* (Eng. 'fiercely'), the locative *zai ta de jia* (Eng. 'at his home') and the temporal *zuotian* (Eng. 'yesterday') cannot appear after the verbs. This is quite different from English as shown in translations.

Tang (2001, pg. 215) believes that this contrast is unexpected according to Cinque's (1999, pg. 28) claim about circumstantial adverbs, i.e., adverbs of place, time, manner, means, company, reason, purpose, and so forth. One peculiar property of circumstantial adverbs is that they cannot appear in any of the pre-VP positions open to the specifier-type adverbs as shown in (107).

(107)   a.   *John will tomorrow/there attend classes.

         b.   Bill quickly/*with a crash dropped the bananas.

[from Jackendoff 1977, pg. 73]

The only exception is those "adverbs of setting", which has to locate in a sentence-initial position, a topic like position (1999, pg. 28).

However, in Chinese many circumstantial adverbs occupy preverbal positions. See the examples in (108).

(108)   a.   (mingtian) ta (mingtian) keyi (mingtian) lai.
              tomorrow he tomorrow   can tomorrow   come
              '(Tomorrow) He can come (tomorrow).'

         b.   (zai jia-li)   ni (zai jia-li)   neng (zai jia-li)   xiuxi
              at home-inside you at   home-inside can   at   home-inside rest
              ma?
              Q
              '(At home) Can you take a rest (at home)?'

[from Tang 2001, pg. 215]

The examples in (108) show that temporals like *mingtian* (Eng. 'tomorrow') and locatives like *zai jia-li* (Eng. 'at home.inside') may appear sentence-initially, between the subject and the modal or between the modal and the verb. The last two distributions suggest that the preverbal occurrence of circumstantial adverbials is not universal.

Furthermore, according to Cinque (1999, pg. 87), Italian temporal like *ieri* (Eng. 'yesterday') cannot appear between epistemic adverbs and lower adverbs as seen in (109), but the purely deictic adverbs like *allora* (Eng. 'then') can as in (110).

(109)   *Gianni non ha   (probablimente) ieri   (mai) dormito.
          Gianni not have probably   yesterday ever sleep
          'Gianni didn't (probably) yesterday (ever) sleep.'

[Italian from Cinque 1999, pg. 87]

(110) a. Era allora forse   stata fortunata.
           She then perhaps been lucky
           'She had then perhaps been lucky.'

       b. *?Era forse   allora stata fortunata.
          she perhaps then   been lucky
          'She had perhaps then been lucky.'

[Italian from Cinque 1999, pg. 87]

However, in Chinese the temporal like *zuotian* (Eng. 'yesterday'), epistemic adverbs and lower adverbs have flexible orders. This is shown in (111).

(111) a. Ta keneng   zuotian   buceng shui-guo.
           3S probably yesterday not.ever sleep Exp
           'Probably he did not ever sleep yesterday.'

       b. Ta zuotian   keneng   buceng shui-guo.
           3S yesterday probably not.ever sleep Exp
           'Yesterday he probably did not ever sleep.'

       c. ni   nashi huoxu   hen xingyun.
           you then perhaps very lucky
           'your perhaps had been very lucky then.'

       d. ni   huoxu   nashi hen xingyun.
           you perhaps then very lucky
           'you perhaps had been very lucky then.'

[from Tang 2001, pg. 221]

In all, Tang's (2001) claim is that the order of adverbs among languages are not the same as Cinque (1999) contends. This is shown in two aspects: i) circumstantial adverbials of place, time, manner, and the like occupy preverbal positions in Chinese while the same locate in postverbal positions in English; ii) preverbal adverbs in Chinese have flexible orders instead of one fixed order. Next I will discuss in detail Cinque's (1999) accounts on relative issues.

The term "adverb" used in Cinque (1999, pg. 3) is not assumed to be a head taking the VP, or some projection dominating the VP. In other words, it is not assumed to be part of the "extended projection" of V (cf. Grimshaw 1991).

At first, Cinque (1999) assumes that there are two distinct "spaces" for "lower" AdvPs, one preceding the VP while the other following it as shown in

(112).

(112)   "Higher" (sentence) AdvPs >"Lower" AdvPs >(DP$_{subj}$) (V) comple-
          ments >Place, time, manner, etc. adverbials >(focused) "AdvPs" >de-
          accented material

                                                            [from Cinque 1999, pg. 16]

As shown in (112) *circumstantial adverbs* follow the verb's complements within the
VP (cf. Fillmore 1994). They include adverbs that denote place, time, manner,
means, company, reason, purpose, and so on (1999, pg. 28). But Cinque (1999,
pg. 28) also points out that circumstantial adverbs are quite different from other
adverbs proper in the following sense. Circumstantial adverbs are not rigidly
ordered with respect to one another. They can be interchangeable in scopes of one
another, depending on their structural relation. This is shown in (113).

(113)   a.   He attended classes every day of the week in a different university.
          b.   He attended classes in each university on a different day of the week.
                                                            [from Cinque 1999, pg. 28]

In (113-a) the place adverbial with an indefinite DP is in the scope of the time ad-
verbial with a universal quantifier. In (113-b) the case is contrary. Circumstantial
adverbs also distinct from AdvPs proper in that they are often realized (except
for some manner adverbials) in prepositional form like *for an hour, in the school,
by car* or in bare NP form like *tomorrow, this way, here* (cf. Larson 1985, Stroik
1992). Moreover, circumstantial adverbs cannot appear in any of the pre-VP po-
sitions open to AdvPs proper except for those in an absolute initial position, a
topic-like position like "adverbs of setting". See the examples in (114).

(114)   a.   *John will tomorrow/there attend classes.
          b.   Bill quickly/*with a crash dropped the bananas.
                                                            [from Jackendoff 1977, pg. 73]

Circumstantial adverbs and AdvPs proper are also different in their semantics (1999, pg. 28). Whereas AdvPs proper are "characteristically operators" (functions mapping propositions to propositions, or predicates to predicates), circumstantial adverbs can be seen as modifiers predicated of an underlying event variable (see Parsons 1990, chapter 4).

Given these differences between circumstantial adverbs and AdvPs proper, Cinque (1999, pg. 29) argues that it is natural not to assume that circumstantial adverbs occupy the specifier position of distinct functional projections above the VP like AdvPs proper. This is natural if the rigid ordering of AdvPs comes from the rigid ordering of the respective functional heads (via Spec/head agreement). I leave Cinque's (1999, pg. 29) discussion about the structural position of circumstantial phrases aside.

Regarding to circumstantial adverbs in Mandarin Chinese, adverbs of place, time, manner usually appear in pre-VP positions. See the following examples in (115).

(115)   Adverb of time

     a.   *zuotian*   ta mei qu xuexiao.
            yesterday 3S Not go school
            'He didn't go to school yesterday.'

     b.   ta *zuotian*   mei qu xuexiao
            3S yesterday Not go school
            'He didn't go to school yesterday.'

     c. *ta mei qu xuexiao *zuotian*.
            3S Not go school   yesterday
            'He didn't go to school yesterday.'

                                        [Mandarin]

The adverbs of time in Mandarin generally appear as a bare NP like *zuotian* (Eng. 'yesterday') in (115). They have to occupy a pre-VP position as shown in (116-a) and (116-b). Its appearance in a post-verbal position is ungrammatical as seen in (116-c).

(116)   Adverb of place

    a.   ta zai *daxue*   jiao   zhongwen.
          3S at university teach Chinese
          'He teaches Chinese in a university.'

    b. *ta jiao   zhongwen zai *daxue.*
          3S teach Chinese   at university
          'He teaches Chinese in a university.'

[Mandarin]

The adverbs of place in Mandarin often occupy preverbal positions. They are usually introduced with the preposition *zai* (Eng. 'at') as in (116). As seen in (116-b), the adverb of place cannot be located in a post-verbal position. See also examples with adverbs of manner in (117).

(117)   Adverb of manner

    a.   Lili manman de   dakai-le   chuang.
          Lili slowly   Part open Perf window
          'Lili opened the window slowly.'

    b. *Lili dakai-le   chuang manman de.
          Lili open Perf window slowly   Part
          'Lili opened the window slowly.'

[Mandarin]

Likewise, adverbs of manner in Mandarin often show in pre-VP positions like *manman* (Eng. 'slowly') in (117-a). And these pre-VP adverbs of manner cannot show in post-verbal positions as in (117-b). However, there are cases in which adverbs of manner can occupy a post-verbal position. This is seen in sentences with verb copying as in (118).

(118)   Zhangsan **kai** che **kai** de   hen man.
        zhangsan open car open Part very slowly
        'Zhangsan drives very slowly.'

[Mandarin]

The adverb of manner *hen man* (Eng. 'very slowly') is located after the VP *kai che* (Eng. 'drive') in (118).

Even though the location of circumstantial adverbs in Mandarin might be one counterargument of Cinque's (1999) claim, I do not think that these facts could affect my analysis for VDC expressions in Mandarin. See the example in (119).

(119)   **jiang**, ta mingtian zai xuexiao **jiang** liang-jie-ke.
          speak 3S tomorrow at school   speak two CL lesson
          'As for teaching, he will teach two lessons in school tomorrow.'

[Mandarin]

Following the discussion in Cinque (1999), I assume that the circumstantial adverbs *mingtian* (Eng. 'tomorrow') and *xuexiao* (Eng. 'school') do not occupy the Spec position of any functional heads. Furthermore, I assume that there is a phonetically null functional head located between the circumstantial adverb *xuexiao* (Eng. 'school') and the verb *jiang* (Eng. 'speak'). Then the fusion will occur between the verb and this functional head and both verbs are pronounced.

Another fact that Tang (2001) observes is that preverbal adverbs in Mandarin have flexible orders, which is viewed as a counterargument to Cinque's (1999) claim. See the examples in (120).

(120)   a.   ta ye   zai nali wei wo gai-le   yi-dong-fangzi.
                3S also at there for I   build Perf one Cl house
                'He also built a house for me over there.'

          b.   ta ye   wei wo zai nali gai-le   yi-dong-fangzi.
                3S also for I   at there build Perf one Cl house
                'He also built a house for me over there.'

          c.   ta zai nali ye   wei wo gai-le   yi-dong-fangzi
                3S at there also for me build Perf one Cl house
                'Over there he also built a house for me.'

          d.   ta zai nali wei wo ye   gai-le   yi-dong-fangzi.
                3S at there for me also build Perf one Cl house
                'Over there he also built a house for me.'

          e.   ta wei wo ye   zai nali gai-le   yi-dong-fangzi.
                3S for me also at there build Perf one Cl house
                'For me he also built ahouse over there.'

          f.   ta wei wo zai nali ye   gai-le   yi-dong-fangzi.
                3S for me at there also build Perf one Cl house
                'For me he also built a house over there.'

[from Tang 2001, pg. 221-222]

The preverbal adverbs *ye* (Eng. 'also'), *zai nali* (Eng. 'there') and *wei wo* (Eng. 'for me') in (121) have flexible orders though the scope of modification is determined by the modification relation among them (Tang 2001, pg. 222). Tang (2001) claims that this is unexpected assuming every adverb is licensed by a particular functional head.

As I mention in this section, Cinque (1999, pg. 28-29) notices that circumstantial adverbs are quite different from AdvPs proper. One difference lies on the fact that they are not rigidly ordered with respect to one another. Thus, it is suggested that circumstantial adverbs are not generated in any Spec positions like AdvPs proper. In (120), the adverb *zai nali* (Eng. 'there') denotes place while the adverb *wei wo* (Eng. 'for me') implies purpose. They both are circumstantial adverbs. The adverb *ye* (Eng. 'also') behaves as a quantifier and takes scope over the element immediately after it. So it is not surprising that these preverbal adverbs have free orders.

Recall that I have shown in (119) that the flexible order of preverbal circumstantial adverb does not affect the analysis for VDC expressions in this thesis.

In section 4.8.3 I have discussed some challenges to Cinque's (1999) fixed order of adverbs from Tang (2001). They are mostly related to circumstantial adverbs: Mandarin circumstantial adverbs often appear in preverbal positions and they have free orders. However, Cinque (1999) indicates clearly that circumstantial adverbs behave differently from AdvPs proper in many aspects, for example, the former are not rigidly ordered. In addition, it is suggested that these adverbs do not locate in Spec positions of any functional heads. Thus, I consider that the facts observed in Tang (2001) are incompatible with Cinque's (1999) claim.

In section 4.8 I have discussed the doubling effect in Chinese VDC expression. The discussion begins with Cheng and Vicente's (2013) account for the doubling effect and its problem. Then I offer an alternative analysis assuming that lower verb copy in VDC fuses with an aspect head. I also discuss the problem that my analysis faces. I conclude Chapter 4 in section 4.9.

4.9   Conclusions

In Chapter 4, I have focused on the verb doubling pattern VDC in Chinese. As I have done in Chapter 3, I have given a general description of VDC expressions. They often appear in the context of discourse. When they show up, the sentences often carry more information after the utterance of a VDC expression (cf. Vicente 2007). Moreover, the doubled verb in VDC must keep its literal meaning. With regard to modal verbs, only those with deontic modality are allowed to undergo doubling in VDC.

I have also reviewed in detail Cheng and Vicente's (2013) account for VDC expressions. It has been observed that the two verb copies in a VDC expression show island effect. Thus, it has been argued that the sentence initial verb copy in a VDC expressions has undergone movement. Furthermore, the authors argue that the verb moves from a head position to the specifier position [Spec, TopP] (Koopman 1984, Landau 2006, Vicente 2007, Roberts 2010). Moreover, the doubling effect is a result of multiple spell out of chain copies (cf. Nunes 2004). Specifically, Cheng and Vicente (2013) assume that the lower verb copy fuses with a focus head. Then Chain Reduction fails and both verb copies are pronounced (Nunes 2004).

Later, I have shown that the copula *shi* (Eng. 'be') is optional in VDC expressions. Following Cheng and Vicente (2013), I have argued that object scrambling in Chinese is restricted. Thus, it is a head, instead of a phrase, that has moved to the sentence initial position. That is to say, the verb moves from V to [Spec, TopP]. The sentence initial verb in VDC are incompatible with other preverbal or postverbal elements, i.e., it is a "bare" form. Similar verb movement has been observed in other languages like Hebrew and Spanish (Landau 2006, Vicente 2007).

Furthermore, I have argued that the sentence initial verb in VDC is located in a specifier position rather than a head position. The argument is based on the observations in Roberts (2010). Roberts observes that a head may undergo movement to a head position, i.e., verb movement in Breton, or a specifier position, i.e., verb movement in verb fronting in Spanish, in CP (cf. Borsley, Rivero and Stephens 1996 and Vicente 2007). The similarities between VDC expressions and verb fronting in Spanish suggest that the doubled verb in VDC moves to a specifier

position.

   In Chapter 4 I have also offered an alternative analysis for the doubling effect in VDC expressions. If the doubled verb in VDC fuses with a focus head as Cheng and Vicente (2013) assumes, one must answer the question why such doubling effect is not attested in nominal phrases. Therefore, adopting Cinque's (1999) analysis for adverbs, I assume that the lower verb copy in VDC fuses with a linearly adjacent adverb head. The fusion causes the failure of chain reduction and both verb copies are pronounced. In addition, I have pointed out some challenges that my account faces based on Tang's (2001) work.

Chapter 5

Concluding Remarks

5.1 Recapitulation

The preceding chapters have explored verb doubling phenomena in depth. The terminology *doubling* is used to refer many phenomena in languages. Moreover, doubling of verbs has been observed among different languages. Many of these expressions appear as cleft sentences like those in Spanish and Hebrew (Landau 2006, Vicente 2007). In this thesis I focus on verb doubling patterns in Chinese.

Before discussing verb doubling patterns in detail, I introduce in Chapter 2 doubling phenomenon in different domains. Moreover, I review Barbiers' (2008) definition on syntactic doubling. Although syntactic doubling is a particular phenomenon in language design, it does not violate principles in language design. I also review the following approaches to investigate doubling phenomena. Later, I introduce the definition of verb doubling by modifying the definition of syntactic doubling. I show that verb doubling has semantic and syntactic effects. At the end, I review Landau's (2006) and Vicente's (2007) accounts for verb doubling.

In Chapter 3, I present observations on different verb doubling patterns in Chinese. Specifically, I concentrate on non-cleft verb doubling patterns. These different patterns are classified into five groups based on the contextual environment they appear. I show that they appear in contexts with topic/focus, delimitative

aspect, polarity, presupposition or maximality. I give a general description of each pattern based on the following questions: what elements can be doubled? In what situation would speakers use these expressions? Whether doubling is obligatory in these patterns?

I turn to verb doubling cleft (VDC) in Chinese in Chapter 4. I begin the chapter with general properties of these utterances. In line with Cheng and Vicente (2013), I argue that the two verb copies in a VDC expression form an A'-dependency. The sentence initial copy is located in [Spec, TopP]. Additionally, the doubling effect follows the failure of chain reduction (Nunes 2006). I also argue that what has been moved in VDC is a head instead of a verbal phrase. Adopting Cinque's (1999) analysis on adverbs, I assume that the morphological fusion occurs between the lower verb copy and a functional aspect head.

5.2   Remaining Issues

There are a number of issues related to verb doubling that I have not discussed in this thesis. I briefly mention the following aspects: triggers of verb doubling, full doubling vs. partial doubling and dependencies between verb copies.

5.2.1   Triggers of verb doubling

Previous discussions on verb doubling often depend on the topic/focus reading of verb copies in these expressions. In other words, the trigger of verb doubling has much to do with the discourse where it appears. Moreover, A bar-movement is argued between the two verb copies in verb doubling expressions (Landau 2006, Vicente 2007, 2009). However, regarding to the trigger of doubling, one may blame it to the topic/focus reading of verb copies or the phonological requirement imposed by functional heads.

Concerning Mandarin data, verb doubling does not always relate to topic/focus reading, for example, verb reduplication, V neg V, *ai* V *bu* V, etc. Besides, phonological requirement is not always attested in verb doubling expressions, for

example, verb copying, V neg V, V *jiu* V, etc. Therefore, the trigger of verb doubling in different patterns may be distinct.

Furthermore, verb doubling in Mandarin has close relations with the meaning of the doubling pattern. The constraints of each pattern is quite relevant to the meaning of the doubled verbs and the discourse usage of these expressions. For example, verbs that denote "unusual" actions cannot appear in *ai* V *bu* V. Doubled verbs in V *jiu* V *zai* are result/status denoted ones and these expressions contain one's presuppositions. Consequently, triggers of verb doubling may also be relevant to semantic values.

5.2.2 Full Doubling vs. Partial Doubling

There are many disyllabic verbs in Mandarin. The lexical integrity of these verbs affect the doubling forms. In addition, the way that lexical integrity affect doubling forms is related to the meaning of each part in these verbs. Assuming that phrase-level rules in syntactic component cannot affect inside any sub-parts of a verb (Lexical Integrity Hypothesis in Huang 1991), it is difficult to describe syntactic dependencies between these verb copies and other elements (cf. Travis 2001, 2003).

5.2.3 Dependencies between verb copies

With respect to the dependencies between the two verb copies, further investigation on functional elements appear in these expressions would be needed. For example, the verb *ai* (Eng. 'love') in *ai* V *bu* V, the adverb *jiu* in V *jiu* V, *shuo* V *jiu* V and the preposition *zai* in V *jiu* V *zai*. Moreover, the dependencies between the two verb copies should be described properly in different components.

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