Object Scrambling in Chinese

by

Hooi Ling Soh

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M.A. Linguistics
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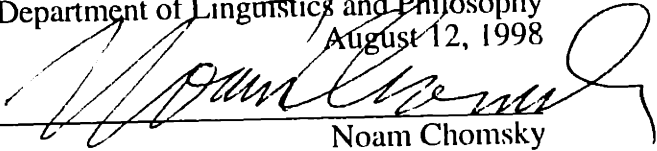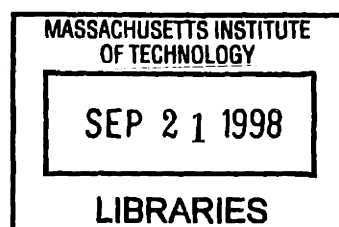MASSACHUSETTS INSTITUTE OF TECHNOLOGY

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Signature of Author: _____
Department of Linguistics and Philosophy
August 12, 1998

Certified by: _____
Noam Chomsky
Institute Professor
Thesis Supervisor

Accepted by: _____
Michael Kenstowicz
Chair, Linguistics Program
Department of Linguistics and Philosophy

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Hooi Ling Soh

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ABSTRACT

This thesis examines the role of prosody and semantics in word order variations in Chinese. In particular, I address the controversial issue of whether overt object scrambling is available in Chinese. I argue that overt object scrambling exists in Chinese on the basis of (i) scope evidence, and (ii) the similarities between the distribution of the object in Chinese and object scrambling in Dutch and German. I show that the distribution of the object in Chinese exhibits prosodic, semantic and discourse information structure effects, similar to object scrambling in Dutch and German (Neeleman and Reinhart, to appear). I suggest that certain differences between Chinese and Dutch/German in the distribution of the object follow from the different word orders in these languages and how the word orders interact with the possibility of stress shift. There is evidence from the distribution of the object(s) in serial verb constructions and double complement constructions that the scrambled object occupies a position within the VP. This study places Chinese among languages such as Dutch and German which allow object scrambling and by doing so, enriches the data base for determining why scrambling occurs.

Thesis Supervisor: Noam Chomsky
Title: Institute Professor

Acknowledgments

Contents

Abbreviations

The following is a list of the abbreviations used in this thesis.

ACC	accusative case
CL	classifier
COP	copula
DIR	direct case
FOC	focus marker
PRT	particle
PASS	passive marker
PAST	past tense
PERF	perfective/experienced
PL	plural marker
Q	question particle

BA	BA in Mandarin
DE	modificational marker in Mandarin
GE	'each' in Mandarin
GEI	'to' in Mandarin

Chapter One

Introduction

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1.   Background

1.1   The distribution of the object in relation to the duration/frequency phrase

The distribution of the object noun phrase in relation to the duration/frequency phrase (DFP) has been a well-studied topic in Chinese linguistics. While certain noun phrases may appear either before or after the DFP, other noun phrases seem to be licensed only before or only after the DFP. Noun phrases which may appear either before or after the DFP include proper names, demonstratives, modified noun phrases and certain quantificational phrases. Examples are given in (1) - (4).

(1)   Proper name

       a.   wo qu-guo   [Meiguo] [liang ci].

           I   visit-PERF US   two time

           'I have visited US twice.'

b. wo qu-guo   [liang ci]   [Meiguo].

I visit-PERF two time US

'I have visited US twice.'

(2) Demonstrative[1]

a. wo qing-guo   [na-ge ren]   [liang ci].

I invite-PERF that-CL person two time

'I have invited that person twice.'

b. wo qing-guo   [liang ci]   [na-ge ren].

I invite-PERF two time   that-CL person

'I have invited that person twice.'

(3) Modified noun phrase

a. wo chi-guo [huang se   de xigua]   [liang ci].

I eat-PERF yellow color DE watermelon   two time

'I have eaten yellow watermelon twice.'

b. wo chi-guo   [liang ci] [huang se   de xigua].

I eat-PERF two time   yellow color DE watermelon

'I have eaten yellow watermelon twice.'

---

[1] Kung (1993) finds (2b) unacceptable, while noting that the sentence is improved with heavy stress on the object or if the object bears more information (e.g. modified by a relative clause). Tang (1990, 1994) and Sybesma (1997) find (2b) acceptable. My judgment is in agreement with Tang (1990, 1994) and Sybesma (1997) here.

(4)   Quantificational phrase

    a.   wo qing-guo   [quanbu de xuesheng] [liang ci].

            I   invite-PERF all   DE student   two time

            'I have invited all students twice.'

    b.   wo qing-guo   [liang ci]   [quanbu de xuesheng].

            I   invite-PERF two time   all   DE student

            'Twice, I have invited all students.'

Noun phrases which may appear only after the DFP are referred to as "non-referential" in the literature. They may have an idiomatic interpretation. An example is given in (5).

(5)   Non-referential noun phrases

    a.   wo jie-le   yi   ci   zhang.

            I   settle-PERF one time account

            'I settled accounts once.'   (Feng 1995)

    b.   *wo jie-le   zhang yi   ci.

            I   settle-PERF account one time

            'I settled accounts once.'   (Feng 1995)

Noun phrases which may appear only before the DFP include certain indefinite noun phrases with numeral-classifier as shown in (6a) and (6b). It seems that these noun phrases are only restricted to the pre-DFP position when they are not modified. When they are modified, they may appear after the DFP as shown in (6d).

(6)   a.   ta jian-le   yi-ge   lüshi   liang ci.

               he see-PERF one-CL lawyer two   time

               'He saw a lawyer twice.'

b.   ?* ta jian-le   liang ci   yi-ge   lüshi.

               he see-PERF two   time one-CL lawyer

               'He saw a lawyer twice.'

c.   ta jian-le   yi-ge   cong-lai-bu ting ta jiang-hua de lüshi   liang ci.

               he see-PERF one-CL never   listen he talk   DE lawyer two   time

               'He has seen a lawyer who never listens to him speak twice.'

d.   ta jian-le   liang ci   yi-ge   cong-lai-bu ting ta jiang-hua de lüshi.

               he see-PERF two time one-CL never   listen he talk   DE lawyer

               'He has seen a lawyer who never listens to him speak twice.'

There seem to be certain quantifiers which are restricted to the pre-DFP position. An example is given in (7).

(7)   a.   wo qing-le   zui duo san-ge   ren   liang ci.

               I   invite-PERF at most three-CL   person two   time

               'I have invited at most three people twice.'

b.   *wo qing-le   liang ci   zui duo san-ge   ren.

               I   invite-PERF two   time at most three-CL   person

               'I have invited at most three people twice.'

These QPs cannot appear in the post-DFP position even when they are modified.

(8)   a.   wo qing-le   zui duo san-ge bu ai jiang-hua de ren   liang ci.

             I   invite-PERF at most three-CL not like talk   DE person two time

             'I have invited at most three people who do not like to talk twice.'

       b.   *wo qing-le   liang ci   zui duo san-ge bu ai jiang-hua de ren.

             I   invite-PERF two time at most three-CL not like talk   DE person

             'I have invited at most three people who do not like to talk twice.'

Why are certain noun phrases allowed before or after the DFP while others are allowed only before or only after the DFP? In cases where the object may appear in either the pre-DFP or the post-DFP position, how is one position chosen as opposed to another?

    Various proposals have been made to account for the distribution of the object noun phrase in relation to the DFP (see A. Li 1987, Ernst 1987, Tang 1990, 1994, Kung 1993, Feng 1995, Sybesma 1997).[2] The proposals range from discourse-pragmatic, syntax-

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[2] Ernst (1987) and A. Li (1987) are concerned primarily with the structure of [V object duration phrase]: whether the duration phrase in the sentence final position should be analyzed as embedded in the VP or as the main predicate, with the rest of the sentence as its sentential subject. The former analysis is referred to as the Complement structure and the latter as the Predicate structure. Both structures are given below.

(i)   Complement structure

         [$_S$ subject DP [$_{VP}$ V (complement) duration phrase]]

(ii)   Predicate structure

         [$_S$ [$_S$ subject DP [$_{VP}$ V (complement)]] [$_{VP}$ duration phrase]]

I assume following A. Li (1987) that both structures are available. Examples of both structures are given in (iii) and (iv) (modified from A. Li (1987)).

(iii)   ta yijing [zuo hen duo nian shi   le].

         he already do many   year work PERF

         'He has worked for many years.'

(iv)   [ta zuo shi] yi jing hen duo nian le.

         he do work already many   year PERF

         'He has worked for many years.'

A. Li (1987) provides several diagnostics for distinguishing the Complement structure from the Predicate structure. First, a VP adverb may appear before the verb when the sentence has a Complement structure as in (iii); and a VP adverb may appear before the duration phrase as in (iv) when the sentence has a Predicate structure. Another way to differentiate a Complement structure from a Predicate structure comes from the scope of negation. The scope of negation includes the duration phrase in the Complement structure, but not in the Predicate structure.

(v)   [ta mei/bu lai]   yijing liang nian le.

semantics to prosodic accounts. For instance, Tang (1990, 1994) proposes that the distribution of the object is related to notions such as theme-rheme, old-new information and contraints on the scopal interpretation of the object noun phrase. Feng (1995) on the other hand proposes a prosodic account of the distribution of the object in relation to the DFP. It is not until Kung (1993) and J.W. Lin (1994b) that a connection is made between the ordering [V DFP object] and [V object DFP] in terms of object scrambling.[3] This connection, though controversial, is important because it has the potential of enlarging the database upon which theories of scrambling can be tested.

Whether scrambling is an optional process is a question that has been debated in the literature on scrambling. Various proposals have been made regarding what, if anything, drives scrambling. The scrambling of the object has been argued to be driven by Case checking (van Wyngaerd 1989, De Hoop 1996), semantic interpretations (Diesing 1992, Diesing and Jelinek 1995, Diesing 1997) and information structure and prosodic considerations (Neeleman and Reinhart, to appear). For these authors, scrambling is not truly optional and they differ from van der Does and De Hoop (1998) who argue that scrambling is optional. Before I proceed, it is important to clarify the use of certain terms which are standard in the literature on scrambling. It is common in the literature to speak of scrambling as not being optional but that the operation is obligatory to achieve a particular semantic or information structure effect. This informal mode of description seems to

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he not   come already two year PERF
'It's already been two years since he stopped coming.'
(vi)   [ta lai]   hai mei liang nian.
he come yet not two year
'It has not been two years since he came.'
A thrid test involves the possible position of pauses. A major pause is possible before the verb (or the VP-adverb) in a Complement structure, while a major pause is possible before the duration phrase in a Predicate structure.
(vii)   ta a,   yijing lai-le   liang nian le.
he PRT already come-PERF two   year PERF
(cf.   ??ta yijing lai-le   a,   liang nian le.
he already come-PERF PRT two   year PERF
(viii)   ta lai-le   a,   yijing liang nian le.
he come-PERF PRT already two   years PERF
See A. Li (1987) for other diagnostics. In this thesis, I concentrate only on examples of [V object DFP] that have a Complement structure.
[3] See Chapter Three for more detail discussion of some of the previous proposals.

conflate the distinction between grammar and language use (Noam Chomsky, personal communication). It assumes that grammar can refer to discourse/semantic factors. Once the distinction between grammar and language use is maintained, it must be the case that scrambling is always optional.[4] When a scrambled order is constructed, one gets a particular interpretation associated with the scrambled order. When a non-scrambled order is constructed, an interpretation associated with the non-scrambled order is available. A particular scrambling operation may appear to be "obligatory" when the interpretation the sentence receives is inappropriate for a particular context of use. But the operation of scrambling itself is never obligatory in the grammar component. This is parallel to the case of passive. A passive word order may be chosen given a particular context of use. Yet, one does not talk about passivization as being obligatory In discussing certain previous work on scrambling in Dutch and German, I continue to refer to the scrambling operation as being "obligatory" or "optional", but the reader is to keep in mind that the description refers to whether the result of the scrambling can be used in a particular context.

2.   Theoretical assumptions: The Minimalist Program

This dissertation is written within the early version of the Minimalist Program as outlined in Chomsky (1993, 1995).[5] I assume following Chomsky (1993, 1995) that UG specifies certain linguistic levels and that the interface levels, A-P (articulatory-perceptual system) and C-I (conceptual-intentional system) are the only levels of linguistic representation. A language consists of a lexicon and a computational system. The computational system draws from the lexicon to form derivations. UG provides a way to present an array of items from the lexicon in a form accessible to the computational system. This form is some version of the X-bar theory. Each derivation determines a linguistic expression (SD) which

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[4] Unless one assumes that scrambling is feature driven (see e.g. Sauerland (1998) on the difference between German and Japanese in the effect of the scrambling feature on interpretation).
[5] I do not assume the theory of multiple specifiers which is found in the later version of the Minimalist Program (Chomsky 1995, Chapter Four).

is a pair (π, λ), with π drawn from PF and λ drawn from LF. Each linguistic expression is an optimal realization of interface conditions. All conditions express properties of the interface levels, which reflect interpretive requirements. UG provides a unique computational system with derivations driven by morphological properties. Syntactic variations of languages are restricted by morphological properties.

2.1   Feature Checking

I assume that derivations are driven by the morphological requirement to check features. I assume that Comp may have an operator feature (Q or wh-feature) and this feature is a morphological property of operators such as wh-. The operators move to [Spec, CP] for feature checking and in doing so satisfy their scope properties. Chomsky (1993) analyzes object shift as an instance of morphologically driven movement: the object moves (either overtly or covertly) to the Spec of AgrOP to check its Case feature. I assume that there exists a functional projection within the VP (more precisely above the lowest VP and below the external argument in a layered VP structure), which the scrambled object occupies. Whether or not this functional projection is AgrOP is unclear. Given that raising to the Spec of AgrOP is for Case checking, there is reason to doubt that object scrambling in Chinese is raising to Spec of AgrOP. This is because if object scrambling in Chinese is driven by Case checking, one should expect all objects to raise.[6] Another related reason to doubt that the functional projection (which I label as FP in this thesis) is AgrOP is that object scrambling in Chinese is optional and whether scrambling applies or not has certain phonological, semantic and discourse information structure effects. The properties of scrambing in Chinese will be elaborated in section 3 and in subsequent chapters.

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[6] Thanks to Jonathan Bobaljik (personal communication) for comments and discussion on this point.

2.2 "Copy theory" of movement

I assume the "copy theory" of movement, which has been suggested as an approach to eliminate the process of reconstruction. Within this approach to movement, the trace left behind is a copy of the moved element. The copy is deleted by a principle of the PF component in the case of overt movement. At LF, the copy remains, providing material for 'reconstruction'.

3. Overview

This dissertation argues in support of Kung (1993) and J.W. Lin (1994b) that object scrambling is available in Chinese. The argument is based on two pieces of evidence: (i) the contrast in scope interpretation between the scrambled and the non-scrambled orders; (ii) the similarities between the distribution of the object in Chinese and object scrambling in Dutch/German. These two pieces of evidence are presented in Chapter Two and Chapter Three respectively.

In Chapter Two, I show that there is a contrast between the scrambled order [V object DFP] and the non-scrambled order [V DFP object] in terms of the possible scope readings when the object is a quantified expression.[7] When the order is [V object DFP], the object may have scope over the DFP and the DFP also may take scope over the object. This is in contrast to the case when the order is [V DFP object]. The only scope interpretation is one where the DFP takes wide scope over the object. Hence, the object may not outscope the DFP.

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[7] I assume that the underlying order is [DFP V object]. The verb raises to a higher position deriving [V DFP object]. The scrambled order [V object DFP] is derived by further movement of the object to a position preceding the DFP.

(9)   a.   V object DFP

                (i)   object >> DFP

                (ii)   DFP >> object

       b.   V DFP object

                (i)   *object >> DFP

                (ii)   DFP >> object

Assuming the Scope Principle in (10), the fact that the order [V object DFP] exhibits two possible scope readings indicates that the object has undergone leftward movement across the DFP as shown in (11).

(10)   The Scope Principle (Aoun and Li 1993a: 21)

       An operator A may have scope over a quantifier B iff A c-commands a member of the chain containing B.

(11)
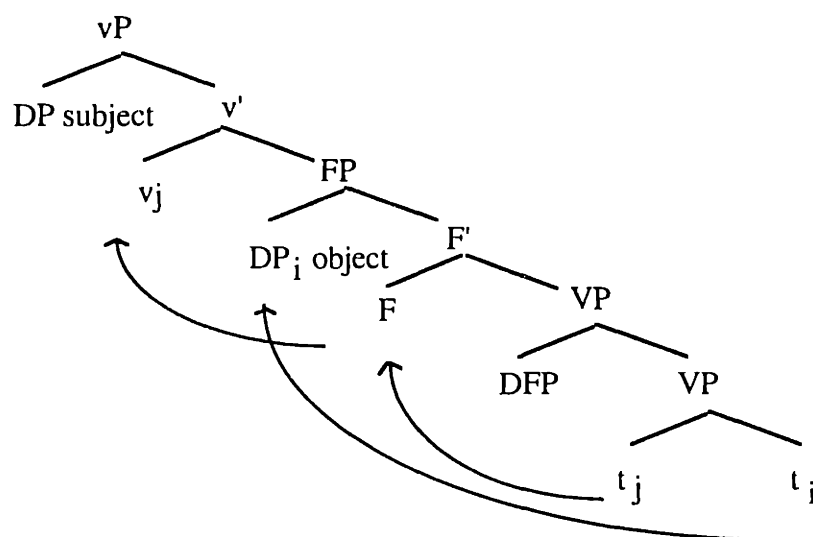
When the order is [V object DFP], the object QP may take scope over the DFP because it c-commands the DFP. The DFP may take scope over the QP because it c-commands the trace/copy of the QP. The fact that two scope readings are possible is due to the existence of object movement across the DFP. When the order is [V DFP object], the object remains in its base position. The only possible scope reading is the surface scope, namely the DFP takes scope over the QP. The scope facts provide the first piece of evidence that the ordering [V DFP object] and the ordering [V object DFP] are derivationally related.

The above conclusion is in contrast to Huang's (1994a,b, 1996) analysis of the distribution of the object noun phrase in relation to the DFP. Huang argues that the distribution of the object before or after the DFP signals two unrelated structures. The order [V object DFP] involves a VP-shell structure while the order [V DFP object] involves a gerundive nominal structure. I show in Chapter Two that the evidence which has been proposed to indicate the nominal status of [V DFP object] can be reconciled with the present analysis if we recognize that the presence of DE (which is a prenominal modificational marker) between the DFP and the object is not optional. In other words, [V DFP object] and [V DFP DE object] do not have the same structures. I argue that while [V DFP DE object] may have either a nominal or a verbal structure, [V DFP object] only has a verbal structure and it is derivationally related to [V object DFP]. This analysis allows us to make sense of certain asymmetries in the distribution of [DFP object] and [DFP DE object].

The second piece of evidence for the existence of object scrambling in Chinese is presented in Chapter Three. The evidence involves the similarities in the distribution of the object in Chinese with object scrambling in Dutch/German. Like Dutch/German, the distribution of the object in Chinese corresponds to certain information structure and prosodic effects (Neeleman and Reinhart, to appear, Diesing 1992). In Chinese, an object following the DFP (non-scrambled object) must bear information focus while the one preceding the DFP (scrambled object) does not have such a restriction.

(12) a. V object DFP

             [+/- focus]

     b. V DFP object

                      [+focus]

Assuming that deaccenting/stress shifting involves switching the prominence relation of two constituents in a sister relation (Ladd 1996), I suggest that there are restrictions on when stress shift can occur. Specifically, stress shift is possible between sisters that have a head-complement relation, but not between sisters that are not in a head-complement relation. The consequence is that a verb-object pair may switch their prominence relation, but an adverb-object pair may not. The relation between the possibility of stress shift and scrambling is as follows: a stressed position that does not allow stress shift cannot be occupied by an object which must be destressed. Given that [-focus] elements bear old information and must be destressed, they are prohibited from the post-DFP position. The interaction between stress and information structure allows us to account for when an object appears before the DFP and when it appears after the DFP in cases where both orders are possible. In cases where the object (in general) may only appear after the DFP, I show that the relevant noun phrases must be cliticized to the preceding DFP, and only in a context which requires a phonological phrase break after the DFP can the noun phrase scramble to a pre-DFP position.

While Chinese patterns like Dutch and German in the distribution of the object, there are also differences. I show that certain differences between the distribution of the object in Chinese versus Dutch/German follow from the different word order within the VP in these languages. The proposed analysis predicts that the non-scrambled position in Dutch/German allows stress shift to apply, but the non-scrambled position in Chinese does

not. This is because the object is adjacent to the verb in Dutch/German in its non-scrambled position while the object is not adjacent to the verb in its non-scrambled position in Chinese. As a result, stress shift from the non-scrambled position is possible in Dutch/German but impossible in Chinese. The fact that stress shift is possible in Dutch non-scrambled position but impossible in Chinese non-scrambled position accounts for the puzzling contrast in the distribution of *someone/anyone* in these languages. This difference also accounts for why a certain order is preferred in Dutch when the verb bears contrastive focus, while no such preference is detected in Chinese. Certain complications with this analysis are discussed.

Having established that there exists object scrambling in Chinese in Chapter Two and Three, Chapter Four addresses the question of the location of the scrambled object. The location of the scrambled object, whether it is within the VP or outside of the VP, has been a point of disagreement in the literature (see Mahajan 1990, Travis 1991). Previous studies on object scrambling in Chinese suggest that the scrambled object occupies a VP-external position (see Kung 1993, J.W. Lin 1994b). These studies however are based primarily on single complement constructions which are generally assumed to involve one VP (but see Kung 1993). One limitation in drawing conclusions about the position of the scrambled object on the basis of constructions with a single VP is that it is impossible to exclude the possibility that the scrambled object position is higher than the lower VP but below an additional higher VP. In Chapter Four, I address this limitation by studying the position of the scrambled object in constructions which have more than one VP. These constructions include serial verb constructions and double complement constructions (Law 1996, Larson 1988, Aoun and Li 1989).

I show that the DFP is adjoined to the lowest VP in a layered VP structure on the basis of evidence from the serial verb constructions (SVCs). In SVCs, the DFP may appear before or after the second noun phrase but not before or after the first noun phrase.

(13) a.   ta na na-ba   dao qie-guo ta zhong de cai   **yi ci.**

               he take that-CL knife cut-PERF he grow DE vegetable one time

               'He took that knife once to cut the vegetable he grew.'

    b.   ta na   na-ba   dao qie-guo **yi ci**   ta zhong de cai.

               he take that-CL knife cut-PERF one time he grow DE vegetable

               'He took that knife once to cut the vegetable he grew.'

    c.   *? ta na-guo   **yi ci**   na-ba   dao qie ta zhong de cai.[8]

                 he take-PERF one time that -CL knife cut he grew DE vegetable

               'He took that knife once to cut the vegetable he grew.'

    d.   *ta na-guo   na-ba   dao **yi ci**   qie ta zhong de cai.

                he take-PERF that-CL knife one time cut he grew DE vegetable

               'He took that knife once to cut the vegetable he grew.'

The possibility of (13a) and (13b) suggests that the DFP is immediately above the lowest VP.

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[8] For some reason, the sentence is improved with the addition of *lai* 'come' before the second verb.

    (i)   (?) ta na-guo   **yi ci** na-ba   dao lai   qie ta zhong de cai.

               he take-PERF one time that -CL knife come cut he grew DE vegetable

               'He took that knife once to cut the vegetable he grew.'

The sentence has a purposive reading. I assume that the sentence with *lai* 'come' involves an embedded CP rather than a VP.

(14)

```
                    vP1
                  /  \
              DP1     v'
               |     /  \
            ta 'he'  v1    VP1
                         /  \
                      DP2    V'
                       |    /  \
                   dao_i 'knife'
                            V1    vP2
                             |    /  \
                         na 'take'
                                 DP3    v'
                                  |    /  \
                                pro_i
                                      v2    FP
                                           /  \
                                    scrambled  F'
                                    position  /  \
                                             F    VP2
                                                 /  \
                                               DFP   VP2
                                                    /  \
                                                  V2    DP4
                                                   |     |
                                              qie 'cut'  rou 'meat'
```
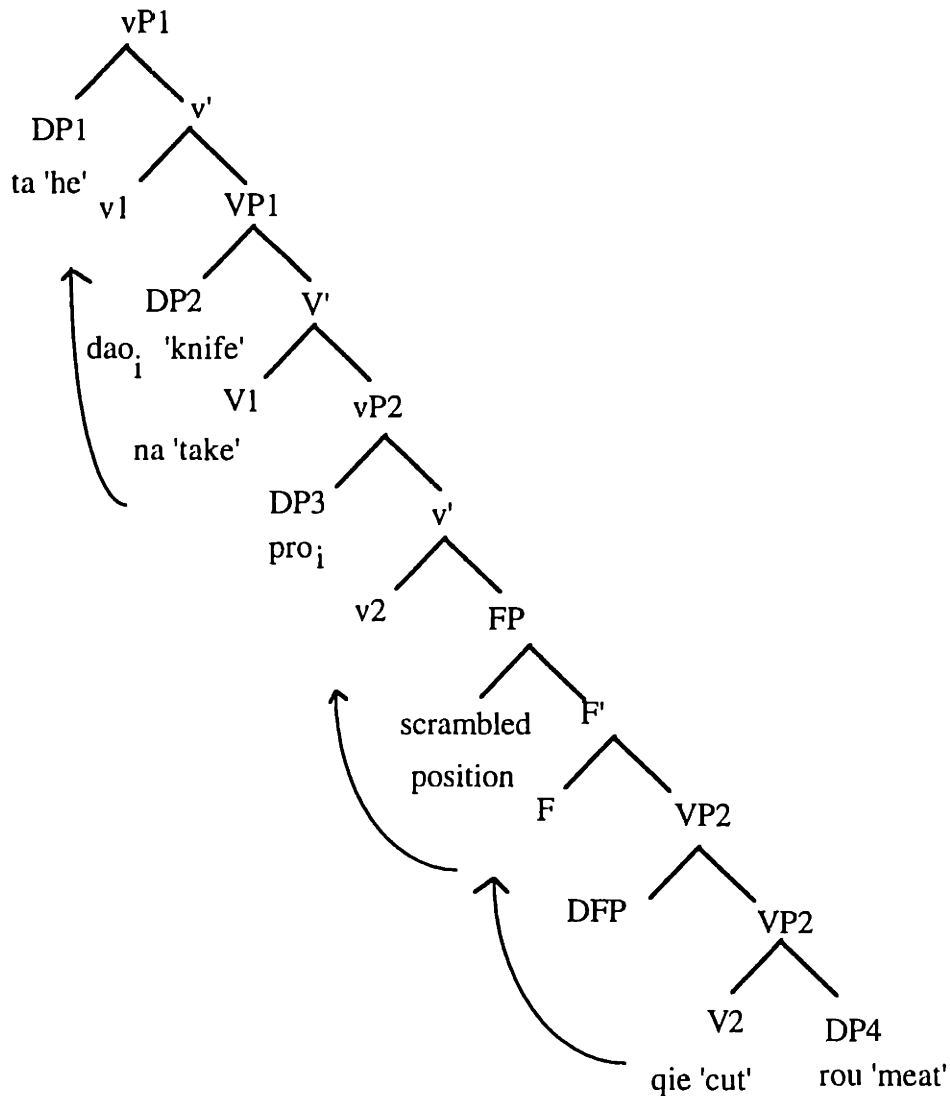
(13c) and (13d) are bad because the DFP can only appear immediately above the lowest VP and not any other VPs.

On the basis of evidence from double complement constructions, I argue that the scrambled object in Chinese is within the top VP (rather than outside of the top VP) (contra Kung 1993). In particular, I show evidence that the scrambled object is lower than the goal argument in double object (V goal theme) and shift constructions (V Gei-goal theme). Double object constructions pattern with shift constructions and unlike dative constructions (V theme Gei-goal) in the distribution of the DFP. For the double object and the shift

constructions, the DFP can appear between the two objects or follow the objects, but it cannot precede both objects. This is shown in (15) and (16).

(15)   Double object constructions

    a.   wo song-guo   Zhangsan **liang ci**   nei-ben xiao-shuo.

          I give-PERF Zhangsan two time that-CL novel

          'I have given Zhangsan that novel twice.'

    b.   ?wo song-guo   Zhangsan nei-ben xiao-shuo **liang ci**.

           I   give-PERF Zhangsan that-CL novel   two time

          'I have given Zhangsan that novel twice.'

    c.   *wo song-guo   **liang ci** Zhangsan nei-ben xiao-shuo.

           I give-PERF two time Zhangsan that-CL novel

          'I have given Zhangsan that novel twice.'

(16)   Shift constructions

    a.   ??wo song-gei-guo   Zhangsan **liang ci**   na-ben   xiao-shuo.

           I give-GEI PERF Zhangsan two time   that-CL novel

          'I have given that novel to Zhangsan twice.'

    b.   ?wo song gei-guo   Zhangsan na-ben xiao-shuo **liang ci**.

           I give GEI PERF Zhangsan that-CL novel   two   time

          'I have given that novel to Zhangsan twice.'

c. *wo song-gei-guo **liang ci** Zhangsan na-ben xiao-shuo.

  I give-GEI-PERF two time Zhangsan that-CL novel

  'I have given that novel to Zhangsan twice.'

For dative constructions, the DFP can appear before or after both objects, but not in between the objects.

(17) a. *wo song-guo na-ben xiao-shuo **liang ci** gei Zhangsan.

    I give-PERF that-CL novel   two time GEI Zhangsan

    'I have given that novel to Zhangsan twice.'

  b. wo song-guo na-ben xiao-shuo gei Zhangsan **liang ci**.

    I give-PERF that-CL novel   GEI Zhangsan two time

    'I have given that novel to Zhangsan twice.'

  c. (?)?wo song-guo **liang ci** na-ben xiao-shuo gei Zhangsan.

    I give-PERF two time that-CL novel   GEI Zhangsan

    'I have given that novel to Zhangsan twice.'

The possible positions of the DFP in double complement constructions are given in (18).

(18) ☑: Possible positions of the DFP ☒: Impossible positions of the DFP

Double object	Dative constructions	Shift constructions
V ☒ DP ☑ DP ☑	V ☑ DP ☒ GEI DP ☑	V-GEI ☒ DP ☑ DP ☑
		V ☒ GEI DP ☑ DP ☑

The distribution of the DFP in double complement constructions provides evidence that the scrambled object position is lower than the goal argument in double object/shift constructions. I assume following Marantz (1993) that dative constructions involve one less VP layer than double object constructions (and the shift construcitons).

(19a) Double object constructions
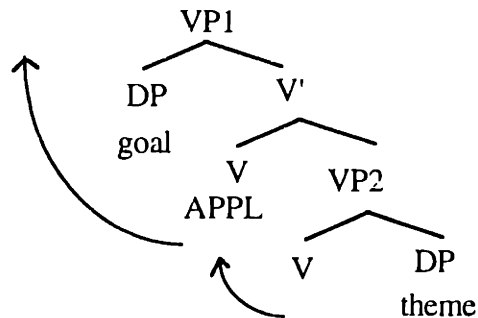
(19b) Dative constructions
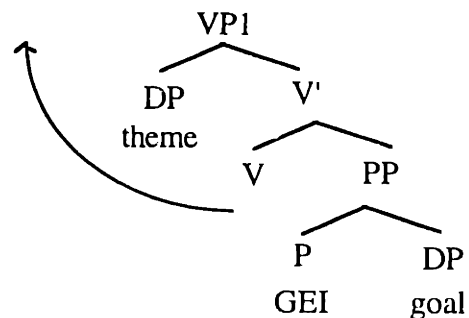
Assuming that the DFP is adjoined to the lowest VP, the difference in the distribution of the DFP in double object/shift constructions versus dative constructions follows. As shown in the double object structure in (20) , the DFP can appear immediately above VP2 and hence between the goal and the theme arguments. The order [goal DFP V theme] reflects the base generated order. The order [V goal DFP theme] is derived after the verb raises to the position of the light verb. The order [V goal theme DFP] is derived by V-raising and movement of the theme to the scrambled object position which is lower than the goal argument, but above the DFP. The order [V DFP goal theme] is not possible because the DFP can only be adjoined to the lowest VP (VP2) and not to any other VPs.

(20)   Double object constructions

```
                    vP1
                 ┌───┴────┐
               DP1        v'
               ta 'he'  ┌──┴───┐
                       v1      VP1
                    song       ┌──┴──┐
                    'send' j  DP     V'
                           Zhangsan ┌──┴──┐
                              V     FP
                               j  ┌──┴───┐
                            APPL  F      F'
                                       ┌──┴───┐
                                      F      VP2
                                          ┌──┴──┐
                                        DFP    VP2
                                            ┌──┴──┐
                                            V     DP
                                            t     one book
                                             j    yiben shu
```
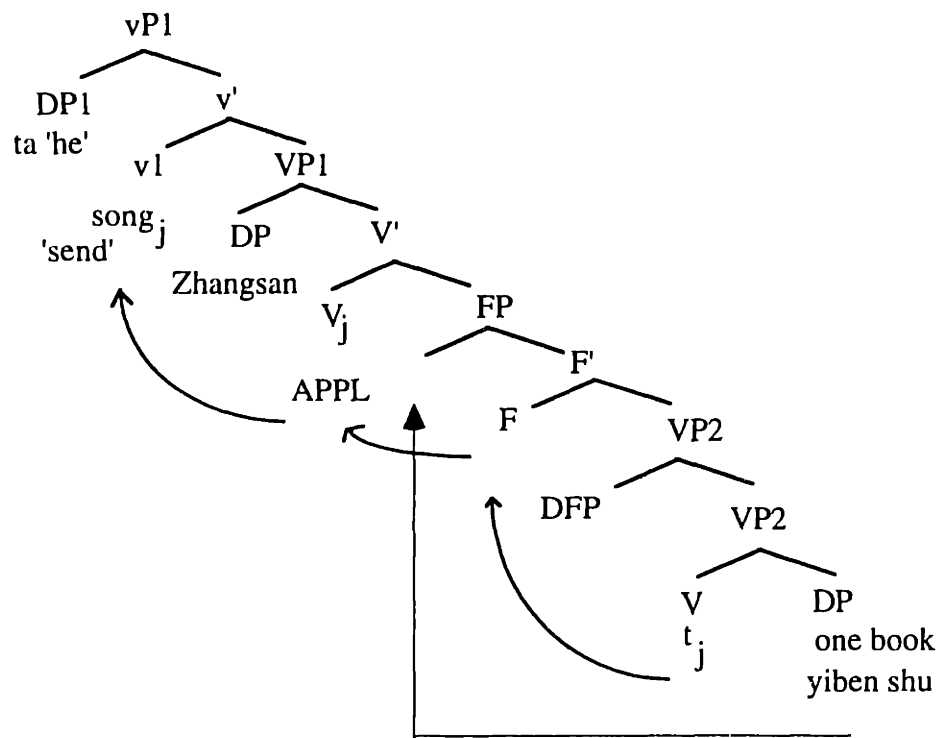
The same is the case with shift constructions in (21). The DFP is adjoined to the lowest VP (VP2). The base order is [Gei-goal DFP theme V]. After the verb raises to the position of the light verb, the order [V Gei-goal DFP theme] is derived. When the verb raises and the object scrambles to the pre-DFP position, the order [V Gei-goal theme DFP] is derived. The order [V DFP Gei-goal theme] is not possible because the DFP can only be adjoined to the lowest VP and not to any other VPs.

(21)   Shift constructions
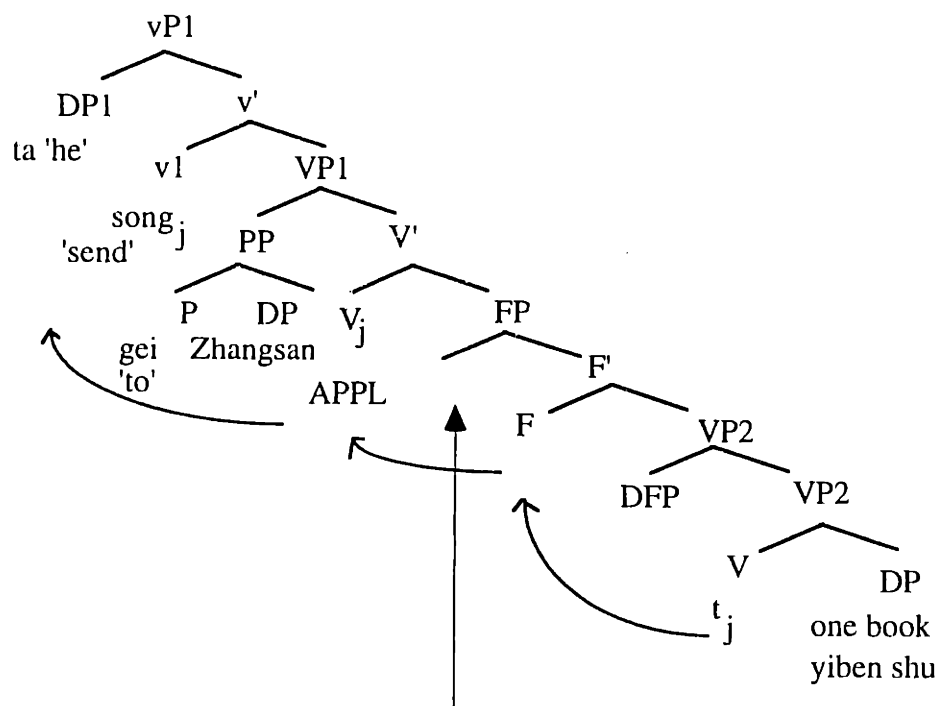
In the case of the dative constructions shown in (22), since VP1 is the lowest VP in dative constructions, and it dominates both the theme and the goal, the DFP can appear before the theme and the goal, but not in between them. This is because there is no VP projection between the theme and the goal argument in dative constructions for the DFP to adjoin. The order [DFP theme V Gei-goal] is the base generated order. The raising of the verb derives the order [V DFP theme Gei-goal]. The order [V theme Gei-goal DFP] is derived by V-raising and by movement of the theme and the goal argument to the scrambled object position. I suggest that the goal PP raises first to the Spec of FP followed by adjunction of the theme DP to the PP.

(22)   Dative constructions
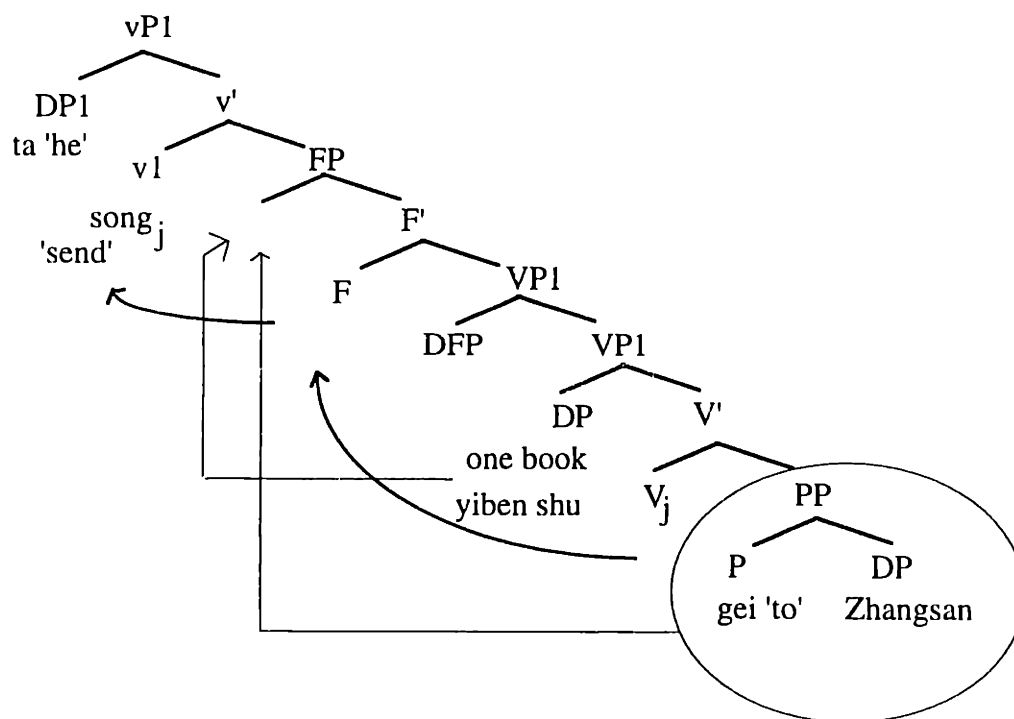
Support for the proposed analysis comes from the distribution of GE 'each' which patterns like the distribution of the DFP in double complement constructions. GE 'each' can appear between the two internal arguments in double object and shift constructions, but not in between the two internal arguments in dative constructions (Kung 1993). The positionings of the DFP and GE 'each' in double complement constructions provide support for the difference between the structures of double object (and shift constructions) and the structure of dative constructions in Marantz's (1993) proposal; namely dative constructions involve one less VP layer than double object constructions. The reason why GE 'each' can appear between the internal arguments in double object and shift constructions is that there is one VP projection for GE 'each' to adjoin to. There is no VP projection between the internal arguments in dative constructions for GE 'each' to adjoin to. Other supporting evidence for the structural difference between double object/shift constructions and dative constructions come from scope.

In the process of writing this thesis, various people have suggested to me the similarities of the behaviour of DFPs in Chinese with certain quantifiers in German and Korean as discussed in Beck (1996a,b).[9] In Chapter Five, I examine the status of DFP (and *zhi* 'only' and negation) in relation to Beck's (1996a,b) proposal that an intervening quantifier (QUIB) blocks LF wh-movement in certain languages. I show that while DFPs in Chinese block both LF wh-movement and QR, *zhi* 'only' and negation block only QR and not LF wh-movement. The fact that certain quantifiers discriminate between QR and LF wh-movement indicates that QR and LF wh-movement involve different kinds of LF movement (see also Beck 1996a,b). Beck (1996a,b) shows that there exist QUIBs which block LF wh-movement but not QR in German, in addition to those which block both LF wh-movement and QR. I add to the inventory of QUIBs elements which block QR but not LF wh-movement. The result of this typology indicates that there are three types of QUIBs as shown in (23).

(23)   Types of QUIBs

      (i) QUIBs which block QR and LF wh-movement (Type I)

      (ii) QUIBs which block QR but not LF wh-movement (Type II); and

      (iii) QUIBs which block LF wh-movement but not QR (Type III).

Having established that both DFP and negation block QR across them, I suggest that this similarity between DFP and negation may be responsible for a remaining puzzle about the distribution of certain QPs in relation to the DFP. These QPs can only appear before the DFP and are prohibited after the DFP. Interestingly, they are also prohibited within the scope of a negation. I suggest that the relevant QPs undergo obligatory QR and as a result, they may not be within the scope of either DFP or negation which blocks QR. Why these QPs as opposed to other QPs must undergo QR obligatorily is left for future research.

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[9] I thank Irene Heim, David Pesetsky, Shigeru Miyagawa and Danny Fox for pointing out the relevance of Beck's work.

Chapter Two

Is there object scrambling in Chinese?

---

1.   Introduction[1]

It has been debated whether the distribution of the object in relation to the duration

and frequency phrases (DFPs) represents a case of object scrambling in Chinese. Kung

(1993) and J.W. Lin (1994b) argue that the order [V object DFP] is derived by scrambling

of the object from the base order [V DFP object]. Others argue that the orders [V object

DFP] and [V DFP object] are unrelated (e.g. Huang 1994a,b, 1996, Sybesma 1997). For

example, Huang (1994b) argues that the order [V object DFP] involves a VP-shell structure

while the order [V DFP object] involves a gerundive nominal structure. My goal in this

chapter is to show that the distribution of the object in relation to the DFP is a case of object

scrambling. Specifically, I argue on the basis of scope evidence that object scrambling in

Chinese involves the leftward movement of the object.   In contrast to a common

assumption in the literature, I argue that the existence of the nominal/relative marker DE is

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[1] Part of the material from this chapter was presented at North East Linguistic Society (NELS) 28, University of Toronto, 1997.

not optional in the sequence [V-DFP (DE) object].[2] Rather, the sequence [V DFP DE object] may have either a verbal or a nominal structure (cf. Huang 1994b), while the sequence [V DFP object] allows only a verbal structure. The structure for [V DFP object] (without DE) is related to [V object DFP] through a process of object scrambling. The proposed analysis allows us to capture when DE is obligatory and when it is optional, and to reconcile certain evidence regarding the apparent nominal status of [V DFP object].

This chapter is organized as follows. In section 2, I present cases where the object may appear before or after the DFP and the various logically possible analyses for the distribution. In section 3, I argue that object scrambling exists in Chinese on the basis of scope evidence. I show that object scrambling in Chinese involves leftward movement of the object. In section 4, I discuss the problems faced by certain alternative analyses in accounting for the scope facts. In section 5, I consider the evidence which has been used to argue that [V DFP object] sequence is nominal rather than verbal. I argue that [V DFP DE object] may have either a nominal or a verbal structure while [V DFP object] only has a verbal structure. I show that the evidence which has been taken to argue for the nominal status of [V DFP object] sequence applies to [V DFP DE object], rather than to [V DFP object]. The conclusions are presented in section 6.

2.   Cases of object scrambling in Chinese and some possible analyses

The fact that certain objects can appear before or after the DFP has been observed in the literature (e.g. Tang 1994, Sybesma 1997). Examples are shown in (1) and (2).

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[2] The analysis that DE is not optional and that [V DFP object] and [V DFP DE object] have different structures is inspired by Cheng and Sybesma's (to appear) analysis of [Numeral-Classifier DE N] and [Numeral-Classifier N]. Sybesma (1997) also argues that V-duration-object and V-duration-DE-object involve two different structures. The exact structures proposed are different from the ones proposed here. In Sybesma (1997), V-duration-object is analyzed as classifier-noun combination while V-duration-DE-object is argued to involve (a special type of) modified noun phrase. See Sybesma (1997) for details.

                                OBJ   DFP

(1)   a.   wo qing-guo   [na-ge   ren]   [liang ci].

               I   invite-PERF that-CL person two time

               'I have invited that person twice.'

                                DFP   OBJ

       b.   wo qing-guo   [liang ci]   [na-ge   ren].

               I   invite-PERF two time   that-CL person

               'Twice, I have invited that person.'

                                OBJ   DFP

(2)   a.   wo qu-guo   [Meiguo] [liang ci].

               I visit-PERF US   two time

               'I have visited US twice.'

                                DFP   OBJ

       b.   wo qu-guo   [liang ci] [Meiguo].

               I   visit-PERF two time   US

               'Twice, I have visited US.'

Object noun phrases which may appear before or after the DFP include the demonstrative

noun phrases, proper names, modified noun phrases and certain quantificational phrases.[3]

Various analyses have been proposed regarding whether the (a) and (b) sentences in (1)

and (2) are derivationally related and if they are, how they are related. As noted in the

introduction, Huang (1994a,b, 1996) proposes an analysis in which the order [V object

DFP] and [V DFP object] have no derivational relation. Both are base generated orders.

---

[3] See Chapter Three for further discussion of the distribution of the object in relation to the DFP.

Huang (1994a,b, 1996) analyzes [V object DFP] order as involving a Larsonian VP-shell structure, and argues that [V DFP object] order involves a structure of gerundive nominalization with V-raising. Kung (1993), J.W. Lin (1994b) and Tang (1990) analyze the (a) and the (b) sentences as involving a derivational relation. For Kung (1993) and J.W. Lin (1994b), the object is base generated in the post-DFP position and may undergo leftward movement to the pre-DFP position. Tang (1990) on the other hand assumes that there is only one object position. The different ordering between the object and the DFP is due to the leftward movement of the DFP.[4]

These previous analyses together with some logically possible analyses for the relation between [V object DFP] and [V DFP object] are given below.

(3)   Logically Possible Analyses

      I.   Leftward movement of object (Kung 1993, J.W. Lin 1994b)

      II.   Rightward movement of object

      III.   Leftward movement of DFP (Tang 1990)

      IV.   Rightward movement of DFP

      V.   [V object DFP] and [V DFP object] are unrelated (Huang 1994a,b, 1996)

I argue, on the basis of scope evidence, that object scrambling exists in Chinese and that the object moves leftward as in analysis I, illustrated in (4). This piece of evidence supports Kung (1993) and J.W. Lin's (1994b) analyses of object scrambling in Chinese.

---

[4] Tang (1994) differs from Tang (1990) in assuming that both [V DFP object] and [V object DFP] are base generated.

(4)   Leftward Movement of the Object (Kung 1993, J.W. Lin 1994b)

       Base structure: Subject   DFP   V   DP

       Derived structure   (i)   Subject V_j DFP t_j DP

                       (ii)   Subject V_j DP_i DFP t_j t_i

I assume that the DFP is adjoined to a VP.[5] I assume that a transitive sentence involves a double-VP structure as shown in (5), where the verb raises to the position of the light verb overtly (Chomsky 1995:315, extending Hale and Keyser's (1993) configuration approach to theta theory). The external argument appears in [Spec, v] and the v-VP configuration expresses the causative or agentive role of the external argument.

(5)

$$v^{max}$$

v   VP
           |
         ...V...
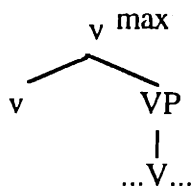
With the above assumptions about the phrase structure, the derivation from [V DFP object] to [V object DFP] is presented below.

---

[5] The analysis proposed here can be recasted in Cinque's (1997) system where adverbs appear in the specifier of a functional projection.

(6)

vP

DP subject   v'

v_j   FP

DP_i object   F'

F   VP

DFP   VP

t_j   t_i
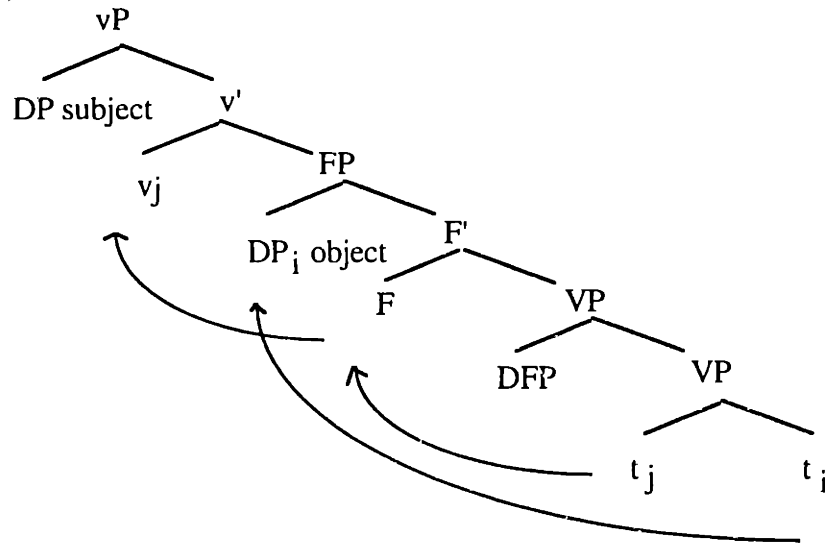
The base generated object scrambles to the Spec of a functional projection (which I label FP) immediately above the DFP. The verb also raises from its base position to the position of the light verb.

3.   Scope evidence

The main piece of evidence for the existence of object scrambling in Chinese comes from a contrast I find in the interpretation of the object before and after the DFP. When the object precedes the DFP, the object may be interpreted as having either wide scope or narrow scope with respect to the DFP as shown in (7). In other words, the object may have either a group or a distributive reading. When the object follows the DFP, it can only be interpreted as having narrow scope and the object may only have a group reading as shown in (8).

                  OBJ   DFP

(7)   wo qing-guo   [quanbu de xuesheng] [liang ci].

        I   invite-PERF   all   DE student   two time

        'I have invited all students twice.'

        (i)   all students >> two times

        (ii)   two times >> all students

                  DFP   OBJ

(8)   wo qing-guo   [liang ci]   [quanbu de xuesheng].

        I   invite-PERF two time   all   DE student

        'Twice, I have invited all students.'

        (i)   ?*all students >> two times

        (ii)   two times >> all students

Assuming that conjunctions of names are quantified expressions (Clark 1992), (9) and (10) illustrate the same pattern as above. When the object precedes the DFP as in (9), both group and distributive readings are available. When the object follows the DFP as in (10), only a group reading is available.

                  OBJ   DFP

(9)   wo qing-guo   [Zhangsan he Lisi] [liang ci].

        I   invite-PERF   Zhangsan and Lisi   two   time

        'I have invited Zhangsan and Lisi twice.'

        (i)   Zhangsan and Lisi >> two times

        (ii)   two times >> Zhangsan and Lisi

                                 DFP   OBJ

(10)   wo qing-guo   [liang ci]   [Zhangsan he Lisi].[6]

            I   invite-PERF   two   time   Zhangsan and Lisi

            'Twice, I have invited Zhangsan and Lisi .'

            (i)   ?*Zhangsan and Lisi >> two times

            (ii)   two times >> Zhangsan and Lisi

The Scope Principle and the derivation in (6) allow us to account for the possible readings in (7) and (8), as well as those in (9) and (10).

(11)   The Scope Principle (Aoun and Li 1993a: 21)

            An operator A may have scope over a quantifier B iff A c-commands a member of the chain containing B.

When the surface order is [V object DFP], the object may have both wide and narrow scope readings with respect to the DFP. This is because the object c-commands the DFP in its moved position and the DFP c-commands the trace/copy of the object DP.

(12)   V DP_i DFP t_i order

            all students>>two times because DP_i c-commands DFP

            two times>> all students because DFP c-commands t_i

---

[6] The excluded reading may become possible if one places a significant pause after uttering the first name in the conjunct. I assume that a different structure is involved in that case.

```
              vP
         _____
   DP subject      v'
               _____
            v            FP
             j      _____
                 DP  object      F'
                   i        _____
                        F            VP
                               _____
                            DFP            VP
                                       _____
                                     t            t
                                      j            i
```
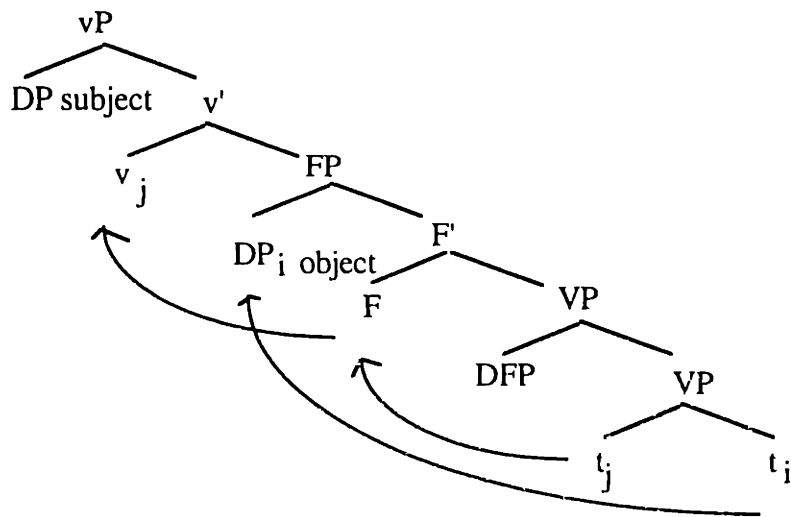
When the surface order is [V DFP object], the only possibility is for the DFP to have scope over the object. This is because the DFP c-commands the object. The object cannot have scope over the DFP because the object does not c-command the DFP.

(13)   [V DFP object] order

two times >> all students because DFP c-commands DP

?*all students >> two times because DP does not c-command DFP

```
              vP
         _____
   DP subject      v'
               _____
            v            FP
             j      _____
                              F'
                        _____
                     F            VP
                            _____
                          DFP            VP
                                     _____
                                   t            DP object
                                    j
```
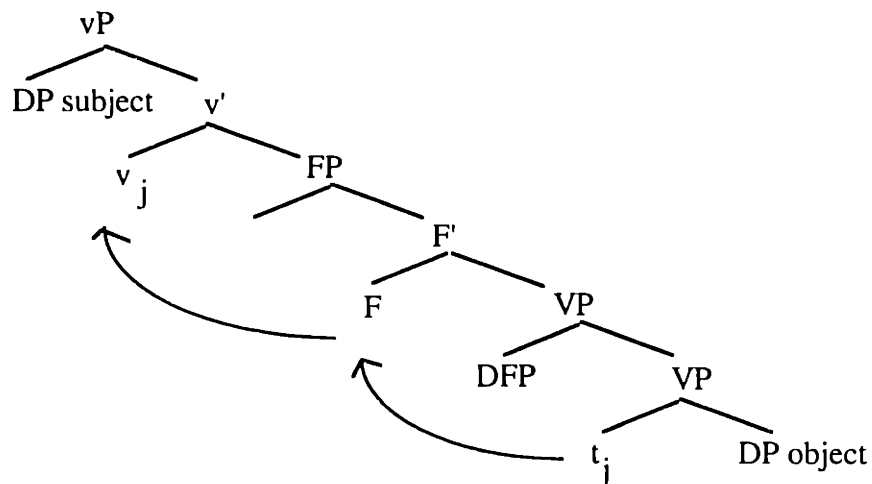
The fact that the possible scope interpretations follow from the derivation in (6) provides support for the existence of object scrambling in Chinese.[7]

4.   Problems with alternative analyses

The other four possible analyses (II-V) do not provide the correct predictions with respect to scope. Each of the analyses is discussed below. First, consider analysis II involving rightward movement of the object. In this analysis, the base order is [V object DFP] and the derived order is [V DFP object] when the object undergoes rightward movement.

(14)

```
              VP
          ┌────────┐
         VP        DFP      ↑
       ┌──────┐             │
       V      DP            │
                            ╱
       └────────────────────┘
```
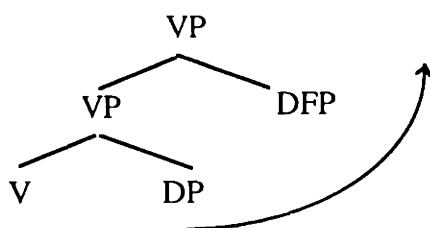
Assuming the Scope Principle, analysis II predicts the following scope possibilities:

DFP >> object when the order is [V object DFP]

DFP >> object and object >> DFP when the order is [V DFP object]

---

[7] One may wonder if the ambiguity in the English example in (i) indicates that the object has moved across the frequency phrase, just like the Chinese counterpart.
(i)   I have invited all students twice.
         all students >> twice, twice >> all students
(ii)   Twice, I have invited all students.
         *all students >> twice, twice >> all students
I suggest that the ambiguity in (i) is not derived the same way. English unlike Chinese allows a QP-QP pair to have ambiguous scope. This is in contrast to Chinese where ambiguous scope is possible for a QP-QP pair when movement has occured and not otherwise. As to why (ii) is not ambiguous, I suggest that the frequency phrase appears above the IP where QP may adjoin at LF. Since the frequency phrase c-commands the object, it obligatorily takes scope over it.

This is because the DFP c-commands the object when the order is [V object DFP]. When the object moves rightward, it is adjoined to a position which c-commands the DFP. The DFP in turn c-commands the trace/copy of the moved object. As a result, both scope interpretations are predicted to be possible when the order is [V DFP object]. However, these predictions are inconsistent with the possible scope readings observed.

Next, consider analysis III involving leftward movement of the DFP (Tang 1990). PrP stands for a predicate phrase and Pr is its head.

(15)
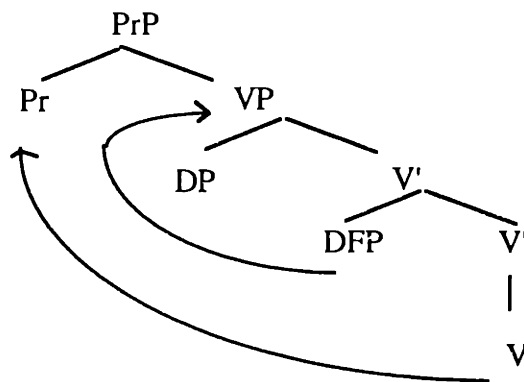
Tang (1990) assumes that (15) without DFP movement is the structure for the surface order [V object DFP]. The surface order [V DFP object] is derived by adjoining the DFP to the VP. Assuming the Scope Principle, this analysis makes the following predictions with respect to scope.

object >> DFP when the order is [V object DFP]

object >> DFP and DFP>>object when the order is [V DFP object]

When the order is [V object DFP], the object c-commands the DFP and thus has scope over it. When the DFP is adjoined to the VP, it c-commands the object. The object in turn c-commands the trace/copy of the DFP. As a result, both scope interpretations are predicted to be available when the order is [V DFP object]. These predictions are inconsistent with the available scope readings.

Rightward movement of the DFP as in analysis IV also does not yield the correct predictions with respect to scope. A rightward movement analysis of the DFP predicts the following scope possibilities:

DFP >> object when the order is [V object DFP]

DFP >> object when the order is [V DFP object]

(16)
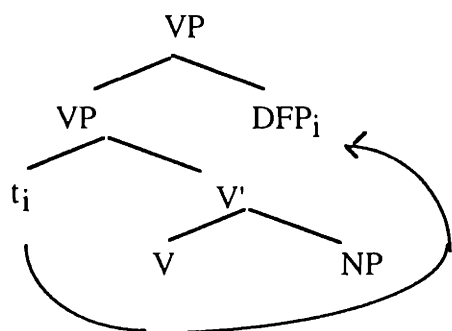
When the order is [V object DFP], the DFP c-commands the object and hence has scope over it. When the DFP is adjoined to the right of the VP, the DFP continues to c-command the object. The object c-commands neither the DFP nor its trace/copy and hence it cannot have scope over the DFP. These scope possibilities are not consistent with the ones observed.

As noted earlier, Huang (1994a,b, 1996) provides different analyses for [V object DFP] and [V DFP object]. [V object DFP] is analyzed as involving a Larsonian VP-shell with V-raising while [V DFP object] is argued to involve a structure of gerundive nominalization with V-raising. Their respective structures are presented in (17a) and (17b).[8]

---

[8] Huang refers to noun phrases as NPs (as opposed to DPs). I follow his notation here.

(17)

a.

VP1
NPsubj
V'
V1
VP2
NPobj
V'
V2
DFP

b.

VP
V
IP [+N]
DFP
I' [+N]
I [+N]
VP
V
NP
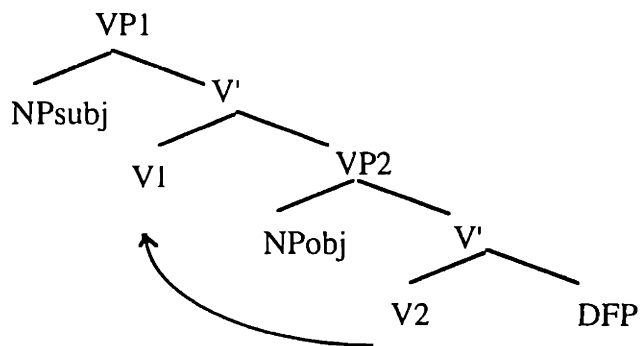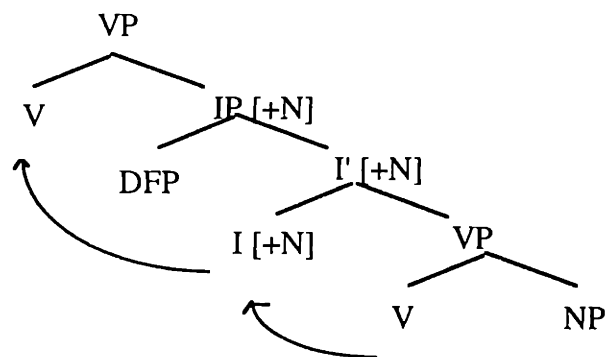
Given that neither the object nor the DFP moves in this analysis, the scope readings are reflected in the surface c-command relations between the object and the DFP. The following scope possibilities are predicted.

object >> DFP when the order is [V object DFP]

DFP >> object when the order is [V DFP object]

These predictions are inconsistent with the scope possibilities observed.

5. Why not scrambling?

Although the distribution of the object in relation to the DFP has been widely studied, it is not until recently that the first attempt is made to treat the distribution of the object in terms of scrambling (Kung 1993, J.W. Lin 1994b). It seems that one of the main reasons to treat [V object DFP] and [V DFP object] as unrelated is due to the observation that [V DFP object] appears to have nominal properties while [V object DFP] does not. For example, the nominal modification marker DE may appear between the object and the DFP in the order [V DFP object], but not in the order [V object DFP]. In section 5.1, I consider some of the evidence which has been taken to indicate that the [V DFP object] sequence involves a nominal structure. In section 5.2, I argue that [V DFP object] has a verbal structure, while [V DFP DE object] may have either a verbal or a nominal structure. I suggest that the facts which are used to indicate that [V DFP object] is nominal apply to [V DFP DE object] rather than to [V DFP object].

5.1 Previous proposals

Li (1985 cited in Li 1987) claims that duration phrases are noun phrases and they occupy the Spec of the NP.[9]

(18)   [$_S$NP1] [$_{VP}$V [$_{NP}$ Duration NP2]

Evidence for the claim involves the observations that (i) the prenominal modifier DE can appear between the duration phrase and the object noun phrase, and (ii) the [duration phrase-object] sequence can be topicalized together. The use of 'topicalization' here

---

[9] Given that the proposal is made before the DP hypothesis, it is not clear if the claim is that the duration occupies of Spec of an NP or a DP. I follow Li's notation here.

indicates that the constituent is moved to a sentence initial position. The moved constituent is not necessarily interpreted as a topic and it may be interpreted as a focus.

(19) a.   ta zou-le   [san tian (de) lu].

               he walked-PERF three day DE road

               'He walked for three days.'

       b.   [San tian de lu], ta yi tian jiu zou   wan-le.

               three day DE road he one day then walk finished PERF

               'Three days' journey, he finished in one day.'   (Li 1987:52)

(20) a.   ta pao-le   [san tian (de) yiyuan].

               he ran-PERF three days DE hospital

               'He has been running to the hospital for three days.'

       b.   [San tian de yiyuan], ta pao-le,

               three day DE hospital he ran-PERF

               (liang tian de   fanguan, ta que   bu pao).

               two   days DE restaurant he surprisingly not run

               'Three days' hospital, he ran; (but surprisingly, two days' restaurant, he

               would not run).'   (Li 1987:53)

Unlike [DFP object], an [object DFP] sequence cannot be intervened by the modificational marker DE and it cannot be 'topicalized'.[10]

---

[10] A bare NP cannot in general precede the DFP. See Chapter Three for discussion of the context in which a bare NP can precede the DFP.

(21)   a.   wo ning yuan da guanggun   yi beizi.

      I   rather   do bachelor   whole life

      'I'd rather be a bachelor for my whole life.' (Feng 1995)

      b.   *wo ning yuan da guanggun   de yi beizi.

      I   rather   do bachelor   DE whole life

      'I'd rather be a bachelor for my whole life.'

      c.   *guanggun   de yi beizi   wo ning yuan da.

      bachelor   DE whole life I   rather   do

      'One whole life's bachelor I'd rather be.'

Huang's (1994a,b, 1996) argument for the nominal gerundive structure of [V DFP object] is based primarily on the problem of syntax-semantic mismatch observed with the duration and frequency phrases. Duration and frequency phrases behave syntactically as nominal measure phrases though semantically, they quantify over actions. That the DFP occurs in a syntactic position modifying the object is evidenced by the fact that the [DFP object] sequence can be moved together.

(22)   ta lian [yi   tian shu] dou mei kan.

      he even one day book all   not read

      'He did not even for one day read a book.'

(23)   ta lian [yi   ci   ge]   dou mei chang-guo.

      he even one time song all   not sing-PERF

      'He did not even sing once.'   (Huang 1994, citing Zhu Dexi, p.c.)

Huang suggests that the problem with the syntax-semantic mismatch is solved if one assumes that the [DFP object] sequence appears in a gerundive construction. A gerundive construction behaves like a verb phrase in some respect but like a noun phrase in others. The fact that the prenominal modification marker DE can appear between the DFP and the object is not surprising given the gerundive structure in (17b).

5.2   Nominal status for [V DFP DE object] and verbal status for [V DFP object]

In this section, I argue that the presence of DE in (24) is not optional, but rather the structures of [V DFP object] and [V DFP DE object] are different from each other.[11]

(24)   a.   wo qi-guo   liang ci   (de) ma.

           I ride-PERF two   time DE   horse

           'I have ridden a horse twice.'

    b.   wo jiao-le   liang nian (de) shu.

           I   teach-PERF two year   DE book

           'I have taught for two years.'

The structures for [V DFP DE object] and [V DFP object] I propose are given in (25) and (26) respectively.

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[11] Some of the differences between [V DFP DE object] and [V DFP object] are also found between [Numeral-Classifier DE N] and [Numeral-Classifier N] in Cheng and Sybesma (to appear). I leave the relation between [V DFP (DE) object] and [Num CL (DE) N] for future work.

(25)

a.

```
        VP
       /  \
      V    ModP
          /   \
        DFP    Mod'
              /   \
            Mod    DP/NP
            DE
```

b.

```
        ModP
       /    \
     DFP    Mod'
           /   \
         Mod    VP
         DE    /  \
              V    NP
```

(26)

```
         VP
        /  \
      DFP   VP
           /  \
          V    DP/NP
```
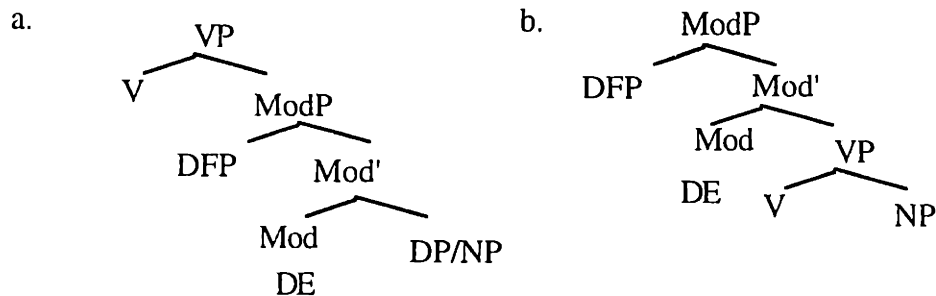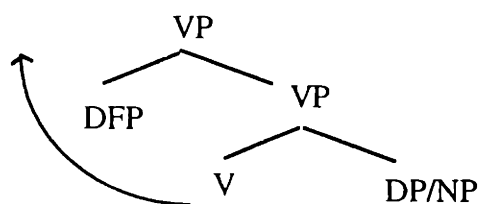
I propose that [V DFP DE object] may have either a verbal or a nominal structure, while [V DFP object] only has a verbal structure. [V DFP DE object] may have the structure in (25a) or (25b). In the structure (25a), the DFP modifies either an NP or a DP. In the structure (25b), the DFP modifies a VP which consists of a verb and a bare NP. On the other hand, [V DFP object] has the structure shown in (26). The DFP is adjoined to a VP and it modifies a VP which contains either a DP or an NP object. I assume that the structures in (25b) and (26) express the same meaning.

I assume that DE is a modification marker (Tang 1990) and it heads its own projection Modification Phrase (ModP) (Rubin 1994). While the discussion so far has concentrated on the function of DE as a marker for a modification relation between a modifier and a noun phrase, it should be noted that DE can also indicate a modification relation between an adverb and a verb phrase. Examples of the use of DE are given below.

(27) a. Possessor

wo jie-le   ta *(de) shu.

I   borrow-PERF he   DE book

'I borrowed his book.'

b. Relative clause

wo kan-guo   ta xie   *(de) shu.

I   read-PERF he write   DE   book

'I have read the book he wrote.'

c. Adjective

ta mai-le   yi-ben   hen   hou *(de) shu.

he buy-PERF one-CL very thick   DE book

'He has bought a very thick book.

d. Adverb

ta man-man (de) chi fan.

he slowly   DE eat rice

'He slowly ate rice.'

e. Frequency phrase

wo shang-le   liang tian (de) ke.

I attend-PERF two day   DE class

'I have attended classes for two days.'

('I have attended classes which last for two days.')

Notice that the presence of DE is obligatory when a noun phrase is modified but not when a verb phrase is modified (compare (a), (b) and (c) above versus (d)). In (27e), two possible readings are available when DE is present. When DE is absent, only the reading where the DFP modifies the event of attending classes is available. The reading where the DFP modifies the noun phrase is not available. This interpretational difference will be discussed further below.[12] The fact that DE is optional when modifying a VP indicates the existence of two possible structures for such a relation. I suggest that the structure with DE involves a ModP while the one without DE involves adjunction to a VP.[13] Unlike cases where a VP is modified, when a noun phrase is modified, only one structure is available.

---

[12] There are cases where DE seems to be not obligatory between a possessor and the modified head noun. These involve kinship and bodypart relations and certain extensions of this relation (Tang 1990:423-425).
(i) a. wo (de) yanjing
   I DE eye
   'my eyes'
  b. ta (de) meimei
   he DE sister
   'his sister'
There are also cases where DE apparently is not obligatory between an adjective and the modified head noun. There is evidence that an adjective modifying a head noun must be followed by DE and that an adjective-head noun pair without DE is a compound. As Tang (1990: 420) shows, an adjective such as *da* 'big' can modify the noun *bing* 'cake' with or without DE. But once a degree marker is present, the modification relation must be signified by DE.
(ii) a. na yi-ge da (de) bing
   that one-CL big DE cake
   'that big cake'
  b. na yi-ge hen da *(de) bing
   that one-CL very big DE cake
   'that very big cake'
This contrast follows if we assume that the adjective forms a compound with the head noun when DE is absent.

[13] There is a difference between the ModP that indicates a modification relation between a DFP and a VP and the ModP that indicates a modification relation between a manner adverb and a VP. While the verb phrase can only be of the form [V NP] when DE signifies the modification relation with the DFP, the verb phrase can be of the form [V DP] when the relevant modification relation is between the manner adverb and the DFP. This is because when the verb phrase is of the form [V DP], DE remains optional when the verb phrase is modified by a manner adverb.
(i) ta manman hua ta fuqing liu-xia-lai de qian.
  he slowly spend he father leave-behind DE money
  'He spends the money his father left behind slowly.'
(ii) ta manman de hua ta fuqing liu-xia-lai de qian.
  he slowly DE spend he father leave-behind DE money
  'He spends the money his father left behind slowly.'
This is in contrast to the case when the VP is modified by a DFP.
(iii) wo renshi-le liang nian na-ge ren.
  I know-PERF two year that-CL person
  'I have known that person for two years.'

The evidence for the particular structures proposed for [V DFP object] and [V DFP DE object] is given below. First, the fact that two structures are allowed for [V DFP DE object] but only one is available for [V DFP object] is evidenced by the contrast in (28) and (29).

(28)   a.   ta zhu-le   yi zheng tian de fan.

             he cook-PERF one whole day DE rice/meal

             'He has cooked for the whole day.'

             'He has prepared meal which lasts for the whole day.

        b.   ta zhu-le   yi   zheng tian fan.

             he cook-PERF one whole day rice/meal

             'He has cooked for the whole day.'

             *'He has prepared meal which lasts for the whole day.'

(29)   a.   ta shang-le   liang tian de ke.

             he attend-PERF two day   DE class

             'He has attended classes for two days.'

             'He has attended classes which lasts for two days.'

        b.   ta shang-le liang tian ke.

             he attend-PERF two day class

             'He has attended classes for two days.'

             *'He has attended classes which lasts for two days.'

---

         *'I have known that person which lasts for two years.'
(iv)   #/*wo renshi-le   liang nian de na-ge   ren.[13]
        I   know-PERF   two   year DE that-CL person
        *'I have known that person for two years.'
        #'I have known that person which lasts for two years.'
See below for further discussion.

(28a) is ambiguous between two readings. One reading is that the cooking event has taken the whole day. Another reading is that that he has prepared meal (enough) for the whole day. The ambiguity of (28a) follows from the two possible structures for [V DFP DE object] as shown in (25): one verbal and the other nominal. In the verbal structure, the DFP modifies the verb phrase and the reading where the cooking event has taken one whole day is represented. In the nominal structure, the DFP modifies the noun phrase and the reading where one whole day's worth of meal is represented. The same is true with (29). (29a) with DE is ambiguous between two readings. When DE is absent as in (29b), only one of the readings is available. This contrast follows from my analysis given that there are two possible structures for the sequence with DE and only one structure for the sequence without DE.

The following interpretational difference between [V DFP object] and [V DFP DE object] also follows from the structures proposed.[14] Consider (30) and (31).

(30)   a.   #wo yong yi   tian zou-le   liang tian lu.

            I use   one day   walk-PERF two day road

       b.   wo yong yi   tian zou-le   liang tian de lu.

            I use   one day walk-PERF two day DE road

            'I use one day to walk two days' worth of road.'

(31)   a.   #wo yi   ci   zuo-le   liang ci fan.

            I one time cook-PERF two time rice

---

[14] This interpretational difference is similar to the one between [Num-CL N] and [Num-CL DE N] in that the sequence with DE allows modificational relation between the noun and the numeral-classifier while the sequence without DE does not.

b.　　wo yi　ci　zuo-le　　liang ci　de fan.

I　one time cook PERF two　time DE rice

'I one time cook two times' worth of rice.'

The difference between (30a) and (30b) is that the duration phrase modifies the event of walking in (30a), while it may modify the noun phrase in (30b). In (30a), the event of walking must take two days while the event of walking need not take two days in (30b). As a result, (30a) is contradictory with the explicit mentioning of the event taking one day. Similarly for (31a), there are necessarily two cooking events while this is not the case for (31b). (31a) does not make sense since the existence of two cooking events is contradicted by the explicit mentioning of the existence of one cooking event. The different structures in (25) and (26) allow us to capture the contrast between [V DFP object] and [V DFP DE object]. For the sequence [V DFP object] which has a verbal structure as in (26), the DFP modifies the VP and the resulting interpretation is the frequency/duration of a certain event. As a result, the frequency/duration of the event is specified. For the sequence [V DFP DE object] which may have a nominal structure as in (25a), the DFP modifies the head noun. There is no commitment as to the frequency/duration of the event. Hence, both the sentences in (30b) and (31b) are not contradictory.

If it is the case that there are two structures for [V DFP DE object], one involving modification of the noun and the other involving modification of the VP, one may find a contrast observed in Sybesma (1997) to be puzzling at first glance. Sybesma (1997) observes that DE can only be present before certain noun phrases but not others. While the non-referential activity noun phrases allow DE to precede them, demonstratives and modified noun phrases do not.[15]

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[15] While it is possible for DE to follow a frequency phrase when the object is a non-referential activity noun phrase, some people do not prefer it (see Sybesma 1997). The presence of DE after a duration phrase is more generally accepted. I show examples involving a duration phrase here.

(32) a. wo chou-le   liang xiaoshi yian.

     I smoke PERF two hour cigarette

     'I have smoked for two hours.'

     *'I have smoked cigarettes which last for two hours.'

   b.   wo chou-le liang xiaoshi de yian.

     I smoke-PERF two hour DE cigarette

     'I have smoked for two hours.'

     'I have smoked cigarettes which last for two hours.'

(33) a. wo renshi-le liang nian na-ge ren.

     I know-PERF two year that-CL person

     'I have known that person for two years.'

     *'I have known that person which lasts for two years.'

   b.   #/*wo renshi-le liang nian de na-ge ren.[16]

     I know-PERF two year DE that-CL person

     *'I have known that person for two years.'

     #'I have known that person which lasts for two years.'

(34) a. wo chou-le   liang xiaoshi [ta mai gei wo de] yian.

     I smoke PERF two hour   he buy for me DE cigarette

     'I have smoked the cigarette he bought for me for two hours.'

     *'I have smoked the cigarette he bought for me which lasts for two hours.'

---

[16] This sentence is fine as a relative clause with the meaning 'the person I have known for two years.'

b.   #/*wo chou-le   liang xiaoshi   de [ta mai gei wo de] yian.

       I smoke-PERF two   hour   DE he buy for me DE cigarette

       *'I have smoked the cigarette he bought for me for two hours.'

       #'I have smoked the cigarette he bought for me which lasts for two hours.'

The contrast above may seem puzzling because given the structures in (25) and (26). While we expect that when the object is a bare NP as in (32b), the sentence may have two possible readings given that the sentence can appear in either the structure in (25a) or (25b), we expect that only one reading is possible when the object is a DP as in (33b) and (34b) since only the structure in (25a) is available. The structure in (25b) is not available because the VP selected by the ModP must be of the form [V NP] and not [V DP]. We expect (33b) and (34b) to be good with a reading where the DFP modifies the noun phrase. This prediction does not appear to be borne out. I suggest that indeed the structure in (25a) is available for (33b) and (34b). The reason why they are bad is due to other reasons. The fact that the structure in (25b) is available for sentences like (33b) and (34b) is evidenced by the acceptability of the following sentences.

(35)   wo shang-le   yi tian de na-tang ke.

      I   attend-PERF one day DE that-CL course

      *'I have attended the class for a day.'

      'I have attended the class which lasts for one day.'

(36)   wo chou-le   ta mai gei wo de liang xiaoshi de yian.

      I   smoke-PERF he buy for me DE two hour   DE cigarette

      *'I have smoked the cigarette he bought for me for two hours.'

      'I have smoked the cigarette he bought for me which lasts for two hours.'

(33b) is bad simply because the available interpretation does not make sense. It is not clear what *a person which lasts for two years* means. (34b) is bad because of some kind of restriction in the ordering of the modification phrases. When there is more than one modification phrase, the DFP wants to be closer to the noun than the other modification phrase. That there is some kind of ordering among modification phrases is also found between an adjective and a relative clause.

(37) a.   ta mai gei wo de hong se   de na-liang ce

           he buy for me DE red color DE that-CL car

           'the red car which he bought for me'

      b.   *?hong se de ta mai gei wo de na-liang ce

            red color DE he buy for me DE that-CL car

            'the red car which he bought for me'

The contrast observed in Sybesma (1997) does not pose a problem for the proposed structures. Rather it provide evidence for the structure in (25b) where the DFP introduced by DE can only modify a VP that contains a bare NP.

To summarize, certain differences between [V DFP object] and [V DFP DE object] suggest that DE is not optional in [V DFP DE object]. Rather, there are two structures for [V DFP DE object] but only one structure for [V DFP object]. I suggest that [V DFP DE object] may be either verbal or nominal while [V DFP object] can only be verbal. The different structures allow us to make sense of certain asymmetries in the interpretation of [DFP object] and [DFP DE object].

6. Conclusions

To summarize the results of this chapter, among the various possible analyses for [V object DFP] and [V DFP object], only the one involving the leftward movement of the object is consistent with the scope facts. This result indicates that there exists object scrambling in Chinese. There is also evidence that DE is not optional in [V DFP (DE) object]. Rather the sequence [V DFP object] is verbal, while the sequence [V DFP DE object] may be either verbal or nominal. In the next chapter, I consider the distribution of the object in Chinese more closely. I show that the distribution of the object in Chinese patterns similarly with object scrambling in Dutch and German. The similarities in the distribution of the object in Chinese with object scrambling in Dutch/German provide further support that scrambling exists in Chinese.

Chapter Three

The distribution of the object in relation to duration/frequency phrases:
A comparison with object scrambling in Dutch and German

_____

1.   Introduction

This chapter has two main goals. The first goal is to provide further evidence that object scrambling is indeed available in Chinese. The way in which this is achieved is by comparing the distribution of the object in Chinese with those in Dutch and German. The fact that the different positionings of the object in Chinese patterns like scrambling in Dutch and German provides additional support for the existence of object scrambling in Chinese. The second goal of this chapter is to propose an account of the distribution of the object in Chinese which strives to handle not only the similarities but also certain differences in the positioning of the object in Chinese as opposed to Dutch and German. Descriptively, Dutch/German differ from Chinese in that the non-scrambled position in Dutch/German can be destressed while the non-scrambled position in Chinese cannot. I attempt to answer why Dutch/German differ from Chinese in the destressibility of the non-scrambled position. My proposal adopts Neeleman and Reinhart's (to appear) insight that scrambling

is closely related to information structure and prosodic considerations. I assume a theory of syntax-phonology mapping where phonology has access to all syntactic information including head-complement relation. Following Ladd (1996), I assume that deaccenting/stress shifting involves switching the prominence relation of two relevant constituents in a sister relation. Unlike Ladd (1996) who assumes that the switching of the prominence relation takes place within a metrical tree, I assume that the switching takes place in the syntactic component and makes reference to syntactic constituents. I argue that there are certain restrictions on when the switching of the prominence relation can occur. Specifically, stress shift is possible between sisters with a head-complement relation, but not between sisters without such a relation. I show that certain differences in the behavior of scrambling in Chinese as opposed to Dutch and German follow from the different word orders within the VP in these languages. I discuss some complications with the proposed analysis.

Before I proceed, it is important to clarify the use of certain terms which is standard in the literature on scrambling. As discussed in Chapter One, scrambling is sometimes argued to be not optional and the operation is obligatory to achieve a particular semantic or information structure effect. This informal mode of description seems to conflate the distinction between grammar and language use and it assumes that grammar can refer to discourse/semantic factors. Once we maintain the distinction between grammar and language use, it must be the case that scrambling is always optional.[1] When a scrambled order is constructed, one gets a particular interpretation associated with the scrambled order. When a non-scrambled order is constructed, a certain interpretation associated with the non-scrambled order is available. A particular scrambling operation may appear to be 'obligatory' when the interpretation the sentence receives is inappropriate for a particular context of use. But the operation of scrambling itself is never obligatory in the grammar component. This is like the case of passive. A passive word order may be chosen given a

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[1] Unless one assumes a feature driven theory of scrambling. In that case, the choice of the scrambling feature is optional but the operation of scrambling is obligatory.

particular context. Yet, the operation of passivization is not obligatory. In discussing certain previous work on scrambling in Dutch and German, I continue to refer to the scrambling operation as being 'obligatory' or 'optional' and the reader is to keep in mind that the description refers to whether the result of scrambling can be used in a particular context.

This chapter is organized as follows. In section 2, I present some current observations and theories about scrambling in Dutch and German. In section 3, I present the distribution of the object in relation to the duration/frequency phrases (DFPs) in Chinese. I show that the distribution of the object in Chinese behaves like object scrambling in Dutch and German in that the positioning of the object before or after the DFP is related to information structure and prosodic considerations. In section 4, I discuss how the facts in Chinese bear on certain theories of scrambling and some of the problems in extending the current theories of scrambling to account for the Chinese facts. In section 5, I propose an account of scrambling in Chinese related to the licensing condition of stress shift. I show that given this new account of scrambling, certain differences between Chinese and Dutch/German in the positioning of the object follow from the different word orders within the VP in these languages. In section 6, I consider an apparent problem with the proposed analysis in terms of the distribution of the indefinite/non-referential noun phrases in Chinese. I argue that these noun phrases do not occupy the post-DFP position, but rather they are cliticized to the preceding DFP. I argue that the requirement that the bare noun phrases be cliticized to the preceding DFP contributes to why these noun phrases do not tend to scramble (cf. van der Does and De Hoop (1998)). In section 7, I discuss certain complications with the proposed analysis involving the distribution of the object when the main verb is raised to the second position of the clause in Dutch and German. In section 8, I present several previous analyses of the distribution of the object in relation to the DFP in Chinese. I discuss some problems with each of the proposed analyses. The conclusions are presented in section 9.

2.   Object Scrambling in Dutch and German

Previous researchers disagree to a certain extent about the conditions under which a particular noun phrase can scramble. For example, Diesing (1992, 1997) and Diesing and Jelinek (1995) observe that in German, Yiddish and Egyptian Arabic, a specific noun phrase must scramble (except when the noun phrase bears a special focus interpretation), while a non-specific noun phrase must not. Neeleman and Reinhart (to appear) find that a noun phrase in Dutch may or may not scramble depending on the information structure of the sentence which is given by the context. van der Does and De Hoop (1998) on the other hand find that with context, scrambling of the definite in Dutch is truly optional, while when no context is provided, there is a difference in the information structure of the scrambled and the non-scrambled orders. While there are some disagreements, it seems that these authors agree that some kind of information structure effects are observed with object scrambling.

2.1   Diesing (1992, 1997), Diesing and Jelinek (1995)

2.1.1   Descriptive generalizations

Diesing (1992, 1997) and Diesing and Jelinek (1995) observe that there is a strong pressure for definite objects to scramble in neutral context.

(1)   a.   ...weil   ich [die Katze] [selten]   streichle.   German

               since I   the cat   seldom   pet

               'since I seldom pet the cat.'

b.   ^M...weil ich [selten] [die Katze] streichle   German

        since I   seldom   the cat   pet

        'since I seldom pet the cat'

(2)   a.   ...weil ich [das Rosamunde-Quartett] [nicht] gespielt habe.   German

        since I   the Rosamunde Quartet   not   played have

        'since I haven't played the Rosamunde Quartet'

b.   ^M...weil ich [nicht] [das Rosamunde-Quartet] gespielt habe   German

        since I   not   the Rosamunde Quartet played have

        'since I haven't played the Rosamunde Quartet'

^M indicates markedness in the sense that "some contrastive context is required for felicity" (Diesing 1997:278). They note that scrambling of the definite is not completely obligatory and "contrastive stress or focus marks new (or unexpected) information and thus permits the definite NPs which carry such stress to remain in place" (Diesing 1997:379).

    Unstressed pronouns obligatorily scramble while stressed pronouns may remain in situ.

(3)   a.   *...weil ich [selten]   [sie] streichle.   German

        since I   seldom   her pet

b.   ...weil ich [sie] [selten]   streichle.   German

        since I   her   seldom pet

        'since I seldom pet her'

c.   ...weil ich [selten] [SIE] streichle.   German

        since I seldom her pet

        'since I seldom pet her.'

Diesing and Jelinek (1995) suggest that stressed pronouns do not move outside of the VP because they are deitic and contrastive in nature and thus bear new information.

Besides definites which bear contrastive stress, there are other definites which can remain within the VP. These definite descriptions are attributive rather than referential. The definite noun phrase in (4) *die kleinste Katze* 'the smallest cat' is fine in neutral context with 'the smallest cat' meaning 'whichever cat is the smallest'. The speaker may not know which cat is the smallest in the world, but simply avoids petting the smallest one in whatever context s/he finds him/herself in.

(4)   ...weil ich [selten] [die kleinste Katze] streichle.   German

        since I seldom the smallest cat   pet

        'since I seldom pet the smallest cat.'

These definites are quantificational and they may remain within the VP. A quantificational object (QP) can appear in either the base or the scrambled position as shown in (5).

(5)   a.   ...weil ich [selten] [jedes Cello] spiele.   German

        since I seldom every cello play

        'since I seldom play every cello.'

b.   ...weil ich [jedes Cello] [selten] spiele.   German

    since I   every cello   seldom play

    'since I play every cello (only) seldom.'

    'since I seldom play every cello.'

The position of the QP object affects its scope in relation to the adverb. It seems that in (5a), only the adverb may take scope over the object QP. This is in contrast to (5b) where either the QP or the adverb may take wide scope (Uli Sauerland, personal communication).

A non-quantificational indefinite does not obligatorily scramble. The interpretation of the noun phrase differs depending on whether the noun phrase occupies the scrambled or the non-scrambled position.

(6)   a.   ...weil Elly [immer] [Lieder] singt.   German

    since Elly always   song   sings

    'since Elly is always singing songs.'

$ALWAYS_t$ [time (t)] $\exists x$ song (x) $\wedge$ sings (Elly, x, t)

b.   ...weil Elly [Lieder] [immer] singt.   German

    since Elly songs   always sings

    'since if it's a song, Elly will sing it.'

$ALWAYS_x$ [song (x)] sings (Elly,x)

In (6a), the bare plural object in the non-scrambled position receives an existential interpretation. In (6b), the bare plural object in the scrambled position is not bound by the existential closure operation; instead it is bound by the quantificational adverb.

2.1.2 Account/Theory

Diesing (1992, 1997) and Diesing and Jelinek (1995) argue that scrambling is not optional and that it is semantically driven.[2] Diesing (1992) proposes a way in which syntax is mapped onto semantics. The syntactic tree is split into two parts which map into the restrictive clause and the nuclear scope of a 'tripartite' semantic representation. Material from the VP is mapped into the nuclear scope while material outside of the VP (IP excluding VP) is mapped into the restriction. This hypothesis is referred to as the Mapping Hypothesis.

(7)   The Mapping Hypothesis

    i.   VP maps into the nuclear scope (the domain of existential closure)

    ii.   IP maps into the restriction (of an operator).

The VP is the domain for default existential closure, and the material above the VP is associated with a quantifier. Diesing (1992, 1997) and Diesing and Jelinek (1995) assume that a particular noun phrase may be assigned multiple types (Partee 1987). The basic noun phrase types are e (referential), $<e,t>$ (predicational) and $<<e,t>,t>$ (quantificational). Because there is a default existential closure operator at the level of VP (Diesing 1992), any noun phrase which introduces a free variable and does not receive an existential interpretation must move out of the VP by LF. Definites and indefinites introduce a free variable and quantificational noun phrases do not. Thus a definite must move out of the VP by LF in order not to be bound by the existential closure operator and an indefinite may remain within the VP and be bound by the existential closure operator. If a definite noun phrase is existentially bound, it would violate a novelty condition (Heim 1982 cited in

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[2] A different way of putting this is that scrambling is optional in the grammatical component but it has semantic consequences for the speaker.

Diesing 1992) that requires variables bound by existential closure to be new in the discourse. The assumption is that definites usually bear old information. A definite noun phrase which bears focus stress can remain within the VP because it bears new information. In this case, the novelty condition is not violated. Quantificational noun phrases are not affected because they do not introduce a free variable.

According to Diesing (1992, 1997) and Diesing and Jelinek (1995), scrambling is driven by two LF conditions: relative scope fixing and type mismatch repair, which are independent from each other. Scope fixing and type mismatch need not take place at the same level within a language. For instance, in German, scope fixing has to take place at S-structure while the resolution of type mismatch can take place at LF.[3] The fact that (8a) (repeated from (5a)) is fine with the QP object in its base position suggests that type mismatch resolution can be delayed until LF.

(8)   a.   ...weil ich [selten]   [jedes Cello] spiele.   German

                since I   seldom   every cello play

            'since I seldom play every cello.'

    b.   ...weil ich [jedes Cello] [selten] spiele.   German

                since I   every cello seldom play

            'since I play every cello (only) seldom.'

            'since I seldom play every cello.'

This is because the QP object is of type $<<e,t>,t>$ and it cannot combine with the transitive verb which is of type $<e,<e,t>>$. To repair this type mismatch, the quantificational object must QR to a position outside of the VP (either adjoined to VP or IP). If type mismatch

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[3] The idea that scope fixing has to take place at S-structure in certain languages can be translated within the Minimalist Program to the idea that QR in these languages cannot cross a quantifier where S-structure is not recognized as a distinct level of grammatical representation (see Beck 1996a,b).

had to be resolved at overt syntax in German, (8a) should be bad. The fact that (8a) is fine suggests that type mismatch need not be resolved until LF.

Movement driven by scope fixing does not apply only to objects of type $<<e,t>,t>$, but also to objects of type $<e,t>$. An example of such a movement is repeated from (6).

(9)   a.   ...weil Elly [immer] [Lieder] singt.   German

                since Elly always   song   sings

                'since Elly is always singing songs.'

        b.   ...weil Elly [Lieder] [immer] singt.   German

                since Elly songs   always sings

                'since if it's a song, Elly will sing it.'

The bare plural in (9a) takes narrow scope with respect to the existential closure operator, while the bare plural in (9b) takes scope over the existential closure operator.

Within this theory, all languages allow scrambling. The apparent crosslinguistic differences in terms of scrambling are due to the different levels by which the two LF conditions (relative scope fixing and type-mismatch repair) must be satisfied. For instance, relative scope must be fixed at overt syntax in German while for English, it need not be fixed until LF. The different level at which scope is fixed is suggested to be the reason why German shows overt effects of scrambling while English does not.

2.2 Neeleman and Reinhart (to appear)

2.2.1 Descriptive generalizations

Neeleman and Reinhart observe that a definite object may appear either before or after an adverb.[4]

(10) a. Dat Jan [V2 langzaam [V1 het boek [V las]]]   Dutch

  that John   slowly   the book   read

  'that John read the book slowly.'

b. Dat Jan [V2 het boek [V1 langzaam [las]]]   Dutch

  that John   the book   slowly   read

  'that John read the book slowly.'

They note however that scrambling of the definite object is not truly optional.[5] There are contexts where scrambling is highly favored and others where it is highly disfavored. In (11), scrambling of the definite object is highly preferred and in (12), the scrambled version is highly disfavored.

(11) Speaker A: Hoe gaat het met de review van Jan's boek?   Dutch

                how goes it with the review of Jan's book

---

[4] Neeleman and Reinhart (to appear) argue that scrambling does not involve movement but rather both scrambled and unscrambled word orders are base generated. I do not discuss their arguments for base generation here.

[5] Diesing's observations are quite comparable to Neeleman and Reinhart's although the emphasis is different. While Neeleman and Reinhart provide cases which show that scrambling is not optional, Diesing discusses some cases which show that scrambling is not truly obligatory.

    a.   Speaker B: Ik heb [het boek] [eindelijk] gelezen

                           I have   the book   finally   read

    b.   Speaker B: #Ik heb [eindelijk] [het boek] gelezen

                           I have finally   the book read

(12)   Speaker A: Heeft je buurman gisteren de deur geverfd?   Dutch

                                  has your neighbor yesterday the door painted

    a.   Speaker B: #Nee, hij heeft [het raam]   [gisteren] geverfd

                            no, he has   the window yesterday painted

    b.   Speaker B: Nee, hij heeft [gisteren] [het raam]   geverfd

                            no, he has   yesterday the window painted

The generalization is that when the object bears information focus, it must appear in the non-scrambled position. Otherwise, the object occupies the scrambled position. Neeleman and Reinhart's analysis of scrambling relates this generalization to sentence stress.

While Neeleman and Reinhart (to appear) agree that there is a tendency for indefinites to appear in the non-scrambled position as shown in (13), Reinhart (1995 citing Eddy Ruys: footnote 48) notes that contrary to Diesing's (1992) prediction, Dutch scrambled position is not necessarily 'specific' or 'strong'. Examples which show that a weak noun phrase before the adverb is not necessarily interpreted as 'specific' or 'strong' are given in (14).

(13) a. Dat de politie gisteren taalkundigen opgepakt heeft   Dutch

that the police yesterday linguists   arrested   has

'that the police has arrested linguistics yesterday.'

b. *Dat de politie taalkundigen gisteren   opgepakt heeft

that the police linguists   yesterday arrested   has

(14) a. dat elke   arts   wel een of andere ziekte (meestal)   Dutch

that every doctor some disease or other (usually)

met plezier behandelde.

with pleasure treated

'that every doctor treated some disease or other (usually) with pleasure.'

b. dat elke arts   een ander ziekte   (altijd)   Dutch

that every doctor another   disease (always)

met penicilline behandelde.

with penicillin   treated

'that every doctor treated a different disease (always) with penicillin.'

It is difficult to view the indefinite *some disease or other* in (14a) as specific. For (14b) the indefinite *another disease* does not have wide scope. Its interpretation is dependent on the universal and this kind of reading is typically assumed to be a 'weak' reading.

2.2.2 Account/Theory

Neeleman and Reinhart (to appear) argue that the distribution of the definites and the indefinites follows from the same generalization (contra van der Does and De Hoop 1998).

The difference between definites and indefinites in terms of scrambling is not related to the syntactic properties of the object (e.g. whether the object is definite or indefinite), but rather to PF considerations of main sentential stress.

Neeleman and Reinhart (to appear) assume that the main stress assigned by the nuclear stress rule falls on the most deeply embedded constituent (Cinque 1993). In Cinque's (1993) system, given two sisters, the most deeply embedded constituent is the one selected by the other. Given that the object is selected by the verb, the object is more deeply embedded than the verb and it receives main stress in both OV and VO languages.[6] Neeleman and Reinhart assume that constituents containing the main stress of IP are the focus set of IP. A focus set is a set of constituents which may serve as the focus of the sentence. As shown in (15) with the main stress of IP on the object, the focus set of IP includes the object, the VP and the IP because these three constituents contain the main stress.

(15)   a.   [IP subject [VP V **object**]]

       a'.   [IP subject [VP **object** V]]

       b.   Focus set: {IP, VP, object}

One of the items in the focus set is selected as actual focus. Given a discourse context, if no member of its focus set can be used as an actual focus in that context, the sentence is inappropriate. In these cases, a stress shifting operation applies. The assumption is that the main stress is always assigned in the same way. This stress is referred to as 'neutral stress'. Special stress shifting operations may apply if the discourse context requires it. Stress from stress shifting operations are 'marked stress' and they violate economy (Reinhart, forthcoming, cited in Neeleman and Reinhart, to appear). Following Cinque

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[6] In Kayne's (1994) system, all SOV is derived from SVO by raising the object to a position higher than the verb. The object is not more deeply embedded than the verb in SOV and will not receive main stress. The main stress goes on the verb.

(1993), Neeleman and Reinhart suggest that a stress shifting operation involves two distinct operations: (i) destressing of a stressed element and (ii) strengthening of an element that does not bear the main stress. The difference between the effect of destressing and stress strengthening is difficult to detect when stress shift occurs within the VP. Main stress is indicated by bold

(16)   a.   Max can only afford **seeing** cars.   (Stress strengthening of verb)

        b.   Max can afford **seeing** her.   (Destressing of object)

They note that the difference can be detected more easily when stress strengthening applies further away from the object. (17) shows a case where stress strengthening applies to the subject. Secondary stress is indicated by italics.

(17)   a.   Only **Max** can afford buying *cars*.   (Stress strengthening of subject)

        b.   Only **Max** can afford *seeing* her.   (Stress strengthening of subject and

                                                        destressing of object)

When the operation of destressing does not apply as in (17a), the secondary stress on the object remains. When destressing applies as in (17b), the object does not bear stress. Reinhart (1996, forthcoming, cited in Neeleman and Reinhart, to appear) argues that destressing and stress strengthening not only have different prosodic properties but they also serve different discourse functions. In particular, stress strengthening is an operation on the focus set and it derives foci not in the set. Economy entails that this operation applies only to derive foci not already in the focus set. Destressing is an anaphoric process, independent of the focus set. A DP is destressed if and only if it is D-linked to an

accessible discourse entity.[7] A DP is accessible if it is either the topic or has been mentioned very recently (Neeleman and Reinhart, to appear citing Ariel 1990). An accessible entity need not be an antecedent in the sense of strict identity and it may be D-linked if only its common noun is already in the discourse (Pesetsky 1987). If the effect of destressing can be met without applying the operation of destressing (e.g. through scrambling), then applying destressing makes the derivation sound bad. When the operation of destressing is necessary to ensure that an anaphoric element is not stressed, it does not violate economy.

Neeleman and Reinhart's answer to why there are contexts where a scrambled version is highly preferred and contexts where a non-scrambled version is highly preferred is presented below. Cinque's main stress rule assigns the main neutral stress to the object when the object appears in the non-scrambled order. When the object is scrambled, the main stress falls on the verb. Because the main neutral stress is assigned to different elements depending on whether the object appears in a scrambled or a non-scrambled structure, the focus sets associated with the sentences are also different.

(18) a.   dat Jan [gisteren] [het **boek**] gelezen heeft   Dutch

           that John yesterday the book read   has

           'that John has read the book yesterday.'

    b.   dat Jan [het boek] [gisteren] **gelezen** heeft.   Dutch

           that John the book yesterday read   has

           'that John has read the book yesterday.'

---

[7] Because this is a biconditional statement, it also means 'a DP is D-linked to an accessible discourse entity if it is destressed'. Reversing the condition may help avoid the implication that destressing is contingent on discourse factors.

(19)   Nonscrambled structure

    a.   Syntax: $[_{V'}$ AdvP $[_{V'}$ **DP** V]]

    b.   Focus set: [IP, VP, Object]

    c.   Object: Stressed

(20)   Scrambled structure

    a.   Syntax: $[_{V'}$ DP $[_{V'}$ AdvP **V**]]

    b.   Focus set: [IP, VP, V]

    c.   Object: Destressed

In the non-scrambled structure, the focus set includes the object while in the scrambled structure, the focus set includes the verb. Given this difference in focus set, Neeleman and Reinhart predict that the non-scrambled structure is preferred when the object needs to be the sole focus and the scrambled structure is preferred when the verb needs to be contrastive (the only focus). (21) and (22) illustrate that the predictions are borne out.

(21)   Spearker A: Heeft je buurman gisteren de deur geverfd?   Dutch

                has your neighbor yesterday the door painted

                'Has your neighbor painted the door yesterday?'

    a.   Speaker B: #Nee, hij heeft <u>het raam</u> gisteren **geverfd**

                no, he has the window yesterday painted

                'No, he has painted the window yesterday.'

    b.   Speaker B: Nee, hij heeft gisteren <u>**het raam**</u> geverfd

                no, he has yesterday the window painted

                'No, he has painted the window yesterday.'

(22) a.   Ik heb   het boek gisteren   **gelezen**, en   niet verscheurd   Dutch

              I   have the book yesterday read,   and not torn-up

              'I have read the book yesterday, instead of tearing it up.'

    b.   #Ik heb   gisteren   het **boek** gelezen, en   niet verscheurd

              I   have yesterday the book read   and not torn-up

              'I have read the book yesterday, instead of tearing it up.'

The account above is not enough to handle the contrast seen in (23). This is because given that the answer for (23) involves informational focus on the entire IP, both the non-scrambled and the scrambled structures should be adequate. The key lies in the condition on discourse anaphora which states that a DP is destressed if and only if it is D-linked to an accessible discourse entity. The reason why (23a) is strongly preferred is because the object is destressed in (23a) but not in (23b). (23a) satisfies the condition on discourse anaphora.

(23) Speaker A: Hoe gaat het met de review van Jan's boek?   Dutch

                        how goes it with the review of Jan's book

                        'How does it go with the review of Jan's book?'

    a.   Speaker B: Ik heb   het boek eindelijk gelezen

                     I   have the book finally   read

                     'I have finally read the book.'

b.　　Speaker B:　　#Ik heb　eindelijk het　boek gelezen

　　　　　　　　　　　I　have finally　the book　read

　　　　　　　　　　　'I have finally read the book.'

The difference between definites and indefinites in terms of how freely they can scramble is argued to be due to the condition on discourse anaphora. Definite DPs may or may not be D-linked depending on the discourse context. Indefinite DPs tend to be non-D-linked. A D-linked DP must be destressed and given that scrambling achieves the effect of destressing, a D-linked DP must scramble. A non-D-linked DP does not need to be destressed and scrambling does not need to occur. Scrambling of pronouns and epithets are obligatory since pronouns and epithets are necessarily D-linked.

2.3　van der Does and De Hoop (1998)

2.3.1　Descriptive generalizations

van der Does and De Hoop (1998) have a slightly different descriptive generalization about the scrambling facts in Dutch/German compared to Neeleman and Reinhart (to appear) (see also De Hoop 1998). They claim that the scrambling of definites is truly optional in Dutch/German. Definites do not need to scramble and even definites which are referential or anaphoric (related to the previous discourse) do not obligatorily scramble. (24) shows an example of a non-anaphoric definite object and the object may optionally scramble.[8]

(24)　Paul maakt de laatste tijd een gespannen indruk.　　　　　　　　　　　Dutch

　　　　'Recently, Paul seems to be under stress'

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[8] (24) which involves IP focus is consistent with Neeleman and Reinhart's theory since either the scrambled or the non-scrambled order allows the IP to be one of the constituents in the focus set of the sentence.

a.   Misschien komt   dat omdat hij zelden de kat aait

         maybe   comes that because he seldom the cat pets

         'That's maybe because he hardly ever pets the cat.'

b.   Misschien komt   dat omdat hij de kat zelden   aait

         maybe   comes that because he the cat seldom pets

         'That's maybe because he hardly ever pets the cat.'

When the object is anaphoric, both the scrambled and the non-scrambled orders remain possible (contra Neeleman and Reinhart, to appear).

(25)   Paul heeft een kat die de laatste tijd een gespannen indruk maakt   Dutch

        'Paul has a cat that seems to be under stress, recently'

a.   Misschien komt dat omdat Paul zelden de kat aait

         maybe comes that because Paul seldom the cat pets

         'That's maybe because Paul hardly ever pets the cat.'

b.   Misschien komt dat omdat Paul de kat zelden aait

         maybe comes that because Paul hardly ever pets the cat.'

         'That's maybe because Paul hardly ever pets the cat.'

                       (van der Does and De Hoop 1998:4)

(26)   Heb je   Jane gisteren het geld   gegeven?   Dutch

        'Did you give Jane the money yesterday?'

a.   Ja, ik heb Jane al eergisteren het geld gegeven

Yes I have Jane already the-day-before-yesterday the money given

'Yes, I gave Jane the money yeserday already.'

b.   Ja, ik heb Jane het geld al eergisteren gegeven

Yes I have Jane the money already-the day-before-yesterday given

'Yes, I gave Jane the money yeserday already.'

(De Hoop 1998)

Unlike Neeleman and Reinhart (to appear) who claim that a particular context reduces the number of possible word order possibilities, De Hoop (1998) claims that adding a specific context increases the number of word order possibilities. Given that one interpretation is pragmatically preferred in the above examples with context, the effect of word order on interpretation becomes negligible and both scrambled and non-scrambled word orders are acceptable. A *weak* definite (a definite which forms a semantic unit with a light verb) also may optionally scramble.

(27)   a.   dat ik [nog] [de was]   moet doen   Dutch

that I   still the laundry   must do

'that I still have to do the laundry.'

b.   dat ik [de was] [nog] moet doen   Dutch

that I the laundry still must do

'that I still have to do the laundry.'

In this case, the pragmatically preferred interpretation is non-anaphoric. Either the scrambled or the non-scrambled word order is acceptable.

Unlike definites, indefinites in general cannot be scrambled as shown in (28) and (29).

(28) a. dat ik [nog] [een plas] moet doen   Dutch

          that I still a   piss must do

          'that I still have to take a piss'

      b. *dat ik [een plas] [nog] moet doen   Dutch

          that I a   piss still must do

          'that I still have to take a piss'

(29) a. dat ik [altijd] [een enkeltje] neem   Dutch

          that I always a   single   take

          'that I always get a single'

      b. *dat ik [een enkeltje] [altijd] neem   Dutch

          that I a   single   always take

          'that I always get a single'

van der Does and De Hoop (citing Anita Mittwoch p.c., footnote 4) observe that there are contexts in which scrambling of the indefinite object is possible. One such case is when the verb is contrastive and the object has 'a kind of generic reading'. For example, (29b) is fine in a context in which single tickets are hardly ever sold and whenever there are single tickets available, the speaker will take the opportunity to get one. This is shown in (30).

(30)   omdat ik een enkeltje altijd   NEEM   Dutch

                 since I   a   single always take

                 'since I always take a single ticket'

2.3.2 Account/Theory

van der Does and De Hoop argue that the fact that *weak* definites such as (27) behave like other definites and unlike indefinites indicates that a proper analysis of scrambling should not be based on discourse properties (see also De Hoop 1998). Rather, the difference should be based on either a syntactic or a semantic difference between definites and indefinites. van der Does and De Hoop propose that the difference between indefinites and definites in terms of scrambling follows from a difference in their semantics. Predicative indefinites are of type <e,t> and they are semantically incorporated to an incorporating verb (van Geenhoven, to appear). Their existential interpretation comes with the lexical semantics of the verb (Carlson 1977 cited in van der Does and De Hoop 1998). The interpretation of predicative indefinites is dependent on the verb while the interpretation of definites is not. The merging of the predicative indefinites with the verb involves a process of semantic incorporation and the adjacency requirement between the incorporating verb and the indefinite is a syntactic reflex of this semantic incorporation process (see van Geenhoven, to appear).[9] Because the predicative indefinite must be adjacent to the verb, they cannot be scrambled as (28) and (29) show. The definites can scramble optionally because their interpretation is not dependent on the verb and there is thus no adjacency requirement between a definite noun phrase and the verb. Certain indefinites which do not depend on the verb for their existential interpretation may scramble. These include generics, noun phrases with a partitive and referential reading as

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[9] van Geenhoven (to appear) argues that in West Greenlandic, the process of semantic incorporation is syntactically marked by an instrumental object and the absence of object agreement. A morphological realization of semantic incorporation is noun incorporation.

well as those which function as objects of non-incorporating predicates. These noun phrases have the type of a generalized quantifier and they are not semantically incorporated to the verb. Thus, they may freely scramble.

(31)   dat Paul twee koekjes al   opgegeten heeft   Dutch

           that Paul two cookies already eaten   has

           'that Paul has already eaten two (of the) cookies'

van der Does and De Hoop note that given this analysis, one expects that noun phrases which are generalized quantifiers should freely scramble. They observe that this is not the case with monotone decreasing indefinites, which are generally taken to be of the quantification type like *every N*. Monotone decreasing indefinites behave like other indefinites in not allowing scrambling.

(32)   a.   dat Fred ook   geen kinderen heeft   Dutch

             that Fred indeed no children   has

             'that fred doesn't have children either'

       b.   *dat Fred geen kinderen ook   heeft   Dutch

             that Fred no   children   indeed has

             'that Fred doesnot have children either'

van der Does and De Hoop extend De Swart's (1997) proposal which allows monotone decreasing indefinites to be of type $<e,t>$ and for them to behave like indefinites to account for the observation above.

2.4   Points of agreement

In terms of the definite noun phrase, Diesing (1992, 1997) and Diesing and Jelinek (1995) are in agreement with Neeleman and Reinhart (to appear) that there is a correlation between DP focus and scrambling. For Diesing (1992, 1997) and Diesing and Jelinek (1995), definites which "obligatorily" scramble outside of the VP may remain in-situ when the noun phrase bears focus stress. For Neeleman and Reinhart (to appear), a definite noun phrase in the non-scrambled position bears information focus while one in the scrambled position does not. van der Does and De Hoop (1998) agree that there is a certain correlation between DP focus and scrambling. They differ from Neeleman and Reinhart (to appear) in claiming that the correlation is available without contexts but disappears once an explicit context is provided (see De Hoop (1998)). In terms of the indefinite (existential) noun phrase, the above researchers all agree that indefinite (existential) noun phrases do not scramble.[10] The question is whether there is a particular information structure where the indefinite object may scramble. Moltmann (1991:13-14) notes that an indefinite object may scramble when the noun phrase is contrastively focused or when it is associated with focusing operators such as *nur* 'only' and *sogar* 'even' (see also Choi 1996).[11]

(33)   a.   weil   Hans ein Buch dem Mann e gegeben hat   German

because John   a book   to   the man given   has

(nicht eine Zeitung).

(not   a   newspaper)

'because John has given a book to the man, not a newspaper.'

---

[10] van der Does and De Hoop suggests a case where the indefinite object may scramble, namely when the verb is contrastively focused. They note that the indefinite object has 'a kind of generic reading' when it scrambles.

[11] It seems that the noun phrase associated with the focusing adverbs (definite or indefinite) _must_ (rather than _may_) scramble (Uli Sauerland, p.c.). When the object is contrastively focused, it may appear either in the scrambled or the non-scrambled position (Uli Sauerland, p.c.).

b.   weil   Hans Bücher dem Mann e gegeben hat (nicht Zigaretten). German

because John books to the man given   has (not cigarettes)

'because John has given books to the man, not cigarettes.'

(34)   weil   Hans <u>nur/sogar</u> <u>ein Buch</u> dem Mann e gegeben hat.   German

because John only   a book to   the man given   has

'because John has given only a book to the man.'

As Choi (1996) argues, the fact that an indefinite object may scramble to a VP-external position and still retain its existential reading poses problems for Diesing's Mapping Hypothesis. It seems that this fact is also problematic for van der Does and De Hoop's theory of scrambling where indefinites are argued not to scramble because of the process of semantic incorporation. It is unclear how the indefinite can obtain the appropriate interpretation when it is not adjacent to the verb. The fact that an indefinite object can scramble when the verb is contrastively focused is expected within Neeleman and Reinhart's theory of scrambling. It is not clear how the fact that a contrastively focused object can scramble (but need not scramble (Uli Sauerland, p.c. for German)) is consistent with Neeleman and Reinhart's theory. If a contrastively focused noun phrase is assumed to bear new information, Neeleman and Reinhart's theory predicts that it can only appear in the non-scrambled position. If a contrastively focused noun phrase is assumed to bear old information, the prediction is that it can only appear in the scrambled position. The fact that a contrastively focused noun phrase may appear in either position is unexpected within Neeleman and Reinhart's analysis.

The review of some of the literature on scrambling in this section highlights the complicated facts about the distribution of the object. The question about what is the best account of scrambling remains open and an examination of the positionings of the object in Chinese will hopefully narrow down the possible accounts of scrambling. As a starting

point of comparison, I assume for the purpose of this chapter that the descriptive generalization for German and Dutch scrambling is that definites and indefinites may or may not scramble depending on the information structure of the sentence (Neeleman and Reinhart (to appear)).

3.   Object scrambling in Chinese

In this section, I present the distribution of the object in relation to the duration/frequency phrases (DFPs) in Chinese. As I argued in Chapter 2, object scrambling in Chinese involves the leftward movement of the object. The derivation of scrambling is repeated in (35).

(35)   Leftward Movement of the Object (Kung 1993, J.W. Lin 1994b)

a.   Base structure: Subject DFP V DP

        Derived structure   (i)   Subject V_j DFP t_j DP

                             (ii)   Subject V_j DP_i DFP t_j t_i

b.

The distribution of the object exhibits the same pattern as that in Dutch and German. Whether the definite object may scramble or not depends on the discourse context (Neeleman and Reinhart, to appear). There is evidence that indefinites may scramble given a special focus context. As in the case of German, a focusing adverb such as *zhi* 'only' in Chinese affects the distribution of the object associated with it. In Chinese, the noun phrase associated with *zhi* 'only' must scramble. There are certain definites and indefinites which are not possible in the non-scrambled position. I propose that unlike a regular sentence final position, the post-DFP position in Chinese must be stressed.[12]

3.1   Scrambling of definite noun phrases

Objects which may appear before or after the DFP include demonstrative noun phrases, proper names, certain quantificational phrases and modified noun phrases. Examples are given below.

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[12] I discuss why stress shift is not possible in the post-DFP position in Chinese in section 5.

(36) Demonstrative

    a.   wo qing-guo   [na-ge ren]   [liang ci].   Mandarin

        I   invite-PERF that-CL person two time

        'I have invited that person twice.'

    b.   wo qing-guo   [liang ci] [na-ge ren].   Mandarin

        I   invite-PERF two time that-CL person

        'I have invited that person twice.'

(37) Proper name

    a.   wo qu-guo   [Meiguo] [liang ci].   Mandarin

        I   visit-PERF US   two time

        'I have visited US twice.'

    b.   wo qu-guo   [liang ci] [Meiguo].   Mandarin

        I   visit-PERF two time US

        'I have visited US twice.'

(38) Quantificational phrase

    a.   wo qing-guo   [quanbu de xuesheng] [liang ci].   Mandarin

        I   invite-PERF all   DE student   two time

        'I have invited all students twice.'

    b.   wo qing-guo   [liang ci] [quanbu de xuesheng].   Mandarin

        I   invite-PERF two time all   DE student

        'Twice, I have invited all students.'

(39)   Modified noun phrase

a.   wo chi-guo [hei se de ji rou] [liang ci].   Mandarin

I   eat-PERF black color DE chicken meat   two time

'I have eaten black chicken meat twice.'

b.   wo chi-guo [liang ci] [hei se de ji rou].   Mandarin

I   eat-PERF two time black color DE chicken meat

'I have eaten black chicken meat twice.'

Modified noun phrases have a generic interpretation before and after the DFP.

While the object may appear in either the scrambled or the non-scrambled order in isolation, there are certain contexts which strongly prefer a particular word order.[13] When a familiar definite is established as old information in a preceding utterance, this object appears before the DFP rather than after the DFP even though without context the object may appear in either position.

(40)   Q: ni   qu-guo   Beijing ma?   Mandarin

you   visit -PERF Beijing Q

'Have you visited Beijing?'

---

[13] The position of the noun phrase also determines certain preferences in scope.

    (i)   wo qing-guo   [ta de pengyou] [liangci].
        I   invite-PERF he DE friend   twice
        'I have invited his friend twice.'
    (ii)   wo qing-guo   [liang ci] [ta de pengyou].
        I   invite-PERF two time he DE friend
        'Twice, I have invited his friend.'

There are two possible readings: (a) the same friend got invited twice; (b) two different friends got invited each time. For (i), the preferred reading is (a) and for (ii), the preferred reading is (b), although both readings are available in (i) and (ii).

a. #wo qu-guo [yi ci] [Beijing].   Mandarin

    I visit-PERF one time Beijing

    'I have been to Beijing once.'

b. wo qu-guo [Beijing] [yi ci].   Mandarin

    I visit-PERF Beijing one time

    'I have visited Beijing once.'

A referential definite must also scramble as shown in (41).

(41) Q: ni jian-guo na-ge dai yanjing de ren   ma?   Mandarin

    you see-PERF that-CL wear glasses DE person Q

    'Have you seen the person who wear glasses?'

a. #wo jian-guo [liang ci] [na-ge   ren].   Mandarin

    I   see PERF two time   that-CL person

    'I have seen that person twice.'

b. wo jian-guo [na-ge   ren]   [liang ci].   Mandarin

    I see-PERF that-CL person   two time

    'I have seen that person twice.'

The examples above show that the post-DFP position is not open to noun phrases which bear old information (non-focus). An object which bears old information must move to the pre-DFP position.

What about an object which bears new information? Does it scramble or not? A standard way of ensuring that the object bears new information is to set up a context where the object is questioned.

(42) Q: Who does John like?

A: John likes **Mary**.

The object *Mary* corresponds to the wh-word *who* and *Mary* bears new information in the above example. It is difficult to use the question-answer pair in Chinese to determine if the object noun phrase which bears new information scrambles or not. This is because Chinese wh-words stay in-situ and there is a parallel structure effect with respect to question-answer pair. When the wh-word precedes the DFP in the question, the preferred answer has the object corresponding to the wh-word in the pre-DFP position. When the wh-word follows the DFP in the question, the preferred answer has the object appearing after the DFP.

(43) Q: ni   qing-guo   [shei] [liang ci]?   Mandarin

you invite-PERF who   two time

'Who have you invited twice?'

A: wo qing-guo   [Xiaoming] [liang ci].   Mandarin

I   invite-PERF Xiaoming   two time

'I have invited Xiaoming twice.'

A: # wo qing-guo   [liang ci]   [Xiaoming].   Mandarin

I   invite-PERF two time Xiaoming

'I have invited Xiaoming twice.'

(44) Q: ni qing-guo [liang ci] [shei] ? Mandarin

you invite-PERF two time who

'You have invited WHO twice?'

A: wo qing-guo [liang ci] [Xiaoming]. Mandarin

I invite-PERF two time Xiaoming

'I have invited Xiaoming twice.'

A: #wo qing-guo [Xiaoming] [liang ci]. Mandarin

I invite-PERF Xiaoming two time

'I have invited Xiaoming twice.'

One way to ensure that the object bears new information is to ask a question which requires an IP focus. In such a scenario, both the scrambled and the non-scrambled orders are appropriate as answers.

(45) zhenme la? ni kan qi lai hen shiwang de yangzi. Mandarin

what happened? you appear very disappointed DE look

'What happened? You look very disappointed.'

a. wo jintian zao-le [wo de fangdong] [liang ci]. ta dou bu zai.

I today look-for PERF I DE landlord two time he all not in

'I have looked for my landlord twice today. He is not in (both times).'

b.   wo jintian zao-le   [liang ci] [wo de fangdong]. ta dou bu zai.

        I today look-for PERF two time I DE landlord   he all   not in

        'I have looked for my landlord twice today. He is not in (both times).'

This indicates that while the post-DFP position is occupied only by noun phrases with new information, the pre-DFP position can be occupied by noun phrases which bear either old or new information.

(46) a.   V   DP   DFP

                [+/-focus]

       b.   V   DFP   DP

                            [+focus]

A further support for such a classification comes from an indefinite such as *shenmeren* 'anyone'. *Anyone* cannot be old information in the sense that it does not establish a link with a previous discourse referent. While *anyone* may not be good information focus by itself (see Neeleman and Reinhart, to appear), it together with other elements in the sentence can provide new information. The fact that *anyone* can appear in either the scrambled or the non-scrambled position suggests that the scrambled position is not closed to noun phrases with new information.

(47) a.   Ruguo ni jian-dao [shenme ren]   [liang ci],   Mandarin

          if   you see PRT what   person   two time,

          yi ding yao gaosu wo.

          must want tell   me

          'If you see anyone twice, you must tell me.'

b.   Ruguo ni jian-dao [liang ci] [shenme ren],   Mandarin

if   you see PRT two time what   person,

yi ding yao   gaosu wo.

must   want tell   me

'If you see anyone twice, you must tell me.'

The generalization seems to be that the post-DFP object (base position) must bear new information while the pre-DFP object (scrambled position) may or may not bear new information. There may be a counter-example to this generalization depending on whether contrastive focus is interpreted as bearing new or old information. If a contrastive focus bears new information, the fact that a contrastively focused noun phrase in Chinese may appear in either the scrambled or the non-scrambled position, as shown in (48), provides further support for the generalization in (46).

(48)   a.   wo jian-le   [xiaozhang] [liang ci], bushi xunyuzuren. Mandarin

I   meet-PERF headmaster two time not   disciplinary teacher

'I met with the headmaster twice, not the disciplinary teacher.'

b.   wo jian-le   [liang ci]   [xiaozhang], bushi xunyuzuren. Mandarin

I   meet-PERF two time headmaster not   disciplinary teacher

'I met with the headmaster twice, not the disciplinary teacher.'

However, one may argue that a noun phrase with contrastive stress bears old information since there is a previously established referent with which the contrast is made. If a contrastively focused noun phrase bears old information, the generalization in (46) expects a contrastively focused noun phrase to appear before the DFP, and not after the DFP. This

expectation is not consistent with the facts and it seems that if we assume that a noun phrase with contrastive focus bears old information, some connection must be drawn between (46) and stress. In section 5, I build on the result from section 3.3 that the post-DFP position must bear stress and argue that stress-shift from the post-DFP position is impossible. While both anaphoric noun phrases and contrastive focus bear old information, they differ in their stress. A stress shift operation is needed when the object is an anaphoric noun phrase since it cannot be stressed (Neeleman and Reinhart (to appear)). As a result, only the scrambled order is possible. When the object is contrastively focused, no stress shift operation is needed. The object does not need to scramble.

3.2   Scrambling of indefinite noun phrases

In general, bare noun phrases can only appear after the DFP. There appear to be two types of bare noun phrases which have been grouped together in previous discussions in the literature. One type has been referred to as 'non-referential noun phrases' (Liu 1990, Kung 1993 among others). These noun phrases together with the verb form an activity reading and they appear after the DFP.

(49)   a.   wo mai-guo [liang ci]   [cai].   Mandarin

I buy-PERF two   time   vegetable

'I have gone to the market twice.'

        b.   wo mai-guo   [cai]   [liang ci].   Mandarin

I   buy-PERF vegetable two   time

*?'I have gone to the market twice.'

?'I have bought vegetables twice.'

(50) a. ni rang ta chi [zheme duo ci] [cu].   Mandarin

      you let she eat this   many time vinegar

      ni xiang ta   hui kaixin ma?

      you think she can happy Q

      'You let her be jealous so many times. Do you think that she is happy?'

      b. ni rang ta chi [cu]   [zheme duo ci].   Mandarin

      you let she eat vinegar   this   many time

      ni xiang ta   hui kaixin ma?

      you think she can happy Q

      *?' You let her be jealous so many times. Do you think that she is happy?'

      ?' You let her eat vinegar so many times. Do you think that she is

      happy?'

When these bare noun phrases appear before the DFP, a non-referential activity reading is no longer possible. These sentences are marginal with a generic interpretation in noun phrases which allow a generic reading such as those in (49) and (50).

The second type of bare noun phrases are generics and they do not allow the 'non-referential' activity reading. These noun phrases do not appear to exhibit as strong a violation as 'non-referential' noun phrases when they appear before the DFP.

(51) a. wo chi-guo [liang ci] [she rou].   Mandarin

      I eat-PERF two time   snake meat

      'I have eaten snake meat twice.'

b.   ?wo chi-guo [she rou] [liang ci].   Mandarin

      I   eat PERF snake meat two time

      'I have eaten snake meat twice.'

(52) a.   wo zhu-guo   [liang ci] [lüguan].   Mandarin

      I   stay-PERF two time hotel

      'I have stayed in hotels twice.'

b.   ?wo zhu-guo   [lüguan] [liang ci].   Mandarin

      I stay-PERF hotel   two time

      'I have stayed in hotels twice.'

That these two types of bare noun phrases are different is also evidenced in the phonological phrasing of the Hokkien dialect of Chinese. While both types of bare noun phrases are required to be within the same phonological phrase as the preceding DFP in the sequence [V DFP object] in Hokkien, there is a slight contrast between these two types of bare noun phrases.

(53) a.   gua pang-liao ng pai = lio.   Hokkien V_i DFP = t_i OBJ

      I   place-PERF two time urine

      'I have urinated twice.'

b.   *gua pang-liao ng pai # lio.   Hokkien   *V_i DFP # t_i OBJ

      I   place-PERF two time urine

      'I have urinated twice.'

(54) a.   gua jia?-ke   ng pai = jua   ba?   Hokkien V_i DFP = t_i OBJ

      I   eat-PERF two time   snake meat

      'I have eaten snake meat twice.'

      b.   ??gua jia?-ke   ng pai # jua   ba? Hokkien   ??V_i DFP # t_i OBJ

            I   eat-PERF two time   snake meat

      'I have eaten snake meat twice.'

The generic noun phrases do not sound as bad as the 'non-referential' bare noun phrases when they are not within the same phonological phrase as the DFP (compare (54b) and (53b)).[14] The fact that activity bare noun phrases behave differently from generic bare noun phrases seems to be quite consistent.

Like an indefinite in German which may scramble when the noun phrase bears contrastive focus, an indefinite in Chinese may also scramble in the context of contrastive focus as observed by Feng (1995). Unlike cases in (49) and (50) where the indefinite receives a generic reading when it scrambles (and the idiomatic reading is unavailable), there are cases where the 'non-referential activity' reading remains when the object is scrambled. The examples are due to Feng (1995:18-19). Feng (1995) observes that while in normal circumstances, non-referential bare noun phrases may not appear before the DFP ((55) and (56)), these noun phrases may appear before the DFP given a particular context of focus ((57) and (58)) . In (57) and (58), according to Feng (1995), the numeral expressions are the foci and are stressed.[15]

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[14] In fact, one of the informants I consulted assigns a phrase break after the DFP when the following noun phrase is generic, but not when the following noun phrase is 'non-referential'.

[15] I have changed some of the glosses for consistency.

(55) A: Zenme huishi a?   Mandarin

          what   thing PRT

          'What happened?'

      B. *ta da-le   [guanggun] [yi   beizi].

           he do-PERF bachelor   one life

           'He is a bachelor for his whole life.'

(56) A. Zenme huishi a?   Mandarin

          what   thing PRT

          'What happened?

      B. *Ta kang-ie   [hun]   [san   nian].

          she reject-PERF marriage three year

          'She rejected marriage for three years.'

(57)   wo ning yuan da [guanggun] [yi beizi]. (Chuangyeshi)   Mar darin

          I   rather   do bachelor   whole life

          'I'd rather be a bachelor for my whole life.'

(58)   ta bu hui kang [hun]   [san nian]. (Chuangyeshi)   Mandarin

          she not will reject marriage three year

          'She will not reject marriage for three years.'

guanggun 'bachelor' and *hun* 'marriage' do not have a generic interpretation. An activity reading remains in these examples.

Like the case of German, focusing adverbs such as *only* affect the distribution of the object in Chinese. As noted in section 2.4, in German, an indefinite <u>may</u> scramble (or <u>must</u> scramble according to Uli Sauerland, p.c.) when it is associated with focusing operators such as *only* and *even* (Moltmann 1991). In Chinese, a noun phrase which is associated with *zhi* 'only' <u>must</u> occupy the scrambled position, which is the position before the DFP.

(59) a.   wo zhi jian-guo [Noam Chomsky] [liang ci].   Mandarin

I   only see-PERF Noam Chomsky   two time

(i)   'I have <u>only</u> seen <u>Noam Chomsky</u> twice.'

(ii)   'I have <u>only</u> seen Noam Chomsky <u>twice</u>.'

b.   wo zhi jian-guo [liang ci] [Noam Chomsky].   Mandarin

I   only see-PERF two time Noam Chomsky

(i)   *'I have <u>only</u> seen <u>Noam Chomsky</u> twice.'[16]

(ii)   'I have <u>only</u> seen Noam Chomsky <u>twice</u>.'

I suggest in Chapter Five that the reason why the noun phrases associated with *zhi* 'only' cannot appear in the post-DFP position in Chinese is because the DFP in Chinese blocks LF movement across it (Beck 1996a,b).

3.3   Stress and the post-DFP position

Certain definite and indefinite noun phrases may not appear after the DFP. There is evidence that the post-DFP position must bear stress (Kung 1993). Stress in Chinese is realized in the length of the vowel (Duanmu 1990). I suggest that certain noun phrases

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[16] * here means that the reading where 'only' is associated with 'Noam Chomsky' is not available. It does not indicate that the English sentence is ungrammatical.

may not appear in the post-DFP position because the post-DFP position must be stressed. This stress requirement allows us to account for the contrast between *shei* 'who/anyone' and *shenme ren* 'what person/anyone' in the post-DFP position. It also explains why pronouns and reflexives must scramble.

There is a contrast between the pre-DFP position and the post-DFP position with respect to the licensing of a wh-indefinite. Pre-DFP wh-word *shei* 'who' can be licensed as an indefinite by the polarity licenser *ruguo* 'if', but post-DFP *shei* 'who' cannot.

(60)　a.　　Ruguo ni jian-dao [shei]　[liang ci],　　　　　Mandarin

　　　　　if　　you see-PRT who two　time

　　　　　yiding yao　gaosu wo.

　　　　　must　want　tell　me

　　　　　'If you see anyone twice, you must tell me.'

　　　b.　　*Ruguo ni　jian-dao [liang ci]　[shei], yiding yao　gaosu wo.[17]

　　　　　　if　　you see-PRT two time　who　must　want tell　me

　　　　　　'If you see anyone twice, you must tell me.'

This asymmetry does not apply to *shenme ren* 'what person'. *Shenme ren* 'what person' in both the pre- and the post-DFP positions can be licensed as an indefinite.

(61)　a.　　Ruguo ni jian-dao [shenme ren]　[liang ci],　　　　Mandarin

　　　　　if　you see PRT what　person two time,

　　　　　yiding yao gaosu wo.

　　　　　must　want tell me

　　　　　'If you see anyone twice, you must tell me.'

---

[17] The sentence is fine with an echo question reading.

b.   Ruguo ni jian-dao [liang ci] [shenme ren], yiding yao gaosu wo.

       if   you see PRT two time what person, must want tell me

       'If you see anyone twice, you must tell me.'

Kung (1993) observes that a specific noun phrase after the DFP must bear stress (or have a rich content, for example as when modified by a relative clause). I extend this observation to include all noun phrases (not just specific noun phrases). In other words, all post-DFP noun phrases must bear stress. This prosodic requirement allows us to make sense of the contrast between *shei* 'who' and *shenme ren* 'what person'.

(60b) is bad because there are two conflicting requirements for *shei* 'who' as a wh-indefinite in the post-DFP position. For a wh-word to be licensed as a wh-indefinite, the wh-word must be unstressed (Yeh 1986, Wang and Hua 1997). One can disambiguate the reading between a wh-question and a wh-indefinite by the presence or the absence of stress.

(62) a.   ta mei xiang   SHEI jie   qian.   Mandarin

             he not towards who borrow money

             'Who didn't he borrow money from?'   Stress on wh-word

      b.   ta mei xiang   SHEI jie   qian.   Mandarin

             he not towards who borrow money

             'He didn't borrow money from anyone.'   No stress on wh-word

For a noun phrase to appear in the post-DFP position, the noun phrase must be stressed. Because *shei* 'who' cannot be simultaneously stressed and unstressed, *shei* 'who' cannot be licensed as a wh-indefinite after the DFP. *Shenme ren* 'what person' can be licensed as

a wh-indefinite in the post-DFP position because *shenme* 'what' can remain unstressed with the head noun *ren* 'person' bearing stress for the noun phrase.

This stress requirement also accounts for the distribution of pronouns and reflexives. The pronoun *ta* 'he' and the reflexive *ziji* 'self' cannot appear after the DFP while *ta de N* 'his N' and *ziji de N* 'self's N' can.

(63) a. wo jian-guo   [ta/ta de taitai] [liang ci].   Mandarin

  I see -PERF he/he DE wife   two time

  'I have seen him/his wife twice.'

  b. wo jian-guo [liang ci] [*ta/ta de   taitai].   Mandarin

  I see-PERF two time he/he DE wife

  'I have seen *him/his wife twice.'

(64) a. ta ma-guo   [ziji/ziji de taitai] [liang ci].   Mandarin

  he scold-PERF self/self DE wife two time

  'He has scolded himself/his wife twice.'

  b. ta ma-guo   [liang ci] [??ziji/ziji de taitai]. Mandarin

  he scold-PERF two time   self/self DE wife

  'He has scolded ??himself/his wife twice.'

Assuming the condition on discourse anaphora which requires that a D-linked element be destressed (Neeleman and Reinhart, to appear), pronouns in their non-contrastive reading must not be stressed.[18] Because the post-DFP position is a stress position, pronouns and

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[18] When pronouns and reflexives are contrastively focused, they can appear after the DFP.

  (i) wo jian-guo   liang ci   TA, bu shi NI.

  I see-ASP two time he   not BE you

  'I have seen HIM twice, not YOU.'

reflexives are not acceptable in the post-DFP position. They are acceptable when appearing as possessors since the head nouns can bear stress for the entire noun phrase.[19]

The interpretation of wh-words provides further evidence that the noun phrase in the post-DFP position must be stressed. The wh-phrase after the DFP has an echo question reading; while the wh-phrase before the DFP may or may not have an echo question reading depending on whether the wh-phrase bears extra stress (but see Feng (1995)).[20] [21]

(65)   a.   ni jian-dao [shei/shenme ren]   [liang ci]?   Mandarin

           you see-PRT who/what person two time

           'Who did you see twice?'

       b.   ni   jian-dao [liang ci] [shei/shenme ren]?   Mandarin

           you see-PRT two time who/what   person

           'You saw WHO twice?'

Because the post-DFP position must be stressed, and an echo question is licensed by extra stress, it is not surprising that an echo question reading is available for (65b).

(ii)   ta ma-guo   liang ci   ZIJI, bu shi BIEREN.
         he scold-ASP two   time self   not BE others
         'He has scolded HIMSELF twice, not OTHERS.'

[19] Tang (1994) proposes that pronouns cannot appear in the post-DFP position because they carry old information. My analysis carries this one step further by suggesting that pronouns which bear old information are prohibited in the post-DFP position because they cannot bear stress in their non-contrastive use.

[20] Feng (1995) suggests that the pre-DFP position must be unstressed with sentences with normal stress pattern.

[21] I assume three levels of stress:
       (i)   zero stress--wh-indefinites
       (ii)   stress--wh-questions
       (iii)   maximum stress--echo questions

The stress on the post-DFP position is unlike the stress on any regular sentence final position. While the stress on the post-DFP position cannot be shifted, the stress on the final position of a regular sentence can be shifted to the verb. This is shown in (66).

(66) a. Ruguo ni JIAN-dao shei , yiding yao gaosu wo.   Mandarin

          if   you see-PRT who must want tell   me

          'If you see anyone, you must tell me.'

      b. wo JIAN-guo   ta.   Mandarin

          I   see -PERF he

          'I have seen him.'

The noun phrases *shei* 'anyone' and *ta* 'he' appear in the final position and they are not stressed. The stress falls on the verb in the sentences above. Examples in (66) indicate that stress shift is possible from the object to the verb when the object is not preceded by a duration/frequency phrase.

4.   Object scrambling in Chinese and theories of scrambling

This section examines how the observations about Chinese scrambling bear on the theories of scrambling presented in section 2.

4.1   Diesing (1992, 1997), Diesing and Jelinek (1995)

If we assume that the DFP marks the left edge of the (topmost) VP, the Mapping Hypothesis expects the indefinite noun phrase before the DFP to have a different interpretation from the indefinite noun phrase after the DFP. The indefinite noun phrase

before the DFP is predicted to receive a generic reading while the indefinite noun phrase after the DFP is expected to receive an existential reading. This prediction is not borne out in Chinese. An indefinite noun phrase may receive a generic reading in the non-scrambled position as shown in (67), repeated from (39).

(67) a.   wo chi-guo [hei se de ji rou] [liang ci].   Mandarin

         I   eat-PERF black color DE chicken meat two time

         'I have eaten black chicken meat twice.'

b.   wo chi-guo [liang ci] [hei se de ji rou].   Mandarin

         I   eat-PERF two time black color DE chicken meat

         'I have eaten black chicken meat twice.'

The cases where there is a difference in reading between the scrambled and the non-scrambled orders involve idiomatic expressions. In these cases, only the non-scrambled order allows the idiomatic reading while the noun phrase in the scrambled order has a generic interpretation. I repeat the relevant example from (50) below.

(68) a.   ni rang ta chi [zheme duo ci] [cu].   Mandarin

         you let she eat this many time vinegar

         ni xiang ta hui kaixin ma?

         you think she can happy Q

         'You let her be jealous so many times. Do you think that she is happy?'

b.   ni   rang ta chi [cu]   [zheme duo   ci].   Mandarin

you let   she eat   vinegar this   many time

ni   xiang ta   hui kaixin ma?

you think   she can happy Q

*?' You let her be jealous so many times. Do you think that she is happy?'

?' You let her eat vinegar so many times. Do you think that she is

happy?'

For non-referential activity noun phrases, when a contrastive context allows the indefinite to scramble, there is no difference in terms of the interpretation of the noun phrase.

(69) a.   ta   bu hui kang [hun]   [san   nian] (Chuangyeshi)   Mandarin

she not will reject marriage   three years

'She will not reject marriage for three years.'   (Feng 1995)

b.   ta   kang-le   [san   nian] [hun].   Mandarin

she reject-PERF three year   marriage

'She has rejected marriage for three years.'

One may argue that the DFP does not mark the edge of the (topmost) VP and if that is the case, it is not necessary for the noun phrase preceding the DFP to have a different interpretation from the noun phrase following the DFP. If the DFP marks the edge of the lowest VP as I will show in Chapter Four, then given the Mapping Hypothesis, one expects a generic reading of an indefinite noun phrase to be not possible either before or after the DFP. This prediction is contrary to fact.

4.2   Neeleman and Reinhart (to appear)

Neeleman and Reinhart (to appear) assume that scrambling is more economical than stress-shift in achieving the desired stress pattern and focus set. They show that in Dutch stress shift is possible when the sentence does not have adverbials. When there is an adverb present in the sentence, stress shift becomes impossible and the object must scramble to be destressed (Neeleman and Reinhart, to appear). This is because if scrambling can achieve the same result as stress shift, the scrambling operation, which is more economical, must be adopted.

(70)   a.   Ik heb het **gelezen**   Dutch

        I have it read

        'I have read it.'

        b.   Ik heb het gisteren **gelezen**   Dutch

        I have it yesterday read

        'I have read it yesterday.'

        c.   # Ik heb gisteren   het **gelezen**   Dutch

        I have yesterday it   read

        'I have read it yesterday.'

A question remains as to why stess shift is even available in Dutch if scrambling is more economical (Noam Chomsky, personal communication). The stress pattern in (70a) should be possible by scrambling the object. There should be no intances where stress shift is utilized instead of scrambling. One way to maintain a competition between stress shift and

scrambling is to assume that phonology cannot detect vacuous scrambling (Michael Kenstowicz, personal communication). Given that object scrambling in the absence of adverbs does not have any phonological effect, phonology may not know that scrambling has applied. Main stress is assigned to the object followed by a stress shifting operation. There is however evidence that phonology <u>can</u> detect vacuous movement in Tangale (Kenstowicz, 1987). The idea that scrambling is more economical needs further elaboration.

As shown in section 3.3, a similar pattern is observed in Chinese. The stress on the object can be shifted to the verb when there is no DFP in the sentence, but when the object appears after the DFP, the stress on the object cannot be shifted. I do not adopt the idea that scrambling is more economical than stress shift in the analysis of object scrambling in Chinese. I show in section 5 that the object may not shift its stress when it is preceded by a DFP because of a certain constraint on when stress shift is possible.

Neeleman and Reinhart's proposal correctly predicts a difference between Dutch and Chinese. In Dutch, when the verb bears contrastive stress, only the scrambled word order is acceptable. This is because scrambling of the object achieves the effect of placing main stress on the verb, given that the verb is the most deeply embedded element in the sentence after object scrambling.

(71) a. Ik heb het boek gisteren **gelezen,** en niet verscheurd Dutch

          I have the book yesterday read,   and not torn-up

          'I have read the book yesterday, instead of tearing it up.'

      b. #Ik heb gisteren het **boek** <u>gelezen,</u> en niet verscheurd Dutch

          I have yesterday the book read   and not torn-up

          'I have read the book yesterday, instead of tearing it up.'

In Chinese, either the scrambled or the non-scrambled order is fine when the verb bears contrastive focus.

(72) a. wo shuo wo mai-guo   [na zhong dangao] [liang ci],   Mandarin

I say   I buy-PERF that kind cake   two time

bu shi mai-guo na zhong dangao.[22]

not be sell-PERF that kind cake

'I said I bought that kind of cake twice, not sold that kind of cake.'

b. wo shuo wo mai-guo   [liang ci] [na zhong dangao],   Mandarin

I   say I   buy-PERF two time that kind cake

bu shi mai-guo   na zhong dangao.

not be sell-PERF that kind cake

'I said I bought that kind of cake twice, not sold that kind of cake.'

(73) a. wo zhi shi   ma-le   [na ge ren]   [liangci].   Mandarin

I   only FOC scold-PERF that CL person two time

you   mei you da ta.

PRT not have hit him

'I only scolded that person twice. (I) didn't hit him.'

b. wo zhi shi   ma-le   [liang ci] [na-ge ren].   Mandarin

I   only FOC scold-PERF two time that CL person

you mei you da ta.

PRT not have hit him

'I only scolded that person twice. (I) didn't hit him.'

---

[22] *Mai* 'buy' bears tone 3 and *mai* 'sell' bears tone 4.

The reason either order is acceptable is because scrambling of the object in Chinese does not affect the stress on the verb. Whether the object scrambles or not, the verb is still not the most-deeply embedded element in the sentence. Stress strengthening is applied on the verb instead of scrambling.[23]

4.3   van der Does and De Hoop

Recall that van der Does and De Hoop argue that predicative indefinites must be semantically incorporated to the verb in order to be interpretable (see also van Geenhoven, to appear). Syntactic adjacency between the indefinite object and the verbal predicate is a reflex of the process of semantic incorporation. Because predicative indefinites must be adjacent to the verb, they cannot appear in the position preceding the adverb as shown in (74).

(74)   a.   dat ik nog een plas moet doen   Dutch

              that I still a   piss must do

              'that I still have to take a piss.'

---

[23] While Neeleman and Reinhart's (to appear) theory predicts correctly the difference between Dutch and Chinese in the distribution of the object when the verb bears contrastive focus, it seems to predict incorrectly that there should be no preference between the scrambled and the non-scrambled orders when the verb in V2 position bears contrastive focus. The preference seems to remain when the verb is contrastively focused as shown in (a) and (b) (Thanks to Fleur Veraart for judgment and discussion). As I will discuss in section 7, my analysis also cannot explain this preference.

      (i)   Ik las   het boek gisteren, in plaats van het te verscheuren.

              I read the book yesterday instead   of it   to tear-up

              'I read the book yesterday, instead of tearing it up.'

      (ii)   ???Ik las   gisteren   het boek, in plaats van het te verscheuren.

               I read yesterday the book   instead   of   it to tear-up

              'I read yesterday the book, instead of tearing it up.'

b.   *dat ik een plas nog moet doen   Dutch

that I a   piss still must do

'that I still have to take a piss.'   (van der Does and De Hoop 1998)

The adjacency condition of semantic incorporation however does not extend straightforwardly to Chinese given the formulation in van der Does and De Hoop (1998). This is because the verb and the predicative object in Chinese are not adjacent. They are split by the DFP.

(75) a.   wo yi xiaoshi nei   xiao-le   [san ci] [bian].   Mandarin

I one hour   within do-PERF three time piss

'I have taken a piss three times within the hour.'

b.   *wo yi xiaoshi nei   xiao-le   [bian] [san ci].   Mandarin

I   one hour   within do-PERF piss   three time

'I have taken a piss three times within the hour.'

One may try to maintain the same condition in Dutch and Chinese by assuming that the adjacency requirement is between the original copy of the verb (and not necessarily the overt verb) and the object. Because the verb raises from a position between the DFP and the object (Huang 1994a,b, 1996), there is a copy of the verb which is adjacent to the predicative object in Chinese. Assuming that there is verb raising in Dutch, the adjacency condition is also one between the original copy of the verb and the object. As Kai von Fintel (personal communication) points out, the fact that the order in (74a) between the verb and the modal is *moet doen* 'must do' rather than *doen moet* 'do must' suggests that verb raising does occur in Dutch.[24] For this modification on the adjacency condition to work,

---

[24] The ordering between the verb and the modal in German is different from the one in Dutch. The order is verb-modal rather than modal-verb (Kai von Fintel, personal communication).

one must make the problematic assumption that somehow the copy of the verb has a different status from the copy of an object. This is because if the copy of an object counts for the adjacency requirement, there is nothing which prohibits a predicative indefinite from scrambling.

van der Does and De Hoop's (1998) proposal that indefinites do not scramble because of semantic incorporation faces a further problem. If the activity bare noun phrase appears in the post-DFP position because of semantic incorporation, then no amount of informational structure manipulation should allow the activity bare noun phrase to appear before the DFP.

(76)   ta bu hui kang hun   san nian (Chuangyeshi)   Mandarin

            she not will reject marriage three years

            'She will not reject marriage for three years.'   (Feng 1995)

Despite semantic incorporation in (76), the noun phrase can still scramble given a particular focus context. van der Does and De Hoop allow indefinites to appear in the scrambled position. In those cases, the indefinites have a generic interpretation. The fact that an activity bare noun phrase may appear before the DFP without losing its activity reading is problematic for van der Does and De Hoop's proposal.

5.   An account of scrambling

5.1   Scrambling and stess shift

I propose in this section that the possibility of scrambling in Chinese is related to the licensing condition of stress shift. I assume following Ladd (1996) that deaccenting/stress shift involves a reversal of the relative strength of constituents in a sister relation. Unlike

Ladd (1996), I assume that the switching of the prominence relation makes reference to a head-complement relation and affects syntactic constituents rather than constituents in a metrical tree. I propose that stress shift is possible between a head-complement pair but not between sisters which do not have a head-complement relation. The effects are that the stress of the object can be "shifted" to the verb, but not to the adverb.[25] The relation between the possibility of stress-shift and scrambling is as follows: a stress position that does not allow stress-shift cannot be occupied by an object that must be unstressed (e.g. anaphoric elements).

Following Cinque (1993), I assume that the most deeply embedded constituent receives the main stress. In the case of sisters, the one selected by the other is more deeply embedded. Thus in both Chinese and Dutch, the object is more deeply embedded than the verb and it receives the main stress.

In Chinese, the stress on the object can be "shifted" to a preceding verb, but not to a preceding adverb. In (77), the object which must not be stressed (in its unmarked reading) appears in a position where stress shift is possible. The prominence relation between the verb and the object can be switched.

(77) a.   wo jian-guo   ta   Mandarin

           I   see -PERF   he

           'I have seen him'

---

[25] I use the term "shifted" to indicate the effects of stress shift. This effect is achived by switching the prominence relation of a pair of constituent as proposed by Ladd (1996).

b.

vP
(s)

v   VP
V$_i$ (s)
(w)
        t$_i$ DP
               (s)

$\longrightarrow$

vP
(s)

v   VP
V$_i$ (w)
(s)
        t$_i$ DP
               (w)

The mechanism is as follows: First, stress is assigned to the object since it is the most deeply embedded constituent in Cinque's sense. The stress on the object is strong (S) in relation to the verb which is weak (W). The object cannot switch its stress with a phonologically null element. But the VP which dominates the object may switch its relative strength with the light verb given that it is a complement of the light verb. Once the VP bears a weak stress, one of the element it dominates must be weak. This is to rule out configuration such as (78).

(78)

*

vP
(s)

v   VP
V$_i$ (w)
(s)
        t$_i$ DP
               (s)
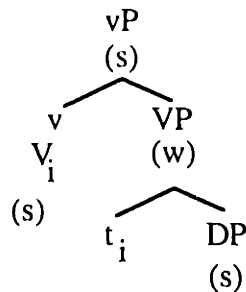
Given that the object noun phrase is the only phonologically overt element it dominates, the object noun phrase must change its strength from (S) to (W).

In (79), the object appears in a position that does not receive stress. No switching of the prominence relation is necessary.

(79)　　a.　　wo jian-guo ta liang ci.　　　　　　　　　　Mandarin

　　　　　　I　see-PERF he two time

　　　　　　'I have seen him twice.'

b.
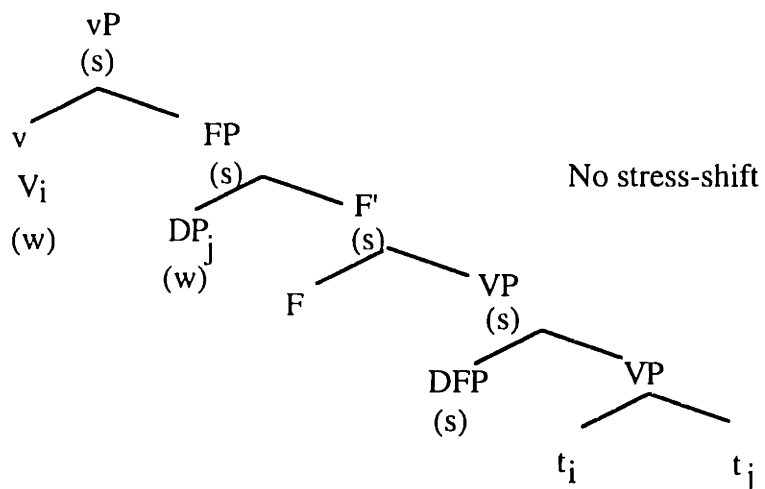
No stress-shift

In (80), the object appears in a position where stress-shift is not possible. The prominence relation between the object and the adverb cannot be switched.

(80)　　a.　　*wo jian-guo liang ci ta.　　　　　　　　　　Mandarin

　　　　　　I　see-PERF　two time he

　　　　　　'I have seen him twice.'

b.
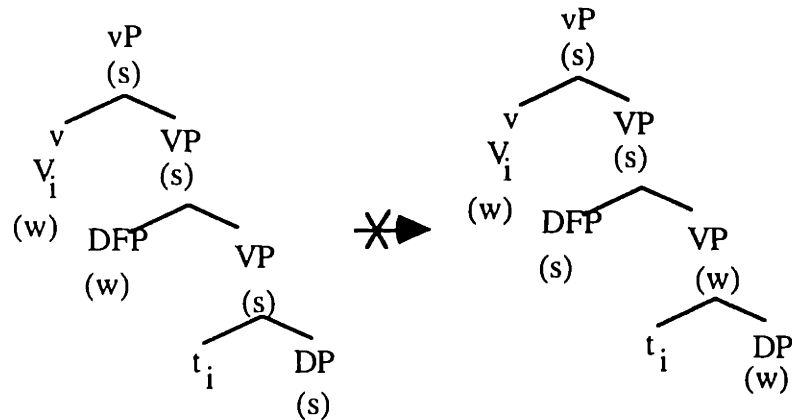
The way this is determined is as follows: First, the object cannot switch its relative strength with its sister which is a null element (and hence has no relative prominence). The VP dominating the object noun phrase cannot switch its relative strength with the DFP because the DFP is neither its complement nor its head. The VP dominating the DFP may switch its relative strength with the light verb as shown in (81). Once the VP bears a weak stress, there is nothing which forces the object noun phrase to change its strength in this configuration. This is because the DFP which is weak is dominated by the VP. The structure is licensed with the stress on the object noun phrase in the original position.

(81)

Because it is not possible to shift the stress from the object to the preceding DFP, an object in the post-DFP position cannot be one which must be unstressed. This view of scrambling allows us to make sense of the distribution of the object in terms of information structure presented in (46) repeated below. [-focus] constituents cannot appear after the DFP because they are old information and hence cannot bear stress.

(82) (=46)　　a.　　V　　DP　　　　　　　DFP

　　　　　　　　　　　　[+/-focus]

　　　　　　　b.　　V　　DFP　　　　　　DP

　　　　　　　　　　　　　　　　　　　　　[+focus]

This analysis also accounts for why pronouns and the wh-indefinite *shei* 'who' cannot appear after the DFP and why a wh-word receives an echo question reading after the DFP as discussed in section 3.3.

The pattern of stress shift in Dutch is similar (Neeleman and Reinhart, to appear). In the following discussion, I assume that the verb in Dutch does not raise.[26] As (83) shows, the object may "shift" its stress to the following verb since the verb and the object are in a head-complement relation.

(83)　　a.　　Ik heb　het **gelezen**　　　　　　　　　　　Dutch

　　　　　　　I　have it　read

　　　　　　　'I have read it.'

---

[26] Notice that in section 4.3, I suggest that there is evidence that verb raising occurs in Dutch. The presence of verb raising will not affect the outcome of the possibility of stress shift as long as the verb does not raise to a position higher than the adverb. However, if the verb raises to a position higher than the adverb, then the pattern of stress shift in Dutch will be the same as in Chinese: the non-scrambled position in both languages will not allow stress shift to occur. I leave more careful examination of the position of the raised verb in Dutch for future work.

b.

```
        VP                              VP
        (s)                             (s)
       /  \         ──►               /   \
     DP    V                        DP     V
     (s)  (w)                       (w)   (s)
```

In (84), no stress shift is necessary given that the object does not appear in the most deeply embedded position.

(84)   a.   Ik heb   het gisteren **gelezen**   Dutch

                I have it yesterday read

                'I have read it yesterday.'

b.

```
         FP
         (s)
        /   \
      DP_j   F'                    No stress-shift
      (w)   (s)
           /   \
          F     VP
                (s)
               /   \
             ADV    VP
             (w)    (s)
                   /   \
                  t_j    V
                        (s)
```
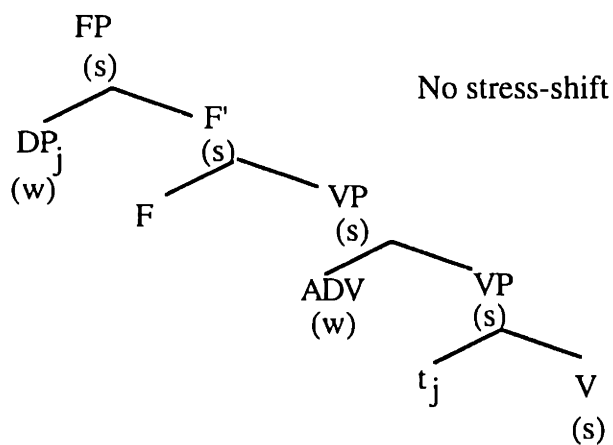
The interesting case comes from (85). Stress shift should be possible in (85), and yet the sentence with stress shift and no scrambling is unacceptable.

(85) a. # Ik heb gisteren het **gelezen**   Dutch

I have yesterday it read

'I have read it yesterday.'

b.

VP
(s)
ADV   VP
(w)   (s)
DP   V
(s) (w)

$\longrightarrow$

VP
(s)
ADV   VP
(w)   (s)
DP   V
(w) (s)
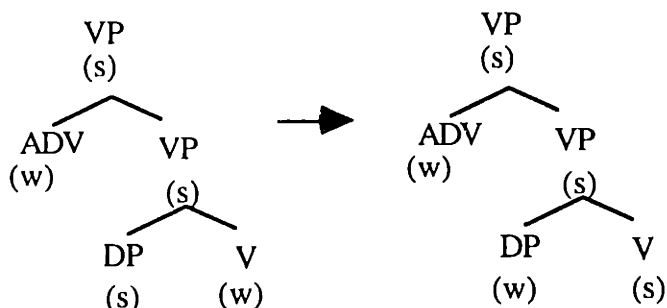
It seems that the restriction on when stress shift may apply is enough to account for the Chinese scrambling data while something in addition to the restriction on stress shift is needed for Dutch. Neeleman and Reinhart's (to appear) answer for why (85) is bad is based on the stipulation that stress shift is more costly than scrambling. Whenever scrambling can achieve the same effect as stress shift, scrambling operation must apply. (85) is bad because it violates the economy condition by using stress shift rather than scrambling to avoid placing stress on the object. Given that the explanation is based on a stipulation, the problem seems to remain open.

To summarize, I propose that a stress position where stress shift is not possible does not allow noun phrases which must be unstressed. For example, D-linked noun phrases cannot bear stress (Neeleman and Reinhart, to appear) and they cannot appear in the post-DFP position. In a context where the object may bear stress (e.g. when the object bears new information), the object may appear in either the scrambled or the non-scrambled order.

5.2 Some differences between Chinese and Dutch scrambling

As shown above, the non-scrambled position in Chinese differs from that in Dutch in that stress shift is impossible from the non-scrambled position (when a DFP is present) in Chinese while it is possible for Dutch. The difference in the possibility of stress shift is not surprising given the different syntax in these two languages. The non-scrambled object position in Chinese with DFP is not adjacent to the surface verb as it is intervened by the DFP, while the non-scrambled object position in Dutch is adjacent to the surface verb. The difference in the possibility of stress shift allows us to make sense of a contrast between the wh-indefinites in Chinese and *someone/anyone* in Dutch and German. Neeleman and Reinhart (to appear) note that in Dutch and German, *someone* and *anyone* do not scramble. Instead they receive a secondary stress while the stress on the verb is strengthened. This is argued to be due to the uninformativeness of the object, which cannot be focused.

(86) a. Have you **eaten** *anything* this morning

b. Heb je vanmorgen *iets* **gegeten?**   Dutch
have you this morning anything eaten
'Have you eaten anything this morning?'

b'. #Heb je iets vanmorgen **gegeten?**   Dutch
have you anything this morning eaten

(87)   a.   Have you **seen** *anybody* here?

        b.   Ben je   hier *iemand*   **tegengekomen?**   Dutch

                   are you here someone met

                   'Have you seen anybody here?'

        b'.   #Ben je iemand   hier **tegengekomen?**   Dutch

                   are you someone here met

Neeleman and Reinhart (to appear) argue that b' in (86) and (87) are bad because when the object appears before the adverb, it must be interpreted as D-linked. Given that the indefinite *anything* and *someone* cannot be D-linked, the sentences are ruled out.[27]

Unlike Dutch and German, wh-indefinite *shenmeren* 'what person' in Chinese may appear in either the scrambled or the non-scrambled position; while the wh-indefinite *shei* 'who' may only appear in the scrambled position.

(88)   a.   Ruguo ni jian-dao [shenme ren]   [liang ci],   Mandarin

                 if   you see PRT what   person   two time,

                 yi ding yao gaosu wo.

                 must want tell   me

                 'If you see anyone twice, you must tell me.'

---

[27] It is not clear that the object preceding the adverb must be interpreted as D-linked as the examples in Reinhart (1995) show.

    (i)   dat elke arts   wel een of andere ziekte (meestal) met plezier behandelde.

           that every doctor some disease or other   (usually) happily   treated

           'that every doctor usually treated some disease or other happily.'

    (ii)   dat elke   arts   een ander ziekte (altijd) met penicilline behandelde

           that every doctor another   disease (always) with penicillin treated

           'that every doctor always treated another disease with penicillin.'

The indefinite above does not appear to have a D-linked reading and yet they are fine before the adverb.

b.   Ruguo ni jian-dao [liang ci]   [shenme ren],   Mandarin

if   you see PRT two time   what   person,

yi ding yao gaosu wo.

must   want tell   me

'If you see anyone twice, you must tell me.'

(89)   a.   Ruguo ni   jian-dao [shei] [liang ci],   Mandarin

if   you see-PRT who   two   time

yiding yao gaosu wo.

must want tell   me

'If you see anyone twice, you must tell me.'

b.   *Ruguo ni   jian-dao [liang ci] [shei],   Mandarin

if   you see-PRT two time who

yiding yao gaosu wo.[28]

must want tell   me

'If you see anyone twice, you must tell me.'

Because stress-shift is not possible from the non-scrambled position in Chinese, the wh-indefinite *shei* 'who' cannot appear in the non-scrambled position since it cannot be stressed. The wh-indefinite *shenme ren* 'what person' is fine in the non-scrambled position since it is possible to leave *shenme* 'what' unstressed by placing stress on the head noun (see section 3.3). Dutch and German *anyone* and *someone* are fine in the base position because stress shift is possible in Dutch and German.

Another difference between Chinese and Dutch scrambling occurs when the verb bears contrastive focus. The object must scramble in Dutch (Neeleman and Reinhart, to

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[28] The sentence is fine with an echo question reading.

appear), while the object may appear in either the scrambled or the non-scrambled position in Chinese.

(90)(=22)   a.   Ik heb het boek gisteren **gelezen,** en niet verscheurd   Dutch

I have the book yesterday read,   and not torn-up

'I have read the book yesterday, instead of tearing it up.'

              b.   #Ik heb gisteren het **boek** gelezen, en niet verscheurd   Dutch

I   have yesterday the book read   and not torn-up

'I have read the book yesterday, instead of tearing it up.'

(91)   a.   wo zhi shi ma-le   [na-ge ren]   [liang ci].   Mandarin

I   only FOC scold-PERF that CL person two time

you mei you da ta.

YOU not have hit him

'I only scolded that person twice. (I) didn't hit him.'

          b.   wo zhi shi ma-le   [liang ci]   [na-ge ren].   Mandarin

I   only FOC scold-PERF two   time   that CL person

you mei you da ta.

YOU not have hit him

'I only scolded that person twice. (I) didn't hit him.'

This difference is not surprising given the different VP structures in Dutch and Chinese. In Dutch, having stress on the verb can be achived by either (a) switching the prominence relation of the object-verb pair or (b) scrambling the object noun phrase.

(92) a. Stress shift

```
        VP                              VP
        (s)                             (s)
       /  \                            /  \
   ADV      VP          ➤         ADV      VP
   (w)      (s)                   (w)      (s)
           /  \                          /  \
         DP    V                       DP    V
         (s)   (w)                     (w)   (s)
```

  b. Scrambling

```
        FP
        (s)
       /    \
     DP_j    F'                    No stress-shift
     (w)    (s)
           /   \
          F     VP
                (s)
               /   \
            ADV      VP
            (w)      (s)
                    /   \
                  t_j    V
                         (s)
```
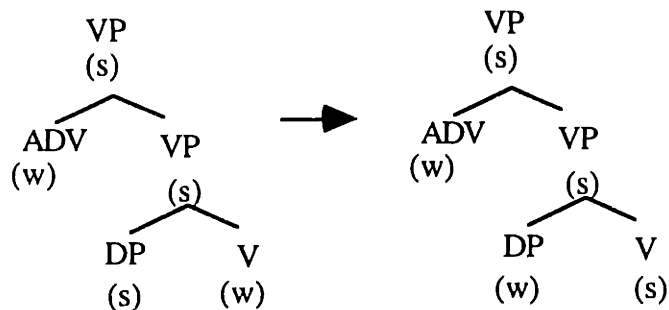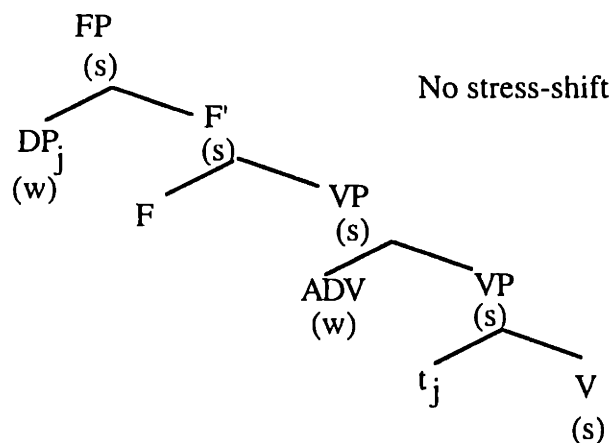
According to Neeleman and Reinhart's (to appear) economy account, scrambling must be chosen as the means to achieve the effect of stressing the verb.

In Chinese, placing stress on the verb can be achieved by switching the relative prominence of the verb and the constituent dominating the adverb-DP pair. Whether or not scrambling occurs, the switching of the prominence relation remains possible. Scrambling operation alone does not achieve the result of placing stress on the verb in Chinese. As a result, either order is fine when the verb bears contrastive focus in Chinese.

(93)   a.   Stress-shift

vP (s)
  v
  V$_i$ (w)
  VP (s)
    DFP (w)
    VP (s)
      t$_i$
      DP (s)

$\longrightarrow$

vP (s)
  v
  V$_i$ (s)
  VP (w)
    DFP (w)
    VP (s)
      t$_i$
      DP (s)

b.   Stress-shift

vP (s)
  v
  V$_i$ (w)
  FP (s)
    DP$_j$ (w)
    F' (s)
      F
      VP (s)
        DFP (s)
        VP
          t$_i$ t$_j$

$\longrightarrow$

vP (s)
  v
  V$_i$ (s)
  FP (w)
    DP$_j$ (w)
    F' (s)
      F
      VP (s)
        DFP (s)
        VP
          t$_i$ t

In sum, the differences between Dutch and Chinese are differences that are due to the different VP structures in these two languages. The same principles which govern scrambling in Dutch and German seem to apply in Chinese.

6.   An apparent problem

An apparent problem with the proposed analysis involves the distribution of the bare noun phrases. These noun phrases appear after the DFP and yet they do not seem to bear the main stress. This is unexpected given the analysis proposed. The analysis predicts that stress is on the noun phrase following the DFP and the stress on the post-DFP position cannot be shifted.

(94)   a.   ta xiao-le   [liang ci]   [bian].   Mandarin
              he take-PERF two   time   piss
              'He took a piss twice.'

        b.   ta jie-le   [liang ci]   [hun].   Mandarin
              he get-PERF two   time   married
              'He got married twice.'

There is evidence that the bare noun phrase does not occupy the post-DFP position. Rather, it is cliticized to the preceding DFP. The evidence comes from phonological phrasing in Hokkien, which is a dialect of Chinese. In particular, bare noun phrases behave differently from other noun phrases in their phonological phrasing in relation to the preceding DFP.

6.1   Cliticization of the bare object: Evidence from phonological phrasing in Hokkien

Phonological phrasing in Hokkien is indicated by the behaviors of tones in the language (Chen 1987, Zhang 1992, J.W. Lin 1994a, Duanmu 1995, Soh, to appear(a)). Within a

phonological phrase, all syllables change their tones to sandhi tones except for the right most syllable (Duanmu 1995). The sandhi rule is formulated as follows.

(95)   Tone Sandhi Rule (Chen 1987)

$T_{base} \rightarrow T_{sandhi} /$ ___ T #

Previous analyses of tone sandhi phenomena in Hokkien share the basic insight that tone sandhi in Hokkien is sensitive to syntactic information (Chen 1987, Zhang 1992, J.W. Lin 1994a). The exact nature of this syntactic information and the rule governing phonological phrasing in Hokkien is debated however. For example, Chen (1987) argues that the functional distinction between arguments and adjuncts is necessary to appropriately account for the sandhi facts. His analysis is summarized in (96).

(96)   Tone Group Formation (TGF) (Chen 1987)

a.   Mark the right edge of every XP with #, except where XP is an adjunct c-commanding a lexical head.

b.   XP is an adjunct of Y, if XP

(i) appears in [...XP...]$_{YP}$ and

(ii) is not a strictly subcategorized argument of Y

c.   A c-commands B if the first branching node dominating A also dominates B

J.W. Lin (1994a), on the other hand, argues that the distinction between arguments and adjuncts is not necessary for the determination of the domain of tone sandhi. He formulates a phrasing parameter for Hokkien tone sandhi using the notion of lexical government.

(97)   Hokkien Chinese Phrasing Parameter

   $]_{Xmax}$, X^{max} not lexically governed.   (J.W. Lin 1994a)

With this formulation, a phonological boundary is inserted at the right of an XP which is not lexically governed.

Despite the disagreement about the exact formulation of the phonological phrasing rule, it is generally agreed that sentential adverbs are phrased differently from VP-adverbs. Sentential adverbs are distinguished from VP-adverbs by the fact that VP-adverbs are obligatorily post-subject while sentential adverbs can appear on either side of the subject. Sentential adverbs are followed by a phrase boundary while VP adverbs are not as shown in (98). The presence of a phrase boundary is indicated by # and the absence of it is indicated by =.

(98)   a.   S-adverbs   Hokkien

              gua kai-tsai #   tse   tsit pan ki   (Chen 1987)   S-adverb # V

              I   fortunately take this CL flight

              'Fortunately, I am taking this flight.'

        b.   VP-adverbs   Hokkien

              yi luan-tsu   = kong   (Chen 1987)   VP-adverb = V

              he mindlessly   talk

              'He is talking mindlessly.'

Within Chen's (1987) analysis, the phrasing distinction between a VP-adverb and an S-adverb follows from (96a). A VP adverb is an adjunct c-commanding the lexical head V. Thus, no phrase boundary is inserted after a VP adverb. An S-adverb however c-commands the head INFL which is not lexical. Thus, a phrase boundary is inserted after

an S-adverb. Within J.W. Lin's analysis summarized in (97), a phrase boundary is not inserted on the right of a VP-adverb because the VP-adverb is governed by the lexical head V. A phrase boundary is inserted on the right of an S-adverb because the S-adverb is not governed by a lexical head since INFL is functional.[29]

It is not clear whether DFPs should pattern like VP-adverbs or S-adverbs. One may suggest that DFPs pattern like VP-adverbs since they modify VPs. Given the above analyses and depending on the structures assigned to [V DFP object] , one may expect that DFPs are within the same phrase as the following noun. This prediction covers a wide range of data observed in Hokkien. However, certain variations in the phrasing are not predicted given that the rules allow the DFP to be either followed by a phrase boundary or not followed by a phrase boundary. They are unable to handle variations on the phrasing of the DFP which depend on the type of the following noun phrase. This means that in addition to (either one of) the rules governing phonological phrasing in Hokkien Chinese, something else is needed to account for the variations in the phrasing of the [DFP object] sequence. I suggest that one of the factors contributing to the variations in the phrasing of the [DFP object] sequence is cliticization.

Among the speakers I consulted, there are two main dialect groups: Dialect A and Dialect B.[30] In both Dialect A and Dialect B, bare noun phrases are phrased differently from other noun phrases in the context where the DFP is contrastively focused. Unlike Dialect A, bare noun phrases in Dialect B also behave differently from other noun phrases

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[29] Chomsky (personal communication) suggests that the distinction in the phonological phrasing between VP-adverbs and S-adverbs may be due to the fact that VP-adverbs modify the V while S-adverbs modify the IP. The idea is that because VP-adverbs modify the verb, they are to be phrased with the following V. Since S-adverbs do not modify the verb, they do not phrase with the following V.

[30] I consulted a total of 10 speakers of Hokkien (including the author) in this study (some more extensively than others). Among these speakers, 5 are from Malaysia, 1 is from Singapore and 1 is from China (Xiamen) and 3 are from Taiwan. The dialectal difference cannot be split according to countries since in one country, there are speakers of both dialects. It seems that the dialect split depends on which part of the Fujian Province the speakers' ancestors come from. 1 speaker from Malaysia, 2 speakers from Taiwan, the speaker from Singapore and the speaker from Xiamen are speakers of Dialect A. 4 speakers from Malaysia (including the author, a family member and two relatives) and 1 speaker from Taiwan who speaks Chuenzou dialect are speakers of Dialect B.

when the DFP is not contrastively focused. I present the data on the phrasing of the [DFP object] sequences in Dialect A and Dialect B below.

6.2   Dialect A

The phonological phrasing in Dialect A distinguishes indefinite bare noun phrases from other noun phrases when the DFP is contrastively focused. (99)-(101) show that when the DFP is focused, a phrase break is not possible with bare noun phrases in contrast to other noun phrases.

(99)   Contrastive Focus   Hokkien

a.   gua pang liao   NG PAI = lio.   m   si   sa   pai. V_i **DFP** = t_i OBJ

I   place PERF two time   urine not COP three time

'I have urinated twice, not three times.'

b.   *gua pang liao   NG PAI # lio.   m   si   sa   pai.   *V_i **DFP** # t_i OBJ

I   place PERF two time   urine not COP three time

'I have urinated twice, not three times.'

(100) Contrastive Focus   Hokkien

a.   i   khɨ ke   NG PAI = Bikok V_i **DFP** = t_i OBJ

he go PERF two time   US

'He has been to the US twice.'

b.   i   khⱵ ke   NG PAI # Bikok V_i **DFP** # t_i **OBJ**

       he go   PERF two time   US

       'He has been to the US twice.'

(101)   Contrastive Focus   Hokkien

      a.   Ah Hong hua   ke   NG PAI = hit   tng chia. V_i **DFP** =t_i **OBJ**

           Ah Hong drive PERF two time   that CL car

           'Ah Hong has driven that car twice.'

      b.   Ah Hong hua   ke   NG PAI # hit   tng chia. V_i **DFP** # t_i **OBJ**

           Ah Hong drive PERF two time   that CL car

           'Ah Hong has driven that car twice.'

When the DFP is not contrastively focused, there is no distinction between indefinite bare noun phrases and other noun phrases in terms of phonological phrasing. (102)-(104) show that all noun phrases are within the same phonological phrase as the DFP when there is no contrastive focus on the DFP.

(102)   a.   Hokkien

           gua pang liao   ng   pai = lio. V_i **DFP** = t_i **OBJ**

           I   place   PERF two time urine

           'I have urinated twice.'

      b.   Hokkien

           *gua pang liao   ng   pai # lio.   *V_i **DFP** # t_i **OBJ**

           I   place PERF two times urine

           'I have urinated twice.'

(103) a.   Hokkien

i khɨ ke   ng pai =Bikok V_i DFP = t_i OBJ

he go PERF two time US

'He has been to the US twice.'

b.   Hokkien

*i khɨ ke   ng pai # Bikok   *V_i DFP # t_i OBJ

he go PERF two time US

'He has been to the US twice.'

(104) a.   Hokkien

Ah Hong hua ke   ng pai = hit-tng chia. V_i DFP = t_i OBJ

Ah Hong drive PERF two time that-CL car

'Ah Hong has driven that car twice.'

b.   Hokkien

*Ah Hong hua ke   ng pai # hit-tng chia.   *V_i DFP # t_i OBJ

Ah Hong drive PERF two time that-CL car

'Ah Hong has driven that car twice.'

The phonological phrasing in Dialect A is summarized in (105).

(105)   Object Noun Phrases and their Phrasing with respect to DFPs

	Neutral context	Focus on DFP
Group I (i) Bare noun phrases a. Activity	V_i DFP = t_i OBJ	V_i DFP = t_i OBJ
b. Non-activity	V_i DFP = t_i OBJ	V DFP = t_i OBJ
Group II (i) Proper names	V_i DFP = t_i OBJ	V_i DFP = t_i OBJ
		V_i DFP # t_i OBJ
(ii) Modified noun phrases	V_i DFP = t_i OBJ	V_i DFP = t_i OBJ
		V_i DFP # t_i OBJ
(iii) Demonstratives	V_i DFP = t_i OBJ	V_i DFP = t_i OBJ
		V_i DFP # t_i OBJ
(iv) Quantified noun phrases	V_i DFP = t_i OBJ	V_i DFP = t_i OBJ
		V_i DFP # t_i OBJ

6.3   Dialect B

Phonological phrasing in Dialect B distinguishes three groups of noun phrases following the DFP. I label them Group I, Group II.1 and Group II.2. Group I consists of bare noun phrases. Group II.1 includes proper names and modified noun phrases while Group II.2 includes quantified and demonstrative noun phrases.

Group I which consists of bare noun phrases are within the same phonological phrase as the DFP when the DFP is contrastively focused. A phonological phrase boundary cannot be inserted after the DFP when it is contrastively focused.

(106) Contrastive Focus   Hokkien

    a.   gua pang liao NG PAI = lio. m si   sa   pai. V_i **DFP** = t_i OBJ

        I   place PERF two times   urine not COP three time

        'I have urinated twice, not three times.'

    b.   *gua pang liao NG PAI # lio. m si   sa   pai.   *V_i **DFP** # t_i OBJ

        I   place PERF two times urine not COP three time

        'I have urinated twice, not three times'

This is in contrast to noun phrases in Group II.1 and Group II.2 as shown in (107) and (108). When the DFP is focused, the presence of a phrase break after the DFP is preferred in noun phrases from Group II.1 and Group II.2.

(107) Contrastive Focus: Proper names   Hokkien

    a.   ???i khɨ ke   NG PAI =Bikok. m si   sa   pai. ???V_i **DFP** = t_i OBJ

        he go PERF two time   US   not COP three time

        'He has been to the US twice, not three times.'

    b.   i khɨ ke   NG PAI # Bikok. m si   sa   pai. V_i **DFP** # t_i OBJ

        he go PERF two time   US   not COP three time

        'He has been to the US twice, not three times.'

(108) Contrastive Focus: Demonstrative noun phrase   Hokkien

    a.   ?*Ah Hong hua   ke   ng   pai =hit-tng chia.   *V_i **DFP** = t_i OBJ

        Ah Hong drive PERF two time that-CL car

        'Ah Hong has driven that car twice.'

b. Ah Hong hua ke ng pai # hit-tng chia. V_i DFP # t_i OBJ

   Ah Hong drive PERF two time that-CL car

   'Ah Hong has driven that car twice.'

The difference between Dialect A and Dialect B involves the phonological phrasing of the object noun phrase with the preceding DFP in a neutral context. In Dialect A, there is no distinction in phrasing among the different types of object noun phrases. In Dialect B, the different types of noun phrases show different phrasing behaviours with respect to the preceding DFP. The bare noun phrases (Group I) must be within the same phonological phrase as the preceding DFP (as in Dialect A).

(109) a. Hokkien

   gua pang-liao ng pai = lio. V_i DFP = t_i OBJ

   I place-PERF two time urine

   'I have urinated twice.'

  b. Hokkien

   *gua pang-liao ng pai # lio.   *V_i DFP # t_i OBJ

   I place-PERF two time urine

   'I have urinated twice.'

Noun phrases in Group II.1 (proper names and modified noun phrases) may or may not appear within the same phonological phrase as the DFP.[31] There seems to be a preference

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[31] Modified noun phrases include noun phrases modified by a possessive, an adjective and a relative clause. The modifiers are introduced by the modification marker E in Hokkien which is the correspondence of DE in Mandarin.

for the noun phrase to be within the same phonological phrase as the DFP, although this preference is not strong.

(110) Proper names (non-human)   Hokkien

    a.   i kh$\pm$-ke   ng pai = Bikok V_i DFP $= t_i$ OBJ

        he go-PERF two time US

        'He has been to the US twice.'

    b.   ??i kh$\pm$-ke   ng pai # Bikok   ??V_i DFP # t_i OBJ

         he go-PERF two time US

        'He has been to the US twice.'

Noun phrases in Group II.2 which includes the demonstrative and quantified noun phraes must be phrased separately from the preceding DFP.

(111) Demonstrative noun phrase   Hokkien

    a.   Ah Hong hua-ke   ng pai # hit-tng chia. V_i DFP # t_i OBJ

        Ah Hong drive-PERF two time that-CL car

        'Ah Hong has driven that car twice.'

    b.   ?*Ah Hong hua-ke   ng pai =hit-tng chia.   *V_i DFP $= t_i$ OBJ

        Ah Hong drive-PERF two time that-CL car

        'Ah Hong has driven that car twice.'

The phrasing facts in Dialect B are summarized in (112).

(112) Object Noun Phrases and their Phrasing with respect to DFPs

	Neutral context	Focus on DFP
Group I (i) Bare noun phrases		
a. Activity	V_i DFP = t_i OBJ	V_i DFP = t_i OBJ
b. Generics	V_i DFP = t_i OBJ	V_i DFP = t_i OBJ
Group II.1 (i) Proper names	V_i DFP=t_i OBJ ??V_i DFP # t_i OBJ	V_i DFP # t_i OBJ ???V_i DFP= t_i OBJ
(ii) Modified noun phrases	V_i DFP=t_i OBJ ??V_i DFP # t_i OBJ	V_i DFP # t_i OBJ ???V_i DFP = t_i OBJ
Group II.2 (i) Demonstratives	V_i DFP # t_i OBJ	V_i DFP # t_i OBJ
(ii) Quantified noun phrases	V_i DFP # t_i OBJ	V_i DFP # t_i OBJ

6.4 Evidence for cliticization

While it is not clear what contributes to certain differences between Dialect A and Dialect B in terms of its phonological phrasing, Dialect A and Dialect B share the fact that a bare noun phrase must be within the same phonological phrase as the preceding DFP. The fact that a bare noun phrase must be phrased together with the preceding DFP even in the context of contrastive focus (which generally inserts a phonological phrase break after the DFP) suggests that the bare noun phrase is cliticized to the preceding DFP. Because the bare noun phrase is cliticized to the preceding DFP, it does not occupy the post-DFP position and it does not need to bear main stress. The apparent problem with the proposed analysis is solved.

6.5   An account for the distribution of bare noun phrases

Like van der Does and De Hoop (1998), I suggest that the distribution of indefinite bare noun phrases receives a separate account from the distribution of the definite noun phrases. Recall that an indefinite bare noun phrase object generally cannot scramble and that scrambling is only possible given a special focus context (Feng 1995). I propose that bare noun phrase objects do not freely scramble because they are required to cliticize to a preceding DFP. The only time this requirement is relaxed is when the DFP is focused. There is a preference for a phonological phrase break after the DFP when the DFP is contrastively focused as shown above. Because a phonological phrase break cannot be inserted after the DFP when a bare noun phrase is cliticized to it, the bare noun phrase is allowed to ignore the cliticization requirement. The bare noun phrase however cannot remain in the base position since it would bear stress and receives a focus interpretation. The bare noun phrase may move to the scrambled position when the DFP is focused, allowing the DFP to be following by a phonological phrase break.

7.   A real problem?

The comparison between the positionings of the object in Chinese and object scrambling in Dutch and German has been conducted so far by examining the distribution of the object in embedded clauses in Dutch/German or in main clauses with an auxiliary where the verb appears in the final position. The position of the verb in the above cases is in contrast to the position of the verb in matrix clauses in the absence of an auxiliary where the verb raises to the V2 position, and appears before the object. My analysis in terms of the relation between the possibility of stress shift and scrambling faces some problems when one considers matrix clauses in Dutch and German in the absence of auxilliary.

The ordering of the verb in relation to the object and the adverb in main clauses in Dutch and German (in the absence of auxiliary) parallels the ordering of the verb in relation to the object and the DFP in Chinese: [V ADV object] or [V object ADV]. Given the proposed analysis, one predicts that stress shift from the object is not possible when the order is [V ADV object] in Dutch/German. This means that the distribution of the object in Dutch and German main clauses should behave like the one in Chinese. Specifically, the differences between Dutch/German and Chinese as discussed in section 5 should disappear once we consider the distribution of the object in matrix clauses in Dutch and German where the verb appears in V2. As shown in section 5, the distribution of the object in Chinese differs from Dutch/German in the following respects: (i) *someone* and *anyone* in Dutch/German do not scramble while the wh-indefinites *someone* and *anyone* in Chinese may remain in the non-scrambled position once a requirement on stress is satisfied; (ii) when the verb bears contrastive focus in Dutch/German, the scrambled order is preferred. There does not appear to be such a preference in Chinese. The prediction that the differences between Dutch/German and Chinese should disappear in matrix clauses receives mixed results. The prediction does not appear to be borne out in German but may be borned out in Dutch to a certain extent. The preferences found in embedded clauses with scrambling or non-scrambling seem to be also found in matrix clauses where the verb appears in V2 in German.[32] In the case of Dutch, there may be some indication that a certain preference in embedded clause is not so strong in the matrix clause, in accordance with the proposed analysis.

Consider first the difference between Dutch/German and Chinese in terms of the distribution of *anyone/someone* and *anything/something*. When the verb is in the final position, there is a preference for *anything* to appear in the non-scrambled position.

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[32] Thanks to Uli Sauerland and Fleur Veraart for judgments and discussion.

(113) a.   Hast Du heut morgen etwas   gegessen?   German

             have you this   morning anything eaten

             'Have you eaten anything this morning?'

b.   #Hast Du etwas   heut morgen gegessen?   German

             have you anything this morning eaten   (Uli Sauerland, p.c.)

(114) a.   Heb je   vanmorgen *iets*   **gegeten**?   Dutch

             have you this morning anything eaten

             'Have you eaten anything this morning'

b.   #Heb je   iets   vanmorgen **gegeten**?   Dutch

             have you anything this morning eaten

This preference remains in German when the verb is raised to V2. *Something/anything* prefers to remain in the non-scrambled position.

(115) a.   Isst Du heut morgen   etwas.   German

             eat you this   morning something

             'You ate something this morning.'

b.   #Isst Du etwas   heut morgen.   German

             eat you something this morning

             'You ate something this morning.'   (Uli Sauerland, p.c.)

In the case of Dutch, while the scrambled order remains marked for *something/anything*, the sentence seems to be fine. In other words, the contrast between the scrambled and the non-scrambled orders is reduced when the verb is not in the final position.

(116) a.   Ik at   vanmorgen   iets.   Dutch

           I   ate this morning something

           'I ate something this morning.'

     b.   Ik at   iets   vanmorgen.   Dutch

           I ate something this morning

           'I ate something this morning.'   (Fleur Veraart, p.c.)

This reduced contrast is in accordance with the proposed analysis.

The second difference between Dutch/German and Chinese discussed in section 5 concerns cases where the verb bears contrastive focus. When the verb bears contrastive focus in Dutch, the scrambled order is preferred.

(117) a.   Ik heb   het boek gisteren   **gelezen**, en   niet verscheurd   Dutch

           I   have the book yesterday read,   and   not   torn-up

           'I have read the book yesterday, instead of tearing it up.'

     b.   #Ik heb   gisteren   het **boek** gelezen, en   niet verscheurd   Dutch

           I   have yesterday the   book   read   and not torn-up

           'I have read the book yesterday, instead of tearing it up.'

This is in contrast with Chinese where no strong preference is detected between the scrambled and the non-scrambled orders when the verb is contrastively focused. The

proposed analysis predicts that when the verb is in the V2 position in Dutch, the preference for the scrambled order is reduced. This prediction does not seem to be confirmed as the scrambled order is still the preferred order when the verb is in V2 position.[33]

(118) a.   Ik las het boek gisteren, in plaats van het te verscheuren.

          I read the book yesterday instead of it to tear-up

          'I read the book yesterday, instead of tearing it up.'

    b.   ???Ik las gisteren het boek, in plaats van het te verscheuren.

          I read yesterday the book instead of it to tear-up

          'I read yesterday the book, instead of tearing it up.' (Fleur Veraart, p.c.)

Some of the complications in comparing the differences between Dutch/German and Chinese may be due to the different adverbs used. In Chinese, the adverbs which are used to detect whether scrambling has occurred are duration/frequency phrases (DFPs). These adverbs occupy a particularly low position in the clause structure. In Dutch and German, the adverbs which are used include time adverbials such as *yesterday*, and adverbs such as *indeed*. They may occupy a structurally higher position than the DFPs. It may turn out that some of the differences between Dutch/German and Chinese disappear once we control for the height of the adverbs in a particular structure. I leave the confirmation of this hypothesis for future work.

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[33] There may be a difference between Dutch and German in the context where the verb is contrastively focused. Uli Sauerland (p.c.) does not find a strong contrast between the scrambled and the non-scrambled orders when the verb is contrastively focused. There is no difference in this lack of preference whether the verb is in the final position or in V2. This judgment is not in accordance with my analysis and it seems to be problematic also for Neeleman and Reinhart's (to appear) analysis.

8. Some previous analyses

The distribution of the object noun phrase in relation to the DFP has been widely studied in Chinese. I present some previous analyses in this section and show certain problems encountered by each analysis.

8.1 Tang (1990, 1994)

8.1.1 The proposal

Tang (1990) observes that the DFP can precede or follow the complement when the complement is definite. If the complement is generic/bare noun phrase, the DFP must precede it. Tang (1990:34) considers indefinites (involving numeral classifiers) to be impossible either before or after the DFP.[34] Tang (1990:156) suggests that the direct object preceding the DFP tends to be interpreted as a theme and the DFP following it tends to be interpreted as a rheme. Because indefinite noun phrases generally cannot act as a theme in Chinese, they are excluded from the pre-DFP position. As for why generic noun phrases are not allowed before the DFP, Tang assumes that generic noun phrases are indefinite. The impossibility of generic noun phrases before the DFP has to do with some processing difficulty with both an indefinite theme and an indefinite and quantificational DFP as rheme. Tang (1994) has an interesting analysis for why non-referential bare noun phrase cannot appear before the DFP. She draws a connection between bare plurals in English and non-referential bare noun phrases in Chinese. In the English example below, the sentence has an activity reading and the noun phrase *books* cannot outscope the DFP.

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[34] Sybesma (1997) shares Tang's (1990) judgment. Tang (1994) finds a numeral classifier-N with a specific interpretation possible before and after the DFP. This is different from Feng (1995) and my own judgment. I find a numeral classifier noun fine before the DFP (with a specific interpretation), but unacceptable after the DFP (unless there is enough modification for the noun to be interpreted as specific).

(119)   He read books for two hours/three times.

Assuming the General Scope Principle in Huang (1982), stated in (120), Tang argues that [V object DFP] is out because the object has wide scope over the DFP in the order [V object DFP]. [V DFP object] is fine because the object is within the scope of the DFP.[35]

(120)   General Scope Principle

Where α and β are both scope-bearing elements, if α c-commands β at S-S, then α also c-commands β at LF.

As for why indefinites are prohibited after the DFP, Tang (1990) suggests that at PF, the DFP-direct object sequences tend to be reinterpreted as that of numeral-classifier phrases and head nouns. The head noun following the numeral-classifier phrases can be either generic or definite, but cannot be indefinite as shown in (121).

(121)   a.   ta mai-le   yi-xiang [shu].   Mandarin

                he buy-PERF one-CL book

                'He bought one box of books.'

        b.   *ta mai-le   yi-xiang [yi-zhong shu].   Mandarin

                he buy PERF one-CL one-CL book

        c.   ta mai-le   yi xiang [zhe yi-zhong shu].   Mandarin

                he buy PERF one-CL   this one-CL   book

                'He bought one box of this kind of books.'

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[35] I simplify the analysis somewhat. See Tang 1994 for details.

The reason why the same restrictions are found in DFP-direct object sequence is argued to be due to this reanalysis. Note that the account claims that the reanalysis takes place at PF and that at DS and SS, DFPs and direct objects do not form a constituent.

8.1.2   Some problems

If Tang's explanation in terms of PF reanalysis is correct, we expect the DFP and the object noun phrase to behave the same in terms of phonological phrasing as that of the numeral-classifier and the head noun. The Hokkien dialect of Chinese is a good candidate for determining if this prediction is correct since the phonological phrasing in Hokkien can be identified easily by tone sandhi. As discussed in section 6.1, in Hokkien, the right most segment of a phonological phrase retains its base tone while the rest of the segments in the phonological phrase bear sandhi tone. In both Dialect A and Dialect B, the head noun is phrased together with the classifier as shown below.

(122) a.   yi buey-liao tsit-thang= iu.   Hokkien

               he buy-PERF one-CL   oil

               'He has bought one bucket of oil.'

       b.   yi buey-liao tsit-thang= tsit-jion iu.   Hokkien

               he buy-PERF one-CL   this-CL oil

               'He has bought one bucket of this kind of oil.'

Unlike the numeral-classifier sequence, the DFP in Hokkien Dialect B does not necessarily phrase with the object noun phrase. The DFP is within the same phrase as the non-specific object, but it is within a separate phrase from the demonstrative object as shown in (123).

(123) a. gua hua-ke   ng pai = jun.   Hokkien

       I   drive-PERF two time boat

       'I have driven a boat twice.'

       b. gua hua-ke   ng pai # hit-tng   jun.   Hokkien

       I   drive-PERF two time that-CL boat

       'I have driven that boat twice.'

If the ungrammaticality of an indefinite object following the DFP is due to some kind of PF reanalysis, it is not clear why the DFP in (123b) should not be phrased together with the definite object. The phrasing evidence suggests that while there may be PF reanalysis involving the non-specific noun phrase, there is no PF reanalysis involving the demonstrative noun phrase.

Speakers of Dialect A do not make a phrasing distinction between (123a) and (123b). The [DFP object] sequence in both (123a) and (123b) are within the same phonological phrase. However, for these individuals, a distinction between (123a) and (123b) is still made in the context of contrastive focus. When the DFP is contrastively focused, no phonological phrase boundary can be found after the DFP in (123a), while a phonological phrase boundary is possible after the DFP in (123b). If the [DFP object] sequence is reanalyzed as Numeral-Classifier sequence at PF, one should not find such a contrast in the environment of focus.

8.2   Kung (1993)

8.2.1   The proposal

Kung (1993) proposes that the positioning of the object with respect to the DFP follows from Diesing's (1992) proposal about how syntax is mapped onto semantics. Assuming that the DFP marks the edge of a VP, Kung (1993) proposes that the object noun phrase preceding the DFP has undergone movement from its base position to a VP-external position.

(124)   Kung (1993:78)

AspP
- Asp'
  - Asp
  - PrP
    - NP subject
    - Pr'
      - Pr [+specific]
      - SitP
        - Sit'
          - Sit
          - VP
            - DFP [-specific]
            - VP
              - V'
                - V
                - NP
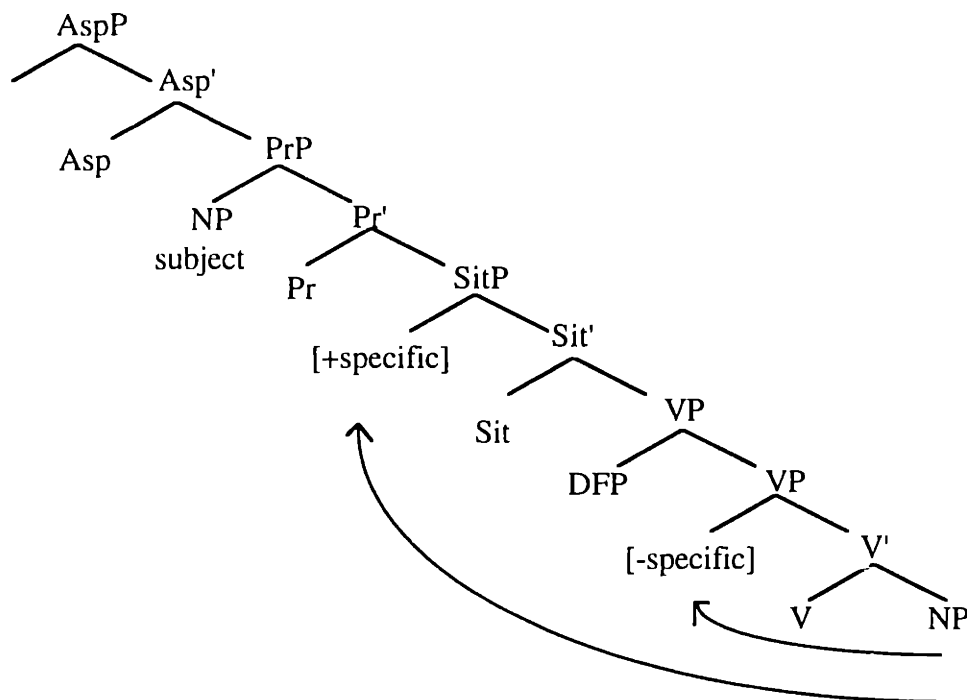
Given Diesing's Mapping Hypothesis, the object noun phrase preceding the DFP (outside of the VP) must be specific while the object noun phrase following the DFP (within the VP) must be non-specific. Kung (1993) finds that a specific object is impossible after the DFP while noting that some speakers find a specific object to be possible after the DFP. Kung (1993, footnote 3, p.41) suggests that a specific noun phrase which appears on the surface after the DFP has undergone a heavy-NP shift type of operation to a position outside of the VP on the basis of the following observations: (i) a heavy stress is needed on

the demonstrative noun phrase and (ii) the demonstrative after the DFP is improved when the noun phrase has a richer content (e.g. modified by a relative clause).

8.2.2 Some problems

Interestingly, Kung's analysis predicts the phonological phrasing facts noted above for Hokkien Dialect B. Non-specific bare noun phrases are within the same phonological phrase as the preceding DFP; while demonstratives are not within the same phonological phrase as the preceding DFP.[36] For Kung (1993), this phrasing difference is expected given that the specific noun phrase has undergone a heavy-NP shift type of operation and hence does not occupy the same syntactic position as the non-specific noun phrase. While it is the case that non-referential noun phrases (non-specific) are phrased differently from demonstrative noun phrases (specific) in Hokkien Dialect B, there is a group of noun phrases, including proper names and modified noun phrases, which poses problems for Kung's analysis. This group consists of noun phrases which may be specific or non-specific. If the fact that noun phrases are phrased together with the DFP indicates that they are within the VP, the fact that proper names which are specific can be phrased with the DFP is incompatible with Kung's analysis where specific noun phrases must move to a position outside of the VP.

Kung's analysis predicts that non-specific noun phrases should not be possible before the DFP. This is contradicted by the fact that a wh-indefinite can appear before the DFP as shown in (125).

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[36] Given that Kung (1993) does not make a distinction between non-referential noun phrases and generic noun phrases, I assume that for Kung (1993), both non-referential noun phrases and generic noun phrases are considered to be non-specific.

(125) a.   Ruguo ni   jian-dao shenme ren   liang ci,   Mandarin

           if   you see PRT what   person two   time,

           yi ding yao gaosu wo.

           must   want tell   me

           'If you see anyone twice, you must tell me.'

     b.   Ruguo ni   jian-dao shei liang ci, yiding yao   gaosu wo.   Mandarin

           if   you see-PRT who two   time must want tell   me

           'If you see anyone twice, you must tell me.'

8.3   Feng (1995)

8.3.1 The proposal

Feng (1995) proposes a prosodic account for the distribution of the noun phrase in relation
to the DFP in Beijing Mandarin. The proposal is that only one primary stress may be
assigned per sentence (for sentences with normal stress pattern), and that the primary stress
'can only be assigned through the verb to the right-most constituent within the last VP'
(Feng 1995:26).

(126)   VP

           _____∧_____
        [...   X   Y]$_{IP}$
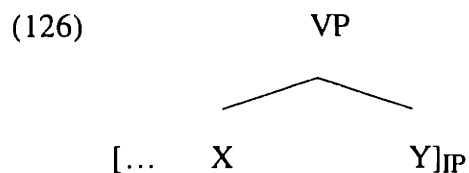
Because only one primary stress is allowed within the VP, the sentence is ruled out when
both the object and the DFP are stressed.

Feng (1995:21) reports a contrast among the following sentences.[37]

(127) a.   *Zuotian ta da-le   liang-ge ren   san xia.   Mandarin

          yesterday he hit-PERF two-CL person three time

          'He hit two people three times yesterday.'

    b.   Zuotian   ta da-le   yi-ge ren san xia.   Mandarin

          yesterday he hit-PERF a-CL man three time

          'He hit a man three times yesterday.'

    c.   Zuotian   ta da-le   ji-ge   ren   san xia.   Mandarin

          yesterday he hit-PERF a few-CL person three time.

          'He hit a few people three times yesterday.'

Feng argues that the contrast here poses problems for Huang (1982) and Li and Thompson's (1981) analyses in terms of referentiality.

Feng suggests that noun phrases which may appear before the DFP are 'prosodically weak'. Pronouns, *yige ren* 'a man', *jige ren* 'a few men' and definite noun phrases (old information carriers) are considered obligatorily weak forms. *jige ren* 'a few men' is contrasted with *jige ren* 'how many men' which bears stress. Noun phrases such as the following are considered to be prosodically strong forms and are thus not allowed before the DFP.

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[37] I am not sure that I share the judgments here. Some Mandarin speakers I checked with also do not get the contrast. One speaker finds that (c) is not as good as (a) and (b). When (c) is replaced with *yi-xie ren* 'a few people', the sentence becomes good like (a) and (b). There seems to be a dialectal difference here.

(128) a. A. Zenme huishi a?   Mandarin

what thing PRT

'What happened?'

B. *Ta kang-le   hun   san nian.

she reject-PERF marriage three year

'She rejected marriage for three years.'

b. A. Zenme huishi a?   Mandarin

what thing PRT

'What happened?'

B. *wo da-le   guanggun yi beizi.

he do-PERF bachelor one life

'He is a bachelor for his whole life.'

c. A. Zenme huishi a?

what thing PRT

'What happened?'

B. *Wo da-le   liang-ge ren san ci.

I hit-PERF two-CL person three time

'I hit two people twice.'

8.3.2 Some problems

One problem with Feng's (1995) prosodic account is that the division between noun phrases which are prosodically strong and prosodically weak seems to be ad hoc. It is not clear why the object noun phrases in (127) should be prosodically strong. In good cases such as (129a-b) where the object appears after the DFP, Feng (1995) follows Li (1990) in analyzing these cases as involving a single noun phrase. Specifically, even though there are two elements after the V, namely the DFP and N, the DFP and N actually form a single noun phrase.

(129) a. A.   Zenme huishi a?   Mandarin

            what   thing PRT

            'What happened?'

      B.   Ta kang-le   san nian (de) hun.

            she reject-PERF three year DE marriage

            'She rejected marriage for three years.'

   b. A.   Zenme huishi a?   Mandarin

            what   thing PRT

            'What happened?'

      B.   wo da-le   yi   beizi (de) guanggun

            he do-PERF one life   DE bachelor

            'He is a bachelor for his whole life.'

The main evidence that the DFP-N sequence is a single noun phrase comes from the appearance of DE which can function as a possessive marker. As shown above, DE can be inserted between the DFP and the N. One problem with this account is that definite noun phrases also may appear after the DFP even though they cannot be preceded by DE (see also Tang 1994, Sybesma 1997).

(130) a.   wo jiang-guo liang ci   na-ge ren.   Mandarin

           I   see-PERF two time that-CL person

           'I have seen that person twice.'

    b.   *wo jian-guo liang ci   de na-ge ren.[38]   Mandarin

           I   see-PERF two time DE that CL person

           'I have seen that person twice.'

This analysis predicts that stressed forms are not allowed before the DFP. Specifically, *jige ren* 'how many persons' and wh-words such as *shei* 'who' should not be allowed before the DFP. This prediction is not borne out.[39]

(131) a.   ta da-le   ji-ge   ren san xia?   Mandarin

           he hit-PERF how many-CL person three time

           'How many people did he hit three times?'

    b.   ta jian-le   shei liang ci?   Mandarin

           he see-PERF who two time

           'Who has he seen twice?'

---

[38] The sentence is fine with a relative clause interpretation: 'the person who I saw twice'.

[39] It is possible that questions are not included among the sentences which bear normal stress. In that case, the prosodic account does not rule out (126).

9.   Conclusions

In this chapter, I provide further evidence that object scrambling is available in Chinese by showing the similarities the positioning of the object shares with object scrambling in Dutch and German. Like Dutch and German, the distribution of the object in Chinese is closely related to information structure and prosodic considerations (Neeleman and Reinhart, to appear). I show that one difference between the non-scrambled position in Dutch/German and Chinese is that the non-scrambled position in Dutch/German need not be stressed, while the non-scrambled position in Chinese must bear stress. I propose that this difference follows from a constraint on when stress-shift may apply. Sisters with a head-complement relation may switch their relative stress while sisters without such a relation may not. The difference between Dutch/German and Chinese in terms of whether the non-scrambled position must be stressed follows from the different word order within the VP in these languages. I discuss an apparent problem faced by the proposed analysis involving the distribution of the non-referential indefinite noun phrases. Non-referential indefinite noun phrases may appear in the non-scrambled position even though they do not seem to bear stress. I show phonological evidence that these noun phrases have undergone cliticization to the preceding phonological element and as such they do not occupy the non-scrambled position. I suggest that the reason why bare noun phrases do not tend to scramble is because they are cliticized to the preceding DFP. My account of the differences between Chinese and Dutch/German faces some complications which cannot be addressed within the scope of this chapter.

Chapter Four

Where is the scrambled object?

_____

1.   Introduction

In Chapter Two, I argued that there are two object positions in Chinese: one where the

object is base generated and the other where the object is scrambled to. The goal of this

chapter is to determine where the scrambled object is: whether the scrambled object is

within or outside of the VP. The question about the position of the scrambled object has

been a point of disagreement in the literature. For example, Mahajan (1990) proposes that

the scrambled object occupies the Spec of AgrO, which is outside of the VP as shown in

(1).

(1)   Mahajan (1990)

```
                    AgrPs
              Spec        Agr's
                      TP        Agrs
                    Spec   T'
                         AgrPo   T
                       Spec   Agr'o
                           Agro    VP
                              Agent-ERG   V'
                                    Patient   V
```
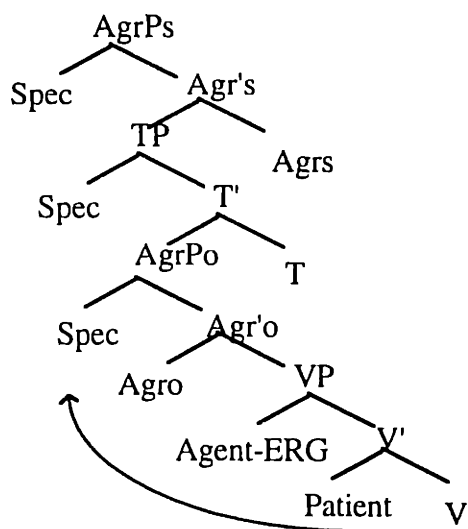
Travis (1991) on the other hand argues that the scrambled object appears in the Spec of an inner Aspect which is between the external argument and the theme as shown in (2).

(2)   Travis (1991)

```
                VP
         External     V'
         argument   V      Asp2"
                  'cause'       Asp2'
                            Asp2    VP2
                               Theme   V'
                                    V    XP
```
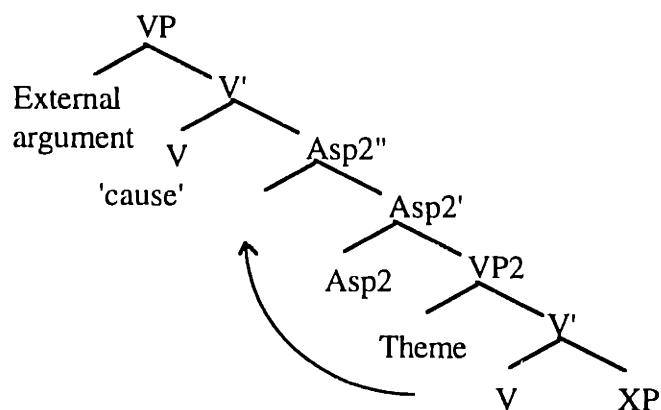
In this chapter, I show evidence from the distribution of the scrambled object in serial verb and double complement constructions that the scrambled object in Chinese appears within the (topmost) VP, supporting Travis's (1991) proposal. In particular, I show that the scrambled object occupies a position below the goal argument in double object and shift

constructions (but above the goal argument in dative constructions).[1] The scrambled object appears in the specifier of a functional projection, which I label FP as shown in (3).

(3)   Double object constructions

```
            vP1
          /     \
      agent      v'
               /    \
             v        VP1
              j      /    \
                  goal     V'
                         /    \
                        V       FP
                      APPL    /    \
                             F       VP2
                                   /    \
                                 DFP     VP2
                                       /    \
                                      V      theme
                                       j
```
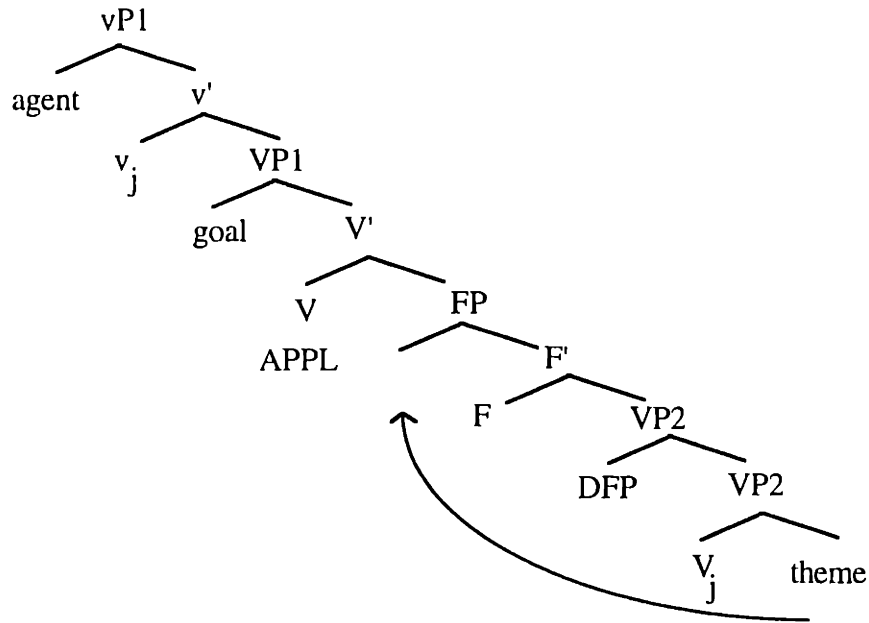
Assuming that the double object/shift constructions involve an extra VP compared to the dative constructions (Marantz 1993), I propose an analysis of the distribution of the duration/frequency phrases (DFPs) in double complement constructions. The proposed analysis gains support from (i) the contrast in scope between dative constructions and double object/shift constructions (Huang 1982, Aoun and Li 1989, Marantz 1993) and (ii) the distribution of GE 'each' in double complement constructions, which separates dative constructions from double object/shift constructions (compare Kung 1993).

Section 2 presents the data involving the distribution of the DFP in serial verb constructions in Chinese and shows that the DFP is immediately above the lowest VP. The

---

[1] There are three types of double complement constructions in Chinese (Kung 1993). See section 3 for discussion.

(i)	double object constructions	V DP DP
(ii)	dative constructions	V DP PP
(iii)	shift constructions	V PP DP

distribution of the DFP within serial verb constructions indicates that the scrambled object position is above the DFP and the lowest VP, and below the topmost VP. In section 3, I present the data involving the distribution of the DFP in double complement constructions. In section 4, I show that the distribution of the DFP in double complement constructions indicates that the scrambled object is lower than the topmost VP. Assuming the structures of double object and dative constructions in Marantz (1993), I present an analysis of the distribution of the DFP in double complement constructions. I show evidence from scope and the distribution of GE 'each' which support the proposed analysis. In section 5, I examine some previous proposals about the structures of double complement constructions and show some difficulties faced by these proposals in handling the distribution of the DFP in double complement constructions. Section 6 concludes this chapter.

2. DFPs in serial verb constructions

The question about the position of the scrambled object is closely related to the position of the DFP. I assume the DFP is adjoined to a VP. The question addressed in this section is whether the DFP is adjoined to the lowest VP, the intermediate VP and/or the highest VP in a layered VP structure. To answer this question, I examine the distribution of the DFP in serial verb constructions (SVC).

2.1 Serial verb constructions in Chinese

It is generally agreed that SVCs involve some kind of argument sharing and that coordinated structures are not SVCs. Some examples of SVCs are given below.

(4) a. ta na dao qie-le   rou.

    he hold knife cut-PERF meat

    'He cut the meat with a knife.'

  b. ta na yaoshi kai-le   men.

    he hold key open-PERF door.

    'He opened the door with a key.'

(5) a. ta dai Yaya qu xuexiao.

    he take Yaya go school

    'He took Yaya to school.'

  b. ta dai Xiaoming huei jia.

    he take Xiaoming return home

    'He took Xiaoming home.'

I adopt the following basic structure for the above sentences (Collins 1997).[2] A more accurate representation of the structure assumed for SVCs is given in the next section.

---

[2] Law (1996) proposes that (1) has the following structure.

  (i) DP1 [$_{VP2}$ [$_{VP1}$ V1 DP2] [$_{VP2}$V2 DP3]]

The VP headed by the first verb is an adjunct to the VP headed by the second verb.

(6)

```
                    vP1
                   /    \
              DP1        v'
            ta 'he'     /   \
                      v1      VP1
                            /    \
                        DP2        V'
                     dao  'knife' /  \
                         i      V1     vP2
                              na 'take'  /  \
                                      DP3    v'
                                      pro    /  \
                                         i  v2    VP2
                                                 /   \
                                              V2      DP4
                                            qie 'cut'  rou 'meat'
```
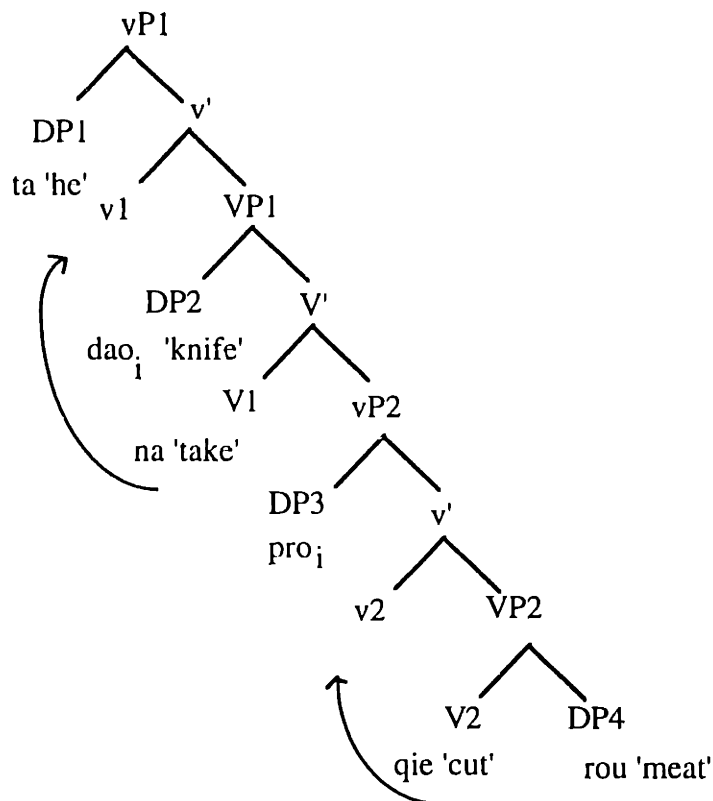
V1 and V2 raise to their respective light verb to derive the surface order. There is a pro argument which is identified with DP2.

2.2   The distribution of the DFP in serial verb constructions

The DFP may appear before or after the second noun phrase but not before or after the first noun phrase as shown below.

(7)   a.   ta na na-ba   dao qie-guo ta zhong de cai   **yi   ci.**

he take that-CL knife cut-PERF he grow DE vegetable one time

'He took that knife once to cut the vegetable he grew.'

b.   ta na na-ba dao qie-guo **yi** **ci** ta zhong de cai.

he take that-CL knife cut-PERF one time he grow DE vegetable

'He took that knife once to cut the vegetable he grew.'

c.   *? ta na-guo **yi** **ci** na-ba dao qie ta zhong de cai.[3]

he take-PERF one time that -CL knife cut he grew DE vegetable

'He took that knife once to cut the vegetable he grew.'

d.   *ta na-guo na-ba dao **yi** **ci** qie ta zhong de cai.

he take-PERF that-CL knife one time cut he grew DE vegetable

'He took that knife once to cut the vegetable he grew.'

(8)   a.   ta dai Yaya qu guo xuexiao **liang ci**.

he take Yaya go-PERF school two time

'He took Yaya to school twice.'

b.   ta dai Yaya qu guo **liang ci** xuexiao.

he take Yaya go-PERF two time school

'He took Yaya to school twice.'

c.   *?ta dai-guo **liang ci** Yaya qu xuexiao.

he take-PERF two time Yaya go school

'He took Yaya to school twice.'

---

[3] For some reason, the sentence seems fine with the addition of *lai* 'come' before the second V.

(i)   (?) ta na guo yi ci na ba dao lai qie ta zhong de cai.
        he take ASP one time that CL knife come cut he grew DE vegetable
        'He took that knife once to cut the vegetable he grew.'

The sentence has a purposive reading. I assume that the sentence with *lai* involves an embedded CP rather than a VP.

d.   *??ta dai-guo Yaya **liang ci** qu xuexiao.

he take-PERF Yaya two time go school

'He took Yaya to school twice.'

The possibility of (a) and (b) sentences above suggest that the DFP is adjoined to the lowest VP. I assume that there is a light verb immediately above the lower VP where the lower verb can move to. The exact structure of SVC assumed is shown in (9).

(9)
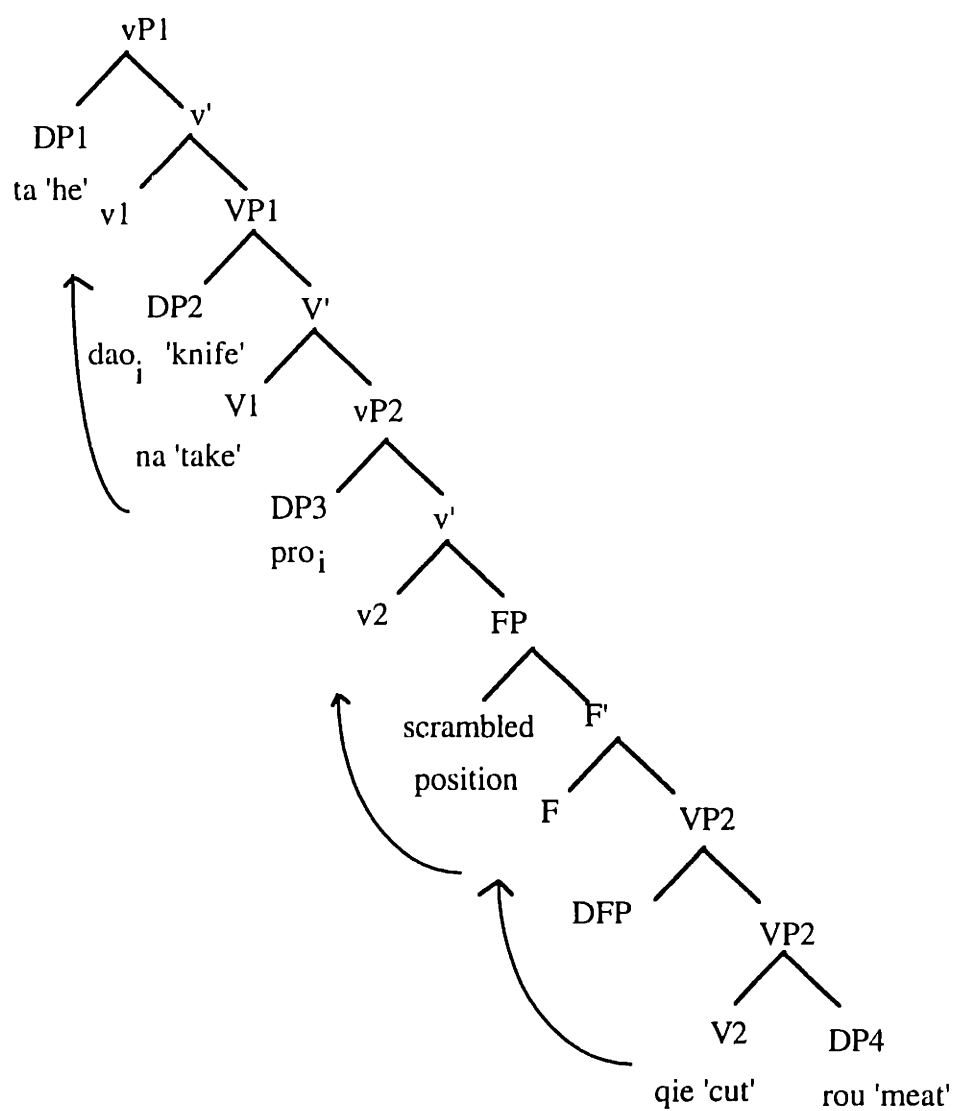
V2 undergoes head movement to the position of the light verb v2. When no further movement occurs, the orders in (7b) and (8b) are derived. When object scrambling occurs, the lower object appears in the scrambled object position above the DFP and the orders in (7a) and (8a) are derived. The fact that (c) and (d) sentences in (7) and (8) are bad indicates that the DFP may only adjoin to the lowest VP and not any other VPs.

There are apparent counter-examples to the generalization that the DFP can only be adjoined to the lowest VP. These involve cases where the DFP appears before the verb. There is however an important difference between the DFP before the verb and the DFP after the verb. A DFP which appears before the verb must be definite while the one after the verb must not. In order to license the DFP before the verb, the DFP must be introduced by a demonstrative or followed by DOU 'all'. An indefinite DFP is not allowed before the verb.

(10)   a.   *ta liang ci   na dao qie rou.

                 he two time   hold knife cut meat

                 'He cut the meat with a knife twice.'

       b.   ta na liang ci   na dao qie rou.

                 he that two time   hold knife cut meat

                 'For those two times, he cut the meat with a knife.'

       c.   ta liang ci dou   na dao qie rou.

                 he two time all   hold knife cut meat

                 'For all two times, he cut the meat with a knife.'

(11)   a.   *ta liang ci dai Yaya qu xuexiao.

he two time take Yaya go school

'He took Yaya to school twice.'

b.   ta na liang ci dai Yaya qu xuexiao.

he that two time take Yaya go school

'For those two times, he took Yaya to school.'

c.   ta liang ci dou dai Yaya qu xuexiao.

he two time all take Yaya go school

'For all two times, he took Yaya to school.'

In contrast, the DFP after the verb must be indefinite and cannot contain a demonstrative.[4]

(12)   a.   ta na na-ba dao qie-guo ta zhong de cai **liang ci**.

he take that-CL knife cut-PERF he grow DE vegetable two time

'He took that knife to cut the vegetable he grew twice.'

---

[4]An example involving a DFP with a demonstrative was brought to my attention by Thomas Ernst (personal communication).
(i)   ta shang-le   na san tian   ke, lei de shenme difang dou bu xiang qu-le.
he attend-PERF that three day class tired DE what   place DOU not want go-PERF
'After he has attended those three days of classes, he is so tired that he does not want to go anywhere.'
The sentence is also fine if we replace ke 'class' with ni de ke 'your class' as shown in (ii). It is however not possible to have the DFP with the demonstrative after the object. Compare (ii) and (iii).
(ii)   ta shang-le   na san tian ni de ke, lei de shenme difang dou bu xiang qu-le.
he attend-PERF that three day you DE class tired DE what   place DOU not want go-PERF
'After he has attended those three days of your classes, he is so tired that he does not want to go anywhere.'
(iii)   *ta shang-le   ni de ke   na san tian , lei de shenme difang dou bu xiang qu-le.
he attend-PERF you DE class that three day tired DE what   place DOU not want go-PERF
'After he has attended those three days of your classes, he is so tired that he does not want to go anywhere.'
It seems that sentences with a DFP introduced by a demonstrative are different from the kind of examples considered in this chapter.

b.   ta na   na-ba dao qie-guo **liang ci** ta zhong de cai.

        he take that-CL knife cut-PERF two   time he grow DE vegetable

        'He took that knife to cut the vegetable he grew twice.'

c.   *ta na   na-ba   dao qie-guo ta zhong de cai   **na liang   ci.**

        he take that-CL knife cut-PERF he grow DE vegetable that two time

        'For those two times, he took that knife to cut the vegetable he grew.'

d.   *ta na   na-ba   dao qie-guo **na liang ci** ta zhong de cai.

        he take that-CL knife cut-PERF that two   time he grow DE vegetable

        'For those two times, he took that knife to cut the vegetable he grew.'

(13) a.   ta dai Yaya qu guo xuexiao **liang ci**.

        he take Yaya go-PERF school two time

        'He took Yaya to school twice.'

b.   ta dai Yaya qu guo **liang ci** xuexiao.

        he take Yaya go-PERF two time school

        'He took Yaya to school twice.'

c.   *ta dai Yaya qu guo xuexiao **na liang ci**.

        he take Yaya go-PERF school that two time

        'For those two times, he took Yaya to school.'

d.   *ta dai Yaya qu-guo **na liang ci**   xuexiao.

        he take Yaya go-PERF that two   time school

        'For those two times, he took Yaya to school.'

Given the contrast between the pre-verbal DFP and the post-verbal DFP in terms of definiteness, one can maintain the generalization above by restricting the coverage of the generalization to cases involving indefinite DFPs, rather than definite DFPs. In this chapter, I concentrate on the indefinite use of the DFP and leave the definite/specific use of the DFP for future research.

To summarize the results of this section, the indefinite DFP appears immediately above the lowest VP. The scrambled object position is immediately above the DFP and below the highest VP in a serial verb construction.

3. DFPs in Double Complement Constructions

Having established that the DFP with an indefinite reading is adjoined to the lowest VP in a VP-shell structure in serial verb constructions, the following section examines the distribution of the DFP in double complement constructions.

3.1 Double complement constructions in Chinese

Kung (1993) categorizes double complement constructions into three distinct types: (i) double object constructions; (ii) dative constructions and (iii) shift constructions. These three types of double complement constructions are presented in (14)-(16) respectively.

(14) wo song-le   Zhangsan nei-ben shu.   Double object

   I give-PERF Zhangsan that-CL book

   'I have given Zhangsan that book.'

(15) wo song-le   nei-ben shu gei Zhangsan.   Dative constructions

I   give-PERF   that-CL book GEI Zhangsan

'I have given that book to Zhangsan.'

(16) wo song-gei-le   Zhangsan nei-ben shu.   Shift constructions

I   give-GEI-PERF Zhangsan that-CL book

'I have given that book to Zhangsan.'

While each of these three types has a distinct structure in Kung's analysis, the dative constructions and the shift constructions are treated similarly. In contrast to the double object constructions, the dative and the shift constructions are analyzed as involving VP-raising (see section 5.3). On the other hand, Yang (1991) collapses double object constructions with shift constructions and suggests that in double object constructions, there is a phonetically null preposition. In the following section, I present data on the distribution of the DFP in relation to these three types of double complement constructions. The distribution of the DFP in double complement constructions indicates that the double object constructions pattern with the shift constructions, supporting Yang's (1991) categorization.

3.2   The distribution of the DFP in double complement constructions

The double object constructions pattern with the shift constructions and unlike dative constructions in the distribution of the DFP. For the double object constructions and the shift constructions, the DFP can appear between the two objects or following the objects, but it cannot precede both objects. For the dative constructions, the DFP can appear before or after both objects, but not in between the objects. The distribution of the DFP in double object, dative and shift constructions is presented below.

3.2.1 Double object constructions: V DP DP[5]

The DFP can appear between the two objects or following the objects as shown in (17) and (18), but it cannot precede the objects as shown in (19).

(17)   DFP appearing between the objects

a.   wo song-le   nei-ge peng-you **liang ci**   xiao-shuo.

I   give-PERF that-CL friend   two time novel

'I have given that friend a novel twice.'

b.   wo song-le   peng-you **liang ci**   xiao-shuo.

I   give-PERF friend   two time novel

'I have given a friend a novel twice.'

---

[5] It should be noted that the judgments presented here on the possible placement of DFP within the double object constructions are not totally in agreement with that presented in Kung (1993). For Kung (1993), the distribution of the object noun phrases in relation to the DFP conforms to Diesing's Mapping Hypothesis. Noun phrases which are specific are found to be good before the DFP and bad after the DFP and noun phrases which are non-specific are found to be bad before the DFP and good after the DFP. The distribution of the DFP in relation to the objects in double object constructions is summarized in (i) (Kung 1993:152).

(i).   (+)=specific, (-)=non-specific

(ok)=grammatical, (?)=marginal, (*)=ungrammatical

IO	DO	IO-DO	DFP-IO-DO	IO-DFP-DO	IO-DO-DFP
+	+	ok	*	*	ok
+	-	ok	*	ok	*
-	+	*	*	*	*
-	-	ok	ok/??	*	*

If one examines Kung's observation closely, one may find confirmation for the generalization made in this chapter. Given Kung's theory, one would expect DFP-IO-DO to be perfect when both objects are non-specific, but it is not. If one compares the best case in each group, the same pattern that I observe emerges:

DFP-IO-DO   ok/??

IO-DFP-DO   ok

IO-DO-DFP   ok

Kung (1993) does not discuss the placement of DFP with dative constructions and shift constructions.

c. wo song-le   Zhangsan **liang ci**   nei-ben xiao-shuo.

    I give-PERF Zhangsan two time that-CL novel

    'I have given Zhangsan that novel twice.'

d. wo song-le   peng-you **liang ci**   nei-ben xiao-shuo.

    I give-PERF friend   two time that-CL novel

    'I have given a friend that novel twice.'

(18) DFP appearing after both objects[6]

a. ??wo song-guo   nei ge peng-you xiao-shuo **liang ci**.

    I give-PERF that-CL friend   novel   two time

    'I have given that friend novels twice.'

b. ??wo song-guo   peng-you xiao-shuo **liang ci**.

    I give-PERF friend   novel   two time

    'I have given friends novels two times.'

c. ?wo song-guo   Zhangsan nei-ben xiao-shuo **liang ci**.

    I   give-PERF Znangsan that-CL novel   two time

    'I have given Zhangsan that novel twice.'

d. ?wo song-le   peng-you nei-ben xiao-shuo **liang ci**.

    I give-PERF friend   that-CL novel   two time

    'I have given a friend that novel twice.'

---

[6] (a) and (b) sentences do not sound as good compared to (c) and (d) because non-referential noun phrases are cliticized to the preceding DFP in a neutral context. A particular context of focus is required for the non-referential object to scramble across the DFP. See Chapter Three for discussion.

(19) DFP not allowed before both objects

    a.   *wo song-le   **liang ci**   nei ge peng-you xiao shuo.

          I   give-PERF two time   that-CL friend   novel

          'I have given that friend a novel twice.'

    b.   *wo song-guo   **liang ci**   peng-you xiao-shuo.

          I   give-PERF two time friend   novel

          'I have given a friend a novel twice.'

    c.   *wo song-le   **liang ci**   Zhangsan nei-ben xiao-shuo.

          I   give-PERF two time Zhangsan that-CL novel

          'I have given Zhangsan that novel twice.'

    d.   *wo song-le   **liang ci**   peng-you nei-ben xiao-shuo.

          I   give-PERF two time friend   that-CL novel

          'I have given a friend twice that novel.'

3.2.2 Dative constructions: V DP GEI DP

For dative constructions, the DFP can appear before or after both objects as shown in (20) and (21) but not in between the objects as shown in (22).

(20) DFP appearing after both objects

    a.   wo song-guo   xiao-shuo gei Zhangsan **liang ci**.

          I   give-PERF novel   GEI Zhangsan two time

          'I have given novels to Zhangsan twice.'

b.   wo song-guo xiao-shuo gei peng-you **liang ci**.

         I give-PERF novel   GEI friend   two time

         'I have given novels to friends twice.'

c.   wo song-guo   na-ben xiao-shuo gei Zhangsan **liang ci**.

         I give-PERF that-CL novel   GEI Zhangsan two time

         'I have given that novel to Zhangsan twice.'

d.   wo song-guo   na-ben xiao shuo gei   peng you **liang ci**.

         I give-PERF that-CL novel   GEI friend   two time

         'I have given that novel to friends twice.'

(21)   DFP appearing before both objects[7]

a.   wo song-guo   **liang ci**   xiao-shuo gei Zhangsan.

         I   give-PERF two time novel   GEI Zhangsan

         'I have given novels to Zhangsan twice.'

b.   wo song-guo   **liang ci**   xiao-shuo gei peng you.

         I give-PERF two time novel   GEI friend

         'I have given novels to friends twice.'

c.   (?)?wo song-guo **liang ci**   na-ben xiao-shuo gei Zhangsan.

         I   give-PERF two time that-CL novel   GEI Zhangsan

         'I have given that novel to Zhangsan twice.'

---

[7] It is not clear why (c) and (d) seem to be not as good as (a) and (b).

d.　　(?)?wo song-guo **liang ci** na ben xiao-shuo gei peng you.

　　　　I give-PERF two time that-CL novel　　GEI friend

　　　　'I have given that novel to friends twice.'

(22)　DFP prohibited between the objects[8]

a.　　*wo song-guo xiao-shuo **liang ci** gei Zhangsan.

　　　　I give-PERF novel　　two time GEI Zhangsan

　　　　'I have given novels to Zhangsan twice.'

b.　　*wo song-guo xiao-shuo **liang ci** gei peng-you .

　　　　I give-PERF novel　　two time GEI friend

　　　　'I have given novels to friends twice.'

c.　　*wo song-guo na-ben xiao-shuo **liang ci** gei Zhangsan.

　　　　I give-PERF that-CL novel　　two time GEI Zhangsan

　　　　'I have given that novel to Zhangsan twice.'

d.　　*wo song-guo na-ben xiao-shuo **liang ci** gei peng-you.

　　　　I give-PERF that-CL novel　　two time GEI friend

　　　　'I have given that novel to friends twice.'

---

[8] The fact that the DFP cannot intervened between the theme and the goal arguments in dative constructions was previously observed in Tang (1994).

3.2.3 Shift constructions: V GEI DP DP

The distribution of the DFP in shift constructions is the same as that in double object constructions.[9] The DFP can appear after both objects or in between objects as shown in (23) and (24), but not before both objects as shown in (25).

(23) DFP appearing after both objects[10]

    a.   ??wo song gei-guo Zhangsan   xiao-shuo **liang ci**.

           I give GEI-PERF Zhangsan novel   two   time

           'I have given novels to Zhangsan twice.'

    b.   ??wo song gei-guo peng-you xiao-shuo **liang ci**.

           I give GEI-PERF friend   novel   two   time

           'I have given novels to friends twice.'

    c.   ?wo song gei-guo   Zhangsan   na-ben   xiao-shuo **liang ci**.

           I give GEI PERF Zhangsan   that-CL novel   two   time

           'I have given that novel to Zhangsan twice.'

    d.   ?wo song gei -guo   peng-you na-ben xiao-shuo **liang ci**.

           I   give GEI-PERF friend   that-CL novel   two   time

           'I have given that novel to friends twice.'

---

[9] While shift constructions pattern like double object constructions in the distribution of the DFP, the good sentences in shift constructions are not as good as those in double object constructions for unknown reasons.

[10] The fact that (a) and (b) are not as good as (c) and (d) is due to the fact that non-referential objects are cliticized to the preceding DFP in a neutral context. A particular focus context is required for the bare noun phrase in (a) and (b) to scramble across the DFP. See Chapter Three for discussion.

(24) DFP appearing between objects

    a.   ??wo song-gei-guo   Zhangsan **liang ci** xiao-shuo.

        I give-GEI PERF Zhangsan two time novel

        'I have given novels to Zhangsan twice.'

    b.   ??wo song-gei-guo   peng-you **liang ci** xiao-shuo.

        I give-GEI PERF friend   two time novel

        'I have given novels to friends twice.'

    c.   ??wo song-gei-guo   Zhangsan **liang ci** na-ben xiao-shuo.

        I give-GEI PERF Zhangsan two time that-CL novel

        'I have given that novel to Zhangsan twice.'

    d.   ??wo song-gei-guo   peng-you **liang ci** na-ben xiao-shuo .

        I give-GEI PERF friend   two time that-CL novel

        'I have given that novel to friends twice.'

(25) DFP prohibited before both objects

    a.   *wo song-gei-guo   **liang ci**   Zhangsan xiao-shuo.

        I give-GEI-PERF two time Zhangsan novel

        'I have given novels to Zhangsan twice.'

    b.   *wo song-gei-guo   **liang ci**   peng-you xiao-shuo.

        I give-GEI-PERF two time friend   novel

        'I have given novels to friends twice.'

c.   *wo song-gei-guo   **liang ci** Zhangsan na-ben xiao-shuo.

I give-GEI-PERF two time   Zhangsan that-CL novel

'I have given that novel to Zhangsan twice.'

d.   *wo song-gei-guo   **liang ci** peng-you na-ben xiao-shuo.

I give-GEI PERF two time   friend   that-CL novel

'I have given that novel to friends twice.'

Notice that the perfective marker appears after V-GEI. The perfective marker attaches to a verb and not to a preposition.

(26)   wo song-(le)   yi-ben shu gei-(*le)   Zhangsan.

I send-PERF one-CL book GEI-PERF Zhangsan

'I sent a book to Zhangsan.'

The fact that the perfective marker comes after the V-GEI sequence in shift constructions and not in between V-GEI suggests that preposition incorporation of P to V occurs in shift constructions (Yang 1991:86). If there is no preposition incorporation, one would expect the perfective marker to appear between the verb and GEI.

(27)   a.   wo song gei   le   Zhangsan yiben   shu.

I   send GEI PERF Zhangsan one-CL book

'I sent Zhangsan a book.'

b.   *wo song le   gei Zhangsan yiben   shu.

I   send PERF GEI Zhangsan one-CL book

'I sent Zhangsan a book.'

c. *wo song (gei) Zhangsan-le   yiben shu.

   I send GEI Zhangsan-PERF one-CL book

   'I sent Zhangsan a book.'

3.3 Summary

A summary of where the DFP may appear in relation to the internal arguments is given below.

(28) ☑: Possible positions of the DFP ☒: Impossible positions of the DFP

Double object	Dative constructions	Shift constructions
V ☒ DP ☑ DP ☑	V ☑ DP ☒ GEI DP ☑	V-GEI ☒ DP ☑ DP ☑
		V ☒ GEI DP ☑ DP ☑

4. An Analysis

4.1 The structures of double object/shift constructions and dative constructions

I follow Marantz (1993) in assuming that the double object (and shift constructions) involve one additional VP-layer compared to dative constructions. I assume that the double object/shift constructions are similar, but not identical, in their structures. Following Kung (1993), I assume that the goal argument of double object constructions is not introduced by a null preposition. Kung argues on the basis of evidence from extraction that the shift constructions and the double object constructions must not have the same structure (contra Yang (1991)). This is because there is a contrast in terms of whether the goal argument can be extracted depending on whether the preposition GEI appears. The goal in double object

constructions can be extracted as shown in (29a), but the goal in dative and shift constructions which have GEI cannot as shown in (29b) and (29c). (29b) and (29c) are bad because Chinese does not allow preposition stranding. The fact that (29a) is fine means that the null preposition (if present) is not stranded and that it is moved together with the goal argument. If the goal argument is introduced by a null preposition in the double object construction in (29a), one expects that (29d) to be good as well. The fact that (29d) is bad suggests that there is no null preposition before the goal argument in (29a).[11]

(29) a. (?) Zhangsan bei   ta song-le   yi-ben shu le.[12]

          Zhangsan PASS he give-PERF one CL book PERF

          'ZS was given a book by her/him.'   (Kung 1993:93)

b. *Zhangsan bei   ta song gei yi-ben shu le.

    Zhangsan PASS he give GEI one-CL book PERF   (Kung 1993:93)

c. *Zhangsan bei   ta   song yi-ben shu gei le.

    Zhangsan PASS he. give one-CL book GEI PERF

d. *gei Zhangsan bei   ta song yi-ben shu   le.

    GEI Zhangsan PASS he give one-CL book PERF

The structures I assume for the double complement constructions are given below (Marantz 1993).

---

[11] This argument relies on the assumption that the ban against preposition stranding does not differentiate between null and overt prepositions (Noam Chomsky, personal communication).

[12] There are two perfective markers 'le' in Chinese. One attaches to the verb and the other one appears in the sentence final position.

(30) Shift constructions

```
                    vP1
              _____|_____
            DP1           v'
          ta 'he'    _____|_____
                    v1         VP1
                  song      ___|___
          'send'     j    PP      V'
                        __|__   __|__
                      P   DP  Vj    VP2
                    gei Zhangsan  __|__
                    'to'      APPL V    DP
                                  tj   yiben shu
                                       one book
```

(31) Double object constructions

```
                    vP1
              _____|_____
            DP1           v'
          ta 'he'    _____|_____
                    v1         VP1
                  song      ___|___
          'send'     j    DP      V'
                       Zhangsan __|__
                              Vj    VP2
                                  __|__
                              APPL V    DP
                                  tj   yiben shu
                                       one book
```

(32)   Dative constructions

```
              vP1
            /      \
         DP1         v'
        ta 'he'    /    \
                 v1       VP1
              song         /    \
       'send'    j    DP        V'
                    yiben shu   /   \
                    'one book'  V      PP
                                t         /   \
                                 j       P      DP
                                      gei 'to'  Zhangsan
```
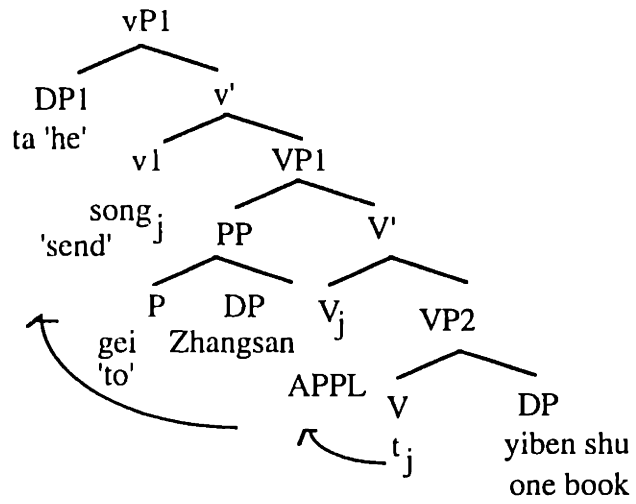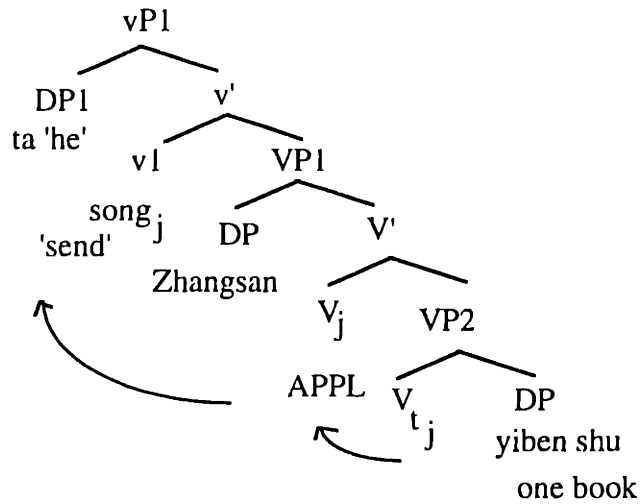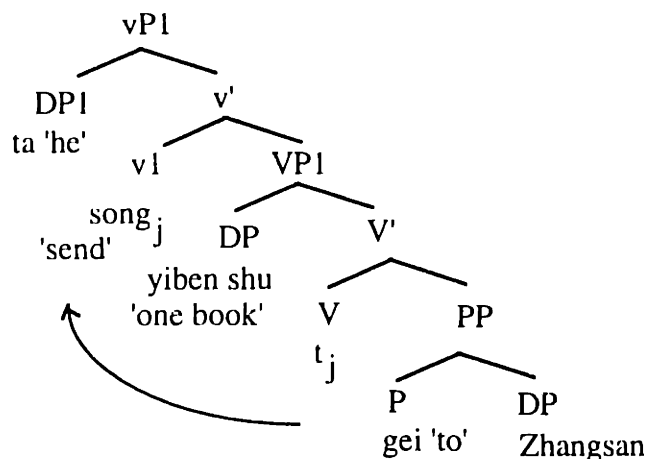
4.2   An analysis of the distribution of the duration/frequency phrase

Given the structures above and the results from section 2 that the indefinite DFP adjoins to the lowest VP and that the shifted object position is immediately above the DFP, we are able to account for the distribution of the DFP in double complement constructions.

4.2.1   Double object and shift constructions

As shown in section 3, in double object and shift constructions, the DFP may appear before or after the theme, but not before both objects. Consider the structure of the shift constructions below. The DFP adjoins to VP2 which is the lowest VP. The order [V GEI-goal DFP theme] is derived after the verb undergoes head movement to the position of the light verb. When the theme is scrambled to the shifted object position, the order [V-GEI goal theme DFP] is derived.

(33)   Shift constructions
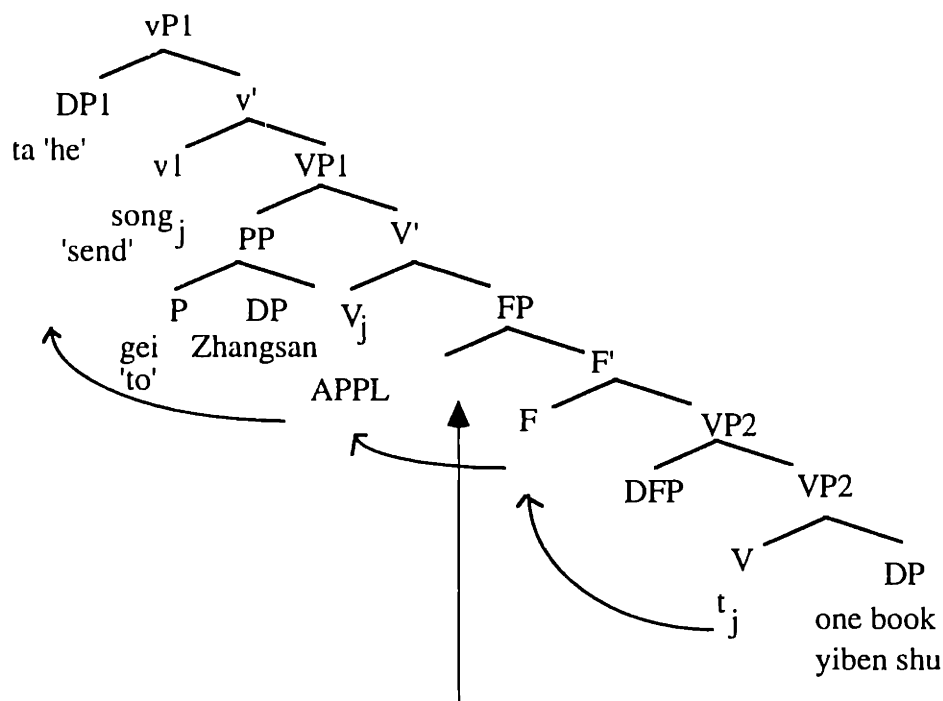
The order [V DFP GEI-goal theme] cannot be derived because DFP cannot adjoin to VP1 as we have established in section 2 on the basis of SVCs.

Similarly, the distribution of the DFP in double object constructions can be accounted for by assuming the structure of these constructions proposed in Marantz (1993) and the idea that DFP can only be adjoined to the lowest VP. Consider the structure of double object constructions below.

(34)   Double object constructions
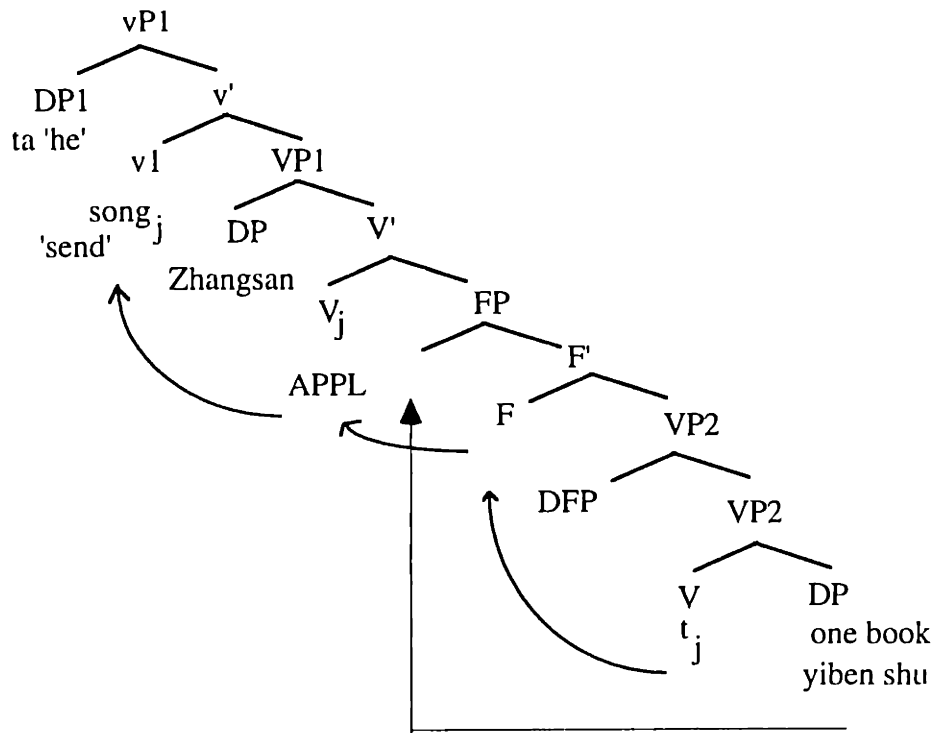
The DFP is adjoined to the lowest VP, VP2. The verb raises to the position of the light-verb and the order [V-goal DFP theme] is derived. When the theme is scrambled to the shifted position before the DFP, the order [V-goal theme DFP] surfaces. The order [V-DFP-goal-theme] is not possible because the DFP cannot adjoin to VP1.

4.2.2 Dative constructions

The DFP may appear before or after both complements in dative constructions but not in between the complements. Consider the following structure for dative constructions. The DFP adjoins to the lowest VP, VP1. After the verb raises to the light verb, the order [V-DFP-theme GEI-goal] is derived.

(35) Dative constructions

```
                    vP1
                  /     \
            DP1          v'
           ta 'he'     /    \
                     v1       FP
                   song_j   /    \
                   'send'  F'      F'
                          /    \
                         F      VP1
                              /     \
                           DFP       VP1
                                   /     \
                                  DP      V'
                               one book  /   \
                               yiben shu V_j   PP
                                             /    \
                                            P      DP
                                         gei 'to'  Zhangsan
```
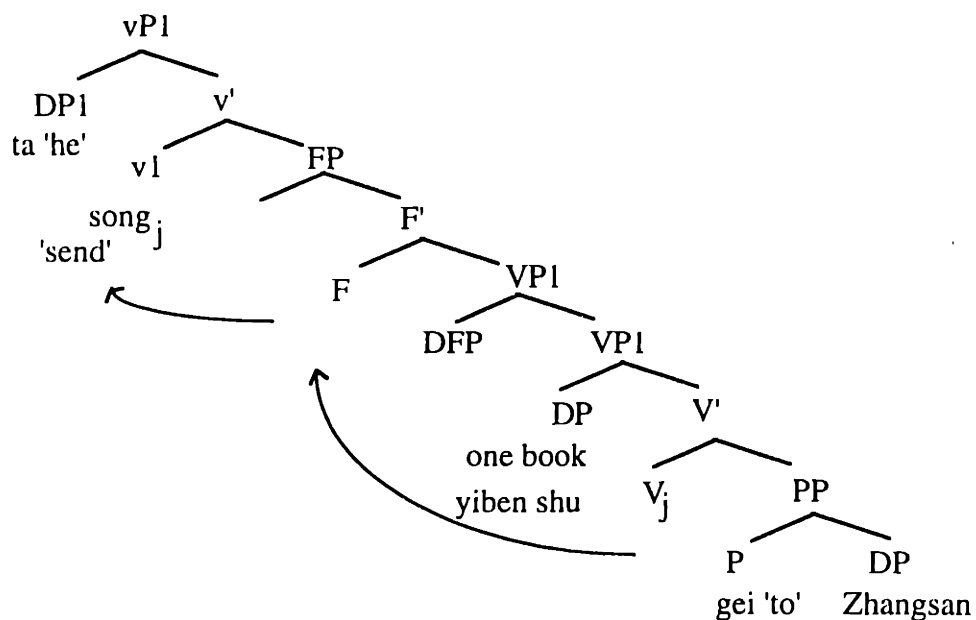
The question now is how is the order [V-theme-GEI-goal DFP] derived? How are the
theme and the goal moved to the scrambled position given that there is only one scrambled
position? Two possibilities come to mind: (i) VP1 raises as a whole to the shifted object
position; (ii) the theme and the goal raise independently across the DFP (and one argument
adjoins to the other).

(36)　Possibile analysis: VP-raising[13]
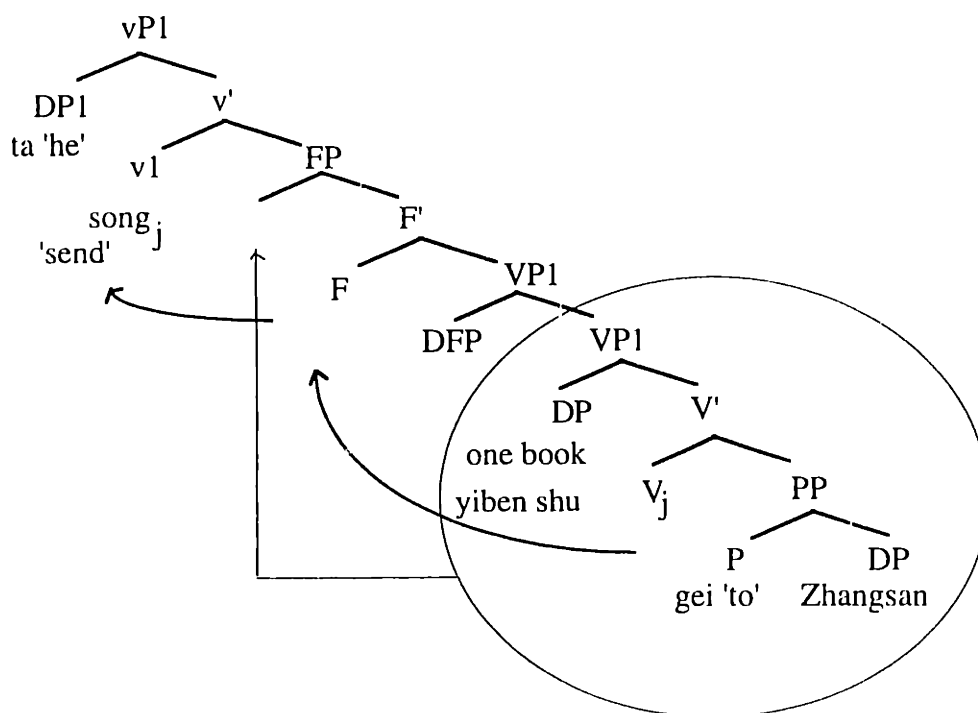
(37)　Possible analysis: Argument raising
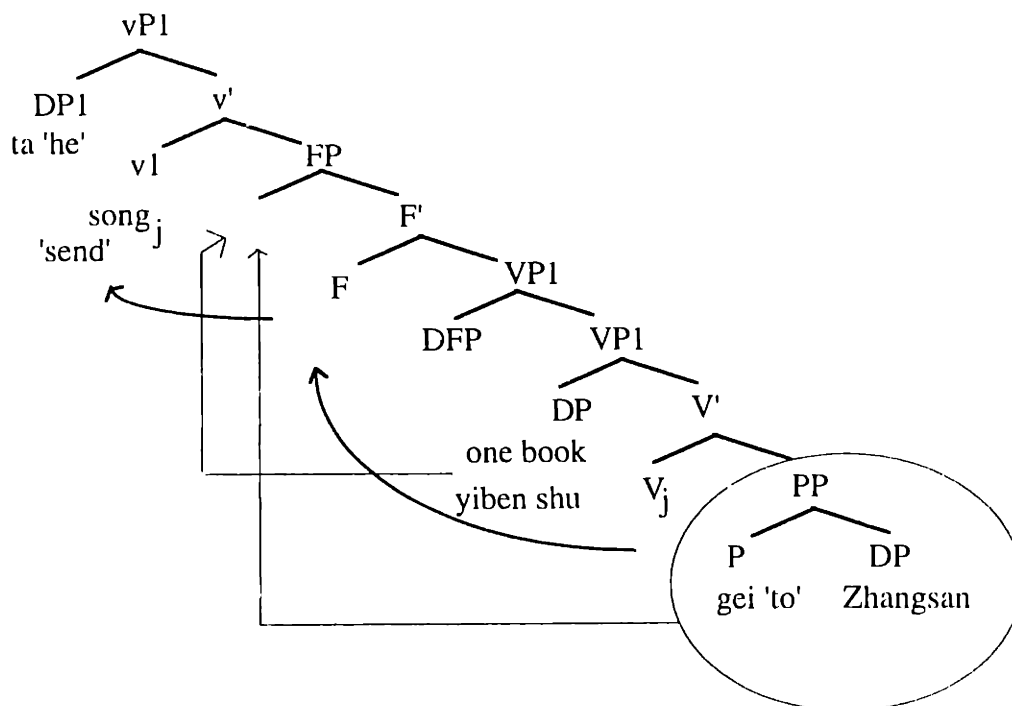
[13] The problem with raising the bottom part of an adjoined structure can be circumvented if we assume following Cinque (1997) that DFPs appear in the Spec of a functional projection.

The first possible analysis has the advantage that it does not need to explain why the theme cannot scramble across the DFP leaving behind the goal argument. The impossibility of the order [V theme DFP Gei-goal] follows straightforwardly from the assumption that it is the VP (as opposed to the object) which raises in cases which have been considered to be 'object scrambling' in Chinese. This analysis also predicts that the goal cannot scramble across the DFP leaving behind the theme to derive [V Gei-goal DFP theme]. Whether this prediction is borne out is difficult to tell because while the order is available, one may argue that the order has its source from the shift constructions and not from the dative constructions. This analysis however has the disadvantage that it is unclear what motivates the raising of a VP and why a DP cannot raise by itself. The analysis in terms of VP-raising does not fit very well with what we know about scrambling in double complement constructions in other languages. In German for example, either the theme or the goal argument may scramble by itself leaving behind the other internal argument in double object constructions (Diesing 1997:405). Both the theme and the goal argument also may scramble together.

(38)   a.   daß Max nicht Rebekka das Buch gegeben hat.   (German)

that Max not Rebecca the book given   has

'...that Max has not given Rebecca the book.'

b.   daß Max **Rebekka** nicht das Buch gegeben hat.

that Max Rebecca not   the book given   has   (scrambled goal)

c.   daß Max das Buch nicht Rebekka gegeben hat.

that Max the book not   Rebecca given   has   (scrambled theme)

d.   daß Max Rebekka das Buch nicht gegeben hat.

that Max Rebecca the book not given   has   (scrambled goal, theme)

e.   daß Max das Buch Rebekka nicht gegeben hat.

that Max the book Rebecca not   given   has   (scambled theme, goal)

The second analysis has the advantage that it fits in well with what we have learned about the distribution of the object in Chinese in comparision with object scrambling in Dutch/German. It predicts that either the goal or the theme can scramble by itself across the DFP. We know that the theme cannot scramble by itself across the DFP since the order [V theme DFP Gei-goal] is impossible. We have noted earlier that it is not clear whether the goal argument can scramble independently given that the order [V Gei-goal DFP theme] may be argued to have its source from the shift constructions. Suppose we assume that the goal argument can scramble by itself while the theme argument cannot for some reason. Then we can analyze the order [V theme Gei-goal DFP] as involving movement of the goal argument followed by the theme argument which adjoins to the goal in the scrambled position. The next question is whether the theme argument can raise first follcwed by the goal argument, deriving the order [V Gei-goal theme DFP]. The answer for this question can be either yes or no. One can assume that the above derivation is impossible and the existence of the order [V Gei-goal theme DFP] is due to the shift constructions. Alternatively, one can assume that the derivation is possible and the order generated turns out to be same as the one generated by the shift constructions. Suppose the answer is no. Then we have a generalization where the goal argument can raise independently and after the goal argument has raised, the theme may raise and adjoins to it. A theme argument on the other hand cannot raise independently and as a result, no goal argument can adjoin to it. This picture is very similar (though not identical) to the double object constructions in

Dutch. In Dutch, the goal argument can scramble alone or be followed by a theme, but a theme cannot scramble alone and be followed by a goal.

(39) a. ?dat Piet echt Marie het boek getoond heeft (Dutch)

that Peter indeed Mary the book shown has

'...that Peter has indeed shown Mary the book.'

b. dat Piet **Marie** echt het boek getoond heeft

that Peter Mary indeed the book shown has (scrambled goal)

c. dat Piet **Marie het boek** echt getoond heeft

that Peter Mary the book indeed shown has (scrambled goal, theme)

d. *dat Piet **het boek** echt Marie getoond heeft

that Peter the book indeed Mary shown has (scrambled theme)

e. *dat Piet **het boek Marie** echt getoond heeft

that Peter the book Mary indeed shown has (scrambled theme, goal)

While I do not have an explanation for why the theme argument in dative constructions in Chinese cannot raise by itself, whatever which explains the Dutch patterns should shed light on why the theme cannot scramble by itself in dative constructions.[14] I adopt the second analysis in this chapter. I suggest that the goal PP raises first to the Spec of FP followed by adjunction of the theme DP to the PP.

---

[14] Diesing (1997) explains the impossibility of scrambling the theme over the goal in Dutch double object constructions in terms of relativized minimality. This may not work for Chinese given that the theme appears higher than the goal in dative constructions.

4.3   Further support

Further support for the analysis above and for the particular structures of double complement constructions assumed here are discussed in the following subsections.

4.3.1   Evidence from scope

Huang (1982) and Aoun and Li (1989) observe that in both English and Chinese, QP complements within double object constructions are scopally unambiguous while QP complements within dative constructions are scopally ambiguous.

(40)   a.   Mary gave someone every book   unambiguous

     b.   Mary gave some book to everyone   ambiguous

(41)   a.   wo song san-ge   ren   mei-ben   shu.   unambiguous

          I   give three-CL   person every-CL book

          'I gave three persons everybook.'   (Aoun and Li 1989)

     b.   wo song san-ben shu   gei mei-ge   ren.   ambiguous

          I give three-CL book GEI every-CL person

          'I gave three books to everyone.'   (Huang 1982, Aoun and Li 1989)

Only the goal may take scope over the theme in double object constructions. In dative constructions, the theme may take scope over the goal and vice versa. While Aoun and Li (1989) do not discuss the shift constructions, Huang (1982) has shown that the shift constructions pattern like double object constructions and unlike the dative constructions in

that they are unambiguous. Only the goal may take scope over the theme and not vice versa.

(42)   wo song gei san-ge ren   mei-ben shu.   unambiguous

I give GEI three-CL person every-CL book

'I gave three persons everybook.'   (Huang 1982)

This set of data supports our assumption that the shift constructions are similar to the double object constructions in structure and unlike the dative constructions. As noted in Marantz (1993: 120-121), the scope interaction of the internal arguments in the double complement constructions supports the claim that double object constructions involve an additional VP compared to the dative constructions. Assuming that quantifiers adjoin at LF to the minimal maximal projection dominating them (Aoun and Li 1989), given that the two objects in double object constructions (and the shift constructions) are in different VPs, the lower object can only be adjoined to the lower VP while the upper object is adjoined to the upper VP. The lower object must have narrower scope than the upper object. On the other hand, since the theme and the goal are within the same VP in dative constructions, both may adjoin to the same VP. As a result, either may have scope over the other.

4.3.2   Evidence from GE 'each'

In this section, I show that the distribution of the dyadic quantifier GE separates dative constructions from double object and shift constructions (Kung 1993). I assume T-H. Lin's (1998) analysis of GE and show that the distribution of GE supports the structural

difference between dative constructions and double object/shift constructions, which both GE and DFP are sensitive to.[15]

GE has been referred to as a dyadic quantifier which distributes over two arguments (e.g. Kung 1993). Choe (1987:32) defines a distributive dependency as a relation between two co-arguments which consists of a 'sorting key' and a 'distributive share'. A sorting key is semantically plural (Choe 1987 citing Burzio 1986:198-208) and a distributive share is indefinite. T.H. Lin (1998) proposes an analysis of GE 'each' along the same lines as Choe (1987) which covers a wide range of data. T.H. Lin (1998) proposes that GE is adjoined to a VP (and a V-bar) and it must quantify a distributable argument (sorting key) and bind an (indefinite) argument (distributive share). The argument bound by GE includes NPs with weak determiners *yi ge* 'a', *mou-ge* 'some', and numerals (T.H. Lin 1998). The argument quantified by GE is semantically plural. An example of the use of GE is shown in (43).

(43)   Zhangsan he Lisi ge mai-le   wu-ben xiao-shuo.   (Kung 1993:117)

Zhangsan and Lisi GE buy-PERF five-CL novel

'ZS and Lisi bought five novels each.'

The sentence is not acceptable with GE 'each' when either one of the requirements is not satisfied.

(44)   a.   *tamen ge likai-le.   (Kung 1993:118)

they   GE leave-PERF

'They have each left.'

---

[15] For the purpose of this section, I assume T-H. Lin's (1997) analysis of GE. In the appendix of this chapter, I explore a reanalysis of GE given the facts observed by T-H.Lin (1998) and Kung (1993) and some of my own observations.

b.   *ta ge mai le   wu ben xiao-shuo.

he GE buy-PERF five-CL novel

'He bought five novels each.'

c.   *tamen ge qing le Zhangsan.

they   GE invite-PERF Zhangsan

'They have each invited Zhangsan.'

While there is an argument that GE can quantify over namely *tamen* 'they' in (44a), there is no argument for GE to bind. (44a) is thus ruled out. In (44b), GE binds the theme argument. However, there is no distributable argument within the sentence for GE to quantify. GE is thus not licensed in (44b). In (44c), GE quantifies over the agent argument. Although there is an argument within the c-command domain of GE, this argument is not an indefinite. The binding requirement of GE is not satisfied and the sentence is bad.

Interestingly, in double complement constructions, GE can appear between the two complements in double object and shift constructions, but it cannot appear in between the two complements in dative constructions (Kung 1993).

(45)   a.   tamen ge song-le   Zhangsan wu-ben shu.

they   GE give-PERF Zhangsan five-CL book

'They gave Zhangsan five books each.'   (Kung 1993:118)

b.   Zhangsan song-le   nei san-ge   ren   ge yi-fen liwu

Zhangsan give-PERF that three-CL person GE one-CL present

'ZS gave those three people each a present.'   (Kung 1993:182)
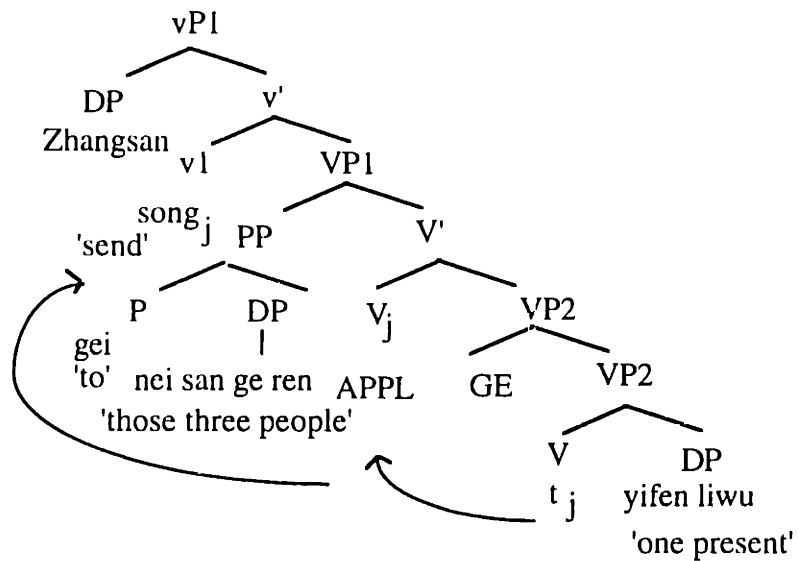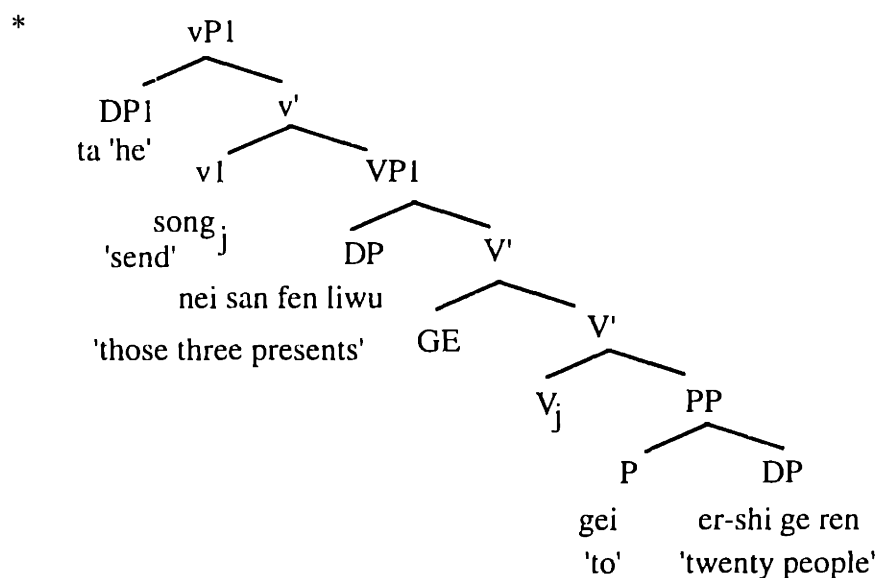
c. Zhangsan song gei-le   nei san-ge   ren   ge yi-fen   liwu.

Zhangsan give GEI-PERF that three-CL person GE one-CL present

'ZS gave those three people each a present.'   (Kung 1993:182)

d. *Zhangsan song-le   nei san-fen   liwu   ge gei   er-shi-ge   ren.

Zhangsan give-PERF   that three-CL present GE GEI   twenty-CL people

(Kung 1993:182)

This pattern of distribution in double complement constructions is parallel to the distribution of the DFP as presented in section 3.

Assuming that GE is adjoined to a VP (T.H. Lin 1998)[16], the fact that GE can appear between the internal arguments in double object/shift constructions, but not in dative constructions indicate that there is one less VP in dative constructions compared to double object/shift constructions (Marantz 1993). In double object/shift constructions, GE can appear between the internal arguments as presented in (46) and (47) respectively. This is because there are two VPs in double object/shift constructions.

(46) a. Zhangsan song-le   nei san-ge   ren   ge yi-fen   liwu

Zhangsan give-PERF that three-CL   person GE   one-CL present

'ZS gave those three people each a present.'   (Kung 1993:182)

---

[16] In addition to adjunction to a VP, T.H. Lin (1997) proposes that GE can also be adjoined to a V-bar. I do not assume that GE can adjoin to a V-bar because it predicts certain positions for GE which are unattested. See appendix to Chapter Four.

b.   Double object

vP1
```
            vP1
           /    \
        DP        v'
     Zhangsan   /    \
              v1       VP1
           song_j    /     \
           'send'  DP         V'
                 nei san ge ren  /    \
                 'those three people'  V_j      VP2
                                     APPL   GE     VP2
                                                  /    \
                                                 V       DP
                                                t_j     yifen liwu
                                                        'one present'
```

(47) a.   Zhangsan song gei-le   nei san-ge   ren   ge yi-fen   liwu.

Zhangsan give GEI-PERF that three-CL person GE one-CL present

'ZS gave those three people each a present.'   (Kung 1993:182)

b.   Shift constructions

```
            vP1
           /    \
        DP        v'
     Zhangsan   /    \
              v1       VP1
           song_j    /     \
           'send'  PP         V'
                  /   \      /    \
                 P     DP   V_j      VP2
                gei    |   APPL   GE     VP2
                'to' nei san ge ren           /    \
                    'those three people'     V       DP
                                            t_j     yifen liwu
                                                    'one present'
```

Because there is only one VP in dative constructions, GE cannot appear inbetween the internal arguments since the internal arguments are not separated by a VP boundary.

(48) a.   *Zhangsan song-le   nei san-fen liwu   ge gei   er-shi-ge   ren.

Zhangsan give-PERF   that three-CL present GE GEI   twenty-CL people

(Kung 1993:182)

  b.   Dative constructions

```
*          vP1
          /  \
       DP1    v'
       ta 'he'  /  \
            v1     VP1
           song      /  \
    'send'   j    DP     V'
              nei san fen liwu  /  \
        'those three presents'  GE     V'
                                      /  \
                                    V      PP
                                     j    /  \
                                        P     DP
                                       gei   er-shi ge ren
                                       'to'  'twenty people'
```

I have shown that the dative constructions pattern differently from the double object and the shift constructions in scope as well as in the distribution of GE. This patterning provides confirmation for the contrast in the distribution of DFP in dative constructions versus double object/shift constructions and for the structures of double complement constructions assumed in this chapter.

5.   Structures of double complement constructions in Chinese: Previous analyses

In the following subsections, I discuss some previous analyses of double complement constructions in Chinese and show some of the difficulties faced by each analysis in accounting for the distribution of the DFP in these constructions.

5.1   Aoun and Li (1989)

5.1.1   The proposal

The structures of double object constructions and dative constructions proposed in Aoun and Li (1989) aim to capture three main generalizations. First, there is a semantic (posesssion) relation between the goal and the theme in double object constructions (Kayne 1984 cited in Aoun and Li 1989). The goal is interpreted as a posessor of the theme in double object constructions. Second, there is an asymmetric c-command relation between the two complements in double object and dative constructions (Larson 1988, Barss and Lasnik 1986). In double object constructions [V DP2 DP1], DP2 asymmetrically c-commands DP1. In dative constructions [V DP1 P DP2], DP1 asymmetrically c-commands DP2 (and the PP). Third, QP complements within double object constructions are scopally unambiguous while QP complements within dative constructions are scopally ambiguous (see section 4.3.1). The structure of double object constructions proposed to capture these generalizations is shown in (49).[17]

---

17 I have replaced NPs with DPs to be consistent with the notation used in this thesis.

(49)   Double object

```
                    I"
              ┌─────┴─────┐
            Spec          I'
                     ┌────┴────┐
                     I        VP1
                          ┌────┴────┐
                          V         sc
                         gave   ┌────┴────┐
                               DP1       VP2
                               Mary   ┌───┴────┐
                                      V       DP2
                                      e      ╱────╲
                                            a book
```
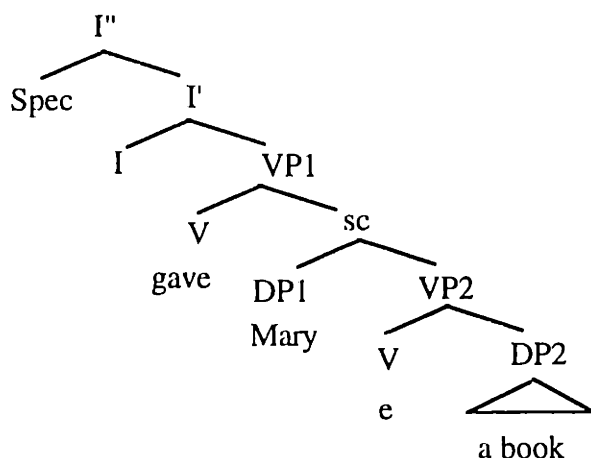
In this structure, the posession relation is expressed by the empty verb which denotes posession. This empty verb takes *Mary* as its subject and *a book* as its object. *Mary* receives Case from *gave* and *a book* receives Case from the empty verb. *Mary* asymmetrically c-commands *a book*. The unambiguous scope between two QP complements follows from this structure, assuming the Minimal Binding Requirement (MBR) and the Scope Principle.

(50)   Minimal Binding Requirement (MBR)

Variables must be bound by the most local potential A-bar binder.

(51)   The Scope Principle

A quantifier A has scope over a quantifier B in case A c-commands a member of the chain containing B.

(52)   Double object constructions

```
                      I"
                  ┌────┴────┐
               Spec         I'
                        ┌───┴───┐
                        I       VP1
                            ┌────┴────┐
                            V         sc
                          gave    ┌───┴───┐
                                 DP1      VP2
                               someone  ┌──┴──┐
                                        V     DP2
                                        e    ╱──╲
                                           every book
```
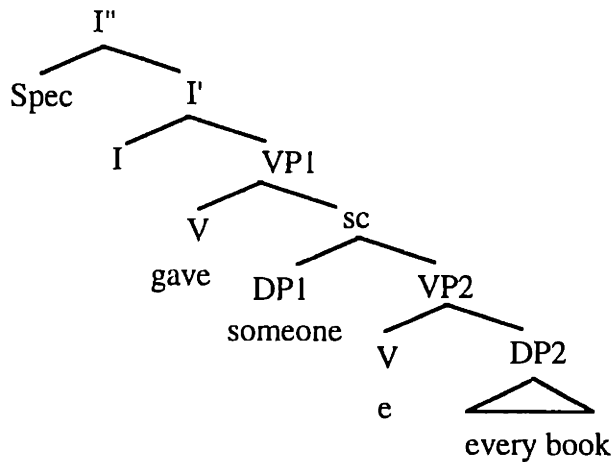
At LF, *someone* adjoins to VP1 in (52). *Everybook* adjoins to VP2 and cannot adjoin to VP1 because of the MBR. According to the Scope Principle, only *someone* can have wide scope. This is because both the base and the adjoined position of *someone* c-commands the base and the adjoined position of *everybook*. QP complements within double object constructions are thus unambiguous.

Aoun and Li (1989) assume that dative constructions are derived from double object constructions by a passive-like process (compare Larson 1988).[18] The structure for dative constructions is shown in (53).

---

[18] Unlike Aoun and Li (1989), Larson (1988) proposes that double object constructions are derived from dative constructions via a passive-like operation.

(53) Dative constructions

```
                    I"
                  /    \
              Spec       I'
                       /    \
                     I       VP1
                           /     \
                          V        sc
                        gave    /      \
                             DP1        VP2
                                      /     \
                                   VP3      to Mary
                                  /   \
                                 V     DP2
                                 e     /\
                                      /__\
                                    a book
```
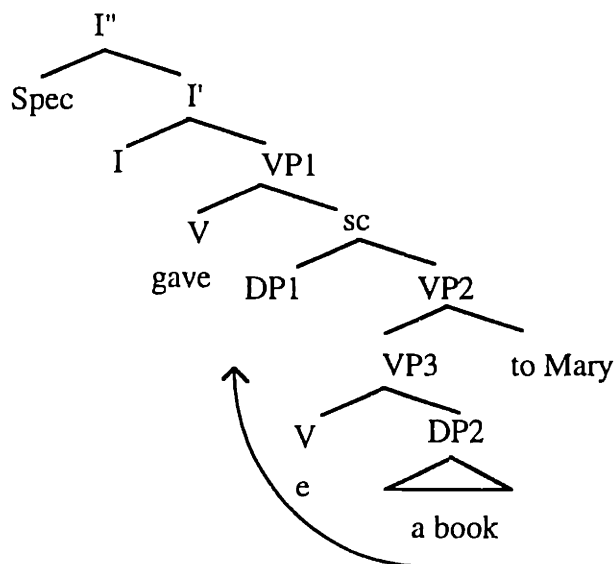
The passivization process absorbs the Case of the verb e. The object moves to DP1 to receive Case from *gave*. The subject *Mary* is adjoined to VP and receives Case from *to*. The object *a book* after movement to DP1 asymmetrically c-commands *to Mary*, capturing Larson (1988) and Barss and Lasnik's (1986) generalization. Given this structure, and assuming MBR and the Scope Principle, QP complements are predicted to be scopally ambiguous in dative constructions.

(54) Dative constructions

```
                 I"
              ╱      ╲
          Spec        I'
                   ╱      ╲
                 I         VP1
                         ╱    ╲
                       V        sc
                      gave   ╱      ╲
                           DP1       VP2
                        some book_i  ╱   ╲
                                   VP3      to everyone
                                  ╱  ╲
                                 V    DP2
                                 e    t_i
```
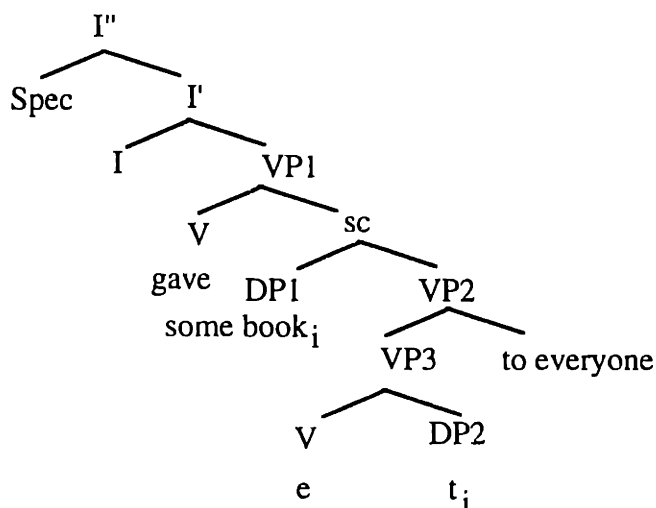
In (54), *some book* adjoins to VP1 and *everyone* adjoins to VP2 at LF. The raised *everyone* c-commands the trace of *some book* and *everyone* itself is c-commanded by the raised QP *somebook*. Given the Scope Principle, *everyone* may have wide scope over *somebook* because it c-commands the trace of *somebook*. *Some book* may have wide scope over *everyone* because it c-commands *everyone*. As a result, the QP complements in dative constructions are ambiguous. The same analysis is assumed to hold in Chinese given that the same scope contrast in double object and dative constructions obtains in Chinese.

5.1.2 Some problems

The structures proposed by Aoun and Li (1989) for double object and dative constructions face problems with capturing the distribution of the DFP. If we assume that the DFP is adjoined to VP2, we are able to capture the distribution of the DFP in double object constructions, but not the distribution of the DFP in dative constructions. Consider the double object constructions in (55). The DFP is adjoined to VP2. The theme argument

may raise to the scrambled object position below the goal argument. This gives us the orders [V goal DFP theme] and [V goal theme DFP].

(55)   Double object constructions

```
            VP1
           /    \
        V         sc
                 /    \
              DP1      FP
              goal    /   \
                     /     F'
                    ↑    /    \
                    |   F      VP2
                    |        /    \
                    |     DFP      VP2
                    |             /    \
                    |            V      DP
                    |            e     /__\
                     _____ theme
```
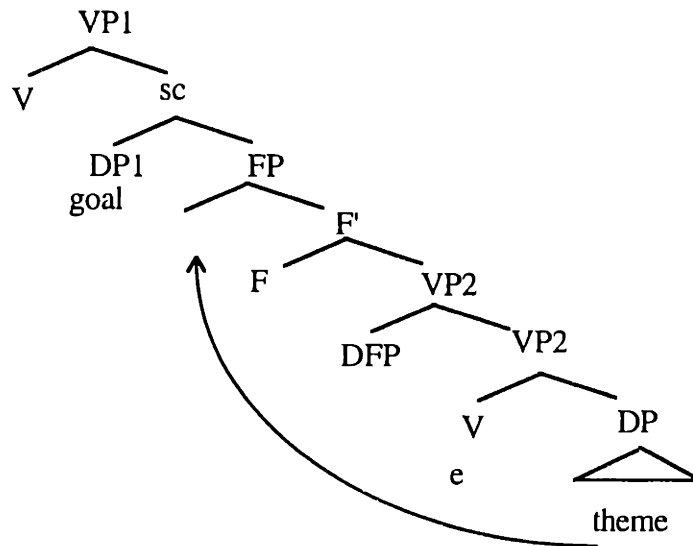
The problem comes with dative constructions shown in (56). If the DFP is adjoined to VP2 as in the double object constructions, the order [V theme DFP GEI-goal] is predicted to be possible, contrary to fact. The problem remains even if the DFP is adjoined to VP3 in dative constructions. There is no reason why [V theme DFP GEI-goal] should be ruled out.

(56)   Dative constructions
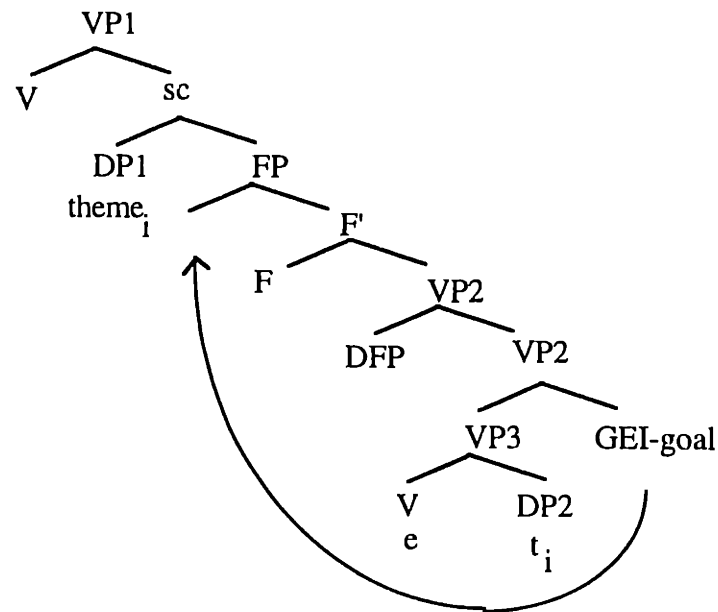
One may suggest that the DFP is adjoined to the small clause in dative constructions. This allows the order [V DFP theme GEI-goal]. The small clause may move to the shifted position immediately above the DFP, resulting in the order [V theme GEI-goal DFP]. The problem appears with double object constructions. If the DFP is adjoined to the small clause in double object constructions, the order [V DFP goal theme] would be incorrectly predicted to be acceptable. There does not appear to be a straightforward way of capturing the distribution of the DFP in double object and dative constructions given the structures proposed in Aoun and Li (1989).

5.2   Yang (1991)

5.2.1 The proposal

Yang analyzes the shift constructions and the double object constructions as involving

almost the same structure. The only difference is that the preposition is overt in shift

constructions and covert in double object constructions.

(57)   a.   Double objet/Shift constructions

               wo song (gei) Zhangsan yi-ben shu.

               I   send GEI Zhangsan one-CL book

               'I sent Zhangsan a book.'

       b.   Dative constructions

               wo song yi-ben shu   gei   Zhangsan.

               I   send one-CL book GEI Zhangsan

               'I sent a book to Zhangsan.'

Like Aoun and Li (1989), Yang assumes that there is a derivational relation between the

double object and the dative constructions. The D-structure for both double object and

dative constructions is shown in (58).

(58)

```
              VP
              |
              V'
            /    \
           V      VP
                /    \
              PP      V'
            /   \    /   \
           P    DP  V     DP
         gei/Pe  Zhangsan song  yiben shu
         to              send    one book
```
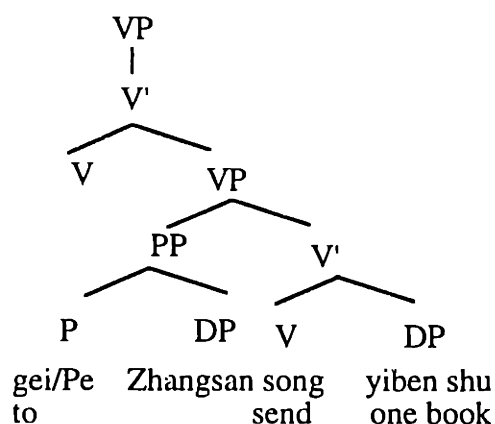
The theme receives Case from *song* 'send' and the goal receives Case from GEI. The verb moves to the empty V node to derive the double object/shift constructions in (57a). Yang assumes following Larson (1988) that reanalysis applies to the V-bar *song yiben shu* 'send one book'. The V-bar *song yiben shu* 'send one book' is reanalyzed as a V and moves to the empty V node to derive the dative constructions in (57b).

5.2.2 Some problems

Besides the problem noted by Kung (1993) that the extractability of the goal argument is influenced by whether the goal is introduced by GEI and hence shift constructions and double object constructions cannot have the same structure (see section 4.1), Yang's (1991) proposal also does not capture the c-command relation between the internal arguments in double object/shift constructions. The goal does not c-command the theme in the structure in (58). In addition, Yang's proposal faces some problems with the distribution of the DFP in double object/shfit constructions and dative constructions. If the DFP is adjoined to the lower VP as shown in (59), the word orders [V DFP goal theme] and [V DFP GEI-goal theme] would be predicted to be possible, contrary to fact.

(59)

```
                VP
                 |
                V'
          ___/    \___
         V           FP
                  __/   \___
                          F'
                      __/    \___
                     F          VP
                           __/     \___
                         DFP          VP
                                  __/     \___
                                 PP          V'
                             __/   \__     __/  \__
                            P       DP    V       DP
                          gei/Pe  Zhangsan song  yiben shu
                          to               send  one book
```
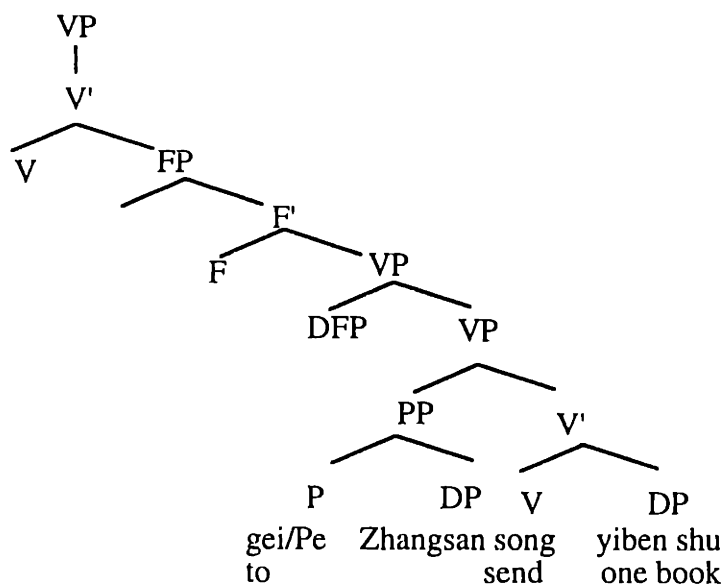
If the DFP appears above V' as shown in (60), there is no way to generate the order [V DFP theme GEI-goal] which is a possible order.[19] This is because V-bar reanalysis applies to derive the dative structure in Yang's analysis.

(60)

```
                VP
                 |
                V'
          ___/    \___
         V           VP
               __/      \___
             PP            FP
          __/  \__     __/   \___
         P      DP    F          F'
       gei/Pe Zhangsan       __/    \___
       to                   F          V'
                                   __/   \___
                                 DFP        V'
                                        __/   \__
                                       V       DP
                                     song    yiben shu
                                     send    one book
```

---
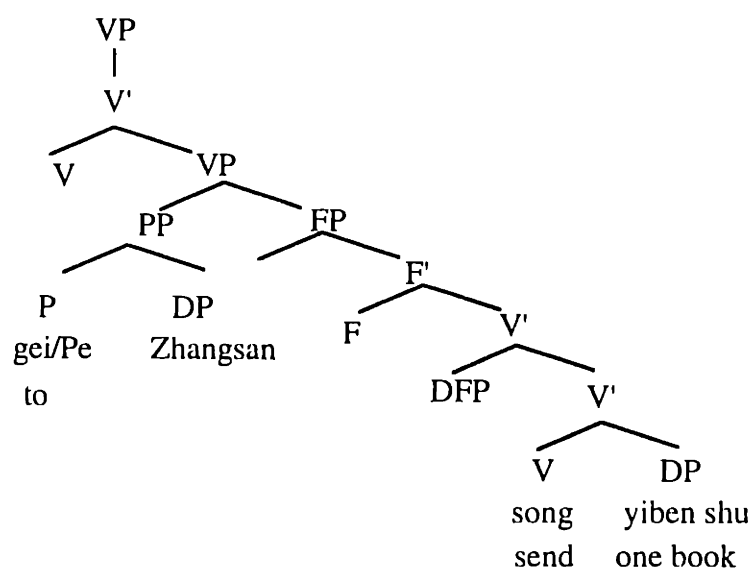
[19] If the DFP appears in the specifier of a functional projection (Cinque 1997), it would not be possible for the functional head to select a V-bar as its complement.

There does not seem to be a straightforward way to account for the generalizations regarding the distribution of the DFP in double complement constructions.

5.3   Kung (1993)

5.3.1 The proposal

Kung proposes following Bowers (1993) that the double object constructions have the representation in (61) (Kung 1993:130). The ditransitive verb selects for a small clause containing a null verb. The category of the small clause is Predicate Phrase (PrP).

(61)   Double object constructions
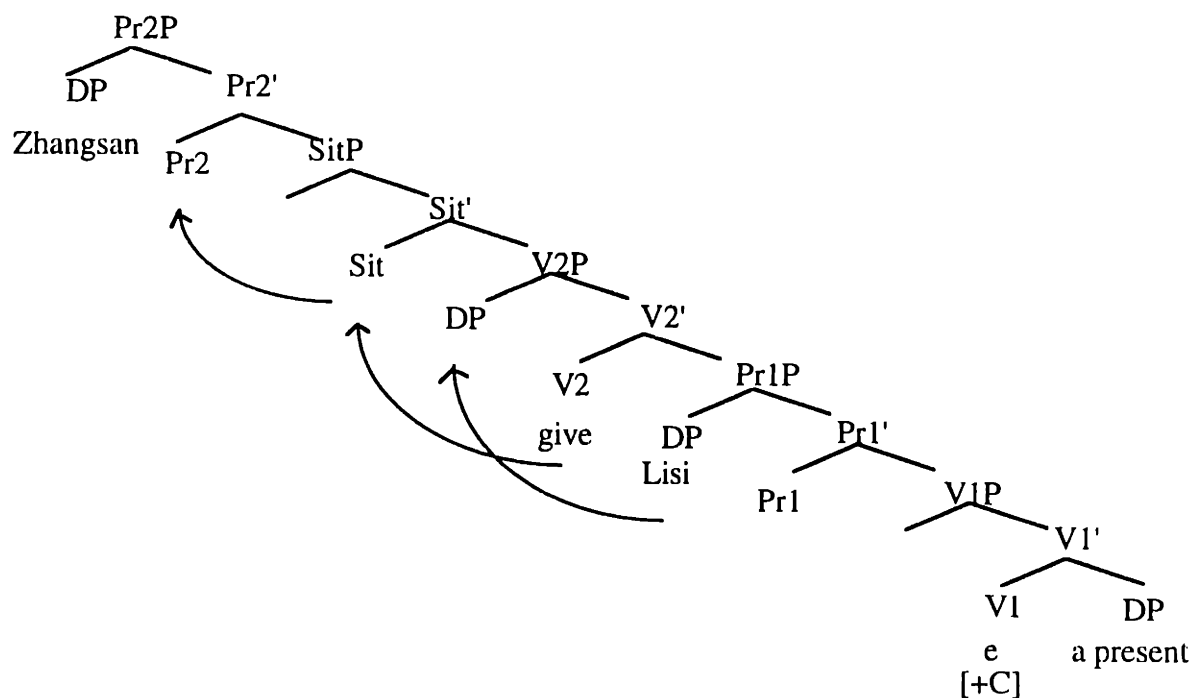
The ditransitive verb raises from V2 to Pr2, passing through Situation phrase (SitP). Kung assumes following Y-Li (1990:409) that a lexical item can be specified as [+C], [-C] or unspecified in the value of C to indicate its case assigning ability. A [+C] element can assign Case while a [-C] element cannot. A lexical item that is unspecified with respect to C is unable to assign Case but may acquire a plus or minus value through some grammatical means. The null verb in double object constructions is specified as [+C]. With this specification, the null verb can assign Case to the direct object. The indirect object moves from the subject position of Pr1P to an object position of Pr2P to receive Case. This object position can be either the Spec of V2P or SitP depending on the specificity property of the indirect object.

Kung proposes that Mandarin dative and shift constructions involve VP-movement. Kung assumes that unlike the empty verb in double object constructions which receives [+C], the empty verbs in dative and shift constructions are unspecified for the value of C. As a result, the V1P containing the empty verb and the direct object moves together to the Spec of geiP. This configuration allows the ditransitive verb to govern the empty verb and allows Case to be transmitted to the direct object.

(62)   Dative and shift constructions

Pr2P
DP   Pr2'
Zhangsan Pr2   SitP
          give_j
                  Sit   Sit'
                  t_j   V2P
                         V2'
                  V2   geiP
                  t_j   V1P_i   gei'
                        V1'
                  V1   DP   gei   Pr1P
                  e   a present   DP   Pr1'
                  [C] unspecified   Lisi
                                    Pr1   V1P
                                           t_i
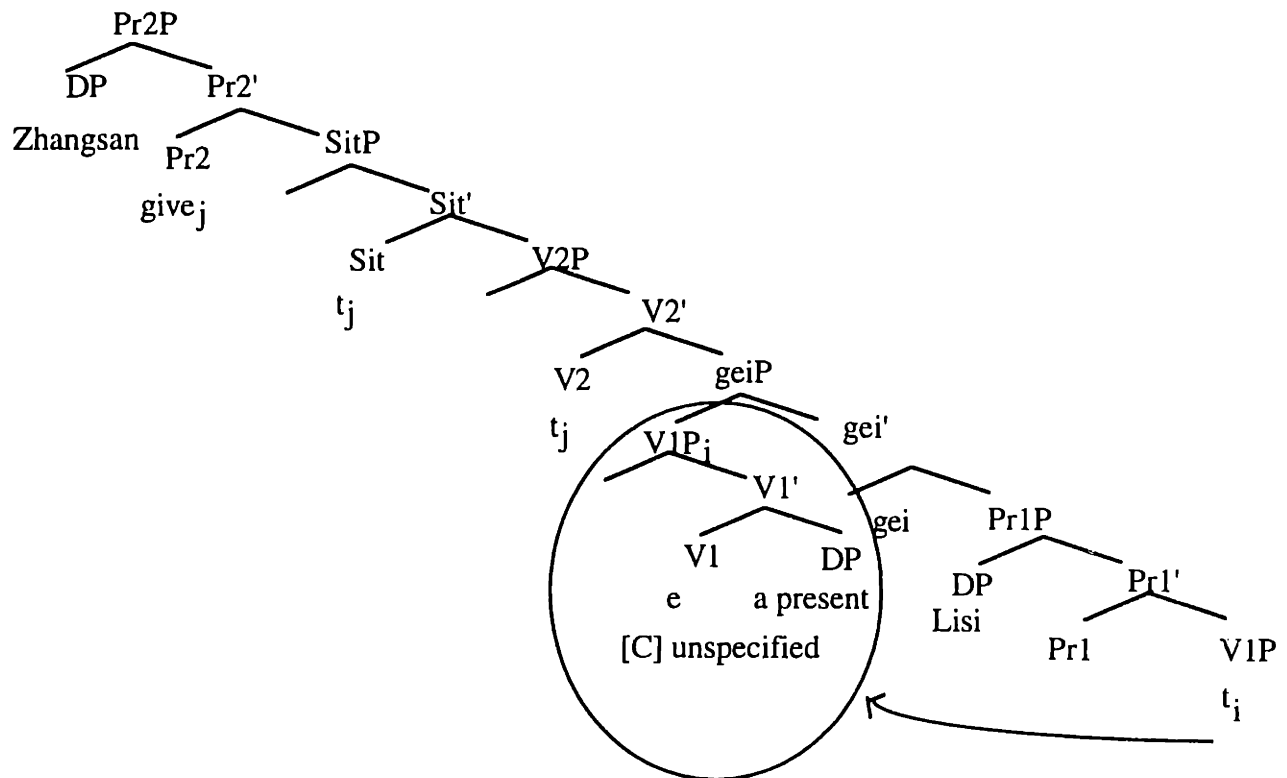
When the empty verb incorporates into the ditransitive verb, a dative structure is generated. To generate the shift constructions, GEI incorporates to the verb *give*, followed by movement of the indirect object to a position next to GEI. It is assumed that the indirect object adjoins to SitP. The representations of the dative and shift constructions are shown in (63a) and (63b) respectively.

(63) a. Dative constructions

Pr2P
DP   Pr2'
Zhangsan Pr2   SitP
      give   V1   Sit'
             ej   Sit   V2P
                  tj   V2'
                       V2   geiP
                       tj   V1Pᵢ   gei'
                            V1'   gei   Pr1P
                         V1   DP   DP   Pr1'
                         t_j   a present Lisi   Pr1   V1P
                         [C] unspecified   tᵢ

b.   Shift constructions
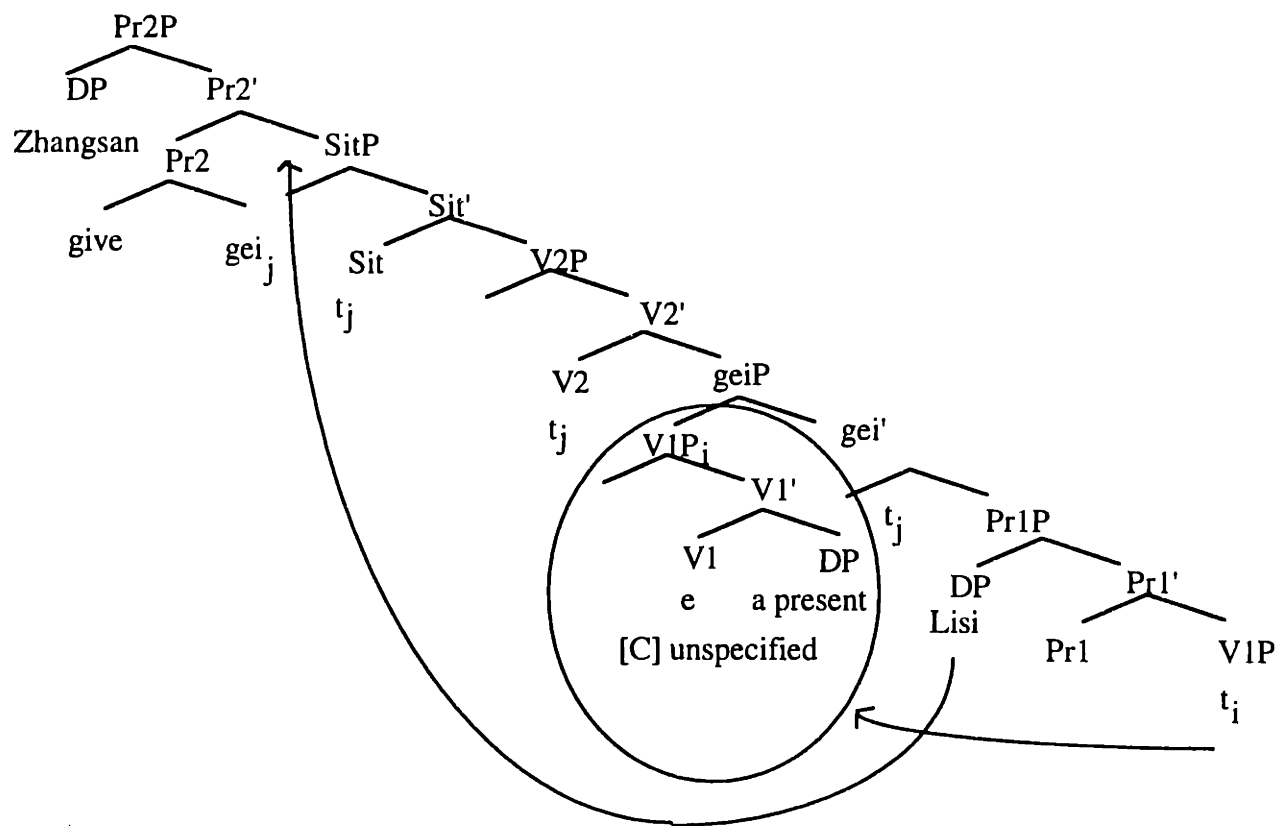
5.3.2 Some problems

Kung assumes that the DFP is attached to the matrix VP, the V2P headed by the ditransitive in double object constructions.

(64)   Double object constructions

```
Pr2P
 ⟋‾‾⟍
DP    Pr2'
Zhangsan ⟋‾‾‾⟍
    Pr2    SitP
         ⟋‾‾⟍
        Sit'
      ⟋‾‾‾⟍
    Sit    V2P
        ⟋‾‾‾⟍
      DFP    V2P
          ⟋‾‾‾⟍
        DP    V2'
           ⟋‾‾‾⟍
          V2    Pr1P
         give  ⟋‾‾‾⟍
             DP    Pr1'
            Lisi  ⟋‾‾‾⟍
                Pr1    V1P
                    ⟋‾‾‾⟍
                  V1    V1'
                      ⟋‾‾⟍
                    V1    DP
                     e   a present
                    [+C]
```
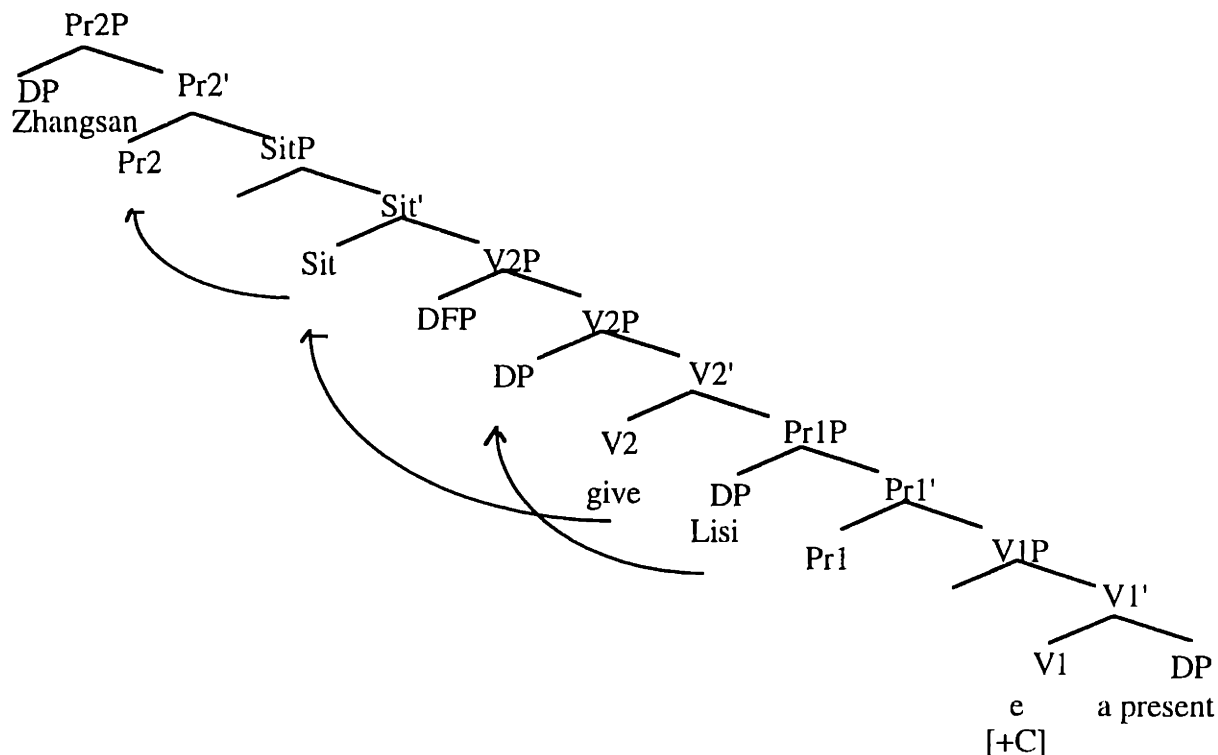
Given that there is only one Spec position [Spec, SitP] above the DFP in the structure in

(64), Kung (1993) considers two possible derivations for sentences such as (65).

(65) a.   wo song-le   Zhangsan nei-ben xiaoshuo liang ci le.

           I   give-PERF Zhangsan that-CL novel   two time PERF

           'I gave Zhangsan that novel twice.'   (Kung 1993:147)

     b.   wo song-le   pengyou nei-ben xiao shuo liang ci   le.

           I   give-PERF friend   that-CL novel   two time PERF

           'I gave friends (specific) that novel twice.'   (Kung 1993:148)

One option is to assume that both objects move together to the Spec of SitP. In other

words, V2P moves to Spec SitP. The other option is to assume that each object moves

independently. The indirect object can move to the Spec of SitP and the direct object can A-bar move to adjoin to V2P. For either option, one must allow one of the objects to raise leaving the other behind to derive the order [V goal DFP theme]. For the shift constructions represented in (63b), assuming that the DFP is adjoined to V2P, one must allow the internal arguments to raise independently to derive the order [V GEI-goal theme DFP] and [V GEI-goal DFP theme]. The question now is why in the dative constructions in (63a), the theme argument cannot move independently to a position before the DFP to derive [V theme DFP GEI-goal]. While the question on why the theme argument cannot scramble independently in dative constructions may not receive a satisfactory answer in my own proposal, there may be a natural way to capture the difference between dative and double object/shift constructions in my analysis. Unlike double object/shift constructions which have only one internal argument base generated below the DFP, there are two internal arguments base generated below the DFP in dative constructions. While the double object/shift constructions allow the theme to scramble, the scrambling of the theme argument in dative constructions is dependent on the scrambling of the goal argument. That some kind of dependency relation is available in dative constructions but not in double object/shift constructions is consistent with claim that there are two arguments below the DFP in dative constructions but only one argument below the DFP in double object/shift constructions.

6.   Conclusions

In this chapter, I show that the scrambled object appears within the (top) VP, supporting Travis's (1991) proposal about the position of the scrambled object. In particular, I show that the (indefinite) DFP appears immediately above the lowest VP. The scrambled object is immediately above the DFP and below the immediately dominating VP. The distribution of the DFP in the double complement constructions provides a window to the different

structures involved in double object, shift constructions and dative constructions, in support of Marantz's (1993) proposal. The different structures are confirmed by the distribution of GE and gain support from scope ambiguity in double complement constructions. The analysis in this chapter supports Yang's (1991) categorization of double complement constructions in Chinese, where the double object and the shift constructions are grouped together, separate from the dative construction.

Appendix to Chapter Four

GE 'each' in Chinese

1. Introduction

In Chapter Four, I have shown that GE 'each' provides independent evidence for the adjoined position of the duration/frequency phrases and the structures of the double object and dative constructions in Marantz (1993). The use of GE as evidence depends crucially on the assumption that GE adjoins to a VP and not to a V-bar. The idea that GE adjoins to a VP is argued for in T.H. Lin (1998). T.H. Lin (1998) however also suggests that GE may adjoin to a V-bar. In this appendix, I examine more closely the distribution of GE 'each' in Chinese and suggest a possible reanalysis of the cases that T.H. Lin (1998) takes to indicate that GE may adjoin to a V-bar. I argue that there is a more restricted locality condition governing the distribution of GE than previously assumed (see for example T.H. Lin 1998). I suggest that an interesting pattern of quantification of GE in double object and dative constructions observed by T.H. Lin (1998) may have a semantic rather than a structural explanation (contra T.H. Lin 1998).[1]

This appendix is organized as follows: In section 2, I review some previuos work on GE focusing especially on T.H. Lin's (1998) work. In section 3, I suggest a possible reanalysis of the cases that T.H. Lin (1998) uses to indicate that GE may adjoin to a V-bar. In section 4, I argue that the arguments associated with GE 'each' must appear within a local domain. The local domain may be an IP or a VP depending on where GE is adjoined.

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[1] It should be noted that the analysis presented in Lin (1998) for the pattern of GE quantification in double object and dative constructions is tentative.

In section 5, I present a puzzle observed by T.H. Lin (1998) regarding cases of GE quantification where the choice of which argument is to be quantified and which one is to be bound is not free. I observe that the goal argument resists binding even in cases where GE quantifies to the left. There seems to be evidence that the goal argument also resists binding in English binomial *each* as well (at least in double object constructions). The facts seem to indicate that the puzzle observed by T.H. Lin (1998) requires a semantic rather than a structural explanation. The conclusions are presented in section 6.

2. Basic properties of GE

In the following subsections, I review some previous work on GE, focusing in particular on T. H. Lin's (1998) work. I outline some of the results I adopt.

2.1 Licensing conditions of GE

T.H. Lin (1998) proposes that GE is adjoined to a VP (and a V-bar) and it must quantify a distributable argument and bind an (indefinite) argument. The argument bound by GE includes noun phrases with weak determiners *yi ge* 'a', *mou-ge* 'some', and numerals (T.H. Lin 1998). The use of binding here is in the sense of variable binding. T.H. Lin (1998) assumes following Cheng (1991) that indefinites in Chinese lack inherent quantificational force and they are variables rather than quantifiers. Definite expressions cannot be bound because they either do not introduce variables at all or because the variables they introduce are closed off by the definite determiner. The argument quantified by GE is semantically plural.

As a starting point, I assume following T.H. Lin (1998) that GE must satisfy two requirements in order to be licensed. These requirements are given below:

(1)   Licensing Conditions of GE (T.H. Lin 1998)

(i) GE must bind an indefinite argument within its c-command domain;

(ii) GE must quantify an argument either to its left or to its right (within an IP).

The domain in which the conditions must be satisfied will be refined in section 4. An example of the use of GE is shown in (2).

(2)   Zhangsan he Lisi ge   mai-le   liang-ben shu.

Zhangsan and Lisi GE buy-PERF two-CL   book

'Zhangsan and Lisi each bought two book.'

Zhangsan and Lisi is the argument quantified by GE and *two books* is the argument bound by GE. *Two books* has narrow scope with respect to *Zhangsan and Lisi*. The total number of books that is bought depends on the number of the argument quantified by GE. In this case, given that there are two individuals and the assumption that they cannot buy the same book, the number of books bought are four. Example (2) satisfies both requirements of GE. When either one of the requirements is not satisfied, the sentence is ungrammatical as shown below. The examples and discussions below are repeated from Chapter Four.

(3)   *tamen ge likai-le.[2] (Kung 1993:118)

they GE leave-PERF

'They have each left.'

---

[2] The sentence is fine when SELF is attached to GE.
    (i)   tamen ge-zi   likai-le.
               they GE-self leave-ASP
               "They each left (separately).'

(4)   *ta ge mai-le   wu-ben xiao-shuo.

       he GE buy-PERF five-CL novel

       'He bought five novels each.'

(5)   *tamen ge qing-le   Zhangsan.

       they GE invite-PERF Zhangsan

       'They have each invited Zhangsan.'

In (3) GE quantifies over *tamen* 'they'. There is however no argument for GE to bind (3), and as a result (3) is ruled out. (4) on the other hand has a theme argument which GE binds. However, there is no distributable argument within the sentence for GE to quantify. GE is thus not licensed in (4). In (5), GE quantifies over the agent argument. Although there is an argument within the c-command domain of GE, this argument is not an indefinite. The binding requirement of GE is not satisfied and the sentence is bad. Because GE must bind an indefinite argument within its c-command domain, GE cannot appear at the end of the sentence.

(6)   *tamen mai-le   yi-ben   shu ge.

       they buy-PERF one-CL book GE

       'They each bought a book.'

Needless to say, the indefinite argument cannot appear higher than GE.

(7)   a.   *yi-ge   ren   ge mai-le   na san-ben shu.

            one-CL person GE buy-PERF that three-CL book

            'One person each bought those three books.'

b. *yi-ben shu bei tamen ge mai-le.

one-CL book PASS they GE buy PERF

'A book each was bought by them.'

T.H. Lin (1998) observes that GE can quantify a noun phrase in some higher topic position as long as the noun phrase originates from the same clause.

(8) a. [Na san-ge pingguo]$_i$, wo ting Xiaoli shuo

that three-CL apple I hear Xiaoli say

[Laozhang ge$_i$ yao-le e$_i$ yi-kou].

Laozhang GE bite-PERF one-mouth

'Those three apples, I heard Xiaoli said Laozhang made a bite upon each of them.'

b. *Xuesheng-men shuo [Laozhang ge chi-le yi-ge pingguo]

student-PL say Laozhang GE eat-PERF one-CL apple

Assuming the copy theory of movement where movement leaves behind a copy of the moved element (Chomsky 1995), the contrast between (8a) and (8b) is due to the existence of a copy within the IP occupied by GE and the absence of such a copy in (8b). The quantificational requirement of GE can be satisfied through the copy of the moved element in (8a). There is no distributable argument in (8b) for GE to quantify over. The sentence is thus ungrammatical. The quantificational requirement of GE can be satisfied as long as there is a copy of the moved element within the local domain (IP in this case). This is contrasted with the binding requirement of GE. A copy of the argument within the c-command domain of GE is not sufficient to satisfy the binding requirement as shown in (9).

(9)　a.　tamen ge$_j$ mai-le　[yi-ben shu]$_j$.

they　GE buy-PERF one-CL book

'They each bought a book.'

　　b.　*[yi ben shu]$_j$ tamen ge$_j$ mai-le e$_j$.

one-CL book they　GE buy-PERF

'They each bought a book'

The head of the chain must be within the c-command domain of GE for binding to be licensed.

2.2　Adjunction sites of GE

As T.H. Lin (1998) observes, GE cannot adjoin to a projection higher than the VP as it cannot appear before modals and sentence adverbs.

(10)　a.　Mei-ge　xuesheng hui　ge　jiao　yi-pian　zuowen　　gei wo.

every-CL student　　will GE　hand one-CL composition to　me

'Each of the students will hand me a composition.'

　　b.　*Mei-ge　xuesheng ge　hui jiao　yi-pian　zuowen　　gei wo.

every -CL student　GE will hand one-CL composition to　me

(11) a.   Xiaoli he Xiaowang shang-xingqi ge jiao-le   yi-pian zuowen

Xiaoli and Xiaowang last-week   GE hand-PERF one-CL composition

gei wo.

to me

'Xiaoli and Xiaowang each handed me a composition last week.'

b.   *Xiaoli he Xiaowang ge shang-xingqi jiao-le   yi-pian zuowen

Xiaoli and Xiaowang GE last-week   hand-PERF one-CL composition

gei wo.

to me

GE can adjoin to any VP projection which allows the quantificational and the binding requirements to be satisfied. In (12), GE is adjoined to the vP. It quantifies over the subject and it binds an indefinite object argument. Following T.H. Lin's (1998) notation, I use 'i' to indicate GE-quantification and '(j)' to indicate binding by GE.

(12) a.   Mei-ge ren_i ge mai-le$_i$(j)   yi-dong fangzi(j).

every CL person GE bought-PERF one-CL house

'Every person bought a house.'   (T.H. Lin 1998:210)

b.
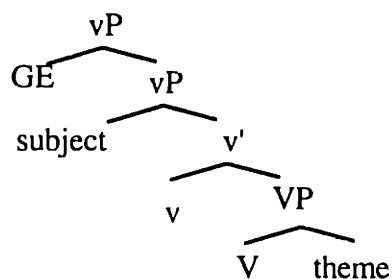
In (13), GE is adjoined to the VP separating the goal and the theme. It quantifies over the goal argument which is the immediate argument c-commanding it and it binds an indefinite argument within its c-command domain.

(13) a.   Ta song le   na san-ge   ren$_i$ gei$_i$($_j$) yi fen liwu($_j$).

          he send-PERF that three-CL person GE   one-CL present

          'He sent those three persons each a present.' (Kung 1993:182)

b.
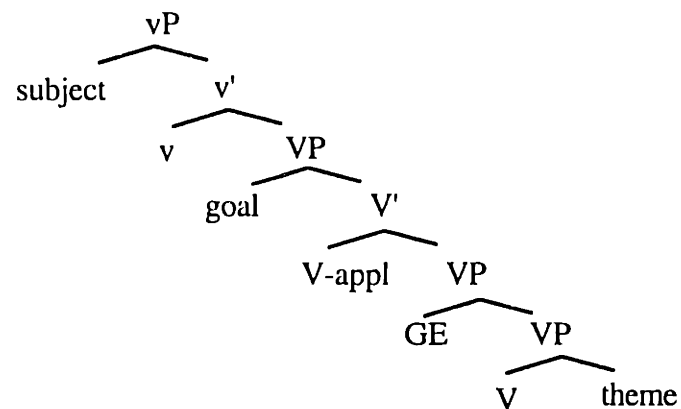
In (14), we see that GE can be adjoined above the DFP.

(14) a.   ta yao-le   na san-ge pingguo ge yi kou.

          he bite-PERF that three-CL apple   GE one mouth

          'He made a bite upon each of the apples.'

b.

```
                    vP
              ┌─────┴─────┐
          subject        v'
                    ┌─────┴─────┐
                    v          FP
                         ┌──────┴──────┐
                      theme_i          F'
                                  ┌─────┴─────┐
                                  F          VP
                                       ┌─────┴─────┐
                                       GE          VP
                                            ┌──────┴──────┐
                                           DFP           VP
                                                    ┌─────┴─────┐
                                                    V          t_i
```
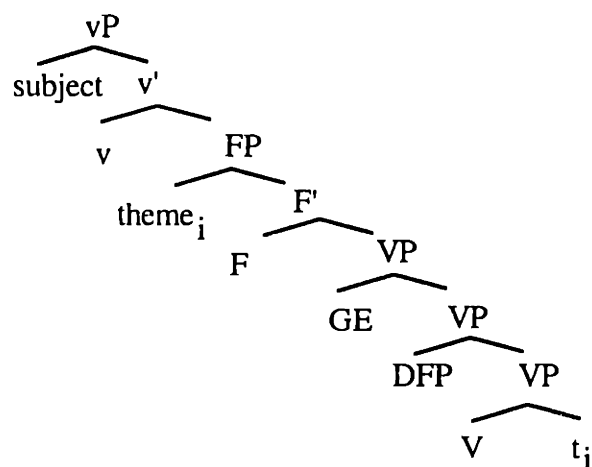
The fact that GE can only be adjoined to a VP predicts that GE cannot appear between the internal arguments in dative constructions. This is correct (Kung 1993).

(15)   a.   *ta song-le   yi-fen   liwu   ge gei san-ge   ren.

he send-PERF   one-CL present   GE GEI three-CL person

'He sent a present to three persons each.'

b.

```
      *              vP
              ┌───────┴───────┐
          subject            v'
                       ┌──────┴──────┐
                       v            VP
                            ┌────────┴────────┐
                          theme              V'
                                      ┌───────┴───────┐
                                      GE             V'
                                              ┌───────┴───────┐
                                              V              PP
                                                       ┌──────┴──────┐
                                                       P            goal
```
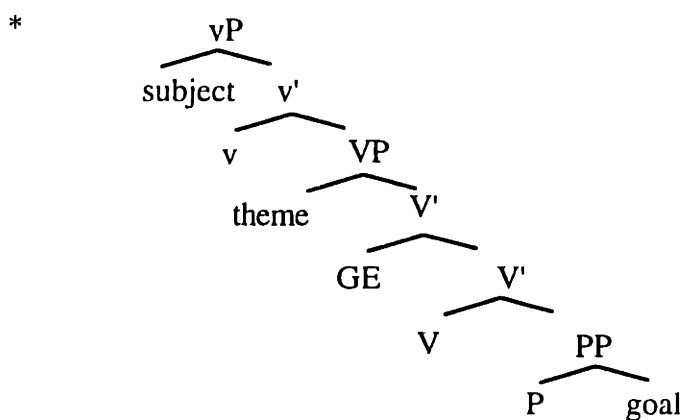
This also means that GE cannot adjoin to a V-bar (contra T.H. Lin 1998). Otherwise, many impossible positions for GE can be generated. The evidence provided by T.H. Lin

(1998) which suggests that GE can be adjoined to V-bar needs to be reanalyzed (see section 3).

2.3 GE-quantification: Leftward and Rightward

I assume following T.H. Lin (1998) that GE can quantify to the left or to the right within a local domain. We have seen examples where GE-quantifies to the left above. I show examples where GE quantifies to the right below (examples taken from T.H. Lin 1998:222).[3]

(16) a. Laowang ge$_i$ ti-le   mei-zhi   gou$_i$ yi-jiao.

Laowang GE kick-PERF every-CL dog one-foot

'Laowang took a kick upon each of the dogs.'

b. Wo ge$_i$ rensi   tamen$_i$ wu nian -le.

I   GE know they   five year-PERF

'I have known each of them for five years.'

c. Xiaozhang ge$_i$ qiao-le   tamen$_i$ yi-bi   zhugang.

Xiaozhang GE strike-PERF they   one-CL bamboo-stick

'(Idiom.) Xiaozhang took advantage of each of them.'

---

[3] GE quantification to the right seems marked. Some speakers that I consulted with find the relevant examples either bad or marginal. My judgment is in agreement with Lin's and I find GE-quantification to the right possible.

d.   Wo ge$_i$ xia-le   tamen$_j$ yi-tiao.

        I   GE shock-PERF they   one-jump

        'I shocked each of them.'

As T.H. Lin notes, rightward GE quantification is only possible in sentences with transitive verb plus adjunct phrases or in the double object constructions because there needs to be an argument for GE to bind.

(17)   a.   Laoli ge$_i$($_j$) song-le   yi-ben shu($_j$) gei meige   laoshi$_i$.

               Laoli GE   send-PERF one-CL book to every-CL teacher

               'Laoli sent a book to each of the teachers.'

      b.   Laoli ge$_i$($_j$) song-le   mei-ge   laoshi$_i$ yi-ben shu($_j$) .

               Laoli GE   send-PERF every-CL teacher one-CL book

               'Laoli sent each of the teachers a book.'

3.   Apparent cases of GE adjoining to V-bar: A possible reanalysis

T.H. Lin (1998) argues that GE cannot adjoin to any site higher than the VP and that it may adjoin to either a VP or a V-bar. Evidence which shows that GE cannot adjoin higher than the VP includes the fact that GE can only appear after the sentence level elements such as modals, sentence adverbs, negation markers and not before them. Examples involving the ordering of GE and modals and sentence adverbs are repeated from (10) and (11) below (see T.H. Lin 1998 for further examples).

(18) a. Meige xuesheng hui ge jiao yi-pian zuowen   gei wo.

every student   will GE hand one-CL composition to me

'Each of the students will hand me a composition.'   (T.H. Lin 1998:216)

b. *Meige xuesheng ge hui jiao yi-pian zuowen   gei wo.

every student   GE will hand one-CL composition to me

'Each of the students will hand me a composition.'   (T.H. Lin 1998:216)

(19) a. Xiaoli he Xiaowang shang-xingqi ge jiao-le   yi-pian zuowen

Xiaoli and Xiaowang last week   GE hand-PERF one-CL composition

gei wo.

to me

'Xiaoli and Xiaowang each handed me a composition last week.'

(T.H. Lin 1998:216)

b. Xiaoli he Xiaowang ge shang-xingqi jiao-le   yi-pian zuowen

Xiaoli and Xiaowang GE last week   hand-PERF one-CL composition

gei wo.

to me

'Xiaoli and Xiaowang each handed me a composition last week.'

(T.H. Lin 1998:216)

The facts which T.H. Lin (1998) considers to be evidence for GE adjoining to V-bar involve the ordering of GE with the VP-level elements such as *ba*-phrase, *bei*-phrase, goal and source adverbials, and manner and instrumental adverbials. With the exception of the manner and instrumental adverbials, GE may appear either before or after these VP-level elements (T.H. Lin 1998:219-220).

(20) Manner and Instrumental Adverbials

 a. Gongren-men ge henhen-de zou-le   Lisi yi-dun.

   worker-PL   GE fiercely   beat-PERF LIsi one-CL

   'Each of the workers gave Lisi a fierce blow.'

 b. ??Gongren-men henhen-de ge zou-le   Lisi yi-dun.

    worker-PL   fiercely   GE beat-PERF LIsi one-CL

   'Each of the workers gave Lisi a fierce blow.'

 c. Mama-men ge yi shueiguo-dao qie-le   yi-ge   pingguo.

   mother-PL GE with fruit-knife   cut-PERF one-CL apple

   'Each of the mothers cut an apple with a fruit knife.'

 d. ??Mama-men yi   shueiguo-dao ge qie-le   yi-ge   pingguo.

    mother-PL with fruit-knife   GE cut-PERF one-CL apple

   'Each of the mothers cut an apple with a fruit knife.'

(21) Goal and source phrases

 a. Mei-ge guojia   ge cong Riben-ren nar xuedao-le yi-dian dongxi.

   every country GE from Japanese there learn-PERF one-CL thing

   'Each of the countries learns something from the Japanese.'

b.   Mei-ge guojia   cong Riben-ren nar ge xuedao-le yi dian dongxi.

     every country from Japanese there GE learn-PERF one-CL thing

     'Each of the countries learns something from the Japanese.'

c.   Tamen ge xiang Laowang-de zhaopian ju   yi-ge   gong.

     they   GE to   Laowang of picture   bow one-CL bow

     'Each of them made a bow to the picture of Laowang.'

d.   Tamen xiang Laowang-de zhaopian ge ju   yi-ge   gong.

     they   to   Laowang of picture   GE bow one-CL bow

     'Each of them made a bow to the picture of Laowang.'

(22)   *Ba* - and *Bei*-phrases

a.   Naxie gongren ge ba Laowang zou-le   yi-dun.

     those worker GE BA Laowang beat-PERF one-CL

     'Each of those workers gave Laowang a fierce blow.'

b.   Naxie gongren ba   Laowang ge zou-le   yi-dun.

     those worker BA Laowang GE beat-PERF one-CL

     'Each of those workers gave Laowang a fierce blow.'

c.   Mei-ge xuesheng ge bei Li jiaoshou ma-le   yi-dun.

     every student   GE BEI Li professor blame-PERF one-CL

     'Each of the students got a blame by Professor Li.'

d. Mei-ge xuesheng bei Li jiaoshou ge ma-le   yi-dun.

every student   BEI Li professor GE blame-PERF one-CL

'Each of the students got a blame by Professor Li.'

T.H. Lin (1998) assumes that a *ba*-phrase is base generated in the Spec position of a VP (citing Huang 1988). T.H. Lin reasons that since GE can occur after a *ba*-phrase, it must have the option of adjoining to a V-bar. It is unclear why GE cannot appear after the manner and instrumental adverbials given this analysis.

Another approach to the data is to allow GE to adjoin to any vP or VP.

(23)

a.   b.
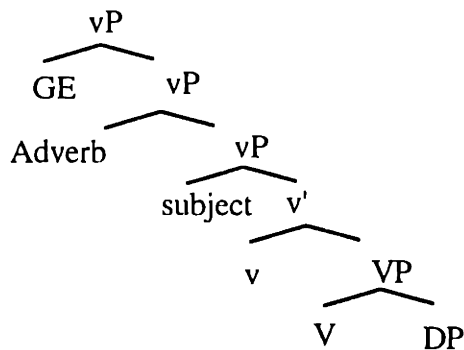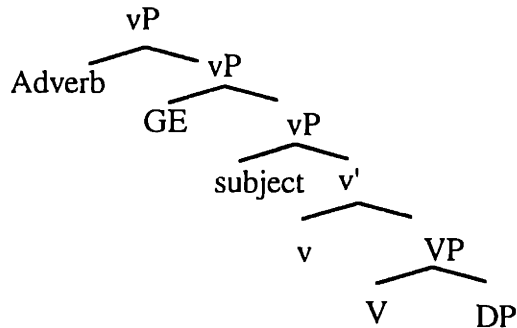
The distribution of goal and source adverbs and *ba*-phrases and *bei*-phrases is accounted for. The reason why manner and instrumental adverbials can only appear after GE 'each' may be due to the semantics of manner and instrumental adverbials. For example, it may be that manner adverbials modify the event and they must be close to the vP without being intervened by GE 'each'. In that case, only (23a) is a possible structure for manner adverbials and not (23b). While more evidence is needed to support such an approach, the point is that the fact that GE can appear either before or after certain VP level adverbials does not necessarily mean that it can adjoin to a V-bar. In fact, it seems unlikely that GE can adjoin to a V-bar. If it were possible, it is puzzling why manner and instrumental

adverbials cannot appear before GE and we lose the account for why dative and double object constructions behave differently in the distribution of GE.

4.   Domain

The facts so far indicate that the domain relevant for the licensing conditions of GE is the IP (T.H. Lin 1998). I argue in this section that the domain may be more restrictive depending on which VP GE is adjoined to. When GE is adjoined to the vP, the domain is the entire sentence. When GE is adjoined to any VP lower than vP, the relevant domain is the highest VP.

The first piece of evidence which indicates that the domain is not always the IP comes from (24). As observed in Kung (1993), GE can appear between the internal arguments in double object constructions as in (24a). GE quantifies the goal argument and binds the theme argument. (24b) is an example where GE quantifies rightward over the goal argument and it binds the theme. (24c) shows that GE can appear before the verb when it quantifies the agent and binds the theme. GE however cannot appear in between the internal arguments when quantifying the agent as shown in (24d).

(24)   a.   ta song-le   na san-ge   ren   ge wuben shu.

              he send-PERF that three-CL person GE five-CL book

              'He sent those three people five books each.' (adapted from Kung 1993)

       b.   Laowang ge song-le   na   san-ge   ren   wu-ben shu.

              Laowang GE send-PERF that three-CL person five-CL book

              'Laowang sent those three people five books each.'

                                                      (adapted from T.H. Lin 1998)

c.   tamen ge song-le   Zhangsan wu-ben shu.

they GE send-PERF Zhangsan five-CL book

'They each sent Zhangsan five books.'

d.   *tamen song-le   Zhangsan ge wu-ben shu.

they   send-PERF Zhangsan GE five-CL book

'They each sent Zhangsan five books.'

One may suggest that GE must quantify the closest argument (to its left/right) to account for the constrast above. The reason why (24d) is bad is because there is an intervening argument between GE and the argument quantified by GE. This explanation however cannot be correct. There are many cases where GE need not quantify the closest argument (T.H. Lin 1998). GE can quantify either one of the arguments to its left as shown below.

(25)   a.   Naxie gongren ba Laowang ge zou-le   yi-dun.

those worker   BA Laowang GE bust-PERF one-CL

'Each of those workers gave Laowang a bust.'   (T.H. Lin 1998:220)

b.   wo ba naxie gongren ge zou-le   yi-dun.

I   BA those worker   GE bust-PERF one-CL

'I gave each of those workers a bust.'

(26)   a.   Meige xuesheng bei   Li jiaoshou ge ma-le   yi-dun.

every student   PASS Li professor GE blame-PERF one-CL

'Each of the students got a blame from Professor Li.' (T.H. Lin 1998:220)

b. Xiaoming bei   na ji-ge   laoshi ge ma-le   yi-dun

Xiaming   PASS that several-CL teacher GE blame-PERF one-CL

'Xiaoming got a blame from each of the (several) teachers.'

The question is what distinguishes (24d) and (25) and (26). One may suggest that the argument quantified by GE which is not closest to GE has a copy that is adjacent to GE. It is the copy that is quantified by GE. If we assume that *ba*-phrase and *bei*-phrase are not base generated in their surface position and are moved there, their copy is adjacent to GE and the sentences in (25) and (26) are thus fine. (24b) is not good because the argument quantified by GE is not adjacent to GE and there is also no copy of that argument adjacent to GE which GE can quantify. In other words, there may be a restriction on GE quantification; namely it must quantify an adjacent argument or its copy.

There are however still problems with this account. Consider dative constructions repeated from (17).

(27) (=17a)   Laoli ge$_i$(j) song-le   yi-ben shu(j) gei mei-ge   laoshi$_i$.

Laoli GE   send-PERF one-CL book   to   every-CL teacher

'Laoli sent a book to each of the teachers.'

The goal in the dative construction above is not adjacent to GE. It is separated from GE by the theme argument. Given the structure of the dative construction I assume, there is no copy of the goal which is adjacent to GE and yet the sentence is fine.

I propose that there are two possible domains where GE may be licensed: (i) the IP; (ii) the VP. When GE is adjoined to the vP, its domain is the IP. When GE is adjoined to any VP below the vP, its domain is the highest VP. The reason why (24d), repeated in (28a), is bad is because the quantificational requirement of GE is not satisfied within its domain.

(28) a. *tamen song-le Zhangsan ge wu-ben shu.

they send-PERF Zhangsan GE five-CL book

'They each sent Zhangsan five books.'

b.
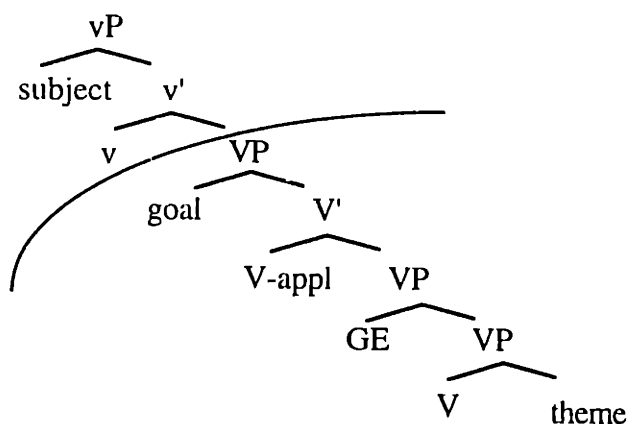
Since GE is adjoined to a VP lower than vP, its domain is within the highest VP. While there is an indefinite argument for GE to bind within its domain, there is no distributable argument for GE to quantify over. The sentence is thus unacceptable.

(25) and (26) are fine because GE is adjoined to vP and the domain in which GE must be licensed is the entire sentence.

(29) a. Naxie gongren ba Laowang ge zou-le yi-dun.

those worker BA Laowang GE bust-PERF one-CL

'Each of those workers gave Laowang a bust.' (T.H. Lin 1998:220)

b.

IP
agent_i
I BaP
ba-theme vP
GE vP
t_i v'
v VP
DFP
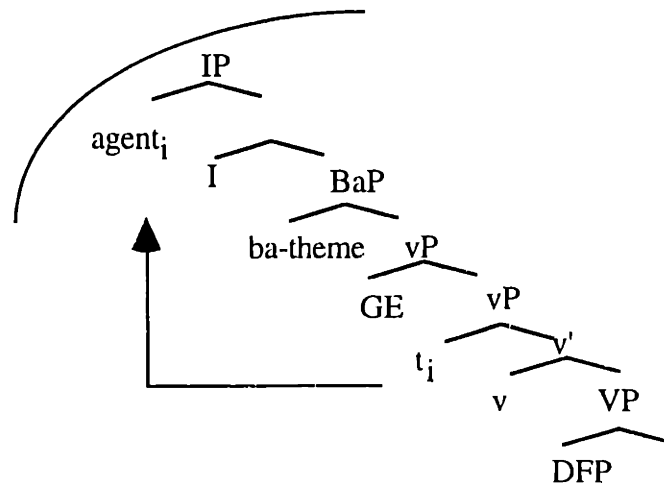
With the dative constructions, there is again no problem since the domain is the entire sentence when GE is adjoined to vP.

(30) a. Laoli ge$_i$($_j$) song-le   yi-ben   shu($_j$) gei mei-ge   laoshi$_i$.

Laoli GE   send-PERF one-CL book   to   every-CL teacher

'Laoli sent a book to each of the teachers.'

b.

IP
I'
I vP
GE vP
agent v'
v VP
theme V'
V PP
P goal
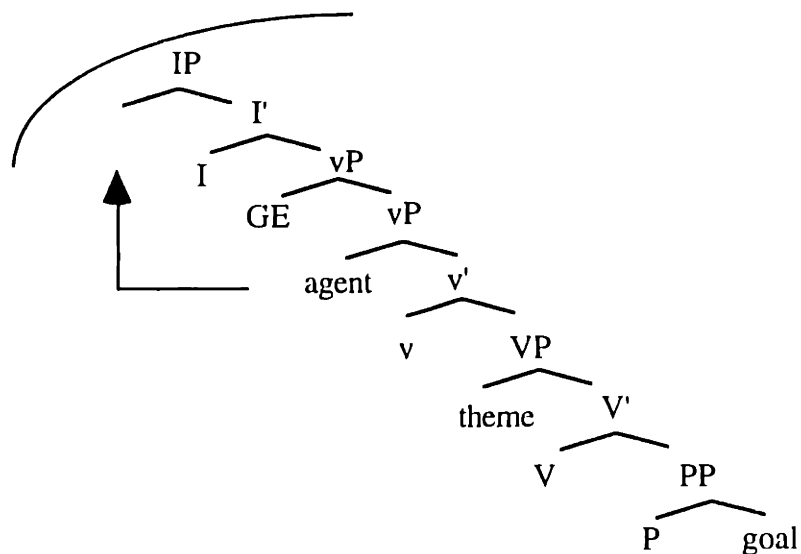
In other words, there is no requirement for GE to be adjacent to the argument it quantifies over. The only requirement is that the argument is within a certain local domain determined by where GE is adjoined to.

5. GE in double complement constructions

5.1 The puzzle

T.H. Lin (1998:222) observes that when there are two arguments after GE in cases where GE quantifies rightward, the choice of the argument which is quantified by GE is not free. Examples are given below.

(31) a. Laoli ge$_i$($_j$) song-le   yi-ben shu($_j$) gei mei-ge   laoshi$_i$.

Laoli GE   send-PERF one-CL book   to   every-CL teacher

'Laoli sent a book to each of the teachers.'

b. *Laoli ge$_i$($_j$) song-le   mei-ben shu$_i$ gei yi-ge   laoshi($_j$) .

Laoli GE   send-PERF every-CL book to   one-CL teacher

'Laoli sent each of the books to a teacher.'

c. Laoli ge$_i$($_j$) song-le   mei-ge   laoshi$_i$ yi-ben shu($_j$) .

Laoli GE send-PERF every-CL teacher one-CL book

'Laoli sent each of the teachers a book.'

d.   *Laoli ge$_i$($_j$) song-le   yi-ge   laoshi($_j$) mei-ben   shu$_i$.

Laoli GE   send-PERF one-CL teacher   every-CL book

'Laoli sent a teacher each of the books.'

As shown above, GE can only quantify the goal argument and bind the theme argument and the reverse is not possible.

5.2   T.H. Lin (1998): A tentative structural analysis

T.H. Lin provides a somewhat tentative analysis to the generalization above. He argues that the noun phrase bound by GE is closest to the verb at the level of D-structure. He leaves open whether closeness is defined in terms of m-command, sisterhood or theta marking. He shows that an adverbial phrase selected by the verb need not be close to the verb and may appear before the verb.

(32)   a.   Laowang ge$_i$($_j$) zai zhe san zhang zhuo sang$_i$ fang yi-pen   hua($_j$) .

Laowang GE   at this three-CL   table-on   put   one-CL flower

'Laowang put a vase of flower on each of the three tables.'

b.
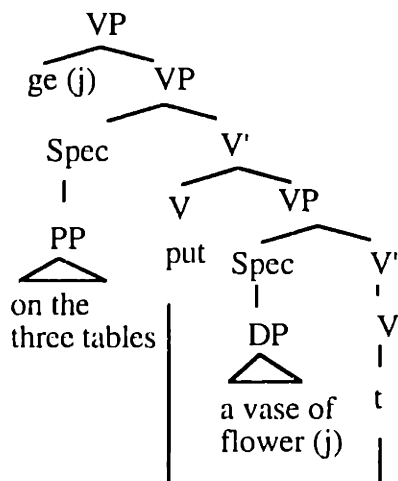
He suggests that like the locative phrase in (32), the goal PP in (31a) right adjoins to either V' or VP. The structure for (31a) is given in (33).

(33)

```
                    VP
                 ┌──────┐
              ge (j)    VP
              V' ┌──────────┐
           ┌─────┐          Spec
          V      VP           |
        send  Spec   V'       PP
               |     |      ┌────┐
               DP    V    to every teacher
              ┌──┐   |
           a book (j)  t
```
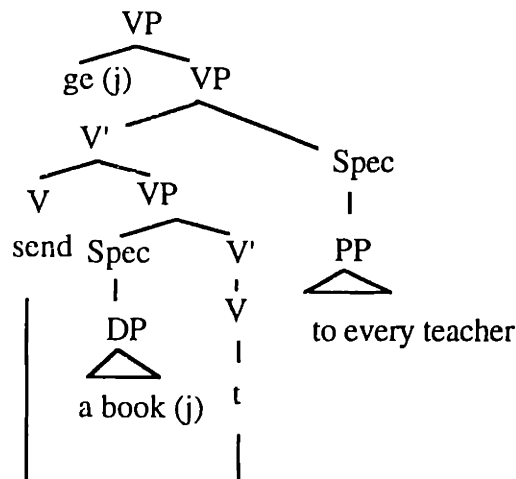
The consequence is that the object is the closest element to the verb at D-structure. GE can then bind the object. For (31c), T.H. Lin assumes following Li (1985, 1990) that V-IO sequence undergoes reanalysis to license the direct object. The direct object is the closest to the reanalyzed verb-IO complex and GE can then bind it. The ungrammaticality of (31b) and (31d) are given the following explanations. (31b) is ungrammatical because the indefinite indirect object is not close enough to the verb at D-structure. (31d) is ungrammatical because the reanalyzed category is an opaque domain for binding. The idea is that the argument closest to the verb at D-structure is bound by GE and the other argument can be quantified by GE when GE quantifies rightward.

5.3   Expanding the data: The goal argument and binding

Cases involving topicalization of the goal and theme arguments show the same pattern: the theme can be bound but the goal cannot. These are cases where even when the goal is the only argument c-commanded by GE, it remains resistent to binding.

(34)   a.   na san ge laoshi$_i$, Laoli ge$_i$($_j$) song le yiben shu($_j$).

that three CL teacher Laoli GE send-PERF one-CL book

'Those three teachers, Laoli sent each of them a book.'

a.   *na san ben shu$_i$, Laoli ge$_i$($_j$) song gei-le yi-le laoshi($_j$).

that three CL book Laoli GE send GEI-PERF one-CL teacher

'Those three books, Laoli sent each of them to a teacher.'

b.   *na san ben shu$_i$, Laoli ge$_i$($_j$) song le yi-le laoshi($_j$).

that three CL book Laoli GE send-PERF one-CL teacher

'Those three books, Laoli sent each of them to a teacher.'

In examples involving leftward quantification of GE, the goal argument remains resistant to binding. One such case involves GE quantifying the agent. In these sentences, there are two arguments c-commanded by GE namely the goal and the theme which GE can bind. Only the theme argument can be bound and not the goal.[4] The relevant examples are given in (35). In the dative construction in (35a), the goal is bound by GE and the sentence is unacceptable. The same is true for the double object construction in (35b).

---

[4] Lin's analysis expects this result given the stipulation that the argument bound by GE is the closest argument to the verb.

(35)   a.   */??Zhangsan he Lisi ge song wanjyu gei yi-ge   tongshi.[5]

                     Zhangsan and Lisi GE give toys   GEI one-CL colleague

                     'Zhangsan and Lisi each gave toys to a colleage.'

        b.   */??Zhangsan he Lisi ge song yi-ge   tongshi   wanjyu.

                     Zhangsan and Lisi GE give one-CL colleague toy

                     'Zhangsan and Li each gave a collegue toys.'

When the theme is bound by GE instead of the goal, the sentences become acceptable as shown in (36).

(36)   a.   Zhangsan he Lisi ge song-le   yi-fen   liwu   gei ta.

                   Zhangsan and Lisi GE give-PERF one-CL present GEI he

                   'Zhangsan and Lisi each gave a present to him.'

        b.   Zhangsan he Lisi ge song-ie   Xiaoming yi-fen   liwu.

                   Zhangsan and Lisi GE give-PERF Xiaoming one-CL present

                   'Zhangsan and Lisi each gave Xiaoming a present.'

It seems that for some unknown reasons, the goal argument cannot be bound.

The goal argument in double complement constructions are the possessor of the theme and the final location of the theme. The resistance to binding applies to the possessor and the locative argument in other structures. The possessor can be quantified as shown in (37a) but it cannot be bound as shown in (37b).

---

[5] The judgments on (a) and (b) range from marginal to bad.

(37) a.   tamen ge you liang-ben shu.

               they GE have two-CL   book

               'They each have two books.'

     b.   ?*na xie jin-tiao ge shuyu   yi-ge   ren.[6]

                those gold-bar GE belong one-CL person

                'Those gold bars each belong to a person.'

It seems that the same is true for a locative argument. The locative can be quantified but not bound.

(38) a.   na san-zhang zuo-zhi shang ge fang-le   yi-ben   shu.

               that three-CL table   on   GE place-PERF one-CL book

               'A book each are placed on those three tables.'

     b.   ??/*na san-ben shu ge zai yi ge laoshi shenshang.[7]

                that three-CL book GE at one CL teacher body-on

                'Each of those three books are with a teacher.'

English binomial *each* seems to exhibit the same pattern as Chinese GE in that the goal argument cannot be bound. To demonstrate this, I need to first review some of the properties of English *each*. The literature on *each* in English distinguishes between two

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[6] The sentence is fine with 'a different person' instead of 'a person'.

    (i)   na xie jin tiao ge shuyu   yi-ge   bu tong de ren.

            those gold bar GE belong one-CL not same DE person

            'Those gold bars each belong to a different person.'

[7] Again, the sentence is fine with 'a different teacher' instead of 'a teacher'.

    (i)   na san-ben shu ge zai yi ge bu tong de laoshi shenshang.

            that three-CL book GE at one CL not same DE teacher body-on

             'Each of those three books are with a different teacher.'

types of *each*: a binomial *each* and an adverbial *each* (Safir and Stowell 1988, Choe 1987).[8] Examples of the use of a binomial *each* and an adverbial *each* are shown below.

(39)   Binomial *each*

a.   The men saw two women each.   (Safir and Stowell 1988:427)

b.   The children received 10 dollars each. (Link 1985:11 cited in Choe 1987:7)

(40)   Adverbial *each*

a.   The men have each seen two women.   (Safir and Stowell 1988:427)

b.   The children each received 10 dollars.   (Choe 1987:8)

A binomial *each* forms a constituent with the preceding noun phrase, while an adverbial *each* can only occur in a VP-initial position (Safir and Stowell 1988, Choe 1987). The direct object with a binomial *each* may undergo movement as shown in (41) (Safir and Stowell 1988:427).

(41)   Binomial *each*

a.   One girl each was seen by the men

b.   How many girls each did the men see?

An adverbial *each* may appear before a VP which does not contain a direct object while a binomial *each* may not follow a VP without a direct object (Safir and Stowell:427).

(42)   a.   The men each decided to leave.

b.   *The men decided to leave each.

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[8] Choe (1987) refers to adverbial *each* as floated-*each* and to binomial *each* as shifted-*each*. Choe also discussed a third type of *each*, which is referred to as determiner-*each* (e.g. each boy).

While there are cases where adverbial *each* and binomial *each* may seem to appear in the same position, one can distinguish them by the position of an intonation break (Choe 1987). For example in (43a), the intonation break comes before *each* and in (43b), the intonation break comes after *each*. The intonation break is indicated by #.

(43)　a.　Adverbial *each*

The two interpreters # each worked for three visitors.

b.　Binomial *each*

Two interpreters each # were assigned to the three visitors.

As shown earlier, GE behaves like a binomial *each* in that it marks a relation between two co-arguments: one quantified by GE (a sorting key) and the other one bound by GE (distributive share). For example, unlike an adverbial *each* in English, GE cannot appear before a VP without a direct object (cf. (3)). The position of GE however is very much like an adverbial *each* in English. They both appear in a VP initial position. The same contrast that Kung (1993) discovered between a double object and a dative constructions in the positioning of GE is also found in English adverbial GE.[9]

(44)　Double object

a.　They$_i$ # each gave John a book$_{(j)}$.

b.　He gave John and Mary$_i$ # each a book$_{(j)}$.

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[9] That the relevant domain for the satisfaction of the quantification and binding requirements is sometimes smaller than the sentence is also evidenced in English adverbial *each*. Compare (i) with (44a) and (44b) above.

　(i)　*They$_i$ gave John each a book$_{(j)}$.

Each when appearing between the internal arguments cannot quantify the subject which is outside the VP.

(45)   Dative constructions

    a.   They # each gave a book to Mary.

    b.   ?*He gave Mickey and Donald # each to a boy.[10]

Let's consider if the goal argument in English also cannot be bound. In the discussion below, I consider only cases with binomial *each*. In the double object construction in (46a), when the goal is quantified, the sentence is fine. When the goal is bound and the theme quantified as in (46b), the sentence is bad. The intended reading for (46b) is that each of the two books (Language Instinct and Barriers) is given to two boys.

(46)   a.   I gave John and Mary$_i$ two books each$_{(j)}$.

    b.   *I gave two boys each$_{(j)}$ # Language Instinct and Barriers$_i$.

In the dative construction, when the goal argument is quantified as in (47a), the sentence is fine. When the goal argument is bound and the theme argument is quantified as in (47b), the sentence seems to be not very good, though the judgment is not very clear.

(47)   a.   I gave two books each$_{(j)}$ # to John and Mary$_i$.

    b.   (?)I gave Language Instinct and Barriers$_i$ to two boys each$_{(j)}$.

As to whether a possessor and a locative argument can be bound, the same pattern as that observed in Chinese is found; namely neither a possessor nor a locative argument can be bound.

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[10] The sentence will not be good with an intonational break after *each*. This is because a binomial *each* forms a constituent with a distributive share which is an indefinite and cannot form a constituent with a definite noun phrase (compare (47a)).

(48)　a.　They have two books each.

　　　b.　*Barriers and Language Instinct belong to a boy each.[11]

(49)　a.　Those three boxes contain a ring each.

　　　b.　*The books are on a table each.

There seems to be a prohibition against binding a goal argument. While it is unclear why this should be the case, the generalization suggests that the puzzle noted by T.H. Lin (1998) may not have a structural explanation.

6.　Conclusions

I show in this appendix that the evidence that GE adjoins to a V-bar is not compelling. I argue that there is a more restricted locality condition governing the distribution of GE than previously assumed (see for example T.H. Lin 1998). I suggest that an interesting pattern of quantification of GE in double object and dative constructions observed by T.H. Lin (1998) may have a semantic rather than a structural explanation.

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[11] While the sentence is fine with *each* appearing in the VP-initial position, it is irrelevant to the comparison here since *each* in the VP-initial position is an adverbial *each* and not a binomial *each*.
　　(i) Barriers and Language Instinct each belong to a boy.

Chapter Five

Towards a cross-linguistic perspective on Minimal Quantified Structure Constraint: Some notes from Chinese[1]

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1.   Introduction

Beck (1996a,b) shows that German and Korean exhibit a restriction on LF-movement whereby an intervening quantifier blocks LF-movement with negation included among the relevant "quantifiers". This constraint on LF movement is called Minimal Quantified Structure Constraint (MQSC). While German and Korean observe MQSC, English LF movement does not appear to be restricted by MQSC. Beck suggests that this cross-linguistic difference is related to whether a language is a scrambling or a non-scrambling language. German and Korean allow scrambling and the relative scope of two quantifiers is fixed at S-structure; while English does not allow scrambling and the scope relation need not be fixed at S-structure. Given Pesetsky's Earliness Principle which states that when a scope relation can be fixed at S-structure, it must be fixed there, MQSC applies to

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languages which fix their scope relation at S-structure, and not to those whose scope relation need not be fixed until LF.

There are several complications with this picture of cross-linguistic difference regarding MQSC. One complication has to do with whether it is really the case that non-scrambling languages do not observe MQSC. There is evidence that English does observe MQSC, but in a more restricted environment (Pesetsky, class lectures Fall 1997). For example, while negation does not appear to block the LF movement of the wh-insitu in (1a), it does in (1b).

(1)   a.   Which person__did not read which book?

        b.   *Which book didn't which person read___?

        [K.Kiss, ms. 1986, Hornstein 1995 cited in Pesetsky's class handout]

Another complication has to do with the differences between German and Korean in the set of elements which block LF movement (Beck 1996b). The elements which block LF movement in Korean is a subset of the ones which block LF movement in German. A general principle has not yet been found which can predict what elements block LF movement in a particular language and in what environment (see Pesetsky, class lectures Fall 1997 for a proposal which predicts the environment in which blocking occurs in a particular language).

The goal of this chapter is to enrich the data base for tackling the cross-linguistic difference in MQSC by identifying the set of elements which block LF movement in Chinese. This set of elements is called Quantifier-Induced Barriers (QUIBs) in Beck (1996a,b). The identification of QUIBs in Chinese adds to the data base upon which a more general principle can be drawn about why certain elements are QUIBs in a particular language. I consider QR and LF wh-movement in Chinese and show that they involve different kinds of LF movement (see also Beck 1996a,b). While Beck (1996a,b) stresses

the fact that MQSC is proposed to constrain LF wh-movement and not necessarily QR, she considers extending MQSC to QR in languages which exhibit scope rigidity. Beck (1996a,b) shows that there exist QUIBs which block LF wh-movement but not QR, in addition to those which block both LF wh-movement and QR. I add to the inventory of QUIBs elements which block QR but not LF wh-movement. The result of this typology indicates that there are three types of QUIBs: (i) QUIBs which block QR and wh-movement (Type I); (ii) QUIBs which block QR but not wh-movement (Type II); and (iii) QUIBs which block wh-movement but not QR (Type III).

This chapter is organized as follows. In section 2, I present Beck's (1996) proposal that QUIBs detect LF movement and some cross-linguistic differences in the effects of MQSC. In section 3, I present elements which are QUIBs in Chinese. I show that duration/frequency phrases (DFPs) block both QR and wh-movement while *zhi* 'only' and negation block only QR. In section 4, I address a puzzle posed by the distribution of certain object noun phrases in relation to the DFP. These noun phrases are only allowed before the DFP and not after the DFP. I suggest that they are not licensed in the post-DFP position because they undergo obligatory QR. That these noun phrases are also prohibited within the scope of negation supports the QR analysis since negation also blocks QR in Chinese. Section 5 concludes this chapter.

2. Background

2.1 Beck (1996a,b)

Beck argues on the basis of a number of wh-in-situ constructions in German, such as scope-marking construction and multiple question that there is a restriction on certain types of LF movement, which are called 'wh-related LF movement'.

(2)   a.   Scope marking construction

                 *Was glaubt   Hans [nicht], <u>wer</u> da   war?

                  what   believes Hans not   who there was

                 'Who does Hans not believe was there?'

b.   Multiple question

                 *Wen   hat [niemand] <u>wo</u>   gesehen?

                  whom has nobody   where seen

                 'Where did nobody where seen?'

It is argued that for semantic reasons, the in situ element in these constructions has to move at LF to either a position reserved for wh-phrases, or even higher up in the clause. In (1a), the in situ element *wer* 'who' has to move across *nicht* 'not' at LF, and in (1b), *wo* 'where' has to move at LF across *niemand* 'nobody'. The restriction is that an intervening quantifier blocks this LF movement as represented in (3).

(3) $*[...X_i...[Q...[\ ...t_i \ ^{LF}...]]]$

The constraint on LF movement is formally represented as follows.

(4)   Quantifier-Induced Barrier (QUIB)

        The first node that dominates a quantifier, its restrictions, and its nuclear scope is a Quantifier-Induced Barrier.

(5)   Minimal Quantified Structure Constraint (MQSC)

        If an LF trace β is dominated by a QUIB α, then the binder of β must also be dominated by α.

2.2   Cross-linguistic differences

2.2.1   Where does MQSC apply?

Beck recognizes a difference between English and German/Korean in that English does not appear to exhibit effects of MQSC. While negation blocks LF movement in German and Korean, it does not appear to block LF movement in English. Compare (6) and (7).

(6)   a.   German

?? Welche Kinder haben [niemanden] welche Bilder zeigen wollen?

which children have nobody   which pictures show wanted

'Which children wanted to show nobody which pictures?'

b.   Korean

*[amuto] ôti-e   ka-chi   anh-ass-ni?

anyone where-DIR go-CHI not do-PAST-Q

'Where did no one go?'

(7)   a.   Which children [didn't] want to show which pictures to anybody?

b.   Which children [didn't] want to show anybody which pictures?

(Beck 1996b:115)

In (6a), *niemanden* 'nobody' blocks the LF movement of *welche Bilder* 'which picture' and the sentence is uninterpretable as indicated by ??. In (6b), movement of *ôti-e* 'where' is blocked by the negative polarity item *amuto* 'anyone'. Given that the negative polarity item must be within the scope of a negation in order to be licensed, the movement of the

wh-phrase across the NPI has to also cross the negation (which licenses the negative polarity item). The grammaticality of (7a) and (7b) indicates that MQSC does not seem to apply in English. *which pictures* must undergo LF movement across negation to its LF position and there does not appear to be any blocking effects.

Upon closer examination, there is evidence that English does observe MQSC but in a more restricted environment. Pesetsky (class lectures) identifies two cases in which MQSC is observed in English. Both of these cases involve the highest unmoved wh-word in the domain of a given C, abbreviated as H. The first case involves unmoved H in a D-linked question. The examples which illustrate this case are given in (8) and (9).

(8)   a.   Which person__did not read which book?

        b.   Which person__didn't read which book?

        c.   Which book did which person not read___?

        d.   *Which book didn't which person read___?

            [K.Kiss, ms. 1986, Hornstein 1995 cited in Pesetsky's class handout]

(9)   a.   Which student didn't he tell to buy which book?

        b.   ??Which book didn't he tell which student to buy?

In (8), *which person* is the highest wh- in a D-linked question. The LF movement of *which person* is blocked by an intervening negation as shown in (8d). In (9) *which student* is the highest wh- in a D-linked question. The negation blocks the LF movement of *which student*.

The second case which shows Beck effects involves unmoved H in ternary questions. In (10), the unmoved H is *who* and the fact that (10b) is bad suggests that negation blocks the LF movement of *who*. In (11), the unmoved H is also *who*. The LF movement of *who* is blocked by an intervening negation in (11b).

(10)   baseline: What did who give to whom?

    a.   What did who not give__to whom?

    b.   *What didn't who give __to whom? [except as single triplet question]

(11)   baseline: What did Bill persuade who to give __to whom?

    a.   What did Bill persuade who not to give __to whom.

    b.   ??What did Bill not persuade who to give __to whom.

It is beyond the scope of this chapter to discuss why English differs from German in exactly this respect and how Pesetsky (class lectures, Fall 1997) accounts for the appearance of the effects of MQSC in these two environments. The point is simply to show that effects of MQSC do not seem to be either available or not available in a particular language, but the cross-linguistic difference lies in what environment one can detect the effects of MQSC.

2.2.2   What counts as a QUIB in each language?

As Beck (1996b) notes, there is a difference between German and Korean in what quantifiers block LF movement. In German, the quantifiers that block LF movement include the following.

(12)   German   nicht   'not'

                    niemand   'nobody'

                    jeder/jede   'everyone/every'

                    nur   'only'

                    weder   'neither'

                    höchstens   'at most'

                    wenige   'few (people)'

                    zweimal   'twice'

                    meistens/diemeisten 'mostly/most'

                    oft   'often'

In Korean, the set of quantifiers which block LF movement is a subset of the ones in German.

(13)   Korean   anh   'not'

                    man   'only'

                    to   'also'

                    nukuna   'every'

There are certain QUIBs in German whose Korean equivalents do not block LF movement. These include *taepupun* 'most', *hangsang* 'always' and *chachu* 'often'. As Beck (1996b) notes, given that the constraint is formulated as a semantic constraint, it is unexpected that there exist cross-linguistic differences in whether a certain element is a QUIB.

2.3   The typology of QUIBs

Beck (1996a,b) emphasizes the fact that MQSC is proposed to account for wh-related LF movement. At the same time, she speculates that MQSC may be extended to QR. It is generally the case that the relative scope of two quantifiers (in the Mittelfeld) in German is determined by their surface order.[2] For example, *Luise's belief* cannot be paraphrased as in (14b). In other words, *keinen Semanticker* 'no semanticist' cannot have scope over *fast jeder Esel* 'almost every donkey'.

(14)   a.   Luise glaubt, daß fast   jeder Esel

Luise believes that almost every donkey

keinen Semantiker   gebissen hat.

no   semanticist(ACC) bitten   has

'Luise believes that almost every donkey bit no semanticist.'

b.   For no semanticist y: almost every donkey bit y.

The effect of scope rigidity can be attributed to MQSC in the sense that the lower QP cannot undergo LF movement across the higher QP which is a QUIB.

While extending MQSC to QR, Beck notices that eventhough most QUIBs which block LF wh-movement also block QR, there is a class of QUIBs which block LF wh-

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[2] Mittelfeld indicates certain positions within a clause. (a) illustrates the terminology for a verb-second clause and (b) illustrates the terminology for a verb-final clause.

(a)   Gestern   hat Otto dem Kind   geholfen
       yesterday has Otto the child (DAT) helped
       Vorfeld FIN Mittelfeld   VK

(b)   dass   gestern   Otto dem Kind geholfen hat
       that   yesterday Otto the child helped   has
       COMP Mittelfeld   VK

VK stands for the verbal complex and it normally contains all the verbs except in verb-second clauses the inflected verb, which is in FIN. The FIN position is usually associated with either I or C. The Vorfeld position is the specifier of either I or C.

movement but not QR. This class of QUIBs involves existential indefinites. Beck notes that whether an indefinite is a QUIB (for LF wh-movement) depends on how it is read. Consider (15). (15b) differs from (15a) in that *alles* 'all' in (15b) needs to undergo LF movement to its scope position. Beck notes that there seems to be a contrast in the reading of (15a) and (15b).

(15)   a.   Wen   alles haben [drei   Studenten] gesehen?

whom all   have   three students   seen

'Who-all did three students see?'

b.   ? Wen   haben [drei   Studenten] alles gesehen?

whom have   three students   all   seen

'Who-all did three students see?'

The reading prevalent in (15b) is specific and the judgment is easier with the indefinite inside an embedded clause as in (16).

(16)   Otto weiß,   wen   [drei   Studenten] alles gesehen haben.

Otto knows whom three students   all   seen   have

In (16), the indefinite has scope in the matrix clause. It has the same reading as (17).

(17)   Of three students, Otto knows "who-all" they saw.

A narrow scope existential reading for the indefinite seems to be impossible. This indicates that on the existential reading, the indefinite has an intervention effect. Beck assumes that

the indefinite is not quantificational and notes that the intervention could be due to the default existential quantifier in such cases (citing Heim 1982).

(18)   Otto weiß, wen   [drei Studenten] <u>alles</u> gesehen haben.

Existential quantifier
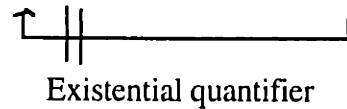
Otto knows whom three students   all   seen   have

The default existential quantifier does not block the wide scope existential reading, which takes scope in the matrix.

(19)   Otto weiß,   wen   [drei Studenten] <u>alles</u> gesehen haben.

Existential quantifier
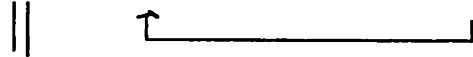
Otto knows whom three students   all   seen   have

While the default existential quantifier seems to block LF wh-movement, it does not appear to block QR. A quantifier is able to outscope a preceding indefinite in the Mittelfeld in German.

(20)   ...daB in Sizilien ein Polizist   vor   jeder Bank steht.

        that in Sicily   a   policeman in front of every bank stands

        '...that there is a policeman standing in front of every bank in Sicily.'

The fact that (20) has a reasonable reading indicates that the default existential quantifier does not block QR of the universal quantifier.

The above discussion shows that when MQSC is extended to detect QR, one must recognize two types of QUIB:[3] QUIBs which block LF wh-movement as well as QR and QUIBs which block only LF wh-movement and not QR. The consideration of Chinese data adds a third type of QUIBs to the inventory, namely QUIBs which block only QR but not LF wh-movement.

3.   Beck-effects in Chinese

3.1   Duration/frequency phrases as QUIBs

I show in the following subsections that duration/frequency phrases (DFPs) are QUIBs in Chinese and that they block LF wh-movement, QR and movement for focus association.

3.1.1   DFPs block wh-movement

The first observation which suggests that DFPs are QUIBs in Chinese involves an echo question interpretation when the wh-word appears after the DFP. The contrast is shown in (21). In (21a), the wh-word has a true question interpretation while in (21b) a true wh-question is not available and only an echo question reading is available.

(21)   a.   ni   jian-dao [shei/shenme ren]   [liang ci]?

            you see-PRT who/what   person two time

            'Who did you see twice?'

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[3] Alternatively, one may question whether indefinites are the same kind of blocker as negation (Pesetsky, personal communication). In that case, there is no evidence from German that there are QUIBs which block only LF wh-movement but not QR.

b.   ni   jian-dao [liang ci]   [shei/shenme ren]?

you see-PRT two time who/what   person

'You saw WHO twice?'

The inability of the wh-word to take scope in (21b) when the wh-word appears after the DFP suggests that the DFP blocks LF wh-movement to the position where the wh-word takes scope.[4]

A second observation which supports the claim that DFPs are QUIBs in Chinese comes from sentences involving a disjunction after the DFP. As shown in (22), when the embedded CP is [+interrogative], the sentence is good when the disjunction appears before the DFP (22a), but bad when the disjunction appears after the DFP (22b). This means that the movement of the [+interrogative] feature of the disjunction to the embedded CP is blocked by the DFP. Unlike wh-words, disjunctions do not allow echo questions. As a result, (22b) has no echo question interpretation and is ruled out when the [+interrogative] feature of the disjunction does not move to the embedded [Spec, CP] for feature checking.

(22)   a.   wo bu zhidao yao   qing [XM huo XH] [liang ci].

I   not know want invite XM or   XH   two   time

'I don't know whether to invite XM or XH twice.'

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[4] In Chapter Three, I proposed that the post-DFP position is a stress position and that stress shift is not possible from the post-DFP position. The fact that the post-DFP wh-word has an echo question reading is suggested to be due to the stress requirement. There is a tension between the suggestion in Chapter Three and the idea that echo question is found for wh-words after the DFP because LF wh-movement is blocked by the intervening DFP. There is evidence from disjunction (see below) that the DFP does block LF wh-movement. While it remains that the post-DFP position is a stress position, the stress requirement may not bear the sole responsibility for the echo question reading.

b. *?wo bu zhidao yao qing [liang ci] [XM huo XH].[5]

I not know want invite two time XM or XH

'I don't know whether to invite XM or XH twice.'

3.1.2 DFPs block QR and movement for focus association

There is evidence that DFPs block QR. As discussed in Chapter Two, there is a contrast in the scope of the object before and after the DFP. When the object precedes the DFP, the object may be interpreted as having either wide scope or narrow scope with respect to the DFP. When the object follows the DFP, it can only be interpreted as having narrow scope. The contrast is shown in (23) and (24).

(23) wo qing-guo [quanbu de xuesheng] [liang ci].

I invite-PERF all DE student two time

'I have invited all students twice.'

(i) all students >> two times

(ii) two times >> all students

(24) wo qing-guo [liang ci] [quanbu de xuesheng].

I invite-PERF two time all DE student

'Twice, I have invited all students.'

(i) ?*all students >> two times

(ii) two times >> all students

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[5] One of the native speakers I spoke to finds (22b) acceptable with a phonological break after XM, but not acceptable without a phonological break after XM. I assume that a different structure is involved when there is a phonological break after XM.

Assuming that conjunctions of names are quantified expressions (Clark 1992), (25) and (26) illustrate the same pattern. When the object precedes the DFP as in (25), both group and distributive readings are available. When the object follows the DFP as in (26), only a group reading is available.

(25)   wo qing-guo [Zhangsan he Lisi] [liang ci].

    I   invite-PERF Zhangsan and Lisi   two times

    'I have invited Zhangsan and Lisi twice.'

        (i)   Zhangsan and Lisi >> two times

        (ii)   two times >> Zhangsan and Lisi

(26)   wo qing-guo [liang ci] [Zhangsan he Lisi].

    I   invite-PERF two   time Zhangsan and Lisi

    'Twice, I have invited Zhangsan and Lisi.'

        (i)   *?Zhangsan and Lisi >> two times

        (ii)   two times >> Zhangsan and Lisi

I argued in Chapter Two that the above sets of data indicate that the object is overtly moved from a position c-commanded by the DFP to a position c-commanding the DFP. This movement operation allows us to make sense of the scope contrast between (23) and (24) as well as betweeen (25) and (26). The question is why can't QR apply at LF to allow the missing reading in (24) and (26). I suggest that the answer lies in the fact that the DFP blocks LF movement across it and as a result the object noun phrase after the DFP cannot move across the DFP to take scope over it at LF.

Assuming that focus association involves movement of the associated noun phrase to the position of the focusing adverb, there is additional evidence from *zhi* 'only' that

DFPs block LF-movement. The object noun phrase after the DFP cannot be associated with *zhi* 'only' while the one before the DFP can.

(27)   a.   wo zhi jian-guo [Noam Chomsky] [liang ci].

        I only see-PERF Noam Chomsky   two   time

           (i)   'I have <u>only</u> seen <u>Noam Chomsky</u> twice.'

           (ii)   'I have <u>only</u> seen Noam Chomsky <u>twice</u>.'

        b.   wo zhi jian-guo [liang ci]   [Noam Chomsky].

        I only see-PERF two   time   Noam Chomsky

           (i)   *'I have <u>only</u> seen <u>Noam Chomsky</u> twice.'

           (ii)   'I have <u>only</u> seen Noam Chomsky <u>twice</u>.'

If one assumes that the noun phrase associated with *zhi* 'only' has to move at LF to the position of *zhi* 'only', then the constrast in (27) follows. The DFP blocks the movement of the post-DFP object in (27b). As a result, the post-DFP object cannot be associated with *zhi* 'only'.

3.2   *zhi* 'only' as a QUIB[6]

I show in the following subsections that *zhi* 'only' blocks QR, but not LF wh-movement in Chinese.

3.2.1   *zhi* 'only' blocks QR

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[6] Thanks to Paul Hagstrom for discussing the English data involving *only* and negation with me.

Only seems to be a QUIB in both English and Chinese. An initial indication that *only* may be a QUIB comes from the fact that in the presence of *only*, the scope possibilities in sentences with two QPs are reduced (Aoun and Li 1993b). For example, (28a) is scopally ambiguous while (28b) with *only* is not. (28a) can mean that there is one particular person who loves every boy in the room. It can also mean that every boy in the room is loved by one person and not necessarily the same person. In (28b), the only reading is that there is one particular person who only loves every boy in the room. The reading where every boy in the room was loved only by one person and not necessarily the same person is not available. (The noun phrase associated with *only* is underlined.)

(28)   a.   Someone loves every boy in the room.   (ambiguous)

          (i)   someone >> every boy

          (ii)   every boy>>someone

   b.   Someone <u>only</u> loves <u>every boy in the room</u>. (unambiguous)

          (instead of everyone in the room, boy and girl)   (Aoun and Li 1993b)

          (i)   someone >> every boy

          (ii)   *every boy>>someone

The contrast above while suggestive does not necessarily show that *only* blocks the movement of *every boy* across *someone* at the level of LF. This is because if the constituent associated with *only* (i.e. *every boy*) has to move to be associated with *only* at the level of LF, the same effect arises: *every boy* cannot take scope over *someone*. I show that a structure which can tell us whether *only* is a QUIB involves the interaction of two QPs with one of the QPs within the c-command domain of *only* but not associated with *only*. Before I discuss those cases, let's establish the facts about possible scope readings in the presence of *zhi* 'only' in Chinese.

Consider (29). (29a) differs from (29b) in the presence of *zhi* 'only' in the latter sentence. This difference contributes to the reduction of possible scope interpretations. In (26a), there are two possible readings. One reading is that there is one particular man who has scolded everyone. The other reading is that everyone has been scolded by a man and not necessarily by the same man. In (29b), the reading where there is a particular person who has scolded everyone is not available.

(29) a. Meigeren dou bei   yige ren ma-guo.   (ambiguous)

everyone all PASS one man scold-PERF

'Everyone has been scolded by a man.'   (Aoun and Li 1993b)

    (i)   someone>>everyone

    (ii)   everyone>>someone

b. Meigeren dou <u>zhi</u>   bei   <u>yige ren</u> ma-guo.   (unambiguous)

everyone all   only PASS one man scold-PERF

'Everyone has only been scolded by a man.' (Aoun and Li 1993b)

    (i)   *someone>>everyone

    (ii)   everyone>>someone

Assuming that disjunctions are quantified expressions (Clark 1992), the set of examples in (30) illustrates the same point. The most prominent reading in (30a) is that everyone must be led by either Mr. Chen or Mr. Li, with everyone taking scope over Mr. Chen or Mr. Li. (30a) also has another reading where Mr. Chen or Mr. Li takes scope over everyone. In this reading, it is true of either Mr. Chen or Mr. Li that everyone must be led by him.[7] In contrast, (30b) only allows the reading where everyone takes wide scope. The reading where Mr. Chen or Mr. Li takes wide scope does not seem to be available. In other words,

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[7] The presence of a modal seems to help bring out the ambiguity for unknown reason (Clark 1992).

(30b) does not appear to have the meaning where it is true of either Mr. Chen or Mr. Li that everyone must be led only by him.

(30) a.   mei-ge   ren   dou   bixu bei   Chen laoshi   huo Li laoshi dai-zhe.

every-CL person all   must PASS   Chen teacher or   Li teacher lead-PRT

'Everyone must be led by either Mr. Chen or Mr.Li.'

       (i)   everyone >> Mr. Chen or Mr. Li

       (ii)   Mr. Chen or Mr. Li >> everyone

   b.   meige   ren   dou bixu <u>zhi</u>   bei   <u>Chen laoshi huo Li laoshi</u>   dai-zhe.

every-CL person   all   must only PASS Chen teacher or   Li teacher lead-PRT

'Everyone must be led only by either Mr. Chen or Mr. Li.'

       (i)   everyone >> Mr. Chen or Mr. Li

       (ii)   ??/*Mr. Chen or Mr. Li >> everyone

As noted earlier, one can explain the reduced scope readings in the examples above by the requirement that the constituent associated with *only* must move to the position of *only* at the level of LF. Alternatively, one can explain the restricted scope in the presence of *only* and *zhi* 'only' as due to the requirement that the constituent associated with *only* and *zhi* 'only' must be within the c-command domain of the focusing adverbs (Tancredi 1990 cited in Aoun and Li 1993b, Aoun and Li 1993b). There seems to be evidence that *only* and *zhi* 'only' block not only the LF movement of the constituent associated with them, but also the LF-movement of constituents not associated with them. The contrast in terms of possible scope readings in (28) remains when *only* is not associated with the universal quantifier.

(31)   a.   Someone gave every boy in the room a book.   (ambiguous)

       (i)   someone >> every boy

       (ii)   every boy>>someone

   b.   Someone <u>only</u> gave every boy in the room <u>a book</u>.   (unambiguous)

       (i)   someone >> every boy

       (ii)   *every boy>>someone   (Paul Hagstrom, p.c.)

The fact that (31b) does not have a reading where *every boy in the room* takes scope over *someone* can be explained if *only* blocks QR of *every boy in the room*. This means that *only* blocks QR of a lower QP whether or not the QP is associated with *only*.

The same seems to be true of *zhi* 'only' in Chinese. (32b) shows a scope contrast with (32a) in that *xiaozhang huo xunyuzuren* 'headmaster or the discipline teacher' may not take scope over *meigeren* 'everyone' eventhough the constituent *xiaozhang huo xunyuzuren* 'headmster or the discipline teacher' is not associated with *zhi* 'only'. *Zhi* 'only' in (32b) is associated with *ma yi dun* 'scolded'.

(32)   a.   mei-ge   ren   dou hui bei   xiaozhang huo xunyuzuren

       every-CL person all will PASS headmaster or discipline teacher

       ma   yi   dun.

       scold one scolding

       'Everyone will be scolded by the headmaster or the discipline teacher.'

       (i)   everyone >> headmaster or the discipline teacher

       (ii)   headmaster or the discipline teacher >> everyone

b.   mei-ge   ren   dou hui <u>zhi</u> bei   xiaozhang   huo xunyuzuren

every-CL person all   will only PASS headmaster   or   discipline teacher

<u>ma   yi   dun</u>.

scold one scolding

'Everyone will only be scolded by the headmaster or the discipline teacher.'

      (i)   everyone >> headmaster or the discipline teacher

      (ii)   ??/*headmaster or the discipline teacher >> everyone

The judgments of the scope readings in the example above are difficult and if the contrast holds up, then we have evidence that *zhi* 'only' blocks LF movement of any constituent within its c-command domain across it, not just those associated with it. In (32a), both scope readings are possible since *zhi* 'only' is not present. In (32b), *zhi* 'only' intervenes the movement path of the disjunction and as a result, only the surface scope reading is available.

3.2.2   *zhi* 'only' does not block LF wh-movement

We have seen in the previous section that *zhi* 'only' blocks QR in Chinese. The next question is whether *zhi* 'only' also blocks LF wh-movement. Assuming that an echo wh-word does not involve LF wh-movement while a regular wh-word moves at LF, there is indication that *zhi* 'only' does not block LF wh-movement.[8] The evidence that *zhi* 'only' does not block LF wh-movement comes from the fact that an echo question is possible but not necessary in (33) and (34).

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[8] One may argue that the fact that *zhi* 'only' does not block wh-movement indicates that there is no LF wh-movement involved in the interpretation of wh-words (Tsai 1994). There is however evidence from duration and frequency phrases which suggests that there exists LF wh-movement. See section 3.1.

(33) Ta zhi shuo mei-ge ren mai-le shenme (gei ta)?

he only say every-CL person buy-PERF what for him

'He only said everyone bought what (for him)?'

(34) Ta zhi shuo Yaya hui xihuan shei?

he only say Yaya will like who

'He only said Yaya will like who?'

There is additional evidence which suggests that LF wh-movement across *zhi* 'only' is allowed. Consider (35) which has an interrrogative embedded clause.

(35) a.   wo bu zhidao yinggai song yi-ben shu gei Yaya huo Liya.

I not know should give one-CL book to Yaya or Liya

'I do not know whether I should give a book to Yaya or Liya.'

    b.   wo bu zhidao yinggai zhi song yi-ben shu gei Yaya huo Liya.

I not know should only give one-CL book to Yaya or Liya

'I do not know whether I should give only a book to Yaya or Liya.'

I assume that the disjunction moves to check its [+interrogative] feature against the embedded [Spec, CP]. The fact that there is no contrast between (35a) and (35b) suggests that *zhi* 'only' does not block movement of the interrogative feature (compare (22)).

There is evidence that LF wh-movement contributes to a certain scope reading. In (30a) repeated below, the sentence is scopally ambiguous.

(36) mei-ge   ren   dou bixu bei   Chen laoshi huo Li laoshi dai-zhe.

every-CL person all   must PASS Chen teacher or Li teacher lead-PRT

'Everyone must be led by either Mr. Chen or Mr.Li.'

    (i)   everyone >> Mr. Chen or Mr. Li

    (ii)   Mr. Chen or Mr. Li >> everyone

When the sentence is embedded in a [+interrogative] C, the ambiguity disappears. Only the reading where Mr. Chen or Mr. Li takes scope over everyone is possible.

(37)   wo xiang zhidao mei-ge   ren   dou bixu bei Chen laoshi huo Li laoshi dai-zhe.

I want know every-CL person all must by Chen teacher or Li teacher lead-PRT

'I want to know whether everyone must be led by Mr. Chen or Mr. Li.'

    (i)   *everyone >> Mr. Chen or Mr. Li

    (ii)   Mr. Chen or Mr. Li >> everyone

Assuming the the disjunction moves to check its interrrogative feature in the Spec of the embedded CP, the resulting configuration places the disjunction structurally higher than the universal quantifier. The universal quantifier cannot QR above the disjunction in Spec of CP since QR can adjoin to IP but not CP.[9] Further evidence that LF wh-movement affects scope readings is given in the contrast between (38a) and (38b).

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[9] The implication of this analysis is that the typical wh-QP interaction found in (i) is a different phenomena. In (i) the wh-phrase in [Spec, CP] may take either wide scope or narrow scope with respect to the subject QP.

(i)   mei-ge   ren   dou   mai-le   shenme?
        every-CL person DOU buy-PERF what
        'What did everyone buy?'
        (a)   every >> what
        (b)   what >> every   (Aoun and LI 1993)

(38) a. meige ren dou bixu <u>zhi</u> bei <u>Chen laoshi huo Li laoshi</u> dai-zhe.

every-CL person all must only by Chen teacher or Li teacher lead-PRT

'Everyone must be led only by either Mr. Chen or Mr. Li.'

(i) everyone >> Mr. Chen or Mr. Li

(ii) ??/*Mr. Chen or Mr. Li >> everyone

b. wo xiang zhidao meige ren dou bixu zhi bei

I want know every-CL person all must only PASS

<u>Chen laoshi huo Li laoshi</u> dai-zhe.

Chen teacher or Li teacher lead-PRT

'I want to know whether everyone must be lead only by Mr Chen or Mr.

Li.'

(i) *everyone >> Mr Chen or Mr. Li

(ii) Mr Chen or Mr. Li >> everyone

Similar to the previous example, the disjunction undergoes LF wh-movement to the embedded [Spec, CP]. This movement allows only the reading where the disjunction takes scope over the universal quantifier and not vice versa. The fact that LF wh-movement in cases with *zhi* 'only' affects the possible scope readings indicates that *zhi* 'only' does not block LF-wh-movement.

3.3 Negation as a QUIB

I show in the following subsections that like *zhi* 'only', negation blocks QR, but not wh-movement.

3.3.1 Negation blocks QR

Negation in English seems to block QR as indicated by the scope contrast in (39a) and (39b). (39a) is ambiguous. It has a reading where there exists a particular individual who loves every boy in the room. Another reading it has is that for every boy in the room, there is someone who loves him. The person who loves each boy in the room may or may not be the same one. There are many readings associated with (39b) depending on what *not* is negating. I consider only the scope readings where *not* is associated with *every boy in the room* (more specifically *every*). (39b) has the reading where there is a particular individual who does not love every boy in the room, but only some of the boys. It does not have the reading where for not every boy in the room (i.e. for some boys in the room), there is someone who loves him.

(39) a. Someone loves every boy in the room.   ambiguous

         (i) someone >> every boy

         (ii) every boy >> someone

   b. Someone doesn't love every boy in the room.   unambiguous[10]

         (i) someone >> every boy

         (ii) *every boy >> someone   (Aoun and Li 1993)

The same seems to be the case in Chinese. Assuming that disjunctions are quantified expressions (Clark 1992), the following contrast shows that negation blocks LF movement of QPs in Chinese. In (40a), the most prominent reading is one where everyone takes wide scope over [Mr. Chen or Mr. Li]. The relevant reading is that each person will be lead by

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[10] The unambiguity of (39b) may depend on whether the sentence involves a clausal or a constituent negation. If a constituent negation is involved, the sentences seems to be ambiguous (Noam Chomsky, personal communication).

either Mr Chen or Mr Li. (40a) also may have the reading where [Mr. Chen or Mr. Li] takes scope over everyone. In this reading, either Mr Chen or Mr. Li will lead everyone. When the sentence is negated as in (40b), there are many possible readings depending on what is negated. I consider only the cases where the disjunction is negated. When the disjuction is negated, it seems that only the reading where everyone takes wide scope is available. The sentence cannot mean that it is true of either Mr. Chen or Mr. Li that everyone will not be led by him.

(40) a. mei-ge   ren   dou hui bei   Chen laoshi huo Li laoshi dai-zhe.

every-CL person all   will PASS Chen teacher or   Li teacher lead-PRT

'Everyone will be led by either Mr. Chen or Mr.Li.'

(i)   everyone >> Mr. Chen or Mr. Li

(ii)   Mr. Chen or Mr. Li >> everyone

b.   mei-ge   ren   dou buhui bei   Chen laoshi huo Li laoshi dai-zhe.

every-CL person all   not-will PASS Chen teacher or   Li teacher lead-PRT

'Everyone will not be lead by either Mr. Chen or Mr. Li.'

(i)   everyone >> Mr. Chen or Mr. Li

(ii)   ??/* Mr. Chen or Mr. Li >> everyone

Kuno and Takami (1997) propose that the focus of negation cannot be outside of the scope of the negative element. In other words, negation cannot have wide scope over the trace of a fronted element unless it also c-commands the fronted element. A reasonable question to raise is whether the restriction on QR above is due to the fact that the elements that undergo QR in the above examples are also the focus of negation. Because the focus of negation must be within the scope of negation, it may not raise across negation. To determine if negation really blocks QR, we need to find examples where the lower QP is not the focus

of negation. If negation only blocks LF movement of the focus of negation and not other constituent within its c-command domain, then we expect that when the lower QP is not the focus of negation, it may take wide scope over the higher QP. This prediction is not borne out as shown by the lack of contrast in possible scope readings between Interpretation A and Interpretation B and C. This means that negation blocks not only the focus of negation but also other constituents within its c-command domain.

(41) a.   Someone gave every boy in the room a book.

          (i)   someone >> every boy

          (ii)   every boy >> someone

     b   Someone didn't give every boy in the room a book.[11]

          Interpretation A: Negation of *every boy in the room*

          E.g., Someone didn't give every boy in the room a book. Someone gave

                everygirl in the room a book.

          (i)   someone >> every boy

          (ii)   ??/*every boy>>someone

          Interpretation B: Negation of *give*

          E.g., Someone didn't give every boy in the room a book. Someone sold

                every boy in the room a book.

          (i)   someone >>every boy

          (ii)   *every boy >> someone

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[11] Paul Hagstrom (personal communication] finds the unavailability of the scope reading *every boy* >> *someone* not as clear in Interpretation A compared to Interpretation B and Interpretation C.

Interpretation C: Negation of *a book*

E.g., Someone didn't give every boy in the room a book. Someone gave

every boy in the room a pen.

(i)   someone>>every boy

(ii)   *every boy >> someone

It seems to be true also in Chinese that negation blocks not only QR of the focus of negation, but also QR of other elements within its c-command domain. Consider (42). (42a) and (42b) are repeated from above. (42c) shows that when negation is associated with the verb and not with the disjunction, the disjunction still cannot outscope everyone.

(42)   a.   mei-ge   ren   dou hui bei   Chen laoshi huo Li laoshi dai-zhe.

            every-CL person all   will PASS Chen teacher or   Li teacher lead-PRT

            'Everyone will be led by either Mr. Chen or Mr.Li.'

            (i)   everyone >> Mr. Chen or Mr. Li

            (ii)   Mr. Chen or Mr. Li >> everyone

        b.   mei-ge   ren   dou buhui bei   Chen laoshi huo Li laoshi   dai-zhe.

            every-CL person all   not-will PASS Chen teacher or   Li teacher lead-PRT

            'Everyone will not be lead by either Mr. Chen or Mr. Li.'

            Interpretation A: Negation of *Mr. Chen and Mr.Li*

            E.g. Everyone will not be led by Mr. Chen or Mr. Li. They will be led

                by Mr. Huang.

                (i)   everyone >> Mr Chen or Mr. Li

                (ii)   * Mr. Chen or Mr. Li >> everyone

Interpretation B: Negation of *lead*

E.g. Everyone will not be led by Mr. Chen or Mr. Li. They will be

abandoned by them.

(i)   everyone >> Mr Chen or Mr. Li

(ii)   * Mr Chen or Mr. Li >> everyone

The fact that there does not appear to be any scope contrast among the different interpretations indicates that negation blocks LF movement of the constituent within its c-command domain regardless of whether it is also the focus of negation.

3.3.2 Negation does not block LF wh-movement

Negation does not appear to block LF wh-movement as shown by (43) which does not need to have an echo question reading.

(43)   jia   li de qinqi,   ni mei gen shei tan-guo   hua?

        house in DE relative you not with who talk-PERF word

        '(Among) our relatives, who haven't you talked to?'

Additional support comes from an embedded wh-clause.

(44)   wo xiang zhidao ta mei mai shenme.

        I   want   know he not buy what

        'I want to know what he didn't buy.'

The fact that (44) is fine means that the wh-feature on the embeded [Spec, CP] is checked and negation does not block LF wh-movement.

As in the case of *zhi* 'only', the LF wh-movement of a QP across a negation may have effects on the possible scope readings. In (40a) repeated below, the sentence is scopally ambiguous. This ambiguity disappears when the sentence is embedded under an interrogative CP. The sentence only has the scope reading where the disjunction takes wide scope. This is expected if we assume that the disjunction moves to the embedded CP to check its [+interrogative] feature. The movement places it in a configuration which c-commands the universal quantifier. Assuming that QR adjoins to IP, the universal quantifier cannot QR to a position c-commanding the Spec of the embedded CP.

(45) a. mei-ge ren dou hui bei Chen laoshi huo Li laoshi dai-zhe.

every-CL person all   will PASS Chen teacher or   Li teacher lead-PRT

'Everyone will be led by either Mr. Chen or Mr.Li.'

    (i) everyone >> Mr. Chen or Mr. Li

    (ii) Mr. Chen or Mr. Li >> everyone

b. wo xiang zhidao mei-ge   ren dou hui bei

I want know   every-CL person all will PASS

Chen laoshi huo Li laoshi dai-zhe.

Chen teacher or   Li teacher lead-PRT

'I want to know whether everyone will be led by Mr. Chen or Mr. Li.'

    (i) *everyone >> Mr. Chen or Mr. Li

    (ii) Mr. Chen or Mr. Li >> everyone

The scope readings in (45b) remains even when the embedded CP is negated as shown in (46).

(46) a.   mei-ge ren   dou buhui bei   Chen laoshi huo Li laoshi dai-zhe.

          every-CL person all not-will PASS Chen teacher or Li teacher lead-PRT

          'Everyone will not be lead by either Mr. Chen or Mr. Li.'

          (i)   everyone >> Mr. Chen or Mr. Li

          (ii)   ??/* Mr. Chen or Mr. Li >> everyone

    b.   wo xiang zhidao mei-ge   ren   dou buhui   bei

          I want know every-CL person all   not-will PASS

          Chen laoshi huo Li laoshi dai-zhe.

          Chen teacher or Li teacher lead-PRT

          'I want to know whether everyone will not be led by Mr. Chen or Mr. Li.'

          (i)   *everyone >> Mr. Chen or Mr. Li

          (ii)   Mr. Chen or Mr. Li >> everyone

This is expected if we assume that LF wh-movement is not blocked by negation. The disjunction moves across negation to the lower [Spec, CP] to check its [+interrogative] feature. In this moved position, the disjunction takes scope over the universal quantifier. The universal quantifier cannot take scope over the disjunction given that QR adjoins to IP rather than to CP.

3.4   Summary

I have shown that there are two types of QUIBs in Chinese. QUIBs such as DFPs which block LF wh-movement as well as QR and QUIBs such as *zhi* 'only' and negation which block QR but not LF wh-movement. With the inclusion of existential indefinites in German which block wh-movement but not QR, we have three types of QUIBs as given in (47).

(47)   Types of QUIB

	Block wh-movement	Block QR	Examples
Type I	yes	yes	DFPs in Chinese
Type II	no	yes	*zhi* 'only' and negation in Chinese
Type III	yes	no	existential indefinites in German

The fact that certain QUIBs are sensitive to wh-movement while others are sensitive to QR suggests that wh-movement and QR involve two different kinds of LF movement. How this difference is to be captured is unclear. It is possible that the distinction can be made in terms of feature movement versus phrase movement assuming that both feature and phrase LF movement are available (Pesetsky, class lectures Fall 1997). It may turn out to be the case that the blocking is sensitive to the landing site of the movement, whether it is adjunction to CP or IP. I leave this as an open problem.

4.   Why are certain object noun phrases not allowed in the post-DFP position?

4.1   The puzzle

While certain noun phrases may appear either before or after the DFP, and others may appear only after the DFP, there are certain noun phrases which may appear only before the DFP. These noun phrases include certain indefinite noun phrases with numeral-classifier as shown in (48a) and (48b). It seems that these noun phrases are only restricted to the pre-DFP position when they are not modified. When they are modified, they may appear after the DFP as shown in (48c).

(48) a.   ta jian-le   [yi-ge lüshi] [liang ci].

            he see-PERF one-CL lawyer   two time

            'He saw a lawyer twice.'

     b. ?* ta jian-le   [liang ci] [yi-ge lüshi].

            he see-PERF two time one-CL lawyer

            'He saw a lawyer twice.'

     c.   ta jian-le   [liang ci] [yi-ge cong-lai-bu ting ta jiang-hua de lüshi].

            he see-PERF two time one-CL never   listen he talk   DE lawyer

            'He has seen a lawyer who never listens to him speak twice.'

There seem to be certain quantifiers which are restricted to the pre-DFP position. Examples are given in (49) and (50).

(49) a.   wo qing-guo   [zui duo san-ge   ren]   [liang ci].

            I   invite-PERF at most three-CL person   two time

            'I have invited at most three people twice.'

     b.   *wo qing-guo   [liang ci]   [zui duo san-ge   ren].

            I   invite-PERF two   time   at most three-CL person

            'I have invited at most three people twice.'

(50) a.   ?wo qing-guo [hen sao ren]   [liang ci].

            I invite-PERF very few person two time

            'I have invited few people twice.'

b.   *wo qing-guo [liang ci] [hen sao ren].

I invite-PERF two time very few person

'I have invted few people twice.'

4.2   A possible account

I suggest that the QP *yi-ge lüshi* 'a lawyer', *zui duo san-ge ren* 'at most three people' and *hen sao ren* 'few people' must undergo obligatory QR (but see Beghelli and Stowell 1997 where these QPs are proposed not to QR). The reason why they may not appear after the DFP is because the DFP blocks QR at LF. A numeral classifier noun phrase which is modified behaves not like a QP but like a referential expression. No QR is required for its interpretation. This analysis is supported by the parallel one finds with negation. The QPs which are not allowed after the DFP are also not allowed within the scope of negation (see Lee 1986 for an analysis of why a singular numeral phrase is not allowed within the scope of negation).

(51) a.   ta jian-dao yi-ge   lüshi.

he see-PRT one-CL lawyer

'He saw a lawyer.'

b.   *?ta mei jian-dao yi-ge   lüshi.

he not see-PRT one-CL lawyer

'He didn't see a lawyer.'

(52) a.   ta qing-guo   zui duo san ge   ren.

he invite-PERF at most three-CL person

'He invited at most three people.'

b.   *wo mei qing-guo   zui duo san-ge   ren.

he   not invite-PERF at most three-CL person

'He didn't invite at most three people.'

(53)   a.   ?ta qing-le   hen sao   ren.

he invite-PERF very few person

'He invited few people.'

b.   *ta mei qing-le   hen   sao ren.

he not invite-PERF very few person

'He didn't invite few people.'

DFP and negation share the property that they block QR. One can capture the parallel in the distribution of the above object QPs if one assumes the above object QPs undergo obligatory QR. The reason why these object QPs are prohibited within the scope of DFP and negation is because both DFP and negation block QR. The question remains why these QPs as opposed to other QPs QR obligatorily.

5.   Conclusions

This chapter shows that there are three types of QUIBs when one extends QUIBs as blockers of LF wh-movement to QR. I show that the inventory of QUIBs in Chinese include DFPs, zhi 'only' and negation. DFPs in Chinese block both LF wh-movement as well as QR (and focus association); while zhi 'only' and negation block only QR and not LF wh-movement. The result suggests that the inventory of QUIBs in Chinese is a subset of the ones in Korean. While negation and only in Korean block LF wh-movement,

negation and *only* in Chinese do not block LF wh-movement. Many questions remain regarding the cross-linguistic differences in the inventory of QUIBs. For example, why Chinese QUIBs are a subset of Korean QUIBs, and Korean QUIBs in turn are a subset of German QUIBs. It is beyond the scope of this chapter to consider an account of this problem. The beginning of an inventory of QUIBs in Chinese is a first step towards understanding the cross-linguistic differences in QUIBs. Having established that both DFP and negation block QR across them, I show that this similarity between DFP and negation may be responsible for why certain QPs are prohibited in the post-DFP position (and negation). Essentially, I suggest that certain QPs undergo obligatory QR and as a result, they cannot be within the scope of a QUIB which blocks QR. Why these QPs as opposed to other QPs must undergo QR obligatorily is left for future research.

Chapter Six
Conclusions

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1.   Summary

In this thesis, I argue that like German and Dutch, Chinese allows overt object scrambling. I show that object scrambling in Chinese has phonological, semantics and discourse information structure effects. I argue that the scrambled object in Chinese occupies a position below the subject and the goal argument in double object and shift constructions (but above the goal argument in dative constructions). An analysis of the relation between [V-duration/frequency phrase-object] and [V-object-duration/frequency phrase] in terms of object scrambling allows us to capture when a certain object noun phrase can appear before or after the duration/frequency phrase, and why certain noun phrases seem to appear only before or only after the duration/frequency phrase. I hope that this study helps place Chinese among scrambling languages and by doing so enriches the data base upon which theories of scrambling can be tested.

2.   Implications

2.1   Verb-raising in Chinese

I have assumed following Huang (1994b) that verb raising occurs in cases where we find object scrambling. Further supporting evidence for the existence of verb raising comes from idiomatic expressions. The idiomatic reading is only available when the object remains in its base position after the duration/frequency phrase (DFP) as in (1a), but not when the object moves to the scrambled object position as in (1b). Given the tight semantic unit between the verb and the object in idiomatic expressions, the verb must be base generated immediately before the base object. Hence, verb raising must have occurred in (1a).

(1)   a.   wo chi-le   hen duo ci   ta de cu.

I eat-PERF very many time he DE vinegar

'He has caused me to be jealous many times.'

b.   wo chi-le   ta de cu   hen duo ci.

I eat-PERF he DE vinegar very many time

'I have eaten his vinegar many times.'

That verb raising has occurred also allows us to make sense of certain differences in the proximity of the scrambled object and the verb between Chinese and Dutch/German. In Dutch/German, the scrambled object is away from the verb intervened by an adverb. In Chinese, the scrambled object (on the surface) is closer to the verb than the non-scrambled object. The non-scrambled object appears not next to the verb but next to the DFP which comes between the object and and the verb. This apparent difference between Chinese and Dutch/German disappears once we assume that the verb originates from a position next to the base object in Chinese and raises to a position above the DFP. With verb raising, the

scrambled object in Chinese is away from the base position of the verb, while the non-scrambled object is next to the base position of the verb, patterning like Dutch/German.

2.2   Holmberg's Generalization

Holmberg (1986 cited from Vikner 1990) observes that overt object raising in Germanic languages is only possible with overt V-raising. Object scrambling in Chinese is consistent with this generalization. Overt object raising in Chinese is only possible with overt V-raising as shown in (2).

(2)   a.   wo qu-le   liang ci   Meiguo.

I   visit-PERF two time US

'I have visited US twice.'

b.   *wo Meiguo liang ci   qu-le.

I   US   two time visit-PERF

'I have visited US twice.'

However, verb raising is obligatory whether or not scrambling occurs in Chinese. When the verb does not raise in the case where scrambling does not occur, the sentence remains unacceptable.

(3)   *wo liang ci   qu-le   Meiguo.

I   two time visit-PERF US

'I have visited US twice.'

While the data in Chinese is consistent with Holmberg's generalization, it does not provide direct support for it.

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