Directionality in Applicatives

A Comparative Study on English and Mandarin Chinese

ENG- 3991

Fuping Zhang

ACKNOWLEDGEMENT

CONTENTS

ABBREVIATIONS

|	
ABL	ablative
ACC	accusative
ALL	allative
APPL	applicative
AQ	adverbial quantifier
ASP	aspect
BEN	benefactive
CL	clitic/classifier
COMP	complementizer
DAT	dative
DEF	definite
DIR	directionality
DO	direct object
DOC	Double Object Construction
EA	external argument
EPP	Extended Projection Principle
FA	frequency adverb
FOC	focus
FV	final vowel
GEN	genitive
IO	indirect object
INSTR	instrument
LK	linker
LOC	locative
NEG	negative
NOM	nominative
NOP	null operator
OA	object agreement
OBJ	object
PART	particle
PASS	passive
PL	plural
PRES	present
SG	singular
SVC	Serial Verb Construction

Chapter 1 Introduction

In my thesis, I will explore applicatives in ditransitive constructions in Mandarin Chinese and English. In English we only find Low Recipient Applicatives while in Mandarin we have both Low Recipient Applicatives and Low Source Applicatives, in addition to High Applicatives of a certain kind. Motivated by the puzzle of IO interpretation in English, I compare these two languages with respect to their argument structure and applicative structures. I argue that in Mandarin Chinese the IO is introduced by a Pylkkänen-style Low APPL inside the VP, and then raised higher than the VP, and to capture the raising phenomenon, I posit a functional head DIR, which is located between the little *v* and the lexical verb. The DIR head functions to regulate the direction of the transference, i.e. to the possession of the IO or from the possession of the IO. In Mandarin, the particles '*gei*' and '*zou*' are overt realizations of the DIR head, with the former indicating '*To-the-possession*' and the latter indicating '*From-the-possession*'. In the thesis I will examine various kinds of DOC patterns in Mandarin Chinese under the Applicative framework. Then I will compare with English, seeing what the understanding of the Mandarin situation can do to shed light on the interpretation restriction in English.

The thesis is organized in the following way. After this introduction, I will explain the motivations of this study and provide the basic theoretical background concerning Applicative Theory and Mandarin passivization in Chapter 2. In Chapter 3, we come to discuss the ditransitive patterns in Mandarin Chinese and I argue that there is a distinction between the Double Object Construction (DOC) and the Prepositional Construction in Mandarin much like there is in English. DOCs in Mandarin are divided into three groups, i.e. *GEI*-suffix Construction, *ZOU*-suffix Construction and Non-suffix Construction. In Chapter 4, I will lay out the challenges that the Mandarin DOC presents for a simple applicative analysis and discuss Paul and Whitman's (2010) Raising analysis. In Chapter 5, we move on to my DIR-APPL Analysis of Mandarin DOCs. In this chapter I will compare the DIR-APPL Approach with the Raising Applicative Analysis and highlight the position and function of the DIR head in applicative structures. In Chapter 6, I will discuss the major differences in English and Mandarin Applicatives and posit that the DIR head can possibly help us to understand IO interpretation in English. Chapter 7 is the concluding part of the thesis.

Chapter 2 Motivation and Theoretical Background

2.1 IO Interpretation in English DOCs

The Double Object Construction (DOC) in English has always been a popular topic in the literature, particularly after Barss & Lasnik (1986)'s article discussing the asymmetrical relation between the direct object (DO) and the indirect object (IO), i.e. the IO asymmetrically c-commands the DO.

(1)

```
        /\
       /  \
      IO   /\
          /  \
         /    \
              DO
```
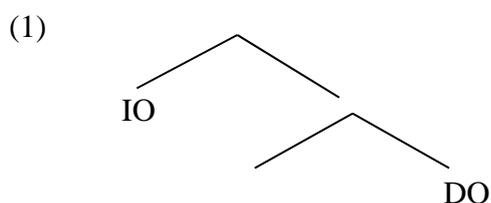
As Citko (2011) points out, researchers posit different elements which mediate the relationship between the two objects: a verb in a VP shell structure (e.g. Larson 1988), a prepositional element (e.g. Pesetsky 1995; Harley 2002, etc.), a small clause head (e.g. Beck & Johnson 2004). Under the Applicative framework, the IO (or the applied argument) is introduced by an applicative head (e.g. Pylkkänen 2000, 2008).

In English DOCs, the IO can only be interpreted as Recipient [1].

(2) John wrote **Mary-**Recipient a letter.

In (2), the IO '*Mary*' is the Recipient of the DO '*a letter*'. However, if we look at the DOC from a cross-linguistic view, we find that the IO interpretation is not limited to Recipient. In some languages with case morphology (e.g. German, Korean, Finnish etc.), we can also have a Source interpretation in the DOC, as shown in the following examples.

---

[1] My discussion will exclude the seeming DOC sentence like (a).

(a) John **charged** me fifty dollars.
(b) I **gave** John a fifty-dollar bill.   (DOC)

The sentence in (a) is different from normal DOC sentences. There is no actual transference taking place between the IO '*me*' and the external argument '*John*'. That is, John can charge me fifty dollars without actually getting the fifty dollars from me. In (b), a normal DOC sentence, there is a strong implication of successful transference, i.e. 'John got a fifty-dollar bill from me'. We find a very restricted set of verbs in the seeming DOC sentence and it is not productive. In fact, (a) might be better understood as a Recipient DOC, where what I receive is 'a fifty-dollar debt'.

German (Recipient IO and Source IO)

(3) a. *(weil)*   *ich*   **ihm**-Recipient   *ein*   *Buch*   *gab*
      since   I   him.DAT   a.ACC   book.ACC   gave
      'since I gave him a book.'

   b. *Jemand*   *hat*   **mir**-Source   *das*   *Auto*   *geklaut.*
      someone   has   me.DAT   the.ACC   car.ACC   stolen
      'I had someone steal my car.'   (McIntyre 2006:186-187)

Korean (Recipient IO and Source IO)

(4) a. *Mary-ka*   **John-ul**-Recipient   *chayk-ul*   *cwu-ess-ta.*
      Mary-NOM   John-ACC   book-ACC   give-PAST-PLAIN
      'Mary gave John a book.'   (Jung & Miyagawa 2004:116)

   b. *Totuk-i*   **Mary-hanthey**-Source   *panci-lul*   *humchi-ess-ta.*
      thief-NOM   Mary-DAT   ring-ACC   steal-PAST-PLAIN
      'The thief stole a ring from Mary.'   (Pylkkänen 2008:16)

Finnish (Recipient IO and Source IO)

(5) a. *Liisa*   *kirjoitti*   **Mati-lle**-Recipient   *kirjee-n.*
      Liisa.NOM   wrote   Matti.ALL   letter-ACC
      'Liisa wrote Matti a letter.'

   b. *Liisa*   *myi*   **Mati-lta**-Source   *talo-n.*
      Liisa.NOM   sold   Matti.ABL   house.ACC
      'Liisa sold a house from Matti.'   (Pylkkänen 2000:4)

But in English, even if we put the verb '*steal*' in the DOC, the IO still only has a Recipient interpretation.

(6) John stole **Mary**-Recipient a ring.

Example (6) means 'John stole a ring from someone else and gave it to Mary' and it cannot mean 'John stole a ring from Mary'. In this thesis I will explore the reason why English IOs can only be mysteriously interpreted as Recipient but not Source.

Let's look more closely at the languages with the Source IO.
In German (example 3) both the Recipient IO and the Source IO are dative marked. In Korean (example 4) the Recipient IO and the Source IO are marked with accusative case and dative case respectively. In Finnish (example 5), the Recipient IO and the Source IO are also case-marked differently, with the former allative marked and the latter ablative marked. We thus might think the puzzle of the Source IO is related to case morphology, since English has poor case morphology. However, this explanation is not plausible because we have both the Recipient and the Source IO in Mandarin Chinese, a language without overt case morphology.

Mandarin Chinese (Recipient IO and Source IO)

(7) a. *Zhangsan   song-gei-le   **Mali-**Recipient   yi-ge   jiezhi.*
      Zhangsan   give-GEI-ASP   Mali   one-CL   ring
      'Zhangsan gave Mali a ring.'

   b. *Zhangsan   tou-zou-le   **Mali-**Source   yi-ge   jiezhi.*
      Zhangsan   steal-ZOU-ASP   Mali   one-CL   ring
      'Zhangsan stole a ring from Mali.'

In Mandarin Chinese, we find no overt case marking on the Recipient IO '*Mali*' (in 7a) or the Source IO '*Mali*' (in 7b).

2.2 Motivation for the Comparison between English and Mandarin

As discussed above, there are actually three kinds of languages, with respect to IO interpretation and case marking in DOCs:

   a) English Type
      The IO can only be a Recipient; The language has poor case morphology.
   b) German, Korean, Finnish Type
      The IO can be both a Recipient and a Source; The Languages have case morphology.
   c) Mandarin Chinese Type
      The IO can be both a Recipient and a Source; The language has no overt case morphology.

If we think the mystery of the missing Source is due to case morphology, Mandarin Chinese poses a strong challenge. Since English and Mandarin, both have poor case morphology, the comparison between them seems to be a plausible way to find the solution to why English lacks the Source interpretation. We can look at the Mandarin DOC examples again, (7) is repeated here as (8):

(8) a. *Zhangsan   song-**gei**-le   **Mali-**Recipient   yi-ge   jiezhi.*
      Zhangsan   give-GEI-ASP   Mali   one-CL   ring
      'Zhangsan gave Mali a ring.'

   b. *Zhangsan   tou-**zou**-le   **Mali-**Source   yi-ge   jiezhi.*
      Zhangsan   steal-ZOU-ASP   Mali   one-CL   ring
      'Zhangsan stole a ring from Mali.'

There is no overt case marker on the IO and the DO. However, we observe a distinction in the verbal suffixes. In (8a), the verbal suffix is '-*gei*' and we have a Recipient IO while in (8b), the verbal suffix is '-*zou*' and then we get a Source IO. In Mandarin Chinese, we actually have two corresponding verbs for these two elements: '给 gěi' which means 'give somebody something' and '走 zǒu' which means 'leave or go away from somebody'. Therefore, these two elements reflect different directions. In (8a), with the *gei*-suffix, the sentence means

4

'Zhangsan gave Mali a ring'. In (8b), with the *zou*-suffix, the sentence means 'Zhangsan stole a ring from Mali'.

Let's look at the English examples:

(9) a. John gave **Mary**-Recipient a ring.
　　b. *John stole **Mary**-Source a ring.

Comparing (9) with (8), we may imagine that these directional elements (the verbal suffixes '-*gei*' and '-*zou*'), have something to do with why Mandarin allows both Source and Recipient Applicatives while English has only the latter. So, the comparison between English and Mandarin appears to be a promising way for us to obtain an explanation for the missing Source in English DOCs.

2.3 Applicative Theory

2.3.1 High/Low Applicatives

Applicative Theory provides a good way to tackle DOCs, claiming that an applicative is a syntactic element adding an extra, 'non-core' argument to a verb (Pylkkänen 2000, 2008; McGinnis 2008 among others).

(10) a. I baked a cake.
　　b. I baked **him** a cake.

In the example (10b), the DO '*a cake*' is the core argument of the verb. By hypothesis the non-core argument '*him*' is introduced by an applicative head. In English there is no overt realization of the applicative head.
Pylkkänen (2000, 2008) posits a distinction between High Applicatives and Low Applicatives, which is an important development in the research on applicatives. High Applicatives denote a relation between an individual and an event, and Low Applicatives denote a relation between two individuals.

Let's look at an example from Chaga.

Chaga High Applicative
(11) a. *N-ǎ-ǐ-lyì-í-à*　　　　　　　**m-kà**　　　　*k-élyá*.
　　　　FOC-1SG-PRES-eat-APPL-FV　　　1-wife　　　7-food
　　　'He is eating food for his wife.'　　　　　　　　　(Bresnan & Moshi 1993: 49)

In (11) the applied argument (or the IO) '*m-kà*' (wife) is introduced by an applicative element. The verbal suffix '-*i*' is the overt realization of the applicative head. The applied argument has a Benefactive reading: his wife benefits from the 'food-eating' event. The applicative head thus relates the individual 'his wife' to an event 'food-eating'. Therefore it is a High Applicative.

Consider then the English example.

English Low Applicative
(12) I baked **him** a cake.

In (12) the applied argument (or the IO) '*him*' is introduced by a null applicative head. The applicative head relates two individuals, the IO '*him*' and the DO '*a cake*'. (12) means the IO '*him*' comes to possess the DO '*a cake*'. (12) cannot just mean the IO '*him*' benefits from the 'cake-baking' event, without getting the cake. The applicative head here cannot relate one individual with an event. Thus it is a Low Applicative.

The two types of applicatives can be structurally represented in Tree (13) and (14) respectively:

(13) *High Applicative (Chaga)*

```
                vP
         ┌──────┴──────┐
        EA            v'
       'he'      ┌────┴────┐
                 v      HAPPLP
                    ┌─────┴─────┐
                   IO        HAPPL'
                 'wife'   ┌─────┴─────┐
                        HAPPL        VP
                               ┌──────┴──────┐
                               V            DO
                             'eat'        'food'
```
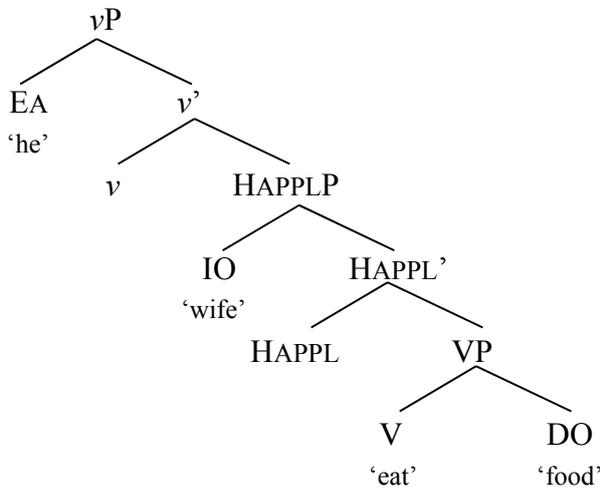
(14) *Low Applicative (English)*

```
              vP
        ┌──────┴──────┐
       EA            v'
        I       ┌────┴────┐
                v        VP
                   ┌──────┴──────┐
                   V          LAPPLP
                 bake     ┌─────┴─────┐
                         IO        LAPPL'
                        him     ┌─────┴─────┐
                              LAPPL        DO
                                        a cake
```
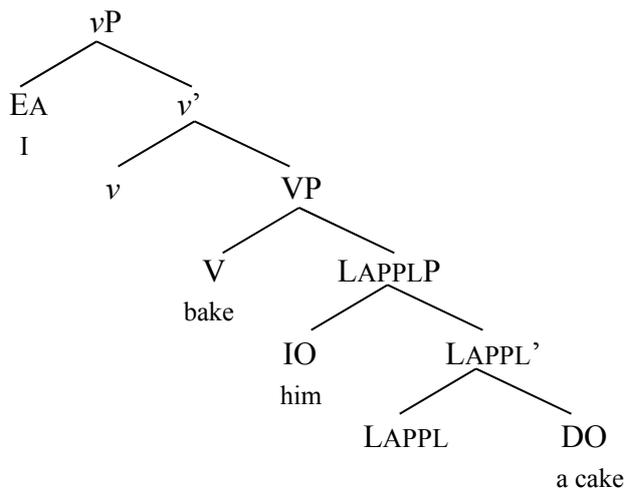
As for the interpretation of the High and Low Appliatives, Pylkkänen (2008) suggests a universal inventory of High Applicative Heads with the semantics in (15) and Low Applicative Heads with the semantics in (16):

(15) High APPL

$\lambda x.\lambda e.$APPL (e, x)

(collapsing APPL-$_{Ben}$, APPL-$_{Instr}$, APPL-$_{Loc}$, etc.)

(16) Low APPL

    a. Recipient Applicative (Low-APPL-$_{to}$)

       $\lambda x.\lambda y.\lambda f<e<s,t>>.\lambda e.f(e,x)$ & theme (e, x) & ***to-the-possession*** (x,y)

    b. Source Applicative (Low-APPL-$_{from}$)

       $\lambda x.\lambda y.\lambda f<e<s,t>>.\lambda e.f(e,x)$ & theme (e, x) & ***from-the-possession*** (x,y)

From (16) we observe a transfer of possession in Low Applicatives, which is not present in High Applicatives. Also we notice there are two directions of transference, *To-the-possession* (Low Recipient Applicative) and *From-the-possession* (Low Source Applicative). As we discussed previously, the IO can only be interpreted as Recipient in English, thus we only have Low Recipient Applicatives in the language.

2.3.2 Applicative Diagnostics

In this section we will talk about some of the standard applicative diagnostics for identifying the type of applicatives.

Diagnostic 1: Transitivity Restriction

Based on the definition of Low Applicatives, which denote a relation between two individuals, i.e. the IO and the DO, a low applicative head cannot appear in the structure without the DO (Pylkkänen 2008). The first diagnostic is thus that in Low Applicatives, the verbs must be transitive.

In English it is impossible to have intransitive verbs in the applicative structure, as illustrated in (17):

English Low Applicative
(17) *John **ran** a friend.

In (17) the Benefective reading, i.e. 'John ran for a friend', is not available, thus the diagnostic suggests that English has a Low Applicative, not a High one.

In contrast, the transitivity restriction is not present in the High Applicative structure. Let's look at the Chaga examples:

Chaga High Applicative
(18) a. *N-ắ-ĭ-lyì-í-à*   ***m-kà***   *k-élyá.*

      FOC-1SG-PRES-**eat**-APPL-FV   1-wife   7-food

      'He is eating food for his wife.'

b. *N-ǎ-i-zrìc-í-à*   ***m-bùyà***.
   FOC-1SG-PRES-**run**-APPL-FV   9-friend
   'He is running for a friend.'   (Bresnan & Moshi 1993: 49-50)

In (18a) '*eat*' is a transitive verb and in (18b) '*run*' is an intransitive verb. Both can appear with the Chaga Benefactive Applicative. So, in the High Applicative structure there is no requirement for the DO in the sentence.

By adopting the transitivity test, we are able to determine the applicative type: in Low Applicatives, only transitive verbs are allowed, while in High Applicatives, both transitive and intransitive verbs are allowed.

Diagnostic 2: Verb Semantics

Pylkkänen (2008) points out that because Low Applicatives imply a transfer of possession, static verbs are not allowed in the structure.

Low Applicative
(19) a. *I **held** him the bag.   (*English*)

   b. **John-i*   *Mary-hanthey*   *kabang-ul*   ***cap**-ass-ta*.   (*Korean*)
      John-NOM   Mary-DAT   bag-ACC   **hold**-PAST-PLAIN
      '*John held Mary her bag.'   (Pylkkänen 2008:20)

In (19) the static '*hold*', which is not capable of expressing a dynamic transfer, cannot appear in the Low Applicative structure since the Low Applicative involves possession transference i.e. *To-the-possession* or *From-the-possession*. In (19), the DO '*bag*' cannot be transferred from the external argument (EA) to the IO or from the IO to the EA by the 'holding' action.

Let's look at a grammatical Low Applicative sentence in English:

(20) John **sent** Mary a letter.

The verb '*send*' is a dynamic verb which can be used to facilitate the transference of possession. In (20), the DO '*a letter*' is transferred from the EA '*John*' to the IO '*Mary*'.

In contrast, there is no similar restriction of verb semantics on High Applicatives, shown in an example from Luganda.

High Applicative
(21) *Katonga*   *ya-**kwaant** -i-dde*   *Mukasa*   *ensawo*.
    Katonga   3SG.PAST-**hold**-APPL-PAST   Mukasa   bag
    'Katonga held the bag for Mukasa.'   (Pylkkänen 2008:20)

As we mentioned previously, there is no possession transference in High Applicatives, a big difference between High Applicatives and Low Applicatives. In (21), the High Applicative is used to denote that the applied argument '*Mukasa*' benefits from the 'bag-holding' event and thus the static verb 'hold' here is licit. From the discussion we note that we can decide the applicative type by testing the possibility of applicativizing static verbs (Pylkkänen 2008).

Let's consider the Low Applicatives in more detail. As we mentioned, there is a transfer of possession in Low Applicatives. So, actually there are two important properties in Low Applicatives, i.e. Possession and Transference. We can possibly split them apart: in a Low Applicative, we can test firstly the possession relationship between the IO and the DO, and then we go on to test the transference requirement for the verb.

Let's see the English example:

(22) John gave Mary a book.

Possession Property
In (22), there is a possession relationship created between the IO '*Mary*' and the DO '*a book*'.

Transference Requirement
We also notice the transference process, i.e. the DO '*a book*' is transferred from the EA '*John*' to the IO '*Mary*'.

Note that in a Low Recipient Applicative, both the possession relationship and transference property are required. So (23) cannot be analyzed as a Low Recipient Applicative.

(23) John bought Mary's book.

In (23), there is a possession between '*Mary*' and '*book*', but we cannot be sure that there is transference between '*John*' and '*Mary*'. '*John*' might buy the book from '*Mary*' or from someone else. This excludes (23) from being a Low Applicative.

In the following discussion, I will split the *Verb Semantic Diagnostic* into two parts, i.e. the Possession Property and the Transference Requirement.

2.4 Relevant Background on Passivization

2.4.1 Passivization and Applicatives

The interaction of passivization and applicatives has been a major focus of attention within Minimalist accounts of ditransitives (Georgala 2012). Movement has been proposed to be constrained by Shortest Move, Relativized Minimality, etc. which are expected to be relevant when we have two object DPs which might move to subject position and are thus in competition. Passives of DOCs are classified into two types, based on whether both objects are allowed to become the subject or not, i.e. symmetric and asymmetric passives (cf. McGinnis

2008; Citko 2011; Georgala 2012).

Citko (2011) discusses four distinct passivization patterns in DOCs. The first pattern involves languages like Danish, in which only the IO can passivize. It is a kind of asymmetric passive.

(24)

```
            TP
           /  \
          /    \
         /     /\
        /     /  \
       ↑   T [EPP] \
       ┊         /\
       ┊        IO  \
       ┊           /\
       └────────────   \
                       DO
```
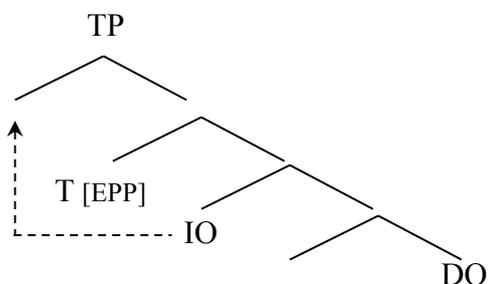
(25) a. **_han_** _blev_ _tilbudt_   _en_ _stilling_.   (_Danish_)
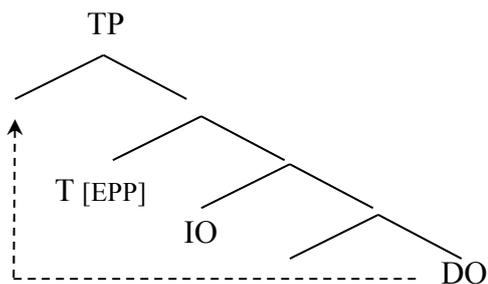   he   was   offered   a   job
       'He was offered a job.'

   b.***_En_** **_stilling_** _blev_ _tilbudt_   _han_.
       a   job   was   offered   him
       'A job was offered to him.'   (McGinnis 1998:73)

This is what we would expect based on Minimality.

The second pattern involves languages like German, in which only the DO can passivize. This is another kind of asymmetric passive.

(26)

```
            TP
           /  \
          /    \
         /     /\
        /     /  \
       ↑   T [EPP] \
       ┊        /\
       ┊       IO  \
       ┊          /\
       ┊         /   \
       └───────────────  DO
```

(27) a. **_Ein Buch_**   _wurde_ _dem Jungen_   _von dem Mädchen_   _geschenkt_. (_German_)
       a book.NOM was   the boy.DAT by   the   girl   given
       'A book was given to the boy by the girl.'

   b.***_Der Junge_**   _wurde_ _von_ _dem Mädchen_ _ein Buch_ _geschenkt_.
       the boy.NOM   was   by   the girl   a   book   given
       'The boy was given a book by the girl.'   (Woolford 1993:688)

This would seem to violate Minimality. It is usually proposed that the dative case on the IO (or something related) makes the IO ineligible for the movement, thus allowing the DO to cross over it.

The third pattern involves languages that allow passivization of either object. This is the passive pattern in Norwegian and is called symmetric passive.

(28)

a.

```
            TP
           /  \
          /    \
         /      \
        T [EPP]  \
        ↑    \    IO
        |     \   / \
        └------ IO     \
                      DO
```

b.

```
            TP
           /  \
          /    \
         /      \
        T [EPP]  \
        ↑    \    IO
        |     \   / \
        └------------- DO
```
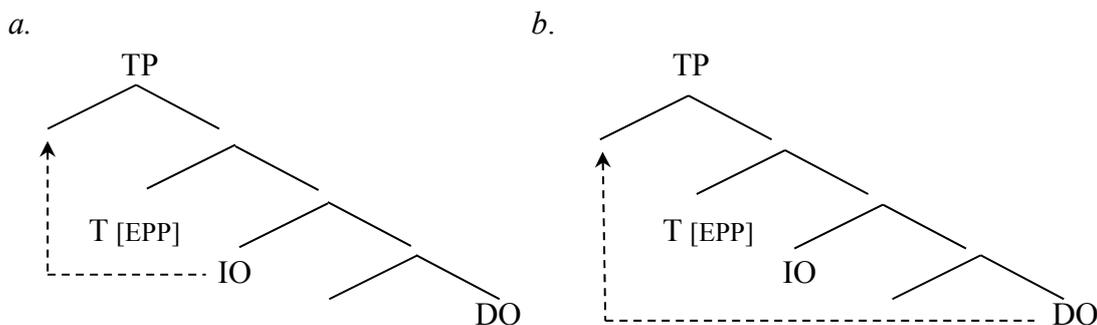
(29) a. **_Jon_** _ble_ _gitt_ _boken._ (_Norwegian_)
　　　 John　was　given　book.DEF
　　　 'John was given the book.'

　　 b. **_Boken_** _ble_ _gitt_ _Jon._
　　　 book.DEF　was　given　John
　　　 '*The book was given John.' (Holmberg & Platzack 1995:215)

This pattern is tricky to deal with and requires either the assumption of two distinct basic structures or some special operation or configuration that avoids the unexpected Minimality violation.

The fourth pattern involves languages, e.g. Greek, that disallow passivization of either object.

(30) a.*_**Ena vivlio**_　_dhothike_　_tis Lenas_　(_apo_　_ton_　_Oresti_).　(_Greek_)
　　　 a book.NOM　was.given.3SG　the Lena.GEN　by　the　Oresti.ACC
　　　 'A book was given to Lena (by Orestis)'
　　　　　　　　　　　　　　　　　　　(Georgala & Whitman 2007:81)

　　 b.*_**I　Lena**_　_dhothike_　_ena_　_vivlio._
　　　 the Lena.NOM　was.given.3SG　a　book.ACC
　　　 'Lena was given a book.' (Georgala & Whitman 2007:85)

Researchers have been trying to explain the different kinds of restrictions on passive types. We should note that what Citko (2011) discusses are passives where movement is driven by the [EPP] feature. In other words, she is concerned with A-movement (not A'-movement). I will discuss more about the distinction concerning movement types in the next section.

The content of the applicative head may also influence passivization possibilities (cf. Jeong 2007). In Swahili, Locative Applicatives are symmetric, i.e. either the applied object or the DO can be passivized, as shown in (31).

(31) *Swahili Locative Applicatives ---- Symmetric Passive*
      a. ***Ofisi-ni***   *pa-li-l-i-w-a*   *ch-akula*.
         office-LOC   16SA-PAST-eat-APPL-PASS-FV   7-food
         'In the office was eaten food.'

      b. ***Ch-akula***   *ki-li-l-i-w-a*   *ofisi-ni*
         7-food   7SA-PAST-eat-PASS-FV   9-office-LOC
         'The food was eaten in the office.'   (Citko 2011:113, citing Ngonyani 1996)

Benefactive and Goal Applicatives are asymmetric, i.e. only the applied object can be passivized, as illustrated in (32) and (33).

(32) *Swahili Benefactive Applicatives ---- Asymmetric Passive*
      a. ***M-toto***   *a-li-nunul-i-w-a*   *ki-tabu*.
         1-child   1SA-PAST-1OA-bring-APPL-PASS-FV   7-book
         'The child had a book brought for him.'

      b.****Ki-tabu***   *ki-li-nunul-i-w-a*   *m-toto*
          7-book   7SA-PAST-buy-APPL-PASS-FV   2-boy
          'The book was bought for the child.'   (Citko 2011:113, citing Ngonyani 1996)

(33) *Swahili Goal Applicatives ---- Asymmetric Passive*
      a. ***Wa-vulana***   *wa-li-sukum-i-w-a*   *j-ongoo*.
         2-boy   2SA-PAST-push-APPL-PASS-FV   5-millipede
         'The boys had millipede pushed towards them.'

      b.****Jongoo***   *a-li-sukum-i-w-a*   *wa-vulana*.
          1millipede   1SA-PAST-push-APPL-PASS-FV   2-boy
          'The millipede was pushed towards the boys.'

                                  (Citko 2011:113-114, citing Ngonyani 1996)

Cuervo (2003) also mentions the difference between Recipient Applicatives and Source Applicatives in Spanish: passivization of a structure with a Recipient is grammatical (34a) while passivization of a structure with a Source (34b) is ungrammatical.

(34)
a. ***El***   ***premio Nobel***   *(le)*   *fue*   *concedido*   *a Cela*   *el año pasado*   (*Spanish*)
    the Nobel prize.NOM   CL.DAT was   given   Cela.DAT   last year
    'The Noble prize was awarded to Cela last year.'   (Cuervo 2003:98, citing Demonte 1995)

b.***La bicicleta**   *le fue* *robada* *a Pablo* *ayer*.
  the bicycle.NOM CL.DAT stolen Pablo.DAT yesterday
  'Pablo's bicycle was stolen yesterday.'   (Cuervo 2003:99)

2.4.2 A-movement and A'-movement

A-movement is about the movement of DPs to argument positions (Cook & Newson 2007). A-movement cares about the [D] feature, and things like Minimality are defined with respect to that. Let's look at example (35) with the raising verb.

(35) It seems that **John** [D] thinks that **Bill** [D] is dumb.

In (35) both '*John*' and '*Bill*' bear the [D] feature. The raising verb 'seem' can only move the nearer DP '*John*' to the subject position (36a). The farther DP cannot be raised to the subject position (36b).

(36) a. **John** [D] seems to <John> think that **Bill** [D] is dumb.
  b. ***Bill** [D] seems to **John** [D] think that <Bill> is dumb.

A-movement is subject to Minimality with respect to [D] features, i.e. only the nearest [D] feature bearing element can move.

A'-movement is about the movement of phrases to non-argument positions (Cook & Newson 2007). A'-movement is not related to [D] features but cares about different features, e.g. [wh].

(37) a. **John** saw **Mary**.
  b. **Who** [wh] C[~~uwh~~] <who[wh]> saw **Mary** [D]?   (Question about *John*)
  c. **Who** [wh] C[~~uwh~~] did **John** [D] see <who [wh]>? (Question about *Mary*)

In (37c), the nearer element '*John*' does not move while the farther element '*who*' moves up to Spec CP. The movement does not violate Minimality because the nearer element '*John*' does not bear the matching feature [wh], and the probe has to look down and find the [wh] feature bearing element 'who [wh]'. Then '*who*' moves up to Spec CP. If both of the two elements bear a [wh] feature, only the nearer one can move, as shown in the following example.

(38) a. Who [wh] C[~~uwh~~] <who [wh]>saw who [wh]?
  b. *Who [wh] C[*u*wh] did who see<who [wh]>?

Therefore A'-movement is also subject to Minimality, but it cares about a different feature, i.e. not a [D] feature. If the nearer element does not bear the matching feature, it is not qualified to move ('*John* [D]' in 37c). Then the farther element ('who [wh]' in 37c) which bears the matching feature can move across the nearer element. So the key point is for the probe to find the nearest matching feature.
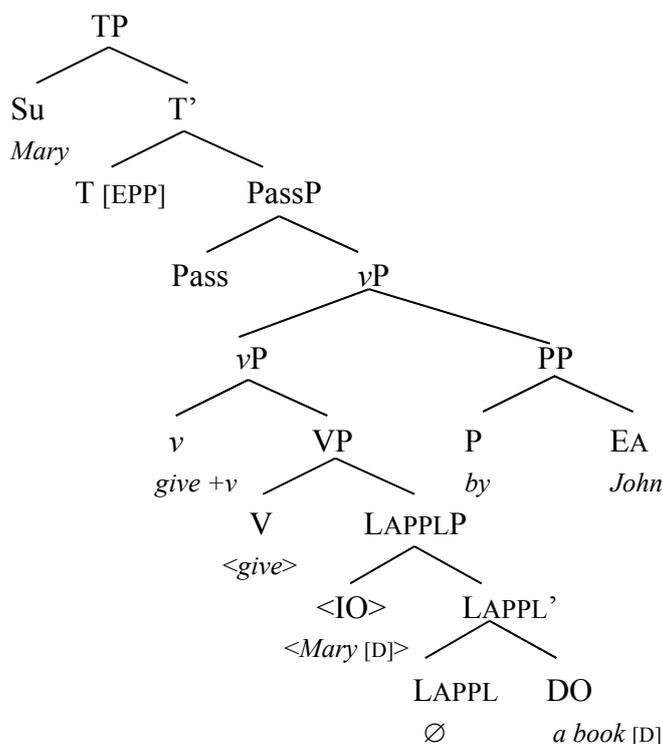
2.4.3 English [2] *be*-Passive

The English *be*-passive involves a kind of A-movement. As we discussed in previous sections, in Double Object Constructions the IO asymmetrically c-commands the DO, thus we would expect only the IO to be passivized, due to the Minimal Link Condition. This is what we observe in the English *be*-passive in (39).

(39) a. John gave **Mary** [D] **a book** [D].
    b. **Mary** [D] T [u̶D̶] was given **a book** [D] by John.
    c. *__A book__ [D] T [uD] was given **Mary** [D] by John.

In (39), both the IO '*Mary*' and the DO '*a book*' bear the matching [D] feature. Under the subject requirement, only the nearest element, IO '*Mary*', can move up to Spec TP, as shown in the following tree.

(40)

```
                    TP
              ┌──────┴──────┐
             Su            T'
            Mary      ┌─────┴─────┐
                   T [EPP]      PassP
                            ┌─────┴─────┐
                          Pass          vP
                                   ┌─────┴─────┐
                                  vP           PP
                             ┌─────┴───┐    ┌───┴───┐
                             v        VP    P      EA
                          give +v  ┌───┴──┐  by    John
                                   V    LAPPLP
                                <give> ┌───┴────┐
                                     <IO>     LAPPL'
                                  <Mary [D]> ┌──┴───┐
                                          LAPPL    DO
                                            ∅    a book [D]
```

2.4.4 Mandarin BEI Passive

The BEI passive is the most typical passive construction in Mandarin Chinese. The basic usage of the word '*bei*' is to describe a situation in which someone suffers from a negative event (*See 41a*). The adversity semantics is broad, thus entities are also allowed to be the subject of the BEI passive (*See 41b*).

---

[2] I will limit the current study to Standard American English. When it comes to British English Dialects, the passivization patterns may become rather complicated (cf. Haddican & Holmberg 2012).

(41) a. ***Zhangsan*** *bei   Lisi   da-le*.
  Zhangsan BEI   Lisi   hit-ASP
  'Zhangsan was hit by Lisi.'

 b. ***chezi*** *bei   ren   tou-le*.
  car   BEI   person   steal-ASP
  'The car was stolen by someone.'

Huang et al. (2009) argue that Mandarin BEI passives involve A'-movement rather than A-movement, which is different from the English *be*-passive. They provide the following evidence to support this proposal.

Long-distance Passive

The Mandarin BEI passive exhibits unbounded dependency, which sets no limit on how deeply embedded the gap may go (cf. Huddleston & Pullum 2002).

(42)
Active
a. *wo   jiao Lisi qing Wangwu   tuo   ta   meimei ji-zou-le   **nei-feng   xin***.
 1SG   tell   Lisi ask   Wangwu   entrust his   sister   send-ASP   that-CL   letter
 'I tell Lisi to ask Wangwu to get the letter sent out by his sister.'

Passive
b. ***nei-feng   xin*** *bei   wo jiao Lisi qing Wangwu   tuo   ta   meimei   ji-zou-le*.
 that-CL   letter BEI   1SG tell   Lisi ask   Wangwu   entrust his   sister   send-ASP
 'That letter was "told-Lisi-to-ask-Wangwu-get-his sister-to-send" by me.'

<div align="right">(Huang et al. 2009:125)</div>

In (42b), the Patient is '*nei-feng xin*' (that letter), and the Agent of the entire event is '*wo*' (I). But within the entire event 'the letter' underwent, there are several sub-events, i.e. 'Lisi asked Wangwu', 'Wangwu entrusted his sister', and 'his sister sent the letter'. In the English *be*-passive, a sentence like (43) is entirely ungrammatical.

(43) *****That letter** was told by me to **Lisi** [D] to ask **Wangwu** [D] to get **his sister** [D] to send.

Among other things, in an English-style passive with A-movement, this would violate Minimality, since '*that letter*' would have to move across three closer DPs '*Lisi*', '*Wangwu*' and '*his sister*'.

The possibility of an unbounded dependency is a characteristic property of A'-movement. E.g. *tough* movement sentences in English, which involve A'-movement, also allow long-distance dependencies:

(44) **This problem** ᵢ is too easy for me to ask the teacher to help me solve __ᵢ.

Island Sensitivity

While A'-movement may be unbounded, it is still subject to certain restrictions, e.g. in that it may not cross certain kinds of islands. Consider the following examples with a complex DP island:

(45) **³**
Active

a. *wo   tongzhi Lisi   ba   zanmei **Zhangsan** de   shu   dou   mǎi-zou-le*.
   1SG   inform Lisi   BA   praise Zhangsan COMP book   all   buy-zou-ASP
   'I informed Lisi to buy up all the books that praise Zhangsan.'

Passive

b. ***Zhangsan** bei   wo   tongzhi Lisi ba   zanmei *(ta) de   shu   dou   mǎi-zou-le*.
   Zhangsan   BEI 1SG inform Lisi BA   praise (3SG) COMP book   all   buy-zou-ASP
   'Zhangsan had me inform Lisi to buy up all the books that praise [him]'

<div align="right">(Huang et al. 2009:125)</div>

In (45b), the resumptive pronoun *ta* 'him' is obligatory. The sentence is ungrammatical with a gap in the object position of the verb *zanmei* 'praise', the verb in the relative clause [*zanmei ta de shu*] 'the books that praise him'. Thus Mandarin BEI passives are sensitive to DP islands. Chinese long-distance passives show island effects which passes another diagnostic for A'-movement.

Resumptive Pronoun

We find a parallel between Mandarin BEI passives and Mandarin relative clauses regarding the addition of resumptive pronoun. When an embedded subject is passivized or relativized, a resumptive pronoun is optional, as shown in (46).

(46)
  BEI Passive

a. ***Zhangsan** bei   Lisi   huaiyi   **(ta)**   tou-le   qian*.
   Zhangsan   BEI   Lisi   suspect (3SG)   steal-ASP money
   'Zhangsan was suspected (by Lisi) [he] to have stolen the money. '

---

³ In Mandarin Chinese, a '*ba*' construction has the following form (disregarding optional elements):

Subject + *ba* + NP + V

The object of '*ba*' is typically the object of the verb and this object is 'disposed' or 'affected' in the event described (cf. Huang et al. 2009). Let's look at the following example.

*Lisi **ba**   na-ben   shu   mǎi-zou-le*.

Lisi   BA   that-CL book   buy-ZOU-ASP

'Lisi bought that book.' or 'The book was bought by Lisi.'

In the above example, the object '*na-ben shu*' (the book) was 'disposed' in the event, i.e. it was bought by Lisi.

Relative Clause
b. *Lisi   huaiyi   (ta)   tou -le   qian   de   nei-ge   ren   zou-le*.
   Lisi   suspect   (3SG)   steal-ASP   money   COMP   that-CL   person   leave-ASP
   'The person that Lisi suspected [he] stole the money has left.'   (Huang et al. 2009:128)

When an object following BA (or any element traditionally analyzed as a preposition) is passivized or relativized, a resumptive pronoun is obligatory.

(47) **4**

   BEI Passive
a. *Zhangsan   bei   Lisi   ba   **ta**   pian   de   tuantuanzhuan*.
   Zhangsan   BEI   Lisi   BA   3SG   cheat   DE   run-around
   'Zhangsan was pushed around like a fool by Lisi.'

   Relative Clause
b. *Lisi   ba   **ta**   pian   de   tuantuanzhuan   de   nei-ge   ren   zou -le*.
   Lisi   BA   3SG   cheat   DE   run-around   COMP   that-CL   person   leave-ASP
   'The person that Lisi pushed around like a fool has left.'

(Huang et al. 2009:128)

The option of using a resumptive pronoun is a typical property of A'-movement, not of A-movement. As Huang et al. (2009) mention, the fact that passivization parallels relativization with respect to resumptive pronouns lends strong support to the A'-movement Analysis of the Mandarin BEI passive. Note in contrast that in the English *be*-passive, it is ungrammatical to have a resumptive pronoun.

(48) John was suspected by Mary (***he)** to have stolen the money.

Following Huang et al. (2009), I will adopt the NOP (null operator) approach to analyze the Mandarin BEI passive. In this analysis, '*bei*' is treated as an intransitive verb, which takes a CP as its secondary predicate and an experiencer as its subject.

(49) *Zhangsan   bei   Lisi   da-le*.
   Zhangsan   BEI   Lisi   hit-ASP
   'Zhangsan was hit by Lisi.'

---

4 In Mandarin the morpheme '*de*' suffixed to the verb in (47) is used to introduce the resultative.

   Lisi   ba   Zhangsan   pian   de   tuantuanzhuan.
   Lisi   BA   Zhangsan   cheat   DE   run-around
   'Lisi pushed around Zhangsan like a fool.'

In the above example, '*de*' introduces the result of the event, i.e. the 'running-around' state of '*Zhangsan*'.

(50)

```
                    TP
         ┌──────────┴──────────┐
        Su                    BEI'
     Zhangsan_i        ┌───────┴────────┐
                      BEI               CP
                      bei         ┌──────┴──────┐
                                NOP_i          C'
                                  ↑      ┌──────┴──────┐
                                  ¦      C            . . .
                                  ¦            ┌───────┴───────┐
                                  ¦                           VP
                                  ¦                    ┌───────┴───────┐
                                  ¦                   EA              V'
                                  ¦                  Lisi      ┌──────┴──────┐
                                  ¦                           da         <NOP_i>
                                  └─────────────────────────────────────────┘
```
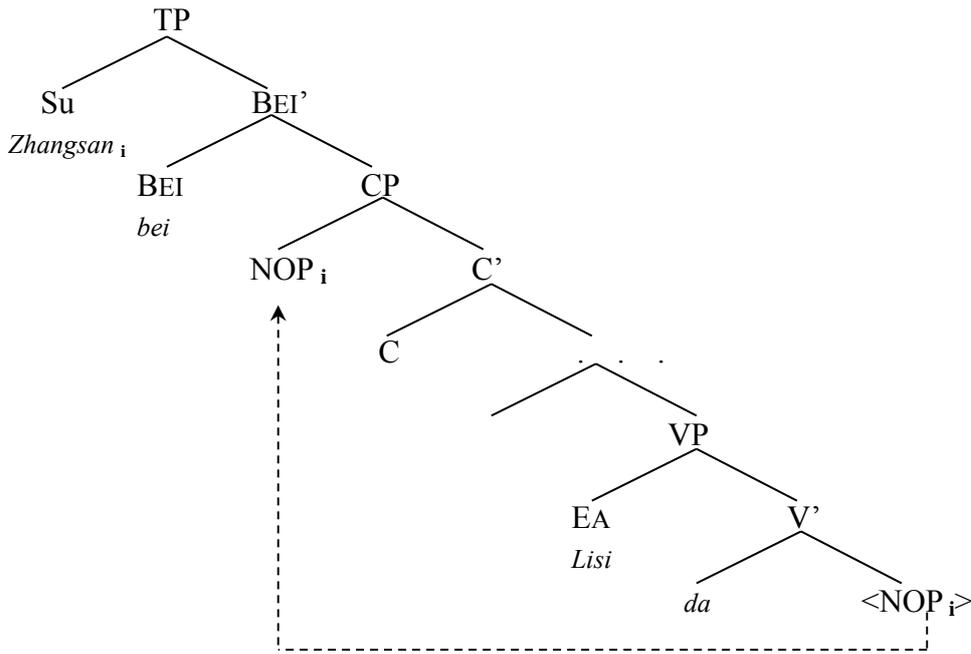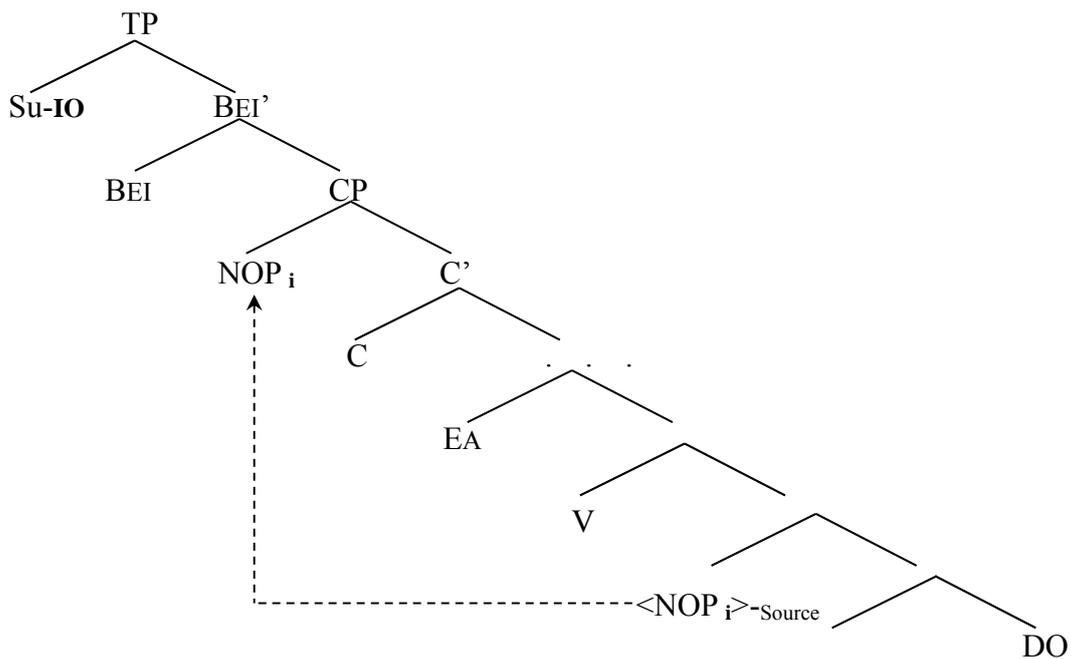
In (50) the object of the transitive verb '*da*' (hit) is actually a Null Operator (NOP) which undergoes A'-movement to Spec CP. The subject of the BEI passive '*Zhangsan*' binds the NOP in Spec CP. Thus the subject of BEI passive is not directly related to the gap but indirectly via a NOP in Spec CP.

Let's move on then to the passives of DOCs.

(51) ***Zhangsan   bei   Lisi   qiang-zou-le   yi -ge   wanju***.
Zhangsan   BEI   Lisi   rob-ZOU-ASP   one-CL   toy
'Zhangsan had one toy robbed by Lisi.'

(52)

```
                    TP
         ┌──────────┴──────────┐
       Su-IO                  BEI'
                        ┌───────┴────────┐
                       BEI               CP
                              ┌───────────┴──────┐
                            NOP_i                C'
                              ↑           ┌───────┴───────┐
                              ¦           C             . . .
                              ¦                   ┌───────┴───────┐
                              ¦                  EA
                              ¦                          ┌────────┴────────┐
                              ¦                          V
                              ¦                   ┌──────┴──────┐
                              └──────── <NOP_i>-Source        ┌──┴──┐
                                                                    DO
```

We can explain the passivization behavior with respect to the verb semantics. In (51) the IO '*Zhangsan*' is the Source of the DO '*yi-ge wanju*' (a toy), which is consistent with the semantics of the subject of the BEI passive, the entity (an animate DP or an inanimate DP) is adversely affected by some event. Thus the IO, a NOP, undergoes A'-movement to Spec CP. The subject of the BEI passive '*Zhangsan*' binds the NOP. The DO '*yi-ge wanju*' (a toy) stays in situ. We note that an animate DP is preferred to be the subject of the BEI passive. However, it is also possible to have an inanimate subject.

(53) **na-ge   wanju   bei   Zhangsan   song-gei-le   Mali**.
     that-CL   toy   BEI   Zhangsan   give-GEI-ASP   Mali
     'That toy ends up with the property of being given to Mali.'

In (53) the IO '*Mali*' is not qualified to be the subject. The semantics of 'BEI' can be described as 'an entity (animate or inanimate) undergoes an event which adversely affects it'. In (53), the IO '*Mali*' here is the Recipient of the 'toy'. To put it differently, '*Mali*' benefits from the event, which goes against the basic semantics of the verb 'BEI'. Thus the IO cannot move. Instead, the DO, a NOP, undergoes A'-movement to Spec CP. The subject of the BEI passive '*na-ge wanju*' (that toy) binds the NOP, as shown in (54).

(54)
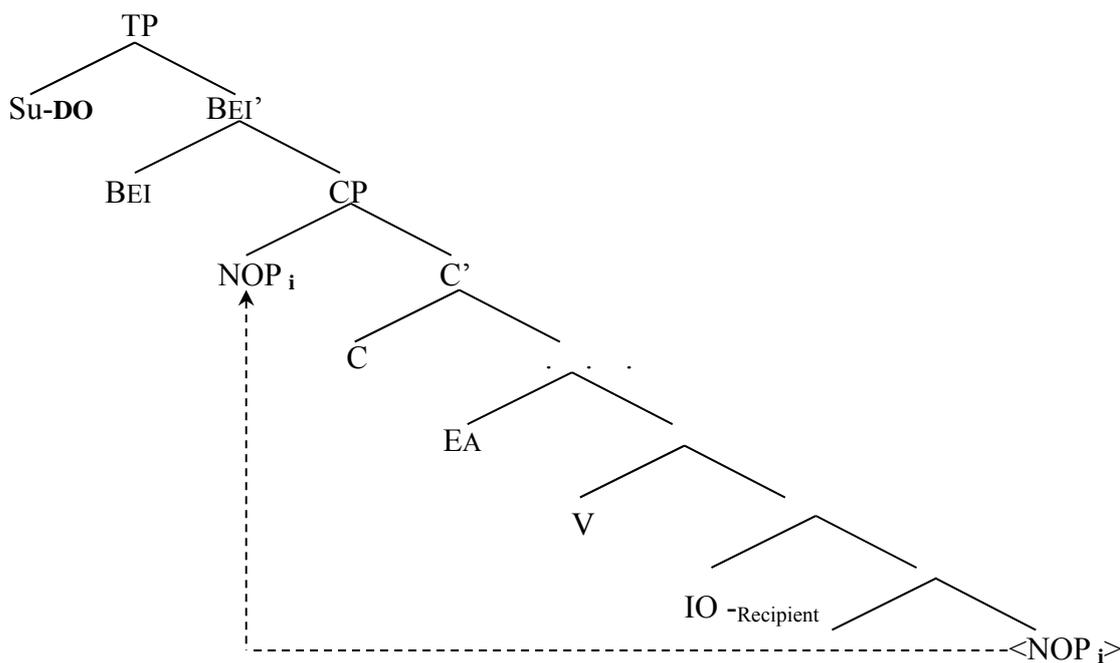
So from the above discussion we see that the animate DP is preferred to be the subject of Mandarin BEI passives. But when the animate DP fails to qualify to be the subject, due to semantic restrictions, the inanimate DP appears at the subject position.

When we explore passivization in Applicatives, we thus need to be cautious and pay attention to at least two aspects:

a) Movement Type (A-movement or A'-movement);
   The English *be*-passive involves A-movement and is thus subject to DP Minimality. The Mandarin BEI passive involves A'-movement which cares about a different feature, i.e. not a [D] feature.

b) Applicative Content (e.g. Recipient or Source).
   In Mandarin Chinese, the Source IO can passivize while the Recipient IO cannot passivize. We have discussed that in Spanish, the Recipient IO cannot passivize either. So the Applicative Content can affect the passivization behavior of the objects.

Chapter 3 Ditransitive Patterns in Mandarin Chinese

3.0 Introduction

In this chapter I will discuss Mandarin ditransitive patterns. In the first section, I argue that there is a distinction between the Double Object Construction (DOC) and the Prepositional Construction, and the PP Construction is structurally different from the DOC. Then in the second section, I provide evidence that V-*gei*/*zou* is syntactically derived, which is different from the V-V Compound. In the third section I will discuss the applicative types in Mandarin DOCs.

3.1 The Distinction between DOCs and Prepositional Constructions

3.1.1 DOC vs. PP Construction
The PP Construction is structurally different from the DOC. Following Paul & Whitman (2010), I claim that the DOC pattern is not directly derivable from the PP construction or vice versa.

(55) a. *Zhangsan   song-(**gei**)-le   Lisi   yi-ben   shu.*
      Zhangsan   give-GEI-ASP   Lisi   one-CL   book
      'Zhangsan gave Lisi a book.'

   b. *Zhangsan   song-le   yi   ben-shu   **gei**   Lisi.*
      Zhangsan   give-ASP   one   CL-book   to   Lisi
      'Zhangsan gave a book to Lisi.'

(55a) is a typical DOC with optional *gei*-marking, which will be discussed in more detail below. In (55b) the post-object '*gei*' is claimed to be a preposition (Sybesma 1999; Ting & Chang 2004; Paul & Whitman 2010, etc.).

Constituency tests indicate a clear difference between (55a) and (55b).

(56) **Zhangsan   [**gei   le   Lisi**]   song   yi-ben   shu.*
     Zhangsan   GEI   ASP   Lisi   give   one-CL   book

(57) *Zhangsan   [**gei   Lisi**]   song   le   yi-ben   shu.*
     Zhangsan   GEI   Lisi   give   ASP   one-CL   book

(56) shows [*gei* + Aspect + IO] in the DOC is probably not a constituent while (57) shows [*gei* + IO] in the PP Construction is possibly a constituent.

In English researchers discussed one important contrast between the DOC and the P-dative, in that in the DOC there is a possession relationship between the IO and the DO. The IO receives a Possessor role. In the English P-dative, however, the possession relationship is not present. The IO in the P-dative receives a Location role. The '*but* test' is often claimed to distinguish the DOC and P-dative patterns in English on this basis (Oehrle 1976; Stowell 1982; Harley 2002, etc.).

(58) a. # Max taught the students French, **but** they didn't learn it.
　　 b. Max taught French to the students **but** they didn't learn it.

(59) a. # I cut Rose a flower **but** I gave it to Mary.
　　 b. I cut a flower for Rose **but** I gave it to Mary.

In (58a) there is a much stronger implication that the students actually learned some French. In other words, '*the students*' is the Possessor of the language. So it is awkward to have the '*but*' coordination, which seems like a contradiction. In contrast, there is no implication that the '*the students*' is the Possessor of the language in (58b). Thus it is quite acceptable to have the '*but*' coordination. The contrast in (59) can be explained similarly.

The above contrast suggests that the transfer of possession must succeed in the DOC whereas it need not in the P-dative. In Mandarin Chinese we can also notice the difference between the DOC and the PP Construction concerning the strength of the implication of successful transference:

(60) a. # *mama*　　*qia-gei-le*　　*erzi yi-kua rou*,　　***dan*** *ta*　　*mei*　　*jiezhu.*
　　　 mother　 nip-GEI-ASP　 son　 one-CL　 meat　 **but**　 3SG　 NEG　 get
　　　 'The mother nipped off the son a piece of meat but he didn't get it.'

　　 b. *mama*　　*qia*　　*yi-kua rou*　　*gei erzi*,　　***dan*** *ta*　　*mei*　　*jiezhu.*
　　　 mother　 nip　 one-CL　 meat　 for　 son　 **but**　 3SG　 NEG　 get
　　　 'The mother nipped off a piece of meat for the son but he didn't get it.'

The DOC example (60a) indicates that the meat has been successfully transferred to the son, hence the '*but*' clause is a contradiction. However, the PP example (60b) just implies that the mother intended to nip off the meat for the son and the '*but*' clause is quite acceptable.

Consider then the following examples:
(61) a. *Zhangsan*　　***măi*** *-gei -le*　　*Lisi*　　*yi -ben*　　*shu.*
　　　 Zhangsan　　 buy-GEI-ASP　　 Lisi　　 one-CL　　 book
　　　 'Zhangsan bought Lisi a book'　　　　　　　　　　　 (DOC)

　　 b. *Zhangsan* ***măi****-le*　　*yi-ben*　　*shu* ***gei***　 *Lisi.*
　　　 Zhangsan　 buy-ASP　 one-CL　　 book　 to　 Lisi
　　　 'Zhangsan bought a book for Lisi.'　　　　　　　　　 (PP Construction)

    c. [*gei Lisi*]   *Zhangsan* ***măi***-*le*   *yi-ben*   *shu.*
        for Lisi   Zhangsan buy-ASP   one-CL   book
        'For Lisi, Zhangsan bought a book.'   (Fronted PP)

    d. [*gei Lisi*]   *Zhangsan* ***măi***-*le*   *yi-ben*   *shu,* ***dan*** *Lisi* *mei*   *yao.*
        for Lisi   Zhangsan buy-ASP   one-CL   book but Lisi NEG   accept
        'For Lisi, Zhangsan bought a book but Lisi didn't accept it.'

In the above example, (61c) can only be derived from the PP Construction (61b), since [*gei + Lisi*] is not a constituent in the DOC (61a). We have discussed previously that in the PP Construction, there is no possession relationship between the IO and the DO, whereas in the DOC there is. In (61c), the IO can only be interpreted as Benefactive and the '*but*' test in (61d) also shows the possession relation between '*Lisi*' and '*yi-ben shu*' (a book) is not present. The fronted PP Construction further supports the distinction between DOCs and PP Constructions in Mandarin Chinese.

3.1.2 Prepositional Status of Post-object '*gei*'

As we mentioned previously, we have a corresponding verb '给 gěi' for the verbal suffix '-*gei*' in Mandarin Chinese.

(62) *Zhangsan* ***gěi***-*le*   *Lisi*   *yi-ben*   *shu.*
     Zhangsan give-ASP   Lisi   one-CL   book
     'Zhangsan gave Lisi a book.'

Given this some researchers (Li 1990; Huang & Ahrens 1999) claim that the post-object '*gei*' is also a verb, thus the example (63) is a Serial Verb Construction (SVC).

(63) *Zhangsan* ***song***-*le*   *yi-ben*   *shu*   ***gei***   *Lisi.*
     Zhangsan give-ASP   one-CL   book   GEI   Lisi
     'Zhangsan gave a book to Lisi.'

In this section, I will provide evidence that the post-object '*gei*' is a preposition rather than a verb.

The ability to take aspect markers can be used to identify verbhood in Mandarin Chinese (McCawley, 1992; Tang 1990). Prepositions do not allow aspect markers (Her 2006; Paul & Whitman 2010). '*zai*' (at) is a preposition in Mandarin and we cannot attach the aspect marker '-*le*' to the preposition, which leads to ungrammaticality in (64a).

(64) a. *Zhangsan* *fang-(le)*   *yi-ge*   *diaoxiang* ***zai****(*le)* *xuexiao.*
       Zhangsan place-ASP one-CL   statue   at-ASP   school
       'Zhangsan placed a statue at the school.'   (Her 2006: 1277)

    b. *Zhangsan   song-(le)   yi-ben   shu   **gei** (*le)   Lisi.*
      Zhangsan   give-ASP   one-CL   book   GEI -ASP   Lisi
      'Zhangsan gave Lisi a book.'

In (64a) the verb '*fang*' (place) can take the aspect marker '-*le*' while the preposition '*zai*' (at) cannot. Similarly in (64b), the verb '*song*' (give) can have the aspect marker '-*le*' but the post-object '*gei*' cannot.

Contrast this with an example of a Serial Verb Construction in (65).

(65) *Zhangsan   na   gunzi **da**-(le)   Lisi*.
    Zhangsan   use   stick   hit-ASP   Lisi
    'Zhang hit Lisi using a stick.'

In the SVC, the second verb allows the aspect marker. In (65) the verb '*da*' (hit) can take the aspect marker '-*le*'. From the comparison in (64) and (65) we see that the post-object '*gei*' behaves similarly to a preposition but not to a verb.

Post-object '*gei*' exhibits another preposition-like property, i.e. post-object '*gei*' cannot be stranded. Unlike English, Mandarin Chinese does not allow preposition stranding (Zhang 1990; Her 2006; He 2011, etc.).

(66) **Lisi   fang-le   yi-ge   diaoxiang   zai t*ᵢ   *de   xuexiao*ᵢ.
    Lisi   place-ASP   one-CL   statue   at   COMP   school
    'The school which Lisi placed a statue at.'   (Her 2006:1278)

In (66) the relative clause is ungrammatical because the NP '*xuexiao*' (school) moves away and the preposition '*zai*' (at) is stranded, which is not allowed in Mandarin. We observe that the post-object '*gei*' cannot be stranded either, as shown in (67).

(67) **Lisi   song-le   yi-ge   diaoxiang   gei t*ᵢ   *de   xuexiao*ᵢ.
    Lisi   give-ASP   one-CL   statue   GEI   COMP   school
    'The school which Lisi gave a statue to.'

In (67) the relativization is also ungrammatical because the NP '*xuexiao*' (school) cannot move away and leave a stranded '*gei*'.
On the other hand in a Mandarin relative clause a verb can be stranded, as illustrated in (68).

(68) *Lisi   fang t*ᵢ *zai xuexiao   de   diaoxiang*ᵢ.
    Lisi   place   at   school   COMP   statue
    'The statue which Lisi placed at the school.'

In (68) the object of the verb '*diaoxiang*' (statue) moves away while the verb '*fang*' (place) is stranded, which is grammatical in Mandarin. We can find a stranded verb in the Double Object Construction (DOC) as well.

24

(69) *Zhangsan   song-gei-le   Lisi   t*_i   *de   na-ben   shu*_i.
　　Zhangsan   give-GEI-ASP   Lisi   COMP   that-CL   book
　　'The book that Zhangsan gave Lisi'

In (69) '*gei*' together with the verb *song* (give) can be stranded which is quite different from the post-object '*gei*' in (67), in which case it is not allowed to be stranded. The distinct behavior in stranding reflects the difference between the DOC and the PP Construction.
We can also compare the construction having a post-object '*gei*' with a true Serial Verb Construction, with fronting of the relevant object.

(70) a. *Lisi*_i, *Zhangsan   yao   na   gunzi   da   t*_i.
　　　　Lisi,   Zhangsan   want   use   stick   hit
　　　　'Lisi, Zhangsan wants to use a stick to hit.'   (Zhang 1990:314)

　　b.**Lisi*_i, *Zhangsan   song-le   yi-ben   shu   gei   t*_i.
　　　　Lisi   Zhangsan   give-ASP   one-CL   book   GEI
　　　　'Lisi, Zhangsan gave a book to.'

As Zhang (1990) discusses, a true Serial Verb Construction allows the second verb to be stranded as shown in (70a), but the post-object '*gei*' in (70b) cannot be stranded.

Another contrast with a SVC is that again the post-object [*gei* NP] can be fronted to the beginning of the sentence while [a serial verb + Object] cannot.

(71) a. *Zhangsan   măi-le   yi-ben   shu   [**gei   Lisi**]*
　　　　Zhangsan   buy-ASP   one-CL   book   to   Lisi
　　　　'Zhangsan bought a book and give it to Lisi.'

　　b. [***gei Lisi***]   *Zhangsan   măi-le   yi-ben   shu*.
　　　　for Lisi   Zhangsan   buy-ASP   one-CL   book
　　　　'For Lisi Zhangsan bought a book.'

(72) a. *Zhangsan   na-le   gunzi   **da   Lisi***.
　　　　Zhangsan   use-ASP   stick   hit   Lisi
　　　　'Zhangsan used a stick to hit Lisi.'

　　b.****da   Lisi**   Zhangsan   na-le   gunzi*.
　　　　hit   Lisi   Zhangsan   use-ASP   stick

In (71) the post-object [*gei* NP] is allowed to be fronted but in (72) the VP [*da* NP] is not allowed to be fronted. In Mandarin Chinese, a prepositional phrase is allowed to be fronted, as shown in the following example with '*zai*' (at).

(73) a. *Zhangsan   fang-le   yi-ge   diaoxiang* [***zai   xuexiao***].
      Zhangsan place-ASP one-CL   statue   at   school
      'Zhangsan placed a statue at the school.'

   b. [***zai   xuexiao***] *Zhangsan   fang-le   yi-ge   diaoxiang.*
      at   school   Zhangsan place-ASP   one-CL   statue
      'At the school, Zhangsan placed a statue.'

Let's summarize what we have discussed now. The post-object '*gei*' has three preposition-like properties:
 a) Post-object '*gei*' does not allow aspect marker '-*le*';
 b) Post-object '*gei*' cannot be stranded;
 c) Post-object [*gei* NP] can be fronted.
All these facts lead us to conclude that the post-object '*gei*' is a preposition.

3.1.3 The Structure of the PP Construction

In this section we will analyze the syntactic structure of the PP Construction.

(74) a. **EA V OBJ-**Theme *gei* **DP-**Recipient   (PP Construction)
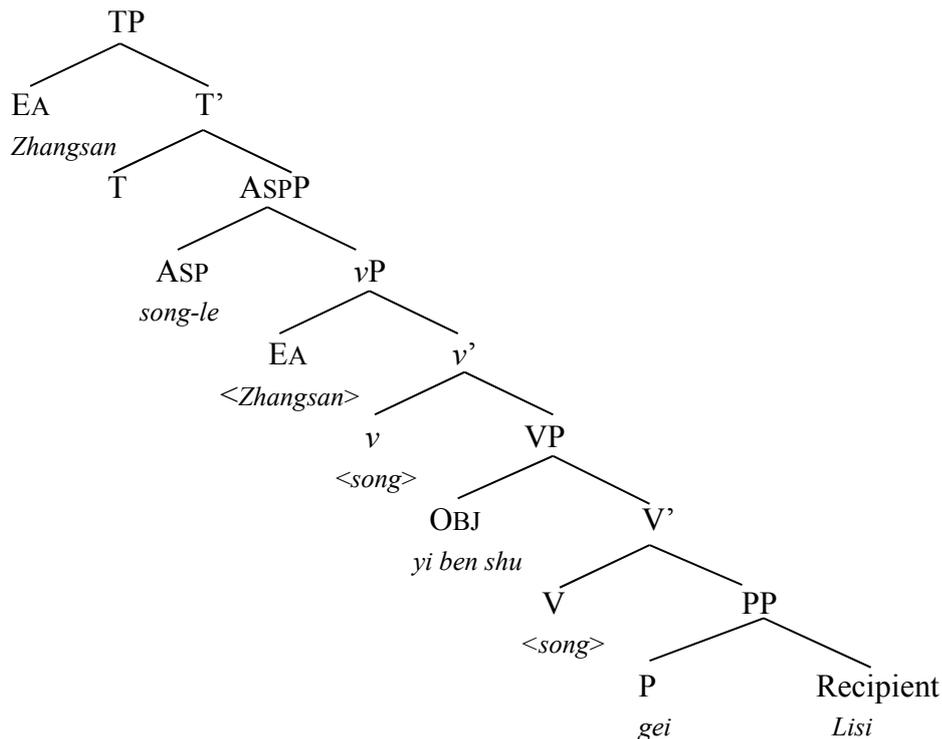   b. **EA V-***gei* **IO-**Recipient **DO-**Theme   (DOC)

In (74a), the Recipient argument in a PP is placed lower than the Theme argument OBJ, which is different from the DOC in (74b). The verbs in the PP Construction include *song* 'give', *ji* 'mail' etc.

(75) a. *Zhangsan   **song**-le   yi-ben   shu   **gei**   Lisi.*
      Zhangsan   give-ASP   one-CL   book   to   Lisi
      'Zhangsan gave a book to Lisi.'

   b. *Zhangsan   **ji** -le   yi-feng   xin   **gei**   Lisi.*
      Zhangsan   mail-ASP   one-CL   letter   to   Lisi
      'Zhangsan mailed a letter to Lisi.'

We can analyze the PP Construction in Tree (76), similar to Larson (1988)'s VP Shell analysis but updated with *v* and V instead of two shells of a single V. In (76) the Recipient '*Lisi*' is in the complement position of the PP. The object of the lexical verb '*yi ben shu*' (a book) is positioned in Spec VP. The Spec *v*P is occupied by the external argument '*Zhangsan*'.

(76)

```
                            TP
                    ┌───────┴───────┐
                   EA               T'
                Zhangsan      ┌─────┴─────┐
                              T          ASPP
                                    ┌─────┴─────┐
                                   ASP          vP
                                  song-le  ┌─────┴─────┐
                                          EA           v'
                                      <Zhangsan>  ┌────┴────┐
                                                  v         VP
                                               <song>   ┌───┴───┐
                                                       OBJ      V'
                                                     yi ben shu ┌──┴──┐
                                                               V      PP
                                                            <song> ┌──┴──┐
                                                                   P   Recipient
                                                                  gei    Lisi
```

3.2 V-*gei/zou* vs. V-V Compound

We mentioned previously that in Mandarin Chinese, we have two corresponding verbs to these two elements '-*gei*' and '-*zou*': '给 gěi' which means 'give somebody something' and '走 zǒu' which means 'leave or go away from somebody'. Some researchers (e.g. Li 1990) thus analyze V-*gei* as V-V Compound. In this section, I will provide evidence that V-*gei* is syntactically derived, which is also discussed in Paul & Whitman (2010). They only talk about V-*gei* construction, so I will provide evidence to show that V-*zou* is also syntactically derived. V-*gei/zou* is thus different from V-V Compounds.

i. Different Behavior in Verb Copying

Verb Copying refers to a grammatical process in which a verb is duplicated after its direct object when in the presence of certain adverbial elements (cf. Li & Thompson 1981), as shown in the following form.

(77) *Verb Copying in Mandarin Chinese*
      Subject   V   DO   V   Adverbial

V-*gei/zou* and V-V Compound behave differently with respect to Verb Copying.

(78) *tamen*   ***jian -cha***   *huzhao*   ***jian *(-cha)*** *-le*   *bantian.*
      3PL   inspect-examine   passport   inspect-examine-ASP   long time
      'They examined the passports for a long time'   (Paul & Whitman 2010:10)

27

(79) *wo* **song** **gei** *ta* *qian* *yijing* **song (*-gei)**-*le* *haoji* *ci* *le*.
    1SG give GEI 3SG money already give -GEI-ASP many time PART
    'I have given him money several times already.'   (Paul & Whitman 2010:10)

In (78) Verb Copying must copy both members of a V-V Compound, but it cannot copy V-*gei*, as shown in (79). Paul & Whitman (2010) argue that the contrast between (78) and (79) suggests that V-*gei* is composed by verb raising in the derivation while V-V Compound is formed in the lexicon, thus V-V can be copied as soon as they enter the derivation.

For V-*zou*, Verb Copying is not allowed either, as illustrated in the following example.

(80) *Lisi* **tou** **zou** *Zhangsan* *jiezhi* *yijing* **tou (*-zou)**-*le* *haoji* *ci* *le*.
    Lisi steal ZOU Zhangsan ring already steal -ZOU-ASP many time PART
    'Lisi has stolen Zhangsan the ring several times already.'

ii. Different Behavior in A-not-A Questions

The Mandarin A-not-A question is a type of question with a function similar to that of a yes/no question, the surface form of which involves two copies of a predicate with one copy negated (cf. Hagstrom 2006), as illustrated in (81).

(81) *A-not-A Questions in Mandarin*
    Subject   V   NEG   V   OBJ   ?

We can also identify a difference between V-*gei/zou* and V-V Compounds in their different behaviors in A-not-A Questions.

(82) a. *ta*   [*xi-huan*] **bu** [*xi-huan*] *shuxue*?
      3SG   like   NEG   like   mathematics

    b. *ta*   *xi-*   **bu**   *xi-huan* *shuxue*?
      3SG like   NEG   like   mathematics

    c. *ta*   [*xi-huan*] *shuxue* **bu** [*xi-huan*] *shuxue*?
      3SG like   mathematics NEG like   mathematics
      'Does he like mathematics?'   (Paul & Whitman 2010:10)

(83) a. **Lisi* *huan* *gei* **bu** *huan* *gei* *Zhangsan* *qian*?
      Lisi return GEI NEG return GEI Zhangsan money

    b. *Lisi* *huan* **bu** *huan* *gei* *Zhangsan* *qian*?
      Lisi return NEG return GEI Zhangsan moeny
      'Will Lisi return the money to Zhangsan?'

Observing the above examples we find in a V-V Compound (82) both members of V-V can be treated as a unit, placed before negation. However in a V-*gei* (83) the two elements cannot be treated as a unit, rather '*gei*' can only appear with the second occurrence of the verb. Following Paul & Whitman (2010), I assume the difference implies that V-*gei* is combined in the syntax rather than in the lexicon.

For V-*zou* we obtain the same observation, as shown in (84).

(84) a. **Lisi   qiang   zou   mei   qiang   zou   Zhangsan   wanju*?
       Lisi   rob   ZOU   NEG   rob   ZOU   Zhangsan   toy

    b. *Lisi   qiang   mei   qiang   zou   Zhangsan   wanju*?
       Lisi   rob   NEG   rob   ZOU   Zhangsan   toy
       'Did Lisi steal the toy away from Zhangsan?'

Therefore we note V-*gei/zou* is not a V-V Compound, and there is evidence that V-*gei/zou* is syntactically derived or at least crucially that it's combined in a different way than V-V compounds are.

3.3 Mandarin DOCs and Applicative Types

In this section I will discuss the DOC patterns in Mandarin Chinese. By adopting the standard applicative diagnostics we discussed in Chapter 2, I find three types of Applicatives in Mandarin, i.e. Low Recipient Applicatives, Low Source Applicatives and High Affectee Applicatives.

3.3.0 Verb Classes in Mandarin DOC

In Mandarin Chinese, I find six classes of verbs in DOCs, classified according to IO interpretation and the '*gei/zou*' marking, as illustrated in (85) [5].

---

[5] I exclude some marginal patterns in the verb classification. In Mandarin, the verb '*zu*' (rent) can be followed by a Recipient IO with an obligatory '*gei*' marking and surprisingly it is less acceptable to have a Source IO with '*zou*' marking. It is grammatical however, to have a Source IO without the '*zou*' marking, as shown in the following examples:

  (a) *Lisi   zu -**gei**-le   Zhangsan   yi-jian   fang*.
     Lisi   rent-GEI-ASP   Zhangsan   one-CL   room
     'Lisi rented out a room to Zhangsan'   (Recipient IO)
  (b) ? *Lisi   zu -**zou**-le   Zhangsan   yi-jian   fang*.
      Lisi   rent-ZOU-ASP   Zhangsan   one-CL   room
      'Lisi rented one of Zhangsan's rooms.'   (Source IO)
  (c) *Lisi   zu -le   Zhangsan   yi-jian   fang*.
     Lisi   rent-ASP   Zhangsan   one-CL   room
     'Lisi rented one of Zhangsan's rooms.'   (Source IO)

I do not have a satisfactory explanation for the phenomenon here. Probably it is related to the verb semantics.

(85) *Mandarin Verb Classes in DOCs*

Class	DOCs	IO Interpretation	Verb	V-*gei/zou*	Overt Marking
①	EA V (*gei*) IO DO	Recipient	Ditransitive	Ditransitive	'*gei*' ---optional.
②	EA V *gei* IO DO	Recipient	Monotransitive	Ditransitive	'*gei*' ----obligatory
③	EA V (*zou*) IO DO	Source	Ditransitive	Ditransitive	'*zou*' ----optional
④	EA V *zou* IO DO	Source	Monotransitive	Ditransitive	'*zou*' ----obligatory
⑤	EA V *gei/zou* IO DO	Recipient/Source	Monotransitive	Ditransitive	Obligatory
⑥	EA V IO DO	Affectee	Monotransitive	------------	No Marking

In (85) we observe that the IO in Mandarin DOCs can be interpreted as Recipient, Source and Affectee with sharp contrast to the English IO interpretation, which is limited to Recipient IO. The 'verb transitivity' column shows the inherent verb transitivity without a verbal suffix. The 'V-*gei/zou* transitivity' column tells us the transitivity of the suffixed verb. The suffixed verbs are uniformly the same type, i.e. ditransitive. In the last column we observe that there are two kinds of overt marking in Mandarin DOCs, i.e. *gei*-marking and *zou*-marking. For some DOC patterns, the overt marking is obligatory while for other patterns, it is optional. *Class⑥* is exceptional, not allowing overt marking at all.

I will divide the six verb classes into four groups according to the verbal suffix they take, i.e. the *GEI*-suffix Construction, the *ZOU*-suffix Construction, the V-*gei/zou* Construction and the Non-suffix Construction.

3.3.1 The *GEI*-suffix Construction

3.3.1.1 Introduction

Class① **EA V** (*gei*) **IO-**RECIPIENT **DO**

In the first class, the IO is the recipient of the DO, and there is an optional overt marking element '-*gei*'. The verbs that enter the construction have the semantics of transference. The verbs are inherently ditransitive. We may illustrate the argument structure of the verb this way: V<RECIPIENT, THEME>. With the overt '*gei*' marking, the argument structure is still the same: V + *gei* <RECIPIENT, THEME>.
The verbs in this class include *song* 'give', *huan* 'return' etc.

(86) *Zhangsan   song-(gei)-le   Lisi   yi-ben   shu.*
    Zhangsan   give-GEI-ASP   Lisi   one-CL   book
    'Zhangsan gave Lisi a book.'

Class② **EA V** *gei* **IO-**RECIPIENT **DO**

In this class, '-*gei*' marking is obligatory. Just like the first class, the IO is interpreted as the Recipient of the DO. The verbs in the construction do not have transference semantics

themselves, but they are compatible with it. By the addition of '*gei*', they belong to the transference verb group. This can be represented as (87)

(87) V <THEME> → V + *gei* <RECIPIENT, THEME>

The verbs in this class include *xie* 'write', *ti* 'kick' etc.

(88) *Zhangsan   xie -gei-le   Lisi   yi-feng   xin*.
    Zhangsan   write-GEI-ASP   Lisi   one-CL   letter
    'Zhangsan wrote Lisi a letter.'

We note the difference between the two classes is the inherent transitivity of the verb: for ditransitive verbs in the first class, the overt marking '*gei*' is optional while for the monotransitive verbs in the second class, the overt marking is obligatory.

Passivization Behavior

In the *GEI*-suffix Construction, the IO cannot become the subject in the passive while the DO can, which is different from what occurs in English.

DO *bei* EA V (*gei*) /*gei*   IO   (89a and 90a)
*IO *bei* EA V (*gei*) /*gei*   DO   (89b and 90b)

(89) a. **na-ben   shu**   *bei*   *Zhangsan   song-(gei)-le   Lisi*.
      that-CL   book   BEI   Zhangsan   give-GEI-ASP   Lisi
      'That book was given to Lisi by Zhangsan.'

    b. ***Lisi**   *bei*   *Zhangsan   song-(gei)-le   yi-ben   shu*.
      Lisi   BEI   Zhangsan   give-GEI-ASP   one-CL   book

(90) a. **na-feng   xin**   *bei*   *Zhangsan   xie -gei -le   Lisi*.
      that-CL   letter   BEI   Zhangsan   write-GEI-ASP   Lisi
      'That letter was written to Lisi by Zhangsan.'

    b.***Lisi**   *bei*   *Zhangsan   xie -gei -le   yi-feng   xin*.
      Lisi   BEI   Zhangsan   write-GEI-ASP   one-CL   letter

3.3.1.2 Applicative Classification

(91) a. *Zhangsan   song-(gei)-le   Lisi   yi-ben   shu.*
      Zhangsan   give-GEI-ASP   Lisi   one-CL   book
      'Zhangsan gave Lisi a book.'

b. *Zhangsan   xie -gei-le   Lisi   yi-feng   xin.*
Zhangsan   write-GEI-ASP   Lisi   one-CL   letter
'Zhangsan wrote Lisi a letter.'

In the *GEI*-suffix Construction (*Class①* and *Class②*) we observe that the applicative head relates two individuals, i.e. the IO and the DO. It does not relate the IO to the event in the VP. By the definition given in Pylkkänen (2008), I argue that the *GEI*-suffix Construction is a kind of Low Applicative, based on the following tests.

1) Possession Property

In (91) we can further specify the relation between the IO and the DO, i.e. the IO has the possession of the DO. In (91a), 'Lisi has the book'. In (91b), 'Lisi has the letter'.

2) Transference Requirement

We find a transference process taking place. In (91a) the DO '*yi-ben shu*' (a book) is transferred from the external argument '*Zhangsan*' to the IO '*Lisi*'. In (91b) similarly, the DO '*yi-feng xin*' (a letter) is transferred from '*Zhangsan*' (the EA) to '*Lisi*' (the IO).
We do not expect to find verbs that are not consistent with transference (e.g. static verbs) in the construction. The verb '*kan*' (watch) does not have the semantics of transference. We've seen that in Mandarin, monotransitive verbs can enter the DOC, if they are consistent with transference semantics. So we will test whether the verb '*kan*' (watch) is compatible with the '*-gei*' suffix.

(92) **wo   kan   -**gei** -zhe   Mali   bao.*
    1SG   watch-GEI-ASP   Mali   bag

The verb cannot have the '*-gei*' suffix as shown in (92), which is as expected if this construction is a Low Applicative.
The Benefactive argument must be introduced by a preposition '*wei*' (for), as shown in (93).

(93) *wo   **wei**   Mali   **kan** -zhe   bao.*
    1SG   for   Mali   watch-ASP   bag
'I' m watching the bag for Mali.'

3) Transitivity Restriction

A Low Applicative is not compatible with unergatives, since we need the Theme argument, which undergoes the transference process.

(94) a. **wo   **tiaowu-gei**-le   ta.*
     1SG   dance-GEI-ASP   3SG

b. *wo   wei   ta   **tiaowu**-le.*
    1SG   for   3SG   dance-ASP
'I danced for him.'

In (94a) a Low APPL is not capable of introducing the additional argument '*ta*' (him). The Benefactive argument '*ta*' (him) must be introduced by the preposition '*wei*' (for) in (94b).

Thus we can conclude that the *GEI*-suffix Construction is a kind of Low Applicative. Since the IO is interpreted as Recipient, it is a Low Recipient Applicative.

3.3.2 *ZOU*-suffix Construction

3.3.2.1 Introduction

Class③ **EA V** (*zou*) **IO-**SOURCE **DO**

In the third class, '*zou*' marking is optional. The IO is interpreted as the Source of the DO, i.e. the DO goes from the possession of the IO. The verbs in this class are transference verbs and they are inherently ditransitive. However, the transference direction is the opposite of that of the *GEI*-suffix Construction. Semantically, we can say in the transference process, the IO loses the DO. The argument structure of the verb is: V<SOURCE, THEME>. Verbs in this class include *tou* 'steal', *qiang* 'rob' etc.

(95) *Lisi   tou -(zou) -le   Zhangsan   yi-ge   jiezhi.*
Lisi   steal-ZOU-ASP   Zhangsan   one-CL   ring
'Lisi stole a ring from Zhangsan.'

Class④ **EA V-*zou* IO-**SOURCE **DO**

In this class, '*zou*' marking is obligatory. The IO is interpreted as the Source of the DO, i.e. the DO goes from the possession of the IO. The verbs in this class are derived transference verbs, and inherently they are monotransitive, but compatible with Source transference. We may illustrate derivation this way:

(96) V <THEME> $\rightarrow$ V + *gei* <SOURCE, THEME>

The verb '*kai*' (drive) is a typical verb in this class.

(97) *Lisi   kai -zou -le   Zhangsan   yi-liang   che*.
Lisi   drive-ZOU-ASP   Zhangsan   one-CL   car
'Lisi drove away one of Zhangsan's cars.'

The two classes (*Class③* and *Class④*) are different in their inherent verb transitivity and the optionality of overt marking. The ditransitive verbs do not need the overt marking element '*zou*' whereas the monotransitive verbs do need the overt marking, which is parallel to the first group, i.e. the *GEI*-suffix Construction.

Passivization Behavior

In the *ZOU*-suffix Construction, the IO can become the subject in the passive while the DO cannot, which is opposite to the case in the *GEI*-suffix Construction.

IO *bei* EA V (*zou*) /*zou*   DO   (98a and 99a)
*DO *bei* EA V (*zou*) /*zou*   IO   (98b and 99b)

(98) a. ***Zhangsan***   *bei*   *Lisi*   *tou -(zou) -le*   *yi-ge*   *jiezhi.*
      Zhangsan   BEI   Lisi   steal-ZOU-ASP   one-CL   ring
      'Zhangsan underwent the event that Lisi stole a ring from him.'

    b. ****yi-ge***   ***jiezhi***   *bei*   *Lisi*   *tou -(zou) -le*   *Zhangsan.*
      one-CL   ring   BEI   Lisi   steal-ZOU-ASP   Zhangsan

(99) a. ***Zhangsan***   *bei*   *Lisi*   *kai -zou -le*   *yi-liang*   *che.*
      Zhangsan   BEI   Lisi   drive-ZOU-ASP   one-CL   car
      'Zhangsan underwent the event that Lisi drove a car away from him.'

    b. ****na-liang*** ***che*** *bei*   *Lisi*   *kai -zou -le*   *Zhangsan.*
      that-CL   car   BEI   Lisi   drive-ZOU-ASP   Zhangsan

3.3.2.2 Applicative Classification

(100) a. *Lisi*   *tou -(zou) -le*   *Zhangsan*   *yi-ge*   *jiezhi.*
      Lisi   steal-ZOU-ASP   Zhangsan   one-CL   ring
      'Lisi stole a ring from Zhangsan.'

    b. *Lisi*   *kai -zou -le*   *Zhangsan*   *yi-liang*   *che*.
      Lisi   drive-ZOU-ASP   Zhangsan   one-CL   car
      'Lisi drove away one of Zhangsan's cars.'

In the *ZOU*-suffix Construction in (100), we observe that the applicative head relates two individuals, i.e. the IO and the DO, which is quite similar to the *GEI*-suffix Construction. The IO is not related to the event in the VP. By the definition given in Pylkkänen (2008), I argue that the *ZOU*-suffix Construction is also a kind of Low Applicative. I give tests here to characterize its applicative type and identify the differences between the *ZOU* DOC and the *GEI* DOC.

1) Possession Property
  In (100) we can specify the relation between the IO and the DO, i.e. the IO loses the possession of the DO. In (100a), '*Zhangsan* lost the ring'. In (100b), '*Zhangsan* lost the car'.

2) Transference Requirement
  We find a transference process taking place. In (100a) the DO '*yi-ge jiezhi*' (a ring) is

transferred from the IO '*Zhangsan*' to the external argument '*Lisi*'. In (100b) similarly, the DO '*yi-liang che*' (a car) is transferred from '*Zhangsan*' (the IO) to '*Lisi*' (the EA). We do not expect to find verbs that are not consistent with transference (e.g. static verbs) in the construction.

(101) **wo   *kan* **-zou** *-zhe*   *Mali* *bao.*
     1SG   watch-ZOU-ASP   Mali bag

In (101) we note that the static verb '*kan*' (watch) is not compatible with the '*-zou*' suffix. Previously we knew it was not compatible with the '*-gei*' suffix. Thus the verb is not compatible with transference in either direction.

A Benefactive argument must be introduced by a preposition '*wei*' (for), as shown in (102).

(102) *wo*   **wei**   *Mali*   **kan** *-zhe*   *bao.*
     1SG   for   Mali   watch-ASP   bag
     'I'm watching the bag for Mali.'

3) Transitivity Restriction

A Low Applicative is not compatible with unergatives, since we need the Theme argument, which undergoes the transference process.

(103) a. **wo   **paobu-zou** *-le*   *ta.*
     1SG   run -ZOU-ASP   3SG

     b. *wo*   **wei**   *ta*   **paobu***-le.*
     1SG   for   3SG   run-ASP
     'I ran for him.'

In (103a) a Low APPL is not capable of introducing the additional argument '*ta*' (him). The Benefactive argument '*ta*' (him) must be introduced by the preposition '*wei*' (for) in (103b).

Based on the above tests we can conclude that the *ZOU*-suffix Construction is also a kind of Low Applicative. Since the IO is interpreted as Source, it is a Low Source Applicative.

By Comparison we notice two differences between the Low Source Applicative and the Low Recipient Applicative in Mandarin Chinese.
    a) The Directionality of the transference is different and the overt marking elements are '*zou*' and '*gei*' respectively;
    b) The passivization behavior is different: for the *ZOU* DOC, the IO becomes the subject of the passive while for the *GEI* DOC, the DO becomes the subject of the passive.

Otherwise, the two constructions (i.e. the *GEI*-suffix Construction and the *ZOU*-suffix Construction) are quite similar, involving various properties of low applicatives and a similar distribution of obligatory vs. optional overt marking.

3.3.3 V-*gei/zou* Construction

Class⑤ **EA V** *gei/zou* **IO-**RECIPIENT/SOURCE **DO**

In this class, the verb can be marked with either '*gei*' or '*zou*', and the overt marking is obligatory. When the verb is '*gei*'-marked, the IO is the Recipient of the DO. When it is '*zou*'-marked, the IO is the Source of the DO. The verbs in this class are inherently monotransitive. The verbs in this class are compatible with transference in either direction, and the overt marking elements are used to specify the directionality, as illustrated in (104) and (105).

(104) '*gei*' *Marking ---- Recipient Transference*
     V <THEME> → V + *gei* <RECIPIENT, THEME>

(105) '*zou*' *Marking ---- Source Transference*
     V <THEME> → V + *zou* <SOURCE, THEME>

The verb '*ji*' (mail) is a typical example in this class.

(106) a. *Zhangsan   ji -**gei** -le   Lisi yi-ben   shu.*
       Zhangsan   mail-GEI -ASP   Lisi one-CL   book
       'Zhangsan mailed Lisi a book.'

   b. *Zhangsan   ji -**zou** -le   Lisi yi-ben   shu.*
       Zhangsan   mail -ZOU -ASP   Lisi one-CL   book
       'Zhangsan mailed a book from Lisi (to himself or someone else).'

The passivization facts are interesting here since we can get the difference in acceptability of the DO/IO passivization according to Recipient/Source status even with a single verb.

(107) *Recipient IO -- DO Passivization*
   a. ***na-ben   shu***   *bei   Zhangsan **ji** -gei -le   Lisi*.
     that-CL   book   BEI   Zhangsan   mail-GEI-ASP   Lisi
     'That book ended up with the property of being mailed to Lisi.'

   b. *****Lisi***   *bei   Zhangsan   **ji**-gei-le   yi-ben   shu*.
       Lisi   BEI   Zhangsan   mail-GEI-ASP   one-CL   book

(108) *Source IO -- IO Passivization*
   a. ***Lisi***   *bei   Zhangsan   **ji** -zou -le   yi-ben   shu*.
     Lisi   BEI   Zhangsan   mail-ZOU-ASP   one-CL   book
     'Lisi underwent the event that Zhangsan mailed a book from him'

   b.*****yi-ben   shu***   *bei   Zhangsan   **ji** -zou -le   Lisi*.
     one-CL   book   BEI   Zhangsan   mail-ZOU-ASP   Lisi

I will not discuss applicative diagnostics for this class, which are exactly parallel to those in the *GEI*-suffix Construction and the *ZOU*-suffix Construction. Regarding applicative classification, the fifth class can be either a Low Recipient Applicative (with '*gei*' marking as in 106a) or a Low Source Applicative (with '*zou*' marking as in 106b). The directionality of transference in Mandarin Chinese is nicely reflected in this class.

3.3.4 Non-suffix Construction

3.3.4.1 Introduction

Class⑥ **EA V IO-**AFFECTEE **DO**

Verbs of this class do not allow an overt '*gei*' or '*zou*' in ditransitive uses. Different from the previous classes, we cannot find a possession relation between the IO and the DO. There is no transference taking place in the process. The IO can be interpreted as the one who is negatively affected by the event. In other words, there is a relation between the IO and the event in the VP.

The verbs in this construction do not need to be transference verbs. Nevertheless, they are transitive verbs, since the DO is required by the verb. The DO is the entity which is involved in the affecting event. The verbs in this construction are resultative verbs. The resultativity in the construction creates a relation between the IO and the end state of the DO.

(109) *Lisi   da -sui   -le   Zhangsan   yi-ge   huaping*.
      Lisi   hit-broken-ASP   Zhangsan   one-CL   vase
      'Lisi broke one vase on Zhangsan.'

In (109) the IO '*Zhangsan*' is affected by the end state of the DO '*yi ge huaping*' (a vase), being broken. Actually there is no direct relation between the IO '*Zhangsan*' and the DO '*yi ge huaping*' (a vase). The argument structure of the verb in this type can be illustrated this way: V <THEME>. The verbs in this type include *chi* 'eat', *hua* 'spend', *da-sui* 'hit-broken' etc.

Passivization Behavior

We have discussed the special properties of the Mandarin BEI passive. The subject is the entity that is adversely affected by some event. In the Non-suffix Construction, the IO is not surprisingly a qualified candidate for the subject of the BEI passive. We can find support from the Mandarin data in (110).

(110) a. ***Zhangsan***   *bei*   *Lisi*   *da-sui*   *-le*   *yi-ge*   *huaping*.
      Zhangsan   BEI   Lisi   hit-broken-ASP   one-CL   vase
      'Zhangsan underwent the event that Lisi broke one of his vases.'

   b. **yi-ge*   *huaping*   *bei*   *Lisi*   *da-sui*   *-le*   *Zhangsan*.
      one-CL   vase   BEI   Lisi   hit-broken-ASP   Zhangsan

3.3.4.2 Applicative Classification

(111) *Lisi   da-sui   -le   Zhangsan   yi-ge   huaping.*
     Lisi   hit-broken-ASP   Zhangsan   one-CL   vase
     'Lisi broke a vase on Zhangsan.'

In the Non-suffix Construction in (111), we observe that the APPL relates one individual to an event, i.e. the IO '*Zhangsan*' and the 'vase-broken' event, which is a kind of High Applicative according to the definition given in Pylkkänen (2008).

1) Possession Property
  In (111) we might think there is a possession relationship between the IO and the DO, i.e. the IO loses the possession of the DO, i.e. '*Zhangsan* lost the vase'. However, this impression is misleading. The possible possession relationship can be cancelled. Consider the following sentence.

 (112) *Lisi   da-sui   -le   Zhangsan   yi-ge   Mali   de   huaping.*
     Lisi   hit-broken-ASP   Zhangsan   one-CL   Mali   GEN   vase
     'Lisi broke one of Mali's vases on Zhangsan.'

In (112) the possessor of the '*huaping*' (vase) is '*Mali*' rather than '*Zhangsan*'. We can imagine a situation like '*Zhangsan* rents *Mali*'s apartment and all the stuff in the house is provided by *Mali*.' So the Source interpretation of '*Zhangsan*' is not necessary.

2) Transference Requirement
  We cannot find a transference process taking place in (111). The DO '*yi ge huaping*' (a vase) is not transferred from the IO '*Zhangsan*' to the EA '*Lisi*', who broke the vase.

  In a High Applicative, there is no transference requirement for the verb in the construction. Thus static verbs are allowed in High Applicatives.
  Let's look at the Venda example:

 (113) *Nd -o -**far**-el -a*   *Mukasa   khali.*
     1SG-PAST-**hold**-APPL-FV   Mukasa   pot
     'I held the pot for Mukasa.'   (Pylkkänen 2008:21)

 In (113), the static verb 'hold' is allowed in the High Applicative.
 In Mandarin this particular applicative requires a resultative. In (111), the result is 'the vase is broken' and the IO '*Zhangsan*' is adversely affected.

3) Transitivity Restriction
  Pylkkänen (2008) claims that High Applicative is compatible with intransitive verbs and there is not transitivity restriction for High Applicatives. Let's look at the Chaga example again:

Chaga High Applicative
(114) a. *N-ǎ-ǐ-lyì-í-à*   ***m-kà***   *k-élyá*.
      FOC-1SG-PRES-**eat**-APPL-FV   1-wife   7-food
      'He is eating food for his wife.'

  b. *N-ǎ-i-zrìc-í-à*   ***m-bùyà***.
     FOC-1SG-PRES-**run**-APPL-FV   9-friend
     'He is running for a friend.'   (Bresnan and Moshi 1993: 49-50)

In (114a) '*eat*' is a transitive verb and in (114b) '*run*' is an intransitive verb. So, in the High Applicative structure there is no requirement for the DO in the sentence.

Then we go back to the Mandarin example in (111). We mentioned that the verbs in this class are resultative verbs. The IO is affected by the end state of the DO. The DO is required by the transitive verb '*da-sui*' (hit-broken). In the Chaga example, '*food*' in (114a) is required by the transitive verb '*eat*'. The resultativity in (111) requires the DO. Therefore when we adopt the transitivity test to decide the applicative type, we need to be clear that in High Applicatives, transitive verbs are allowed, since there may be some other grammatical elements (e.g. resultativity in 111) which require the internal argument.

In Mandarin we have a kind of construction called 'double unaccusatives' (cf. Chappell 1999), as shown in (115)

(115) *Akiu*   ***pao**-le*   *laopo*.
    Akiu   run-ASP   wife
    'Akiu's wife ran away on him.'   (Tsai 2009: 14)

As Tsai (2009) mentions, in the literature the double unaccusative construction involves affectedness of some sort (cf. Pan 1997; Tsai 2007 etc.) The sentence (115) means '*Akiu*'s wife ran away and he is negatively affected by the running-away event'. Thus it is a High Applicative. The 'transitivity requirement' here is actually a requirement for an internal argument i.e. '*laopo*' (wife) in (115), which is what we expect for a resultative.

Now we conclude the Non-suffix Construction is a kind of High Applicative. Since the IO is negatively affected in the 'vase-broken' event in (111), we term this kind of Applicative as the High Affectee Applicative.

Chapter 4 Issues with a Pure Applicative Analysis of Mandarin DOCs

4.0 Introduction

In this chapter I will start working towards an analysis of the applicative structures of Mandarin DOCs. The obvious starting point would be to assume that the suffixes '*-gei*' and '*-zou*' are APPL heads. This, however, would raise two issues, i.e.
1) The *ZOU*-suffix Construction and the *GEI*-suffix Construction behave like Low Applicatives but their position in the verbal string makes them look like High Applicatives;
2) There is evidence that the IO is in a position higher than where we would expect the argument of a Low Applicative to be introduced.

Paul & Whitman (2010) posit a Raising Applicative analysis to tackle the above issues but we will see that there are problems with their analysis, which will lead me to propose an alternative in the next chapter.

4.1 The Crucial Properties of Mandarin Applicatives

4.1.1 Low Applicative Status of *GEI/ZOU*-suffix Constructions

(116) a. *Zhangsan   xie -**gei**-le   **Lisi**   yi-feng   xin*.
　　　 Zhangsan   write-GEI-ASP   Lisi   one-CL   letter
　　　 'Zhangsan wrote Lisi a letter.'

　　 b. *Lisi   kai -**zou** -le   **Zhangsan**   yi-liang   che*.
　　　 Lisi   drive-ZOU-ASP   Zhangsan   one-CL   car
　　　 'Lisi drove away one of Zhangsan's cars.'

I have discussed in the previous chapter that the *GEI*-suffix Construction (116a) and the *ZOU*-suffix Construction (116b) are Low Applicatives. Both of them relate two individuals, i.e. the IO and the DO. And according to the applicative diagnostics, i.e. the Possession Property, the Transference Requirement and the Transitivity Restriction, they behave like Low Applicatives. The obvious assumption would then be that the verbal suffixes '*-gei*' *and* '*-zou*' are overt realizations of the APPL Head, which is responsible for introducing the applied argument IO, i.e. '*Lisi*' in (116a) and '*Zhangsan*' in (116b). Then we might have a structure like (117) for *GEI/ZOU*-suffix Constructions.

(117)

```
                    TP
            ┌───────┴───────┐
           EA              T'
                    ┌───────┴───────┐
                   T              AspP
                           ┌───────┴───────┐
                         ASP             VP
                                  ┌───────┴───────┐
                                 V              LAPPLP
                                         ┌───────┴───────┐
                                        IO             LAPPL'
                                               ┌───────┴───────┐
                                             LAPPL             DO
                                            -gei/zou
```
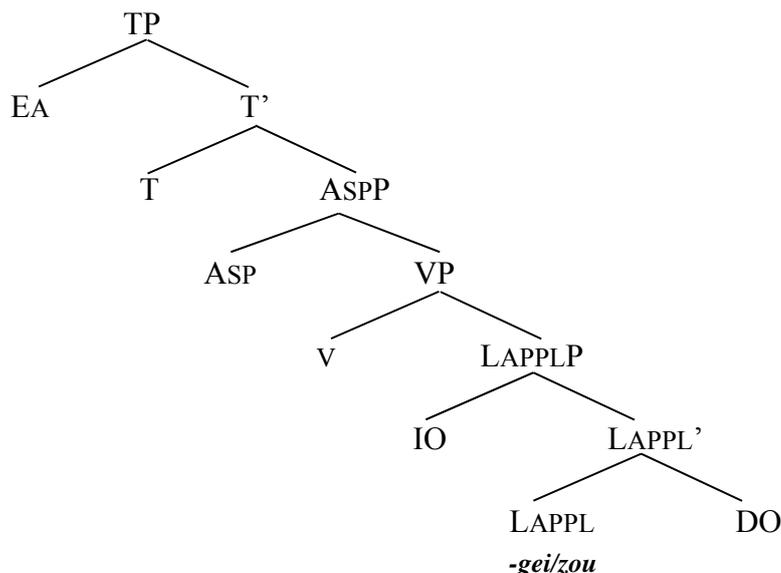
4.1.2 The Ordering of *GEI/ZOU*

Then let us consider how we would achieve the surface order of the *GEI/ZOU*-suffix Constructions.

(118) a. *Zhangsan   xie   -**gei**-le   **Lisi**   yi-feng   xin.*
          Zhangsan   write-GEI-ASP   Lisi   one-CL   letter
          'Zhangsan wrote Lisi a letter.'

   b. *Lisi   kai   -**zou** -le   **Zhangsan**   yi-liang   che.*
       Lisi   drive-ZOU-ASP   Zhangsan   one-CL   car
       'Lisi drove away one of Zhangsan's cars.'

Under the standard assumption that head adjunction is always to the left, successive head movements in the structure in (117) will yield the surface ordering in (119).

(119) *EA [AspP *gei/zou*-V -*le* [VP <*gei/zou*-V> [APPLP IO <*gei/zou*> DO]]].
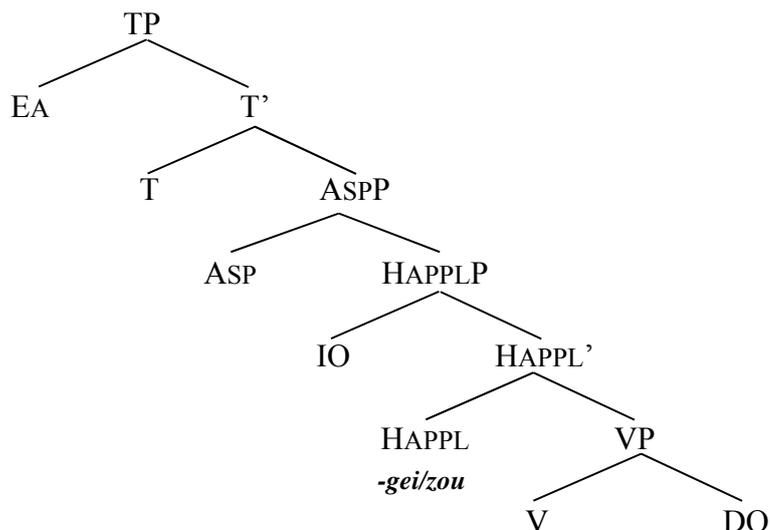
But the surface ordering in (119) is entirely ungrammatical, as shown in (120).

(120) a. **Zhangsan   **gei** -xie -le   Lisi   yi-feng   xin.*
          Zhangsan   APPL-write-ASP   Lisi   one-CL   letter

   b. **Lisi   **zou** -kai -le   Zhangsan   yi-liang   che.*
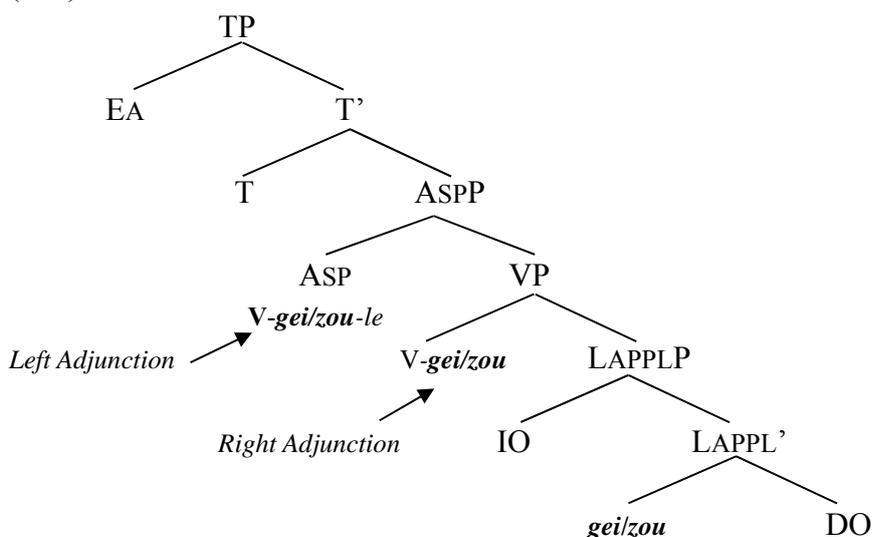   Lisi   APPL-drive-ASP   Zhangsan   one-CL   car

Note that the order we actually find is what we would expect if '*gei/zou*' were high applicative heads (*See 121*), but this goes against the semantics and other behaviors of the constructions.

(121)

```
                    TP
                  /    \
                EA      T'
                       /  \
                      T    ASPP
                          /   \
                        ASP   HAPPLP
                             /    \
                           IO     HAPPL'
                                 /    \
                             HAPPL     VP
                             -gei/zou  / \
                                      V   DO
```

In order to have the right surface order we would have to assume that the LAPPL moves up and *right*-adjoins to the lexical verb. After the right adjunction of the head movement, the unit [V-*gei/zou*] moves together and *left*-adjoins to the Aspect. The derivation is illustrated in (122).

(122)

```
                     TP
                   /    \
                 EA      T'
                        /  \
                       T    ASPP
                           /    \
                         ASP     VP
                     V-gei/zou-le  / \
    Left Adjunction →         V-gei/zou   LAPPLP
                                          /    \
               Right Adjunction →       IO     LAPPL'
                                              /    \
                                         gei/zou    DO
```

Unfortunately the above derivation violates the widespread consensus that head adjunction is always to the left (Kayne 1994; Baker 1996) which is also thought to hold in Mandarin Chinese (Lin 2001). Such an analysis thus goes against the Mirror Principle, i.e. 'Morphological derivations must directly reflect syntactic derivations (and vice versa)' (Baker 1988: 13).

4.1.3 The Evidence that the IO Moves up

There is also a question as to where the IO shows up on the surface. Under a Low Applicative Analysis, we expect it to start out in a rather low position, Spec LAPPLP, which is within the VP. If it shows up higher on the surface, this would have to be due to movement.

In this section I will provide evidence that this is exactly what happens by examining the behaviors of the frequency adverb *san-ci* 'three times' and distributive adverbial quantifiers *mei-ren* 'every (one)' and *yi-ren* 'each'. Following Paul & Whitman (2010), I claim that the frequency adverb (FA) *san-ci* 'three times' is positioned on the left edge of the VP (*Also see Cinque 1999; Soh 2005*). This can be used to diagnose the surface position of the IO.

(123) a. *Zhangsan   mài-gei-le   Lisi   san-ci   [vp shoubiao].*
       Zhangsan   sell-GEI-ASP   Lisi   three-time   watch
       'Zhangsan has sold Lisi watches three times.'

    b. **Zhangsan   mài-gei-le   san-ci   Lisi   shoubiao.*
       Zhangsan   sell-GEI-ASP   three-time   Lisi   watch

(124) a. *Lisi   kai -zou -le   Zhangsan   san-ci   [vp che].*
       Lisi   drive-ZOU-ASP   Zhangsan   three-time   car
       'Lisi has driven away Zhangsan's car three times. '

    b.**Lisi   kai -zou-le   san-ci   Zhangsan   che.*
       Lisi   drive-ZOU-ASP   three-time   Zhangsan   car

Assuming the frequency adverb is positioned on the left edge of the VP, the IO in (123a) and (124a) is placed outside the lexical VP:

(125) **IO** FA (*san-ci*) [vp <V>DO]

Note that if the IO were introduced by a High APPL, such a position would be expected, even in the absence of movement. But we have seen that these DOCs pass all of the diagnostics for Low Applicative constructions, so we would expect them to be inside the VP, unless they are moved higher. We thus must look for evidence of movement.

For this, consider the distributive adverbial quantifier *mei-ren/yiren* 'every (one)/each'. As Paul & Whitman argue, unlike the frequency adverb *sanci* 'three times', the distributive adverbial quantifier *mei-ren/yiren* 'every (one)/each' needs to be able to scope over the IO at some stage of the derivation, i.e. to c-command it. However, in (126) we observe that the IO *haizi-men* 'the kids' is placed higher than the adverbial quantifier *mei-ren/yiren* 'every (one)/each'.

(126) a. *Zhangsan   song-gei-le   <u>haizi-men</u>   **mei-ren / yiren**   yibai-kuai   qian.*
       Zhangsan   give-GEI-ASP   kid-PL   every (one)/each   100-CL   money
       'Zhangsan gave the kids each 100 dollars.'

    b. *Lisi   tou-zou-le   <u>haizi-men</u>   **mei-ren/yiren**   yi-ge   wanju.*
       Lisi   steal-ZOU-ASP   kid-PL   every (one)/each   one-CL   toy
       'Lisi stole a toy from the kids each.'

Fitzpatrick (2006) argues that adverbial quantifier patterns like this are derived by A-movement of the associated NP over the adverbial quantifier (AQ), as illustrated in (127):

(127) NP AQ (*mei-ren/yiren*) [XP <NP> .   .   .]

Following Fitzpatrick (2006) and Paul & Whitman (2010), I thus conclude that the IO is raised from a lower position and the derivation can be shown this way:

(128) **IO** AQ (*mei-ren/yiren*) [XP <IO> .   .   .]

Note incidentally that the relative order between the distributive adverbial quantifier (AQ) and the frequency adverb (FA) is fixed, i.e. the adverbial quantifier must precede the frequency adverb. The reversed order is not grammatical, shown in (129) and (130).

(129) a. *Zhangsan   song-gei-le   haizi-men   **meiren**   **san-ci**   qian*.
         Zhangsan   give-GEI-ASP   kid-PL   every (one)   three-time   money
         'Zhangsan gave every kid money three times.'

   b. **Zhangsan   song-gei-le   haizi-men   **san-ci**   **meiren**   qian*.
         Zhangsan   give-GEI-ASP   kid-PL   three-time   everyone   money

(130) a. *Lisi   tou-zou-le   haizi-men   **mei-ren/yiren**   **san-ci**   wanju*.
         Lisi   steal-ZOU-ASP   kid-PL   every (one)/each   three-time   toy
         'Lisi stole toys from the kids each three times.'

   b. **Lisi   tou-zou-le   haizi-men   **san-ci**   **mei-ren/yiren**   wanju*.
         Lisi   steal-ZOU-ASP   kid-PL   three-time   every (one)/each   toy

As we discussed previously, the frequency adverb *san-ci* 'three times' is placed on the left edge of the lexical VP, thus we have:

(131) **IO** AQ (*mei-ren/yiren*) FA (*san-ci*) [VP <IO>]

We thus see that the IO originates inside VP and then it moves up.

Let's summarize the relevant properties of Mandarin Applicatives:
  1) The DOCs with '*gei/zou*' behave like Low Applicatives;
  2) Assuming that '*gei*' and '*zou*' are low applicative heads gets the affix ordering wrong;
  3) The IO surfaces in a high position, but seems to have raised from a lower position which we might associate with a Low Applicative.

4.2 Paul & Whitman (2010)'s Raising Applicative Analysis

4.2.1 Paul & Whitman (2010)'s Proposal

Paul and Whitman consider this puzzling situation, where *GEI*-suffix Constructions look in some ways like Low Applicatives and in others like High Applicatives, and propose a kind of hybrid analysis to deal with it. They treat the verbal suffix '-*gei*' as the head of an applicative projection, which takes a VP as its complement, similar to Pylkkänen (2008)'s High Applicative, illustrated in (132b).

(132) a. *wo*   *mài-gei-le*   *Mali*   *yi-ge*   *shoubiao*.
　　　　1SG 　 sell-GEI-ASP 　　Mali 　　one-CL 　 watch
　　　　'I sold Mali a watch.'

　　b.
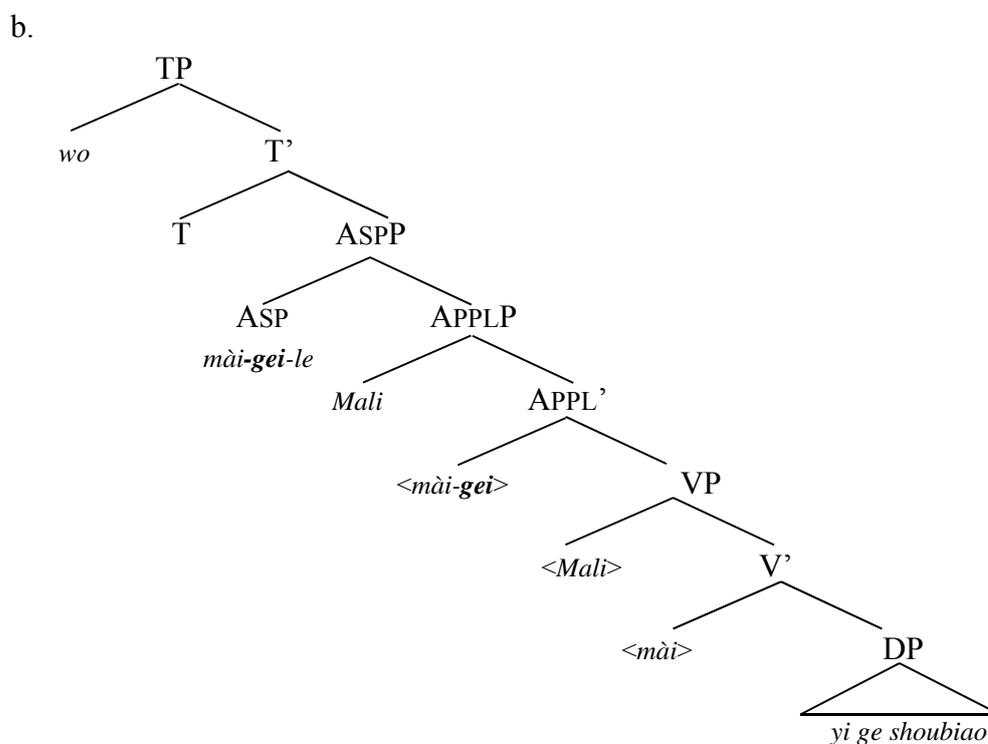
(Paul & Whitman 2010: 7-8)

They note that the *GEI*-suffix Construction has all and only the properties of 'Low Applicative' in Pylkkänen (2008)'s sense, but they claim that the APPL head is always placed above the lexical VP, whether it is a High Applicative or a Low Applicative according to the Applicative classification assumed in Pylkkänen (2008). They also recognize the difference between High Applicatives and Low Applicatives and propose that the two types of Applicatives differ not in the height of the Applicative Head, but in how the applied argument is introduced into the structure and gets its thematic role.

(133) *Thematic Applicative*

[APPLP DP-Benefactive [APPL' **APPL** [VPV DP-Theme]]]

(134) *Raising Applicative*

[APPLP IO-Recipient [APPL' **APPL** [VP <IO-Recipient> [V' V DO-Theme]]]]

In (133) the Thematic Applicatives, which correspond to Pylkkänen's High Applicatives, select a DP and a VP as argument. The DP argument is merged in Spec APPLP and receives the Benefactive role from the APPL. In (134) the Raising Applicatives, which correspond to Pylkkänen's Low Applicatives, do not select a DP but instead attract a DP from within the lexical VP to their specifier. In other words, in their analysis, the APPL does not assign theta role to the IO. The Recipient role of the IO is assigned by the lexical verb.

Let's see how Paul & Whitman (2010) tackle the issues mentioned in the previous section. Placing the APPL higher than the VP, the *gei*-incorporation problem is solved. In the derivation head adjunction is always to the left, as shown in (135).

(135)
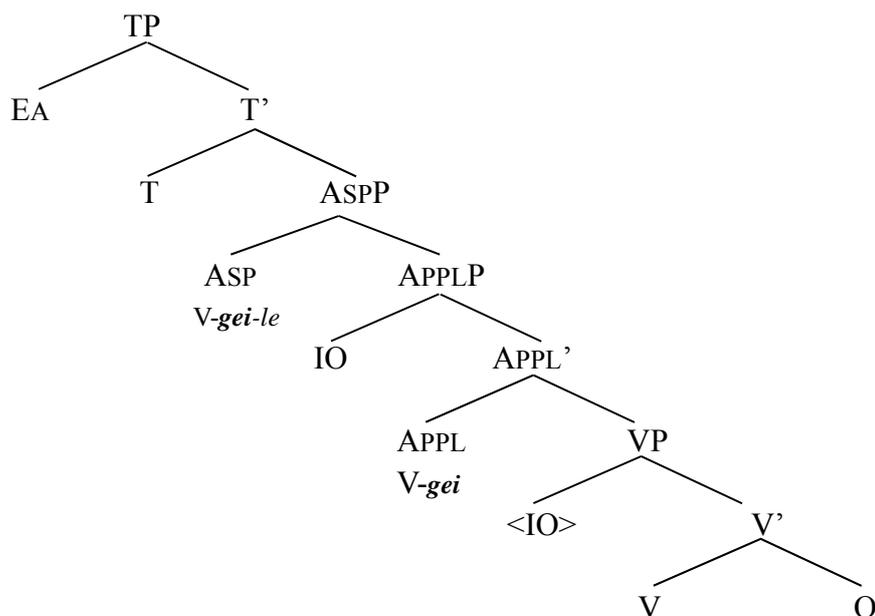
In addition, (135) can also account for the issue of the IO movement in Mandarin DOCs. They assume the APPL bears an [EPP] feature that attracts the IO and moves it to Spec APPLP.

4.2.2 The Problems with Paul & Whitman's Analysis

We notice three problems in Paul & Whitman (2010)'s analysis:
1) Theta role assignment;
2) Syntax-semantics Mismatch;
3) No discussion of the *ZOU*-suffix Construction.

i. Theta Role Assignment

The first problem concerns theta role assignment. In Paul & Whitman (2010)'s Raising APPL analysis, the Recipient role of the IO is assigned by the verb not by the APPL. This means that an inherently monotransitive verb like '*xie*' (write) or '*ji*' (mail) must somehow assign a Recipient role to the IO, which in fact they are not capable of doing unless later they are combined with the applicative head '*gei*'.
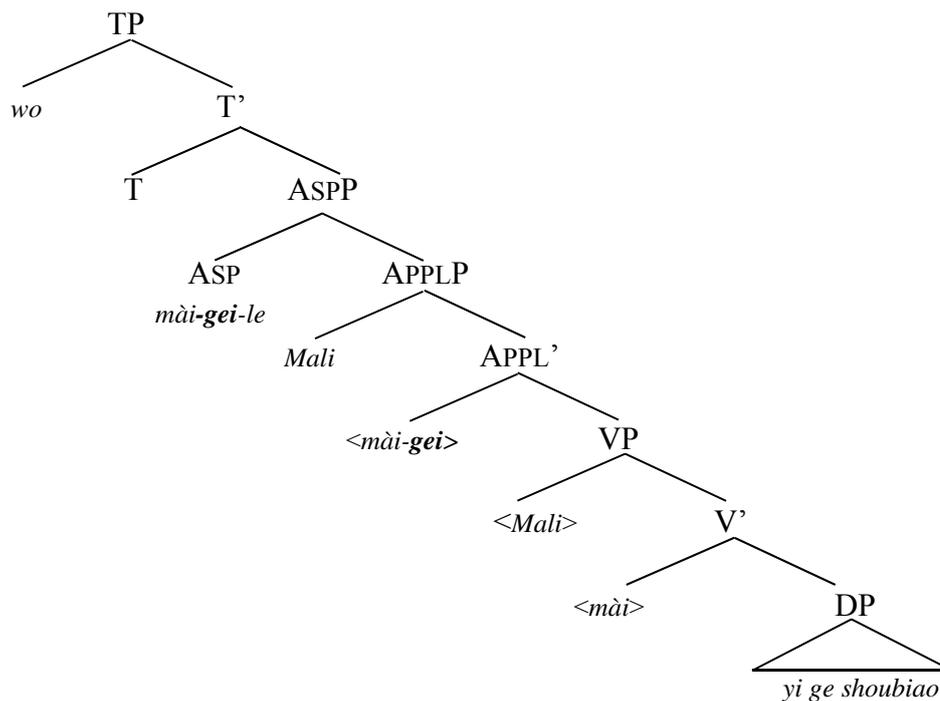
(136)
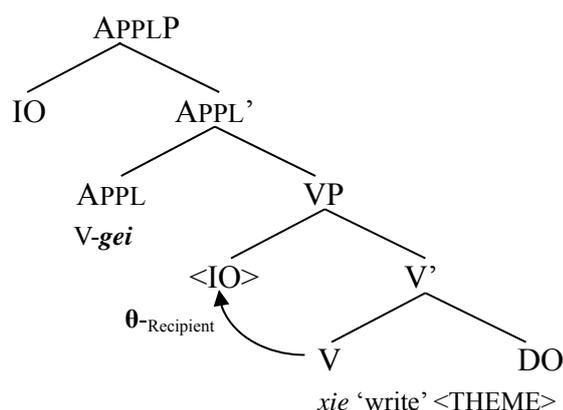
The theta role assignment in (136) is not motivated, since the monotransitive verb '*xie*' (write) does not have a Recipient role to assign. Only after the '*gei*' suffixation, is the Recipient role available: V <THEME> → V+ *gei* <RECIPIENT, THEME>, a fact which is not reflected in their analysis, so it seems that the Applicative Head should somehow be responsible for θ-role assignment.

ii. Syntax-semantics Mismatch

The second problem is about the distinction between High Applicatives and Low Applicatives. Pylkkänen (2002, 2008) posit that High applicatives denote a relation between an individual and an event, and Low Applicatives denote a relation between two individuals.

(137) a. *wo   mài-gei-le   Mali   yi-ge   shoubiao.*
　　　　1SG   sell-GEI-ASP   Mali   one-CL   watch
　　　　'I sold Mali a watch.'

b.

```
                    TP
                   /  \
                 wo    T'
                      /  \
                    T      AsPP
                          /    \
                       ASP      APPLP
                    mài-gei-le  /    \
                             Mali    APPL'
                                    /    \
                            <mài-gei>     VP
                                         /  \
                                  <Mali>     V'
                                            /  \
                                     <mài>      DP
                                               /  \
                                          yi ge shoubiao
```

(Paul & Whitman 2010: 7-8)

Semantically, (137a) is a Low Applicative, which relates two individuals, i.e. the IO '*Mali*' and the DO '*yi-ge shoubiao*' (a watch). Paul & Whitman recognize the 'Low' behaviors of (137a) but syntactically they place the APPL higher above the VP in (137b). In (137b) the APPL does not syntactically relate two individuals at all. On the contrary, it seems to add something extra on top of an event within the VP, just like their Thematic Applicative, which is meant to correspond to Pylkkänen's High Applicative. The result is a somewhat puzzling syntax-semantics mismatch.

iii. GEI-suffix Constructions and ZOU-suffix Constructions

In Paul & Whitman's Raising APPL analysis, they only discussed the *GEI*-suffix Construction with an overt '*gei*' and ignored the parallel structure, i.e. the *ZOU*-suffix Construction. As we discussed previously, both the *GEI*-suffix Construction and the *ZOU*-suffix Construction are Low Applicatives. They differ in the direction of the transference.

(138) a. *Zhangsan   song-(gei)-le   Mali   yi-ge   jiezhi.*
      Zhangsan   give-GEI-ASP   Mali   one-CL   ring
      'Zhangsan gave Mali a ring.'

    b. *Lisi   tou -(zou) -le   Mali   yi-ge   jiezhi.*
      Lisi   steal-ZOU-ASP   Mali   one-CL   ring
      'Lisi stole a ring from Mali.'

Paul & Whitman (2010) ignore the parallel structure in (138b). I will argue in the next chapter that an appreciation of the distinction between '*gei*' and '*zou*' leads to a better understanding of their nature and structural status.

Chapter 5 DIR-APPL Analysis on Mandarin DOCs

5.0 Introduction

In this chapter I attempt to deal with the issues raised by Mandarin DOCs without running into the problems of Paul & Whitman (2010)'s Raising Applicative account by proposing a novel DIR-APPL analysis. In contrast to Paul & Whitman, I argue that the verbal suffixes '-*gei*' and '-*zou*' are not overt realizations of the Applicative head; instead they are overt realizations of a functional head DIR. Just like the English Low Applicative, Mandarin Chinese has a null APPL, and this null APPL is in the standard position for Low Applicatives proposed by Pylkkänen (2000, 2008). The DIR-APPL Analysis provides a solution to the issues concerning Mandarin Low Applicatives discussed in Chapter 4 and also solves the problems in Paul & Whitman (2010)'s Raising Applicative account.

5.1 The DIR-APPL Hypothesis

5.1.1 The DIR Head

i. Mandarin Low Applicative vs. English Low Applicative

Mandarin Low Applicative
(139) a. *Zhangsan   xie -**gei**-le   Lisi   yi-feng   xin*.
          Zhangsan   write-GEI-ASP   Lisi   one-CL   letter
           'Zhangsan wrote Lisi a letter.'

      b. *Lisi   kai -**zou** -le   Zhangsan   yi-liang   che*.
         Lisi   drive-ZOU-ASP   Zhangsan   one-CL   car
        'Lisi drove away one of Zhangsan's cars.'

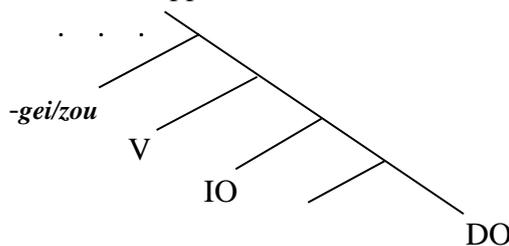*English Low Applicative*
(140) John wrote Mary a letter.

We may represent the applicative structures of (139) and (140) in (141).

(141)
a. English Low Applicative   *b. Mandarin Low Applicative*
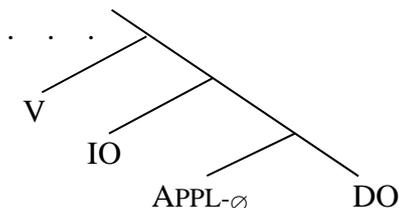
The applicative diagnostics run quite similarly. In the Mandarin Low Applicative (139a) the DO '*yi feng xin*' (a letter) goes to the possession of the IO '*Lisi*'. In the English Low Applicative (140) the DO '*a letter*' goes to the possession of the IO '*Mary*'. The major difference is the element positioned above the IO in (141b). We can possibly assume that in Mandarin the applicative head is also null and the higher placed '-*gei*' and '-*zou*' are some other kind of syntactic elements, supplying more information to the applicative structure. Then we have a structure like this for the Mandarin Low Applicative:

(142) *Mandarin Low Applicative*
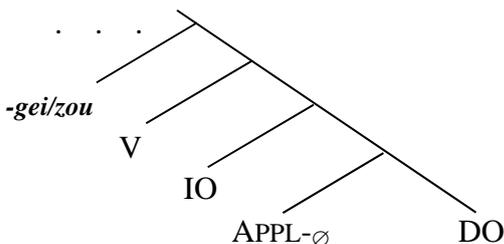
As I mentioned in previous chapters, the verbal suffixes '-*gei*' and '-*zou*' indeed supply more information to the structure, i.e. they reflect distinct directions of transference. With '*gei*' suffixation, we get the Recipient IO while with '*zou*' suffixation, we have the Source IO. Thus I assume the verbal suffixes are overt realizations of a functional head DIR (the abbreviation of Directionality).

ii. gei/zou incorporation

The suffix ordering will not be a problem anymore if we adopt the above DIR-APPL Analysis. I assume that the DIR head is located between the big V and the little *v*. Because DIR is initially placed higher than the lexical verb, the V-to-DIR movement is ensured to be head adjunction on the left side, followed by the V-DIR movement to ASP. We can represent the derivation in (143). In Tree 143, the lexical verb *left*-adjoins to the DIR head first then they (V-*gei/zou*) move together to *left*-adjoin to ASP. Now we have the right surface word order.

(143)

```
                    TP
            ┌────────┴────────┐
           EA                 T'
                        ┌──────┴──────┐
                        T            AspP
                   ┌─────────────┘
                  ASP              vP
              V-gei/zou-le    ┌─────┴─────┐
                  ↗          <EA>         v'
           Left Adjunction        ┌───────┴───────┐
                                  v              DIRP
                             <V-gei/zou>    ┌──────┴──────┐
                                  ↗        IO            DIR'
                           Left Adjunction        ┌───────┴───────┐
                                              DIR [EPP]           VP
                                              <gei/zou>      ┌─────┴─────┐
                                                            V          LAPPLP
                                                                  ┌──────┴──────┐
                                                                <IO>          LAPPL'
                                                           Recipient/Source  ┌───┴───┐
                                                                          LAPPL     DO
                                                                            ∅
```
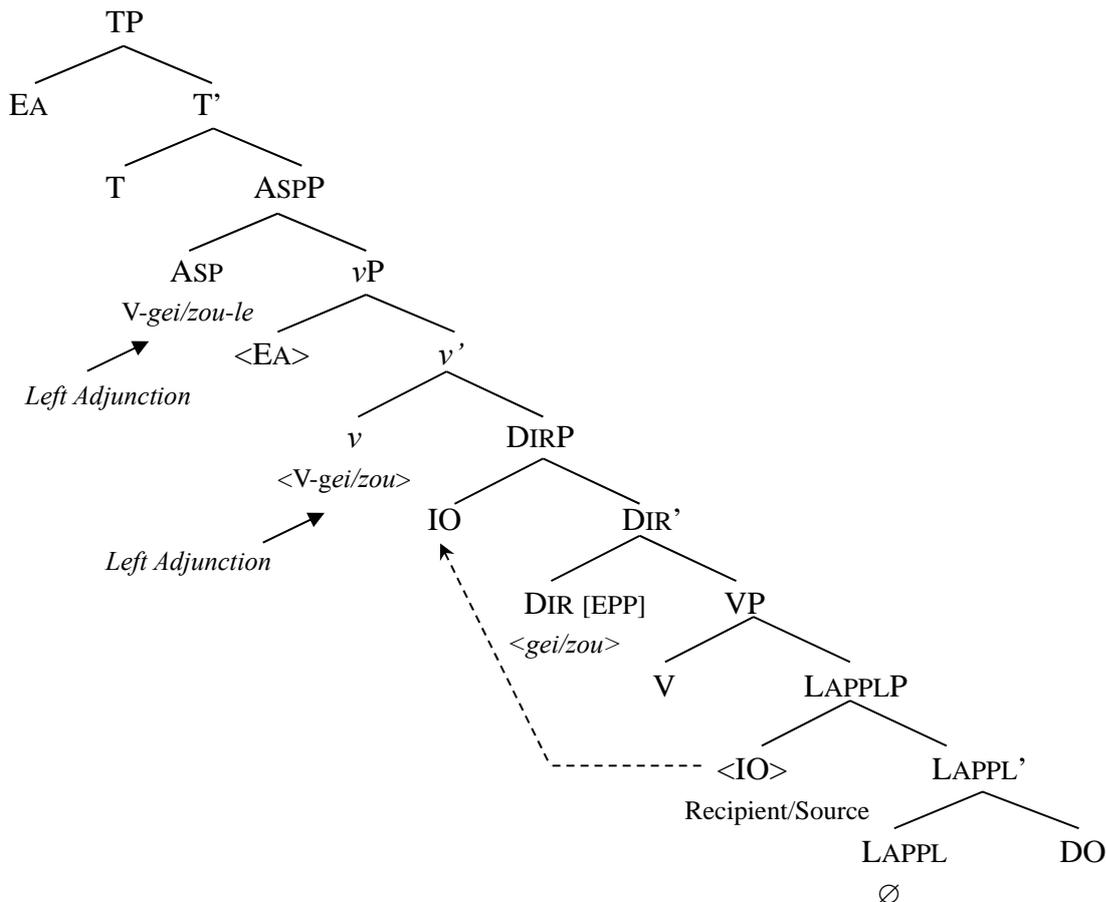
iii. Raising IO

In Tree 143, the IO originates in Spec APPLP. I assume that the DIR head bears the [EPP] feature. The IO moves up to Spec DIRP, which is driven by the [EPP] feature as shown in (143). The LAPPL assigns a theta role to the IO, including an underspecified transfer of possession. The choice of DIR head then specifies whether it's a transfer *To* or *From* the possession. With the '-*gei*' suffix, the IO is interpreted as a Recipient and with the '-*zou*' suffix, the IO is interpreted as a Source.

5.1.2 Comparison with Paul & Whitman (2010)'s Analysis

We can summarize the main differences between the current analysis and that of Paul & Whitman (2010) as follows:

a) They posit an overt applicative head '*gei*' while I assume a null applicative head and posit an additional DIR head;

b) They claim that the IO starts in Spec VP and then moves up to Spec APPLP while I argue that the IO starts in Spec APPLP and then it is raised to Spec DIRP;

c) They posit a higher placed APPL head, which mismatches with the Low Applicative semantics, while I pursue a normal placement of the Low APPL;

d) In Paul & Whitman's Raising Applicative account, the IO has to be introduced by and get its theta role from the main verb while in my DIR-APPL Analysis, the IO is introduced by and thus gets its basic theta role from the APPL head;

e) They only discussed the Recipient interpretation of the IO while I take both the Recipient and Source interpretations of the IO into consideration.

In this way we can solve several problems concerning Paul & Whitman (2010)'s Raising Applicative account.

Firstly, we solve their problem regarding theta role assignment. Paul & Whitman argue that the High Applicative and the Low Applicative are different in theta role assignment, i.e. the High APPL assigns a theta role to the applied argument while the Low APPL attracts the applied argument to its specifier position without assigning a theta role. I claim that both the High APPL and the Low APPL are able to assign theta roles, which is supposed to be one of the main functions of the applicative heads, introducing the extra argument and assigning the relevant theta role to it. In my DIR-APPL analysis, the LAPPL assigns a theta role to the IO, including an underspecified transfer of possession. The choice of DIR head then specifies whether it's a Recipient IO or a Source IO. For monotransitive verbs like '*xie*' (write), it's difficult for Paul & Whitman to account for theta role assignment. In the current analysis, the LAPPL assigns the theta role to the IO, so the verb doesn't have to and the transference direction is specified by the DIR-*gei* head, i.e. Recipient IO.

Secondly, we solve their problem regarding the placement of the APPL. Paul & Whitman (2010) claim that both the High APPL and Low APPL are positioned higher than the VP and for them there is no placement distinction between the High APPL and Low APPL. It's hard to reconcile the semantics of Low Applicatives with a syntactic position outside the VP. In the DIR-APPL Analysis, the Low APPL is placed within the VP, the standard position of LAPPL, and it syntactically relates two individuals, i.e. the IO and the DO, which is in line with the fact that it relates them semantically.

Finally, we include the *ZOU*-suffix Construction in the Applicative analysis. As we discussed in the previous part, the *GEI*-suffix Construction and the *ZOU*-suffix Construction are quite similar, involving various properties of Low Applicatives and a similar distribution of obligatory vs. optional overt marking. The two constructions differ in the direction of the transference. By including the *ZOU*-suffix Construction in DIR-APPL analysis, we have a better understanding about the applicative structure in Mandarin Chinese. In my analysis, the two constructions are closely related, having the same Applicative head, but differ in the identity of the DIR head.

5.1.3 The Functions of the DIR Head

i. Directionality Specification

There are two different overt realizations of the DIR head, i.e. the '-*gei*' suffix and the '-*zou*' suffix. The former denotes the relation '*To*-the-possession', and the IO is interpreted as the

Recipient of the entity.

(144) *Zhangsan   song*-(*gei*)-*le   Mali*-_{Recipient}   *yi-ge   jiezhi*.
　　　Zhangsan   give-DIR-ASP   Mali   one-CL   ring
　　　'Zhangsan gave Mali a ring.'

The latter denotes the relation '*From*-the-possession', and the IO is interpreted as the Source of the entity.

(145) *Lisi   tou* -(*zou*) -*le   Mali*-_{Source}   *yi-ge   jiezhi*.
　　　Lisi   steal-DIR-ASP   Mali   one-CL   ring
　　　'Lisi stole a ring from Mali.'

The DIR heads are used to specify the directionality of the transference, i.e. '*To*-the-possession' or '*From*-the-possession'.

ii. Transference Specification

We find two kinds of verbs in Mandarin DOCs, i.e. verbs which are inherently ditransitive (e.g. *song* 'give') and verbs which are not inherently ditransitive but consistent with transference (e.g. *xie* 'write').

For the ditransitive verbs, the overt DIR is optional.

(146) *wo   song*-(*gei*) -*le   ta   qian*.
　　　1SG   give -DIR -ASP   3SG   money
　　　'I gave him the money.'

For the monotransitive verbs (which are consistent with transference semantics), the overt DIR is obligatory.

(147) a. *wo   xie* -*gei*-*le   ta   yi-feng   xin*.
　　　　 1SG   write-DIR-ASP   3SG   one-CL   letter
　　　　 'I wrote him a letter.'

　　　 b. *wo   ji* -*zou* -*le   ta   yi-ben   shu*.
　　　　 1SG   mail-DIR-ASP   3SG   one-CL   book
　　　　 'I mailed a book from him.'

The overt DIR heads i.e. '*gei*' or '*zou*' are used to specify the transference semantics of the verb.

5.1.4 DIR head vs. Linker head

I would like to briefly note that the DIR head in my analysis is different from the Linker head assumed by Baker & Collins (2006).

Firstly the surface positioning is different:

(148) a. *Zhangsan   măi-**gei**-le   Lisi   yixie   dongxi.*   (*Mandarin*)
        Zhangsan   buy-DIR-ASP   Lisi   some   thing
        'Zhangsan bought Lisi some things.'

    b. *Besa komm‖'ama-│'an   Oba   **ko**   tcisi*   (Ju│'hoansi)
       Besa Emph   buy   give   Oba   Lk   things
       'Besa bought Oba some things.'   (Baker & Collins 2006:308)

In (148a) the DIR head '*gei*' is placed immediately after the verb in Mandarin Chinese while in (148b) the Linker head '*ko*' is positioned between the IO and the DO in Ju│'hoansi.

Secondly the status of the two heads is different: the DIR head is actually a verbal suffix while the Linker head is the element which connects two objects.

Thirdly the DIR head functions to regulate the directionality of the transference while the Linker head does not have such function, but rather seems to play a purely formal role in structures with two DPs inside the VP.

5.2 DIR-APPL Analysis of Mandarin DOCs

5.2.1 *GEI*-suffix Constructions (Low Recipient Applicatives)

In the current approach, we assume that in Mandarin, the applicative head is null and '*gei*' is an overt realization of the functional head DIR, which denotes the transference direction of the entity DO-Theme. The overt '*gei*' DIR is used to denote '*To-the-possession*'.

(149) a. *Zhangsan   song-(gei)-le   Lisi   yi-ben   shu.*
        Zhangsan   give-DIR-ASP   Lisi   one-CL   book
        'Zhangsan gave Lisi a book.'

    b. *Zhangsan   xie -gei-le   Lisi   yi-feng   xin.*
       Zhangsan   write-DIR-ASP   Lisi   one-CL   letter
       'Zhangsan wrote Lisi a letter.'

The LAPPL in this approach functions to introduce the applied argument and reflect the possession relation between the IO and the DO. In the *GEI*-suffix Construction we notice that when the verb inherently has the semantics of transference, the DIR head can be null (149a). When the verb inherently does not have semantics of transference, but it is consistent with

transference, the DIR head must be realized overtly (149b). Thus the DIR head can specify the transference of the verb (e.g. *xie* 'write') in the construction. One could imagine that the structures without overt *GEI* either have a silent DIR head or lack the DIR head entirely. However, if we consider the facts concerning the FA and the AQ again, we find evidence that the DIR head is in fact always present, but sometimes silent.

(150) a. *Zhangsan*   *song-le*   *Lisi*   **san-ci**   [VP   *qian*].
      Zhangsan   give-ASP   Lisi   three-time   money
      'Zhangsan gave Lisi money three times.'

    b. *Zhangsan*   *song-**gei**-le*   *Lisi*   **san-ci**   [VP   *qian*].
      Zhangsan   give-DIR-ASP   Lisi   three-time   money
      'Zhangsan gave Lisi money three times.'

From (150a) we observe that the IO is placed outside the VP, i.e.
{**IO** FA (*san-ci*) [VP <V>DO]}, which is similar to the overt *GEI*-suffix Construction in (150b).

(151) a. *Zhangsan*   *song-le*   <u>*haizi-men*</u>   ***mei-ren* / *yiren***   *yibai-kuai*   *qian*.
      Zhangsan   give-ASP   kid-PL   every (one)/each   100-CL   money
      'Zhangsan gave the kids each 100 dollars.'

    b. *Zhangsan*   *song-**gei**-le*   <u>*haizi-men*</u>   ***mei-ren* / *yiren***   *yibai-kuai*   *qian*.
      Zhangsan   give-DIR-ASP   kid-PL   every (one)/each   100-CL   money
      'Zhangsan gave the kids each 100 dollars.'

Observing (151a) we note that the IO must be raised from a lower position, i.e.
{**IO** AQ (*mei-ren/yiren*) [XP <IO> . . .]}, which is also similar to the overt *GEI*-suffix Construction in (151b).

(152) a. *Zhangsan*   *song-le*   <u>*haizi-men*</u>   ***meiren***   ***san-ci***   *qian*.
      Zhangsan   give-ASP   kid-PL   every (one)   three-time   money
      'Zhangsan gave every kid money three times.'

    b. **Zhangsan*   *song-le*   <u>*haizi-men*</u>   ***san-ci***   ***meiren***   *qian*.
      Zhangsan   give-ASP   kid-PL   three-time   everyone   money

(153) a. *Zhangsan*   *song-**gei**-le*   <u>*haizi-men*</u>   ***meiren***   ***san-ci***   *qian*.
      Zhangsan   give-DIR-ASP   kid-PL   every (one)   three-time   money
      'Zhangsan gave every kid money three times.'

    b. **Zhangsan*   *song-**gei**-le*   <u>*haizi-men*</u>   ***san-ci***   ***meiren***   *qian*.
      Zhangsan   give-DIR-ASP   kid-PL   three-time   everyone   money

We find in (152) that the relative order of the AQ and the FA is fixed, i.e. the AQ must precede the FA. Then we conclude the IO is raised from a lower position within the VP, i.e. {**IO** AQ (*mei-ren/yiren*) FA (*san-ci*) [_{VP} <IO>]}. I propose that the position it has raised to is Spec DIRP, where the DIR head happens not to be pronounced.

From the above data (150-153), we notice that concerning the FA and AQ facts, the overt '*gei*' and covert '*gei*' construction behave exactly the same, which suggests that the DIR head is always there, but not always pronounced.

Again I assume that the DIR head bears the [EPP] feature, which attracts the nearest DP, i.e. the IO, and moves it up to its specifier. The derivation is illustrated in the following tree.

(154) *Mandarin Low Recipient Applicatives*
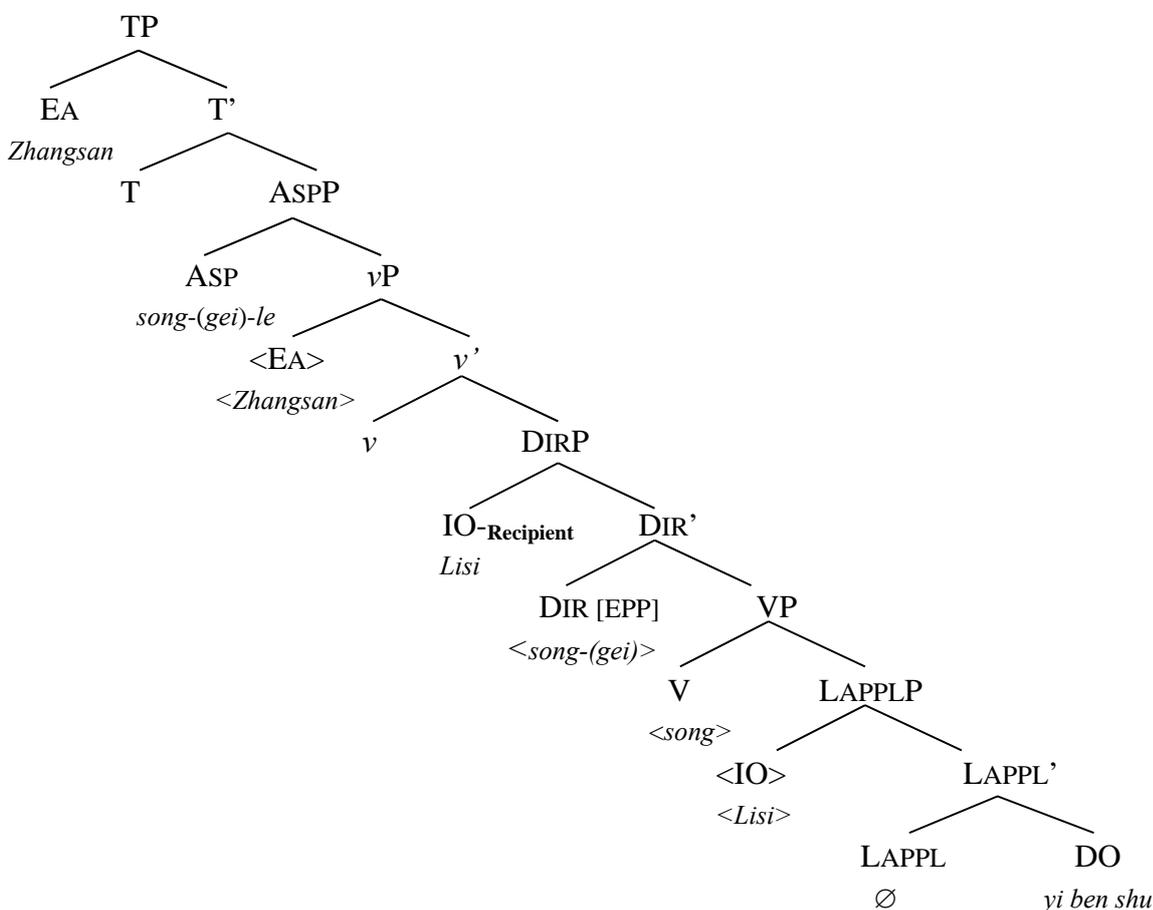
Passivization Behavior

Then we come to the passivization of the *GEI*-suffix Construction. We can see in (154) that if the passivization of the *GEI*-suffix Construction involved A-movement as is the case in English, we might expect, based on Minimality, that only the IO could become the subject. However, on the contrary the DO is the subject of the passive.

(155) a. ***na-ben shu*** *bei Zhangsan song-(gei)-le Lisi*.
        that-CL book BEI Zhangsan give-DIR-ASP Lisi
        'That book was given to Lisi by Zhangsan.'

    b. *****Lisi*** *bei Zhangsan song-(gei)-le yi-ben shu*.
       Lisi BEI Zhangsan give-DIR-ASP one-CL book

As we discussed previously, the Mandarin BEI passive is quite different from the English *be*-passive. Following Huang et al. (2009), we adopt a NOP analysis for the BEI passive. The intransitive verb '*bei*' takes a CP as its secondary predicate and an experiencer as its subject. The object of the lexical verb is a NOP that undergoes A'-movement to Spec CP. The matrix subject '*na-ben shu*' (that book) then binds this NOP in Spec CP.

The BEI passive is used to express the following semantics: the entity (animate or inanimate) is adversely affected by some event. Thus, the IO in the *GEI*-suffix Construction is inherently not qualified to be the subject of the BEI passive, who in fact receives something from the external argument. I assume the A'-movement in Mandarin BEI passive requires an element which bears some relevant feature distinct from [D], call it [F]. Since the IO is not qualified to move up, it must not bear the [F], and the probe looks down the tree and finds the qualified candidate, the DO. We can represent the structure of (155a) in the following tree.

(156) *Passivization of Low Recipient Applicatives in Mandarin*

```
                    TP
                  /    \
        SU i-DO         V'
        na ben shu     /  \
                    BEI     CP
                    bei    /   \
                       NOP i     C'
                              /    \
                           C [uF]    TP
                                    /   \
                                 EA      T'
                              Zhangsan  /  \
                                      T     AspP
                                           /    \
                                        ASP      vP
                                   song-(gei)-le /  \
                                              EA      v'
                                          <Zhangsan> /  \
                                                    v    DIRP
                                                        /    \
                                                     IO      DIR'
                                                    Lisi    /   \
                                                         DIR     VP
                                                   <song-(gei)> /  \
                                                              V    APPLP
                                                                  /    \
                                                              <IO>      APPL'
                                                             <Lisi>    /   \
                                                                   APPL    <DO [F]>
                                                                    ∅       <NOP i>
```
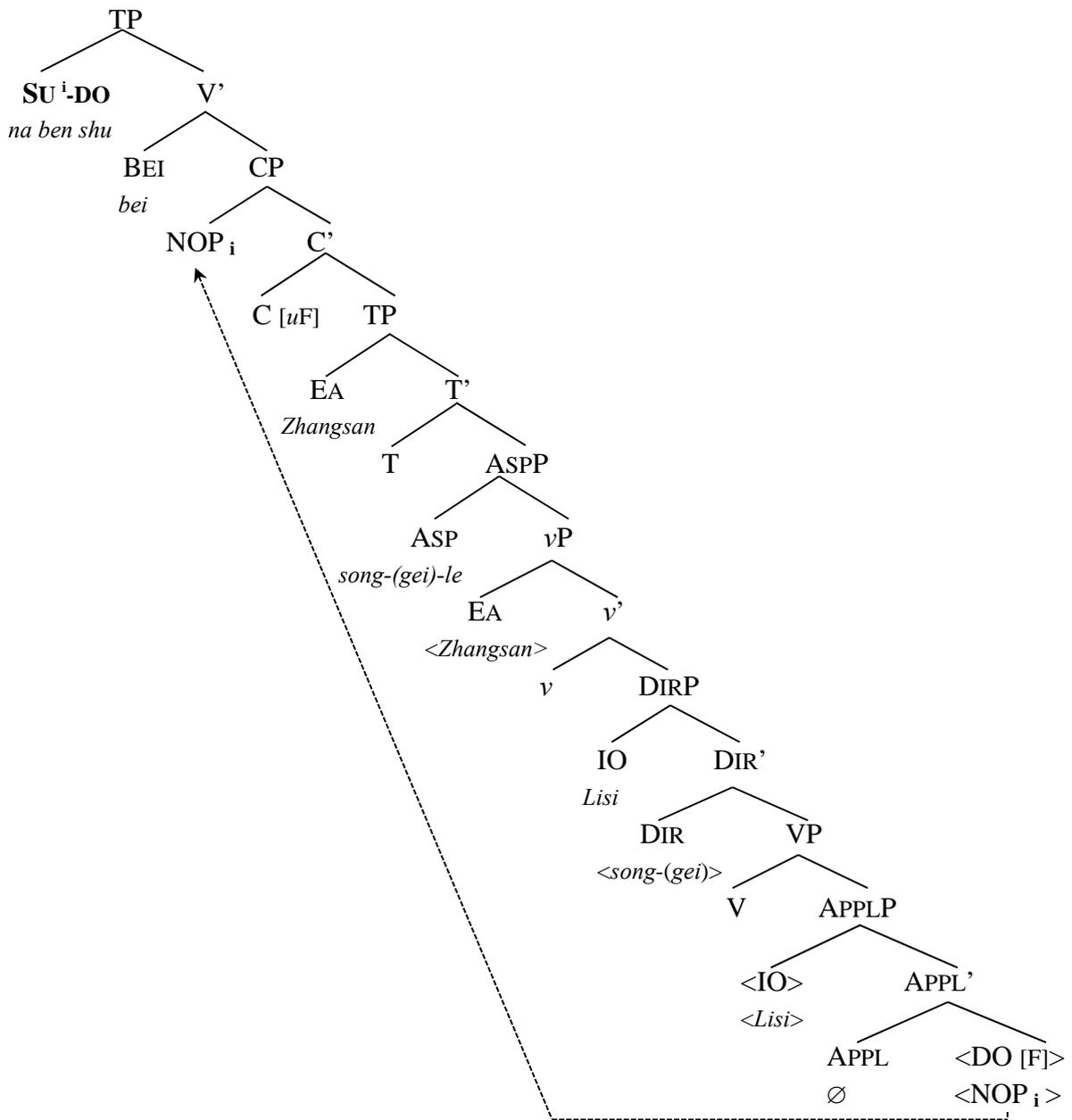
5.2.2 *ZOU*-suffix Constructions (Low Source Applicatives)

(157) a. *Lisi   tou -(zou) -le   Zhangsan   yi-ge   jiezhi.*
     Lisi   steal-DIR-ASP   Zhangsan   one-CL   ring
     'Lisi stole a ring from Zhangsan.'

    b. *Lisi   kai -zou -le   Zhangsan   yi-liang   che.*
     Lisi   drive-DIR-ASP   Zhangsan   one-CL   car
     'Lisi drove a car away from Zhang.'

In this analysis, the applicative head again has no overt realization. The element '*zou*' is a functional head, indicating the directionality of the transference event, i.e. in (157a) the DO '*yi-ge jiezhi*' (a ring) goes from the possession of the IO '*Zhangsan*', or we can alternatively say the IO loses the DO. In (157a) the overt realization of the DIR head is optional since '*tou*' (steal) is an inherently ditransitive verb in Chinese. In (157b) the overt realization of the DIR head is obligatory because the verb '*kai*' (drive) does not specify transference. The overt DIR functions to specify the transference and license the verb '*kai*' (drive) in the construction.

I assume that the DIR head bears [EPP], which attracts the nearest DP, i.e. IO, and moves it up to Spec DIRP. The derivation is represented in the following tree:

(158) *Mandarin Low Source Applicatives*
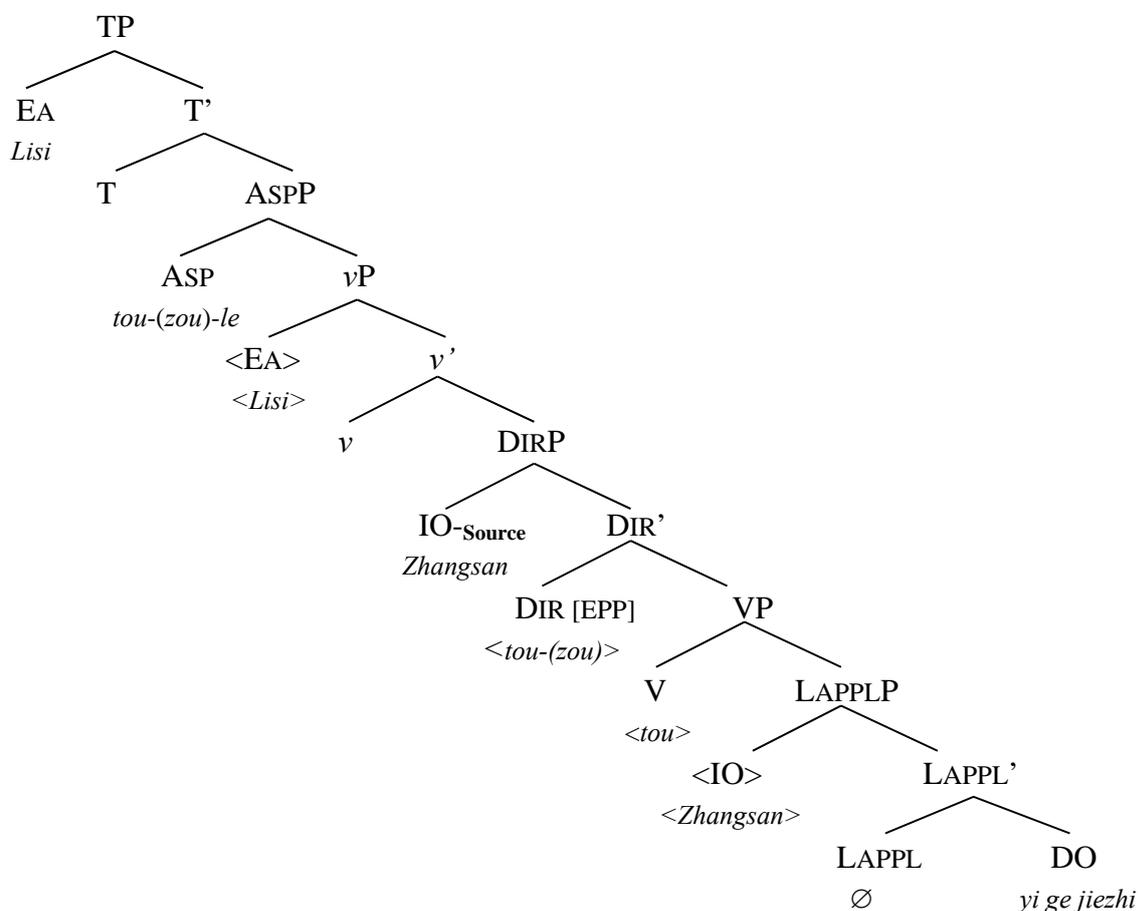
We observe that the structure of the Low Source Applicative, i.e. the *ZOU*-suffix Construction, is parallel to that of the Low Recipient Applicative, i.e. the *GEI*-suffix Construction (Compare Tree 158 with Tree 154). The difference between them lies in IO interpretation, i.e. the former has a Source IO while the latter has a Recipient IO, which comes from the two different DIR heads.

Passivization Behavior

We find a big difference between the Low Source Applicative and the Low Recipient Applicative in their passivization behavior. In the Low Source Applicative, the IO becomes the subject of the passive while in the Low Recipient Applicative, the DO becomes the subject of the passive. It poses a puzzle for us since we observe that in the active sentence, the structures of the two applicatives are quite similar.

(159) a. **Zhangsan**   *bei*   *Lisi*   *tou -(zou) -le*   *yi-ge*   *jiezhi.*
       Zhangsan   BEI   Lisi   steal-DIR-ASP   one-CL   ring
       'Zhangsan underwent the event that Lisi stole a ring from him.'

   b. *****yi-ge**   **jiezhi**   *bei*   *Lisi*   *tou -(zou) -le*   *Zhangsan.*
       one-CL   ring   BEI   Lisi   steal-DIR-ASP   Zhangsan

We can get the explanation for the puzzle from the properties of the Mandarin BEI passive. Again, '*bei*' is treated as an intransitive verb, which takes a CP as its secondary predicate and an experiencer as its subject. As we discussed before, DO or IO movement in the Mandarin BEI passive involves a kind of A'-movement, which is not subject to DP Minimality. Thus in the Low Recipient Applicative, the DO, a NOP, undergoes A'-movement to Spec CP. The matrix subject binds the NOP in Spec CP (*See Tree 156*). As we mentioned in previous sections, the BEI passive is actually used to express the following semantics: the subject of BEI passive is adversely affected by some event. Thus, the IO who receives something from the external argument fails to be a qualified moving element.

In the Low Source Applicative, the IO, a NOP, in Spec DIRP undergoes A'-movement to Spec CP. The matrix subject binds the null operator in Spec CP. In the *ZOU*-suffix Construction, the IO who loses something in the process is qualified to be the subject of the BEI passive. I assume this NOP movement is driven by the feature [F]. I posit that in Mandarin Chinese, there is a restriction on the feature [F]:

(160) *Feature [F] Restriction (FFR)*
     a) In one clause there is at most one [F] bearing element.
     b) The feature [F] has to be assigned to the most semantically eligible DP, with the animate DP winning out over the inanimate one.

According to (160), in Mandarin *GEI*-suffix Construction, only the DO bears the [F] feature, since the IO is not an eligible DP due to the semantic restriction. In contrast, in Mandarin *ZOU*-suffix Construction, the IO is an eligible DP semantically and because it is animate, it wins out over the DO and thus is the only element, bearing the [F] feature.

The [F] Restriction reflects two important properties of Mandarin BEI passive:
   1) The BEI passive is a kind of asymmetric passive, i.e. either the IO or the DO can be the subject of the BEI passive, and the option is based on verb semantics.
   2) An animate DP is preferred to be the subject of BEI passive.

We can represent the passivization of Mandarin Low Source Applicative (159a) in the following tree:

(161) *Passivization of Mandarin Low Source Applicatives*
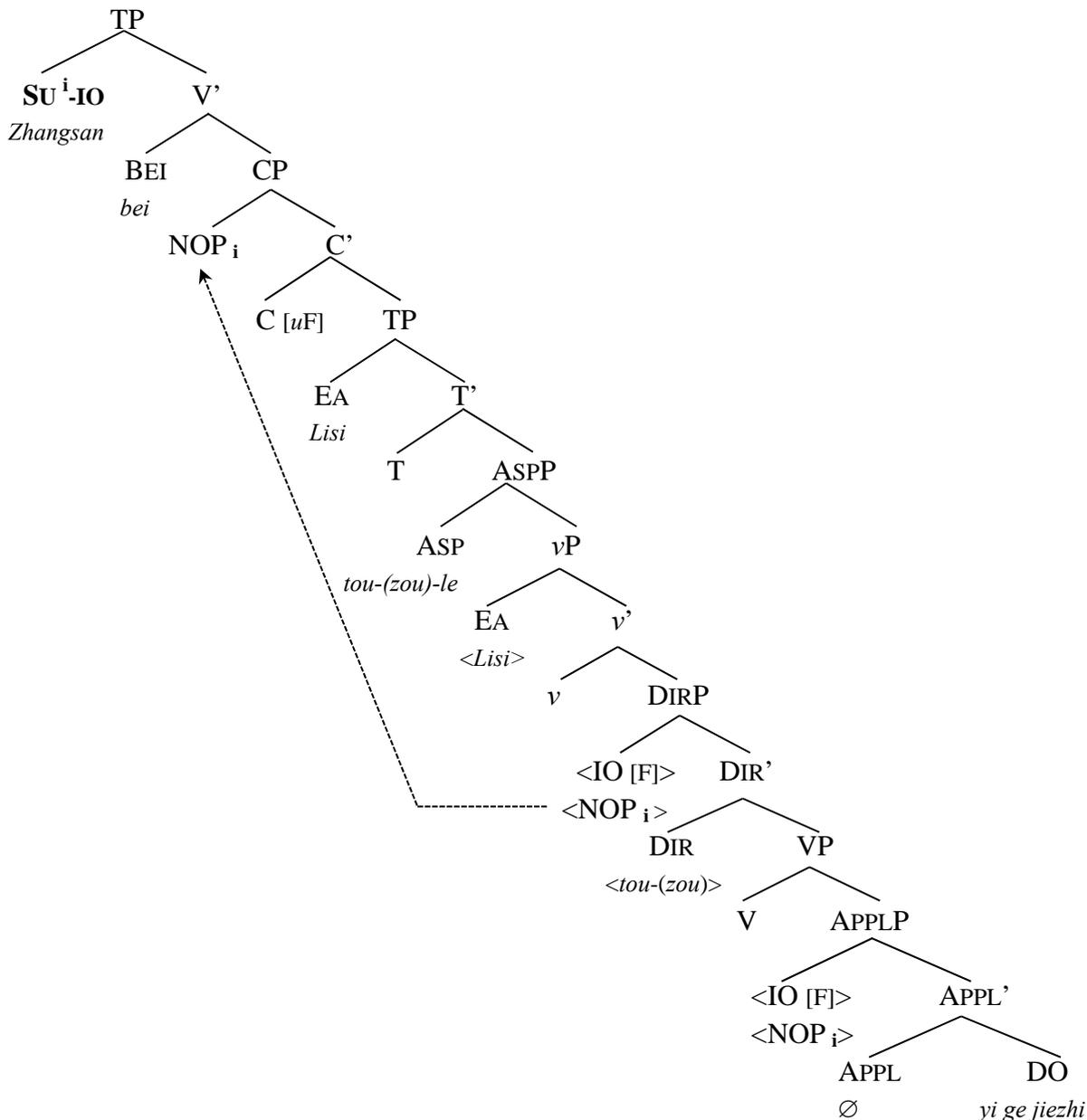
In the above tree the [*u*F] on C needs to find the matching feature [F]. I assume there is a competition between the IO and the DO for the matching feature. The verb semantics shows '*Zhangsan*' is an eligible candidate for the feature [F], who is adversely affected by the 'ring-stolen' event. Also, the animate DP '*Zhangsan*' is preferred to be the subject of the BEI passive. Thus the IO, a NOP, moves up to Spec CP. The subject of the BEI passive binds the NOP in Spec CP. The DO '*yi-ge jiezhi*' (a ring) does not bear the [F] feature and thus stays in situ.

5.3 The Non-suffix Construction (High Affectee Applicatives)

(162) *Lisi*   *da-sui*   *-le*   *Zhangsan*   *yi-ge*   *huaping.*
      Lisi   hit-broken-ASP   Zhangsan   one-CL   vase
      'Lisi broke a vase on Zhangsan.'

We have seen that this construction has the properties of a HAPPL. In this approach, we assume that the applicative head is null. Since there is no transference process taking place in the construction, the DIR head is not present in the structure.

(163) *Mandarin High Affectee Applicatives*
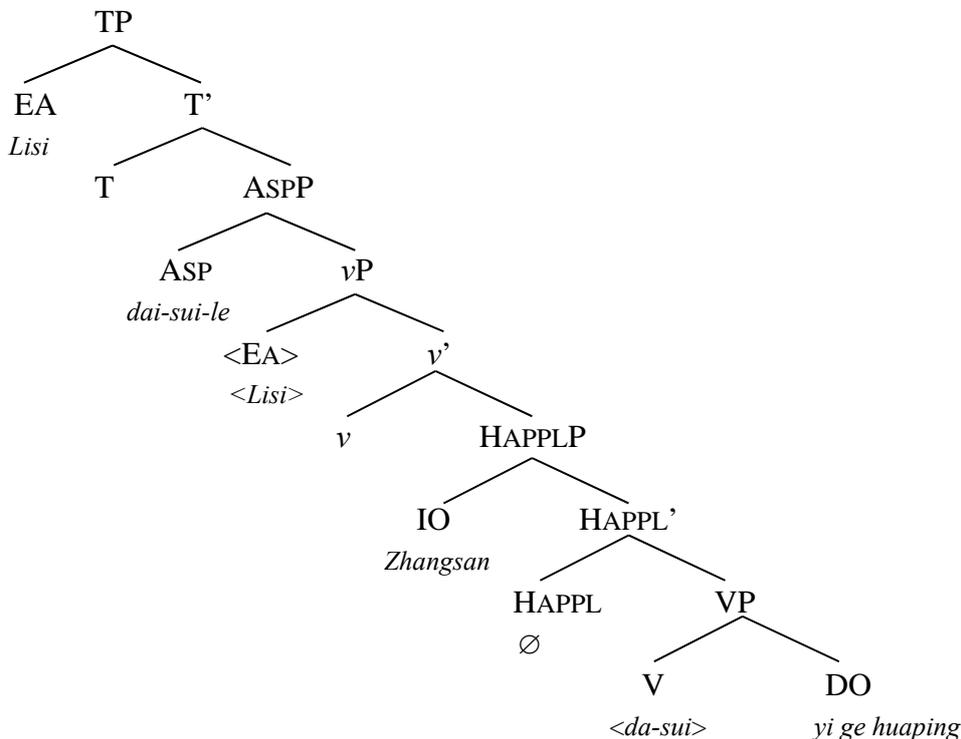
In the tree above, we see the differences between High Affectee Applicatives and Low Source Applicatives discussed previously:
  a) High APPL vs. Low APPL;
  b) There is no DIR head in High Affectee Applicatives;
  c) There is no IO movement to Spec DIRP in High Affectee Applicatives;
  d) IO originates in Spec HAPPLP, higher than the VP in High Affectee Applicatives.

We note that High Affectee Applicatives and Low Source Applicatives differ in the distribution of the adverbial quantifier (AQ).

Contrastive AQ Facts

High Affectee Applicatives

(164) a. *Lisi   da-sui-le   haizi-men   san-ci   huaping*.
    Lisi   hit-broken-ASP   kid-PL   three-time   vase
    'Lisi broke the vases three times on the kids.'

    b. **Lisi   da-sui-le   haizi-men **meiren**   san-ci   huaping*.
     Lisi   hit-broken-ASP   kid-PL   every(one)   three-time   vase

Low Source Applicatives

(165) a. *Lisi   tou -zou-le   haizi-men **san-ci**   wanju*.
    Lisi   steal-DIR-ASP   kid-PL   three-time   toy
    'Lisi stole the toys from the kids three times.'

    b. *Lisi   tou -zou-le   haizi-men   **meiren**   san-ci   wanju*.
    Lisi   steal-DIR-ASP   kid-PL   every(one)   three-time   toy
    'Lisi stole the toys from the kids each three times.'

In examples (164a, 165a), we observe that both the IO in the High Affectee Applicative and the IO in the Low Source Applicative are placed outside the VP, to the left of the FA. However, we find the AQ facts about these two structures are contrastive: it is not grammatical to have an AQ '*meiran*' (every (one)) in the High Affectee Applicative, as shown in (164b), but it is grammatical to have the AQ in the Low Source Applicative, as illustrated in (165b).

We can explain the contrastive AQ facts this way. The AQ '*meiren*' (every (one)) has to c-command the element it quantifies at some stage. The AQ is only allowed to come after a DP if the DP started out down below it and then moved up across it. In the Low Source Applicative (165b), '*meiren*' quantifies the DP '*haizi-men*' (the kids), which started out down in the VP and then moved up. The AQ is allowed to come after the DP in this case. In the High Affectee Applicative (164b), '*meiren*' cannot quantify the DP '*haizi-men*' (the kids), which starts out high i.e. in a place where '*meiren*' cannot c-command it.

The above data show that the IO in the High Affectee Applicative starts high, outside the VP, and it does not get there by movement; the IO in the Low Source Applicative starts low, inside the VP, but it moves up to the high position, outside the VP

Passivization Behavior

(166) a. **Zhangsan**   *bei   Lisi   da -sui -le   yi-ge   huaping*.
    Zhangsan   BEI Lisi   hit-broken-ASP   one-CL   vase
    'Zhangsan underwent the event that Lisi broke one of his vases.'

b. *yi-ge ***huaping*** *bei Lisi da -sui -le Zhangsan.*
   one-CL vase BEI Lisi hit-broken-ASP Zhangsan

The passivization behavior of the High Affectee Applicative is similar to that of the Low Source Applicative i.e. *ZOU*-suffix Construction. The IO, a NOP, in Spec HAPPLP undergoes A'-movement to Spec CP. The matrix subject '*Zhangsan*' binds the NOP. The derivation is represented in the following tree:

(167)
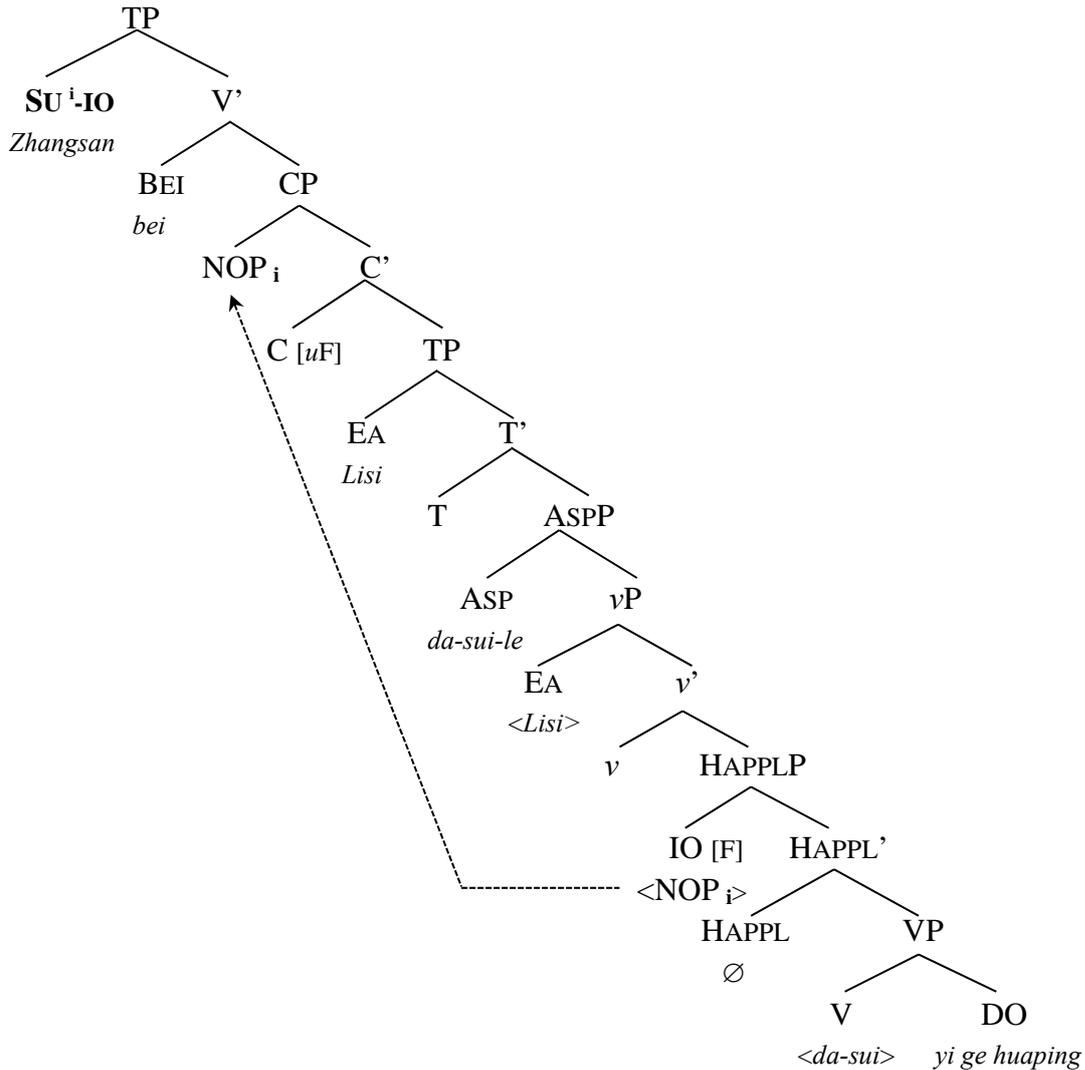
In (167) there is a [F] feature competition between the IO '*Zhangsan*' and the DO '*yi-ge huaping*' (a vase). The verb semantics '*da-sui*' (hit-broken) shows that the IO is an eligible candidate for the [F] feature. According to the *Feature [F] Restriction* (FFR) in (160), the IO wins out over the DO and it is the only element in the cause, which bears the [F] feature. The IO, a NOP, moves up to Spec CP. The subject of the BEI passive binds the NOP. The DO '*yi-ge huaping*' (a vase) does not have the matching feature, thus it stays in situ.

Chapter 6 Comparison between English and Mandarin Applicatives

6.0 Introduction

In this chapter I compare English and Mandarin with respect to their Applicative structure. I claim that English and Mandarin Applicatives differ in two aspects, i.e. the availability of High Applicatives and the IO interpretation. Inspired by the directionality issue from a cross-linguistic perspective, I argue that the difference in IO interpretation is due to the DIR head. In English the argument introducing component [Argu] cannot be separated from the [Dir] component and both of them are essential elements of the APPL. In Mandarin the applicative structure involves a combination of the APPL [Argu] and the DIR [Dir]. With an independent DIR head, the applied arguments can be interpreted either as Recipient or Source.

6.1 The Availability of High Applicatives

In English we can only find Low Applicatives while in Mandarin we can have both Low Applicatives and High Applicatives.

English Low Applicative
(168) John wrote Mary a letter.

Mandarin Low Applicative
(169) *Zhangsan   xie -gei -le   Mali   yi-feng   xin*.
       Zhangsan   write-DIR-ASP   Mali   one-CL   letter
       'Zhangsan wrote Mali a letter.'

Mandarin High Applicative
(170) *Zhangsan   he -le   Lisi   san-ping   jiu*.
       Zhangsan   drink-ASP Lisi   three-bottle   wine
       'Zhangsan drank three bottles of wine on Lisi.'

It's ungrammatical to have a sentence like (171) in English.

(171) *John drank Mary three bottles of wine.

Let's compare the following examples:

Mandarin High Applicative

(172) *zhe-ge   nanhair   da-sui-le   Zhangsan   yixie   boli*.
     this-CL   boy   hit-broken-ASP   Zhangsan   some   glass
     'The boy broke some glass on Zhangsan.'

The resultative verb '*da-sui*' (hit-broken) can appear in the Mandarin DOC, as shown in (172). The IO in (172) is interpreted as Affectee, which is adversely affected by the 'glass-broken' event. It is a High Affectee Applicative. However, with a similar surface structure, the English sentence in (173) has a quite different meaning.

English Low Applicative
(173) The boy broke John some glass.   (e.g. John needs some glass for his experiment.)

(173) can only mean that 'the boy broke some glass and give it to John' i.e. it only works if we interpret it as a Low Recipient Applicative.

6.2 Argument Interpretation in Low Applicatives

In Mandarin DOC patterns, we find both the Recipient IO and the Source IO.

(174) a. *Zhangsan   song-(**gei**)-le   **Mali-**Recipient   yi-ge   jiezhi*.
       Zhangsan   give-DIR-ASP   Mali   one-CL   ring
       'Zhangsan gave Mali a ring.'

     b. *Lisi   tou-(**zou**)-le   **Mali-**Source   yi-ge   jiezhi*.
       Lisi   steal-DIR-ASP   Mali   one-CL   ring
       'Lisi stole a ring from Mali.'

In English the IO can only be interpreted as Recipient.

(175) a. John gave **Mary**-Recipient a ring.
     b. John stole **Mary**-Recipient a ring.

Even with the same verb stem, Mandarin allows different interpretations of the IO.

(176) a. *Zhangsan   **măi-gei**-le   wo-Recipient   yi-ben   shu*.
       Zhangsan   buy-DIR-ASP   1SG   one-CL   book
       'Zhangsan bought me a book.'

     b. *Zhangsan   **măi-zou**-le   wo-Source   yi-ben   shu*.
       Zhangsan   buy-DIR-ASP   1SG   one-CL   book
       'Zhangsan bought a book from me.' (e.g. I am a book seller.)

In English only the Recipient interpretation is available.

(177) a. John bought **me**-_{Recipient} a drink.
      b. John sold **me**-_{Recipient} his shares.

From the above examples, we notice that the DIR head plays an important role in IO interpretation in Mandarin DOC patterns.

6.3 The Existence of the DIR Head

6.3.1 The Directionality in Low Applicatives

Cross-linguistically, we find ambiguity in Applicatives with respect to directionality. Cuervo (2003) points out that in Spanish in the context of a verb with underspecified directionality, the dative IO would be ambiguous between a Recipient and a Source.

(178) a. *Valeria   le   vendió   el   auto   a su   hermano*.
          Valeria   CL.DAT   sold   the   car.ACC   her   brother.DAT
          ① 'Valeria sold the/her car **to** her brother.'
          ② 'Valeria sold the car **from** her brother.'

     b. *Valeria   le   alquila   la casa de Roca   a   Roberto*.
         Valeria   CL.DAT rents   the house of Roca.ACC   Roberto.DAT
         ① 'Valeria rents the house in Roca **to** Roberto.'
         ② 'Valeria rents the house in Roca **from** Roberto.'

                                               (Cuervo 2003: 71)

In (178a), the dative IO 'her brother' can be interpreted as the one who gets the car, i.e. a Recipient, or the one who loses the car, i.e. a Source. Similarly, there are ambiguous readings for (178b): the dative IO 'Roberto' can be regarded as a Recipient, who rents the house, or as a Source, who rents out the house.

In Mandarin, the ambiguity problem can be solved by the addition of the overt DIR.

(179) a. *Zhangsan   ji -**gei** -le   Lisi   yi-ben   shu.*
         Zhangsan   mail-DIR-ASP   Lisi one-CL   book
         'Zhangsan mailed Lisi a book.'

     b. *Zhangsan   ji -**zou** -le   Lisi   yi-ben   shu.*
         Zhangsan   mail -DIR -ASP   Lisi one-CL   book
         'Zhangsan mailed a book from Lisi (to himself or someone else).'

When the verb is '*gei*'-marked, the IO is the Recipient of the DO. When it is '*zou*'-marked, the IO is the Source of the DO. The verb '*ji*' (mail) in Mandarin is compatible with transference in either direction, and the overt marking elements are used to specify the directionality.

So, we have three types of Applicative languages:
  a) *English Type*: Only Recipient Applicatives; no Source Applicatives; no Directionality Distinction.
  b) *Spanish Type*: Both Recipient Applicatives and Source Applicatives; Ambiguity in Directionality.
  c) *Mandarin Type*: Both Recipient Applicatives and Source Applicatives; Overt DIR head; No Ambiguity in Directionality.

From the comparison among these languages, we may assume that it is possibly the DIR head that triggers the different behaviors in directionality.

6.3.2 The DIR Head in the Applicative Structure

I assume that there are two essential elements in the applicative structure, i.e. [Argu] and [Dir]. The [Argu] element functions to introduce the applied argument (or the IO) and reflect the possession relationship between the IO and the DO. The [Dir] element is responsible for regulating the directionality of transference, either *To-the-possession* or *From-the-possession*.

Let's consider first the possibility that there is no DIR head in English. In other words, the two elements, i.e. [Argu] and [Dir], cannot be separated:

(180) *English Applicative Structure*
    APPL [Argu, Dir]

If we further assume that *To-the-possession* of the IO is the default directionality and the interpretation of *From-the-possession* of the IO can only be derived from a distinct Source DIR head, then we have an account of why we have only the Recipient IO in English DOCs, as shown in (181).

(181) a. John **gave** Mary-$_{Recipient}$ a ring.
     b. John **stole** Mary-$_{Recipient}$ a ring.

If we want to have the other direction, a PP construction has to be used instead.
(182) John **stole** a ring **from** Mary.

In Mandarin Chinese the applicative structure is composed of two parts, i.e. APPL and DIR, and [Argu] and [Dir] are separated from each other.

(183) *Mandarin Applicative Structure*
    APPL [Argu] + **DIR** [Dir]

In Mandarin there are two DIR heads, i.e. '*gei*' and '*zou*' which specify different interpretations. When the DIR head is overt, it clearly identifies which of the two versions it is and thus which interpretation it has. When it's covert, the semantics of the verb is used to figure out which DIR head and which interpretation is there. Since this will fail with a verb that doesn't have

inherent transference, those verbs require the DIR head to be overt.

(184) a. *Zhangsan   song-(gei)-le   Mali   yi-ge   jiezhi.*
       Zhangsan   give-DIR-ASP   Mali   one-CL   ring
       'Zhangsan gave Mali a ring.'   (*Optional -gei*)

    b. *Lisi   tou-(zou)-le   Mali   yi-ge   jiezhi.*
       Lisi   steal-DIR-ASP   Mali   one-CL   ring
       'Lisi stole a ring from Mali.'   (*Optional -zou*)

    c. *Zhangsan   xie -gei-le   Mali   yi-feng   xin.*
       Zhangsan   write-DIR-ASP   Mali   one-CL   letter
       'Zhangsan wrote Mali a letter.'   (*Obligatory -gei*)

    d. *Lisi   kai -zou-le   Mali   yi-liang   che.*
       Lisi   drive-DIR-ASP   Mali   one-CL   car
       'Lisi drove away one of Mali's cars.'   (*Obligatory -zou*)

An overt DIR head can specify the direction and avoid ambiguity.

We can analyze Spanish as being like English in not having an overt pronunciation of the DIR, but like Mandarin in having the DIR present as a distinct head in the structure. Thus unlike English it allows both Source and Recipient readings, but unlike Mandarin there will be examples that are ambiguous.

(185) *Spanish Applicative Structure*
    APPL [Argu] + **DIR** [Dir]

Ambiguity in Spanish
(186) a. *Valeria   le   vendió   el   auto   **a su hermano**.*
       Valeria   CL.DAT   sold   the   car.ACC   her   brother.DAT
       ① 'Valeria sold the/her car **to** her brother.'
       ② 'Valeria sold the car **from** her brother.'   (Cuervo 2003: 71)

We notice that in Spanish both the Recipient IO and the Source IO are marked as dative (*See 187*).

(187) a. *Pablo   le   pasó   un   mate   **a Andreína**-*Recipient.
       Pablo   CL-DAT   passed   a   mate   Andreína-DAT
       'Pablo handed Andreína the mate.'

    b. *Pablo   le   robó   la   bicicleta   **a Andreína**-*Source.
       Pablo   CL-DAT   stole   the   bicycle -ACC   Andreína.DAT
       'Pablo stole the bicycle from Andreína.'   (Cuervo 2003:69-70)

We may predict that in a language with different case marking, the ambiguity problem does not exist. In fact we can find such examples from Finnish and Korean.

(188) *Finnish Applicative Structure*
    APPL [Argu] + **DIR** [Dir]

In Finnish there is a null DIR head, but the Recipient IO and the Source IO are marked differently, with the former marked as allative and the latter marked as ablative.

(189) a. *Liisa*   *kirjoitti*   ***Mati-lle*-**Recipient   *kirjee -n.*
        Liisa.NOM   wrote   Matti.ALL   letter-ACC
        'Liisa wrote Matti a letter.'

     b. *Liisa*   *myi*   ***Mati-lta*-**Source   *talo*   *-n.*
        Liisa.NOM   sold   Matti.ABL   house.ACC
        'Liisa sold a house from Matti.'   (Pylkkänen 2000:4)

(190) *Korean Applicative Structure*
    APPL [Argu] + **DIR** [Dir]

I assume in Korean there is also a null DIR head. The Recipient IO is marked as accusative while the Source IO is marked as dative.

(191) a. *Mary-ka*   ***John-ul*-**Recipient   *chayk-ul*   *cwu-ess-ta.*
        Mary-NOM   John-ACC   book-ACC   give-PAST-PLAIN
        'Mary gave John a book.'   (Jung & Miyagawa 2004:116)

     b. *Totuk-i*   ***Mary-hanthey*-**Source   *panci-lul*   *humchi-ess-ta.*
        thief-NOM   Mary-DAT   ring-ACC   steal-PAST-PLAIN
        'The thief stole a ring from Mary.'   (Pylkkänen 2008:16)

Let's summarize briefly about the case marking in Low Applicatives.

(192) *Case Marking in Low Applicatives*

Languages	Case Marking			
	IO-Recipient	DO	IO-Source	DO
Spanish	dative	accusative	dative	accusative
Finnish	allative	accusative	ablative	accusative
Korean	accusative	accusative	dative	accusative

In (192) all these languages have both the Recipient IO and the Source IO. I assume that there is a distinct DIR head in these languages. In Finnish and Korean, the Recipient IO and the Source IO have different cases. We might posit that there are two different DIR heads, i.e. DIR-Recipient and DIR-Source. The DIR-Recipient assigns allative case to the Recipient IO while the

DIR-$_{Source}$ assigns ablative case to the Source IO.

In Spanish, however, the DIR head is not a case assigner. The IOs, either the Recipient IO or the Source IO, get their case from the APPL. We might explain the ambiguity problem in Spanish this way: there is no overt DIR in the language (in contrast to Mandarin) and the DIR head is not a case assigner (in contrast to Finnish and Korean). It's not possible to identify the IO interpretation from the verbal suffix or from the different case marking on the IOs. Thus we have the ambiguity problem concerning IO interpretation in Spanish.

We can thus account for the cross-linguistic variation in available IO interpretations and case-marking in terms of the presence of properties of distinct DIR heads.

In the interest of completeness, let's consider the alternative, i.e. that English does have a distinct DIR head.

(193) John gave <u>the kids</u> **each** ten dollars.

The distribution of the AQ in (193) might suggest movement of the IO in English. We would then have reason to think that the IO moves across the AQ just as in Mandarin, with the DIR head providing the landing site. However, regarding the adverbial distribution, Mandarin Chinese and English are quite different.

Contrastive AQ Distribution

(194) a. John gave the kids **each** ten dollars.   (*English*)
       b. John gave the kids ten dollars **each**.

(195) a. *Zhangsan   song-le   haizi-men   **meiren**   shi-kuai   qian*.   (*Mandarin*)
         Zhangsan   give-ASP kid-PL   every(one)   10-CL   money
         'Zhangsan gave the kids each ten dollars.'

       b. **Zhangsan   song-le   haizi-men shi-kuai qian   **meiren**.*
         Zhangsan   give-ASP kid-PL   10-CL   money   every(one)

Observing (194) and (195), we find English and Mandarin are different in AQ placement.

Contrastive FA Distribution

(196) a. John has sold Bill watches **three times**.   (*English*)
       b. John has **three times** sold Bill watches.
       c. **Three times** John has sold Bill watches.
       d. *John has sold Bill **three times** watches.

(197) a. **Zhangsan   mài-gei-le   Lisi   shoubiao   **san-ci**.*   (*Mandarin*)
         Zhangsan   sell-DIR-ASP Lisi   watch   three-time

   b. *Zhangsan*   ***san-ci***   *mài-gei-le*   *Lisi*   *shoubiao*.
      Zhangsan   three-time   sell-DIR-ASP   Lisi   watch
      'Zhangsan has three times sold Bill watches.'

   c. ****san-ci***   *Zhangsan*   *mài-gei-le*   *Lisi*   *shoubiao*.
      three-time   Zhangsan   sell-DIR-ASP   Lisi   watch

   d. *Zhangsan*   *mài-gei-le*   *Lisi*   ***san-ci***   *shoubiao*.
      Zhangsan   sell-DIR-ASP   Lisi   three-time   watch
      'Zhangsan has sold Lisi watches three times.'

From (196) and (197), we notice that the distribution of the FA is also quite different.

I posit that there is something else involved in the distribution of the AQ '*each*' in English. So the AQ facts in (193) do not provide an argument for the existence of a DIR head. In English we cannot directly relate the adverbial placement to object movement. But in Mandarin Chinese we have evidence to relate the adverbial placement to IO movement, which has been discussed in Chapter 4.

In addition, if we assume there is a DIR head in English, i.e. the [Dir] element can be separated from the [Argu] element, we would have difficulty in explaining the fact that the IO cannot be interpreted as Source. Then we have to posit that in English the DIR head is mysteriously specified only as *To*-the-possession.

By comparison I conclude that it is more likely that there is no DIR head in English.

Chapter 7 Conclusion

In this thesis, I have analyzed seven types of ditransitive constructions in Mandarin Chinese. I argue that in Mandarin Chinese, like in English, the DOC is not directly derived from the PP Construction and they are structurally different. DOC patterns are discussed under the applicative framework. Throughout the thesis, I compare the differences and similarities between English and Mandarin Chinese regarding Applicative structures. In order to ease the heavy burden of the applicative head and also specify the function of the applicative head, I posit a functional head DIR, which regulates the directionality of the transference. In Mandarin we have overt realizations of the DIR head, i.e. '*gei*' and '*zou*'.

With a DIR-APPL Analysis, the different behaviors in IO interpretation among languages can possibly be better captured. In English, a language without the Source IO, the argument introducing element [Argu] cannot be separated from the directionality element [Dir]. In languages with both the Recipient IO and the Source IO, the applicative structure is composed of distinct APPL[Argu] and DIR [Dir] heads, with the former reflecting possession and the latter reflecting directionality.

Furthermore I revisit some of the typical applicative diagnostics and point out that the applicative classification should be better defined from a cross-linguistic view. I emphasize that Mandarin BEI passives are different from the English *be*-passive and involve A'-movement rather than A-movement.

The current study of applicative structures focuses on the comparison between English and Mandarin Chinese and touches on the directionality issue in a small number of languages. Of course, further detailed cross-linguistic research is needed. In addition, there are a large number of verbs in English DOCs and Mandarin DOCs, with highly nuanced properties, so it may well turn out that a more fine-grained verb classification in DOC analyses is also needed.

Bibliography

Adger, David. 2003. *Core Syntax: A Minimalist Approach*. Oxford: Oxford University Press.

Anagnostopoulou, Elena 2003. *The Syntax of Ditransitives: Evidence from Clitics*. Berlin: Mouton de Gruyter.

Baker, Mark. 1988. *Incorporation: a theory of grammatical function changing*. Chicago: University of Chicago Press.

Baker, Mark. 1996. *The Polysynthesis Parameter*. Chicago: University of Chicago Press.

Baker, Mark & Chris Collins. 2006. Linkers and the internal structure of *v*P. *Natural Language and Linguistic Theory* 24:207-354.

Barss, Andrew & Howard Lasnik. 1986. A note on anaphora and double objects. *Linguistic Inquiry* 17: 347-354.

Beck, Sigrid & Kyle Johnson. 2004. Double objects again. *Linguistic Inquiry* 35:97-123.

Bresnan, Joan, & Lioba Moshi. 1993. Object asymmetries in comparative Bantu syntax. In *Theoretical aspects of Bantu grammar*, ed. S. Mchombo, 47-91. Stanford: CSLI Publications.

Chappell, Hilary. 1999. The Double Unaccusative in Sinitic Languages. In *External Possession*, ed. Doris L. Payne and Immanuel Barshi, 195-228. Amsterdam: John Benjamins Publishing Company.

Chen, Dezhang. 2011. *Contrastive Linguistics between Chinese and English*. Beijing: Foreign Language Teaching and Research Press.

Citko Barbara. 2011. *Symmetry in Syntax: Merge, Move and Labels*. Cambridge: Cambridge University Press.

Cinque, Guglielmo. 1999. *Adverbs and Functional Heads: A Cross-linguistic Perspective*. Oxford: Oxford University Press.

Cook, V. J. & Mark Newson. 2007. *Chomsky's Universal Grammar: an Introduction*. USA & UK: Blackwell Publishing Ltd.

Cuervo, Cristina. 2003. *Datives at large*. PhD Dissertation, MIT.

Demonte, Violeta. 1995. Dative alternation in Spanish. *Probus* 7:5-30.

Fitzpatrick, Justin. 2006. *The Syntactic and Semantic Roots of Floating Quantification*. PhD Dissertation, MIT.

Georgala, Effi. 2011. Why German is not an exception to the universal base order of double object constructions. In *Proceedings of the 28th West Coast Conference on Formal Linguistics*, ed. M. Byram Washburn, K. McKinney-Bock, E, Varis, A. Sawyer, and B. Tomaszewicz, 96-105. Sommerville, Mass.: Cascadilla Proceedings Project.

Georgala, Effi. 2012. *Applicatives in their structural and thematic function: A minimalist account of multitransitivity*. PhD Dissertation, Cornell University.

Georgala, Effi & John Whitman. 2007. Ditransitives and applicative structure in Greek. *CLS 43: The Main Session*: 77-91.

Georgala, Effi, Waltraud Paul & John Whitman. 2008. Expletive and thematic applicatives. In *Proceedings of WCCFL 26*, ed. Charles B. Chang and Hannah J. Haynie, 181-189. Sommerville, Mass.: Cascadilla Press.

Haddican, William & Anders Holmberg. 2012. Object movement symmetries in British English dialects: Experimental evidence for a mixed case/locality approach. *The Journal of Comparative Germanic Linguistics* 15 (3):189-212.

Hagstrom, Paul. 2006. A-not-A Questions. In *The Blackwell Companion to Syntax*, ed. Martin Everaert & Henk van Riemsdijk, vol. 1, 173-213. Malden, MA: Blackwell.

Harley, Heidi. 2002. Possession and the double object construction. *Linguistic Variation Yearbook* 2:31-70.

He, Yuan Jian. 2011. *A Generative Grammar of Mandarin Chinese*. Beijing: Peking University Press.

Her, One-Soon. 2006. Justifying part-of-speech assignments for Mandarin *gei*. *Lingua* 116: 1274-1302.

Holmberg, Anders & Christer Platzack. 1995. *The Role of Inflection in Scandinavian Syntax*. Oxford: Oxford University Press.

Huang, Chu-Ren & Kathleen Ahrens. 1999. The function and category of *gei* in Mandarin ditransitive constructions. *Journal of Chinese Linguistics* 27(2): 1-26.

Huang, C.-T. James. 1999. Chinese Passives in Comparative Perspective. *Tsing Hua Journal of Chinese Studies* 29: 423-509.

Huang, C.-T. James, Y.-H. Audrey Li & Yafei Li. 2009. *The Syntax of Chinese*. Cambridge: Cambridge University Press.

Huddleston, Rodney & Geoffrey K. Pullum. 2002. *The Cambridge Grammar of the English Language*. Cambridge: Cambridge University Press.

Jeong, Youngmi. 2007. *Applicatives: Structure and interpretation from a minimalist perspective*. Philadelphia: John Benjamins.

Jung, Yeun-Jin & Shigeru Miyagawa. 2004. Decomposing Ditransitive Verbs. In *Proceedings of SICGG*, 101-120.

Kayne, Richard. 1994. *The Antisymmetry of Syntax*. Cambridge, Mass.:MIT Press.

Kratzer, Angelika. 1996. Severing the external argument from its verb. In *Phrase Structure and its Lexicon*, ed. J. Rooryck and L. Zaring, 109-137. Dordrecht: Kluwer Academic Publishers.

Larson, Richard K. 1988. On the double object construction. *Linguistic Inquiry* 19: 335-391.

Li, Charles N. & Sandra A. Thompson. 1981. *Mandarin Chinese: A Functional Reference Grammar.* Berkeley: University of California Press.

Li, Yen-Hui Audrey. 1990. *Order and Constituency in Mandarin Chinese*. Dordrecht: Kluwer Academic Publishers.

Lian, Shuneng. 2010. *Contrastive Studies of English and Chinese*. Beijing: Higher Education Press.

Lin, Tzong-Hong Jonah. 2001. *Light Verb Syntax and the Theory of Phrase Structure*. PhD Dissertation, University of California at Irvine.

Liu, Feng-hsi. 2006. Dative constructions in Chinese. *Language and Linguistics* 7(4): 863-904.

Marantz, Alec. 1993. Implications of asymmetries in double object construction. In *Theoretical Aspects of Bantu Grammar*, ed. S. Mchombo, 113-150. Stanford: CSLI Publications.

McCawley, J. 1992. Justifying part-of-speech assignments in Mandarin Chinese. *Journal of Chinese Linguistics* 20 (2):211-246.

McGinnis, Martha. 1998. *Locality in A-movement*. PhD Dissertation, MIT.

McGinnis, Martha. 2001. Variation in the phase structure of applicatives. *Linguistic Variation Yearbook* 1: 105-146.

McGinnis, Martha. 2008. Applicatives. *Language and Linguistic Compass* 2: 1225-1245.

McIntyre, Andrew. 2006. The interpretation of German datives and English have. In *Datives and Other Cases: between Argument Structure and Event Structure*. ed. Daniel Hole, André Meinunger & Werner Abraham: 185-212. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Miyagawa, Shigeru & Takae Tsujioka. 2004. Argument Structure and Ditransitive Verbs in Japanese. *Journal of East Asian Linguistics* 13: 1-38.

Ngonyani, Deogratias S. 1996. *The morphosyntax of applicatives*. PhD Dissertation, University of California, Los Angeles.

Oehrle, R. 1976. *The Grammatical Status of the English Dative Alternation*. PhD Dissertation, MIT.

Pan, Haihua. 1997. Lexical Mapping Theory and its Application in Chinese. *xiàn dài wài yǔ* [Modern Foreign Languages] 4: 1-16.

Paul, Waltraud & John Whitman. 2010. Applicative structure and Mandarin ditransitives. In *Argument Structure and Syntactic Relations*, ed. M. Duguine, S. Huidobro and N. Madariaga, 261-282. Philadelphia: John Benjamins.

Pesetsky, David. 1995. *Zero Syntax*. Cambridge, Mass.: MIT Press.

Pylkkänen, Liina. 2000. What Applicative Heads Apply To. In *Proceedings of the 24th Annual Penn Linguistics Colloquium.* U. Penn Working Papers in Linguistics, Volume 6.4.

Pylkkänen, Liina. 2008. *Introducing Arguments*. Cambridge, Mass: MIT Press.

Radford, Andrew. 2004. *Minimalist Syntax: Exploring the Structure of English*. Cambridge: Cambridge University Press.

Soh, Hooi Ling. 2005. Mandarin distributive quantifier *ge* 'each', the structure of double complement construction and the verb-preposition distinction. *Journal of East Asian Linguistics* 14(2):155-173.

Stowell, Timothy. 1982. *The Origins of Phrase Structure*. PhD Dissertation, MIT.

Sybesma, Rint. 1999. *The Mandarin VP*. Dordrecht: Kluwer Academic Publishers.

Tang, Chih-Chen Jane. 1990. *Chinese phrase structure and the extended X'-theory*. PhD Dissertation, Cornell University.

Tang, Sze-Wing. 2010. *Formal Chinese Syntax*. Shanghai: Shanghai Educational Publishing House.

Tsai, Wei-Tien Dylan. 2007. On Middle Applicatives. *Paper presented in the 6ᵗʰ GLOW in Asia*, The Chinese University of Hong Kong.

Tsai, Wei-Tien Dylan. 2009. High Applicatives are not High Enough: A Cartographic Solution. In *FOSS-6*, National Taiwan Normal University, Taiwan.

Woolford, Ellen. 1993. Symmetric and asymmetric passives. *Natural Language and Linguistic Theory* 11:679-728.

Yip, Po-Ching & Don Rimmington. *Chinese: A Comprehensive Grammar*. London & New York: Routledge.

Zhang, Bin. 2010. *xiàn dài hàn yǔ miǎo xiě yǔ fǎ* [*Descriptive Grammar of Modern Chinese*]. Beijing: Commercial Press.

Zhang, Niina Ning. 1998. Argument Interpretations in the Ditransitive Construction. *Nordic Journal of Linguistics* 21: 179-209.

Zhang, Shi. 1990. Correlations between the double object construction and preposition stranding. *Linguistic Inquiry* 21(2): 312-316.