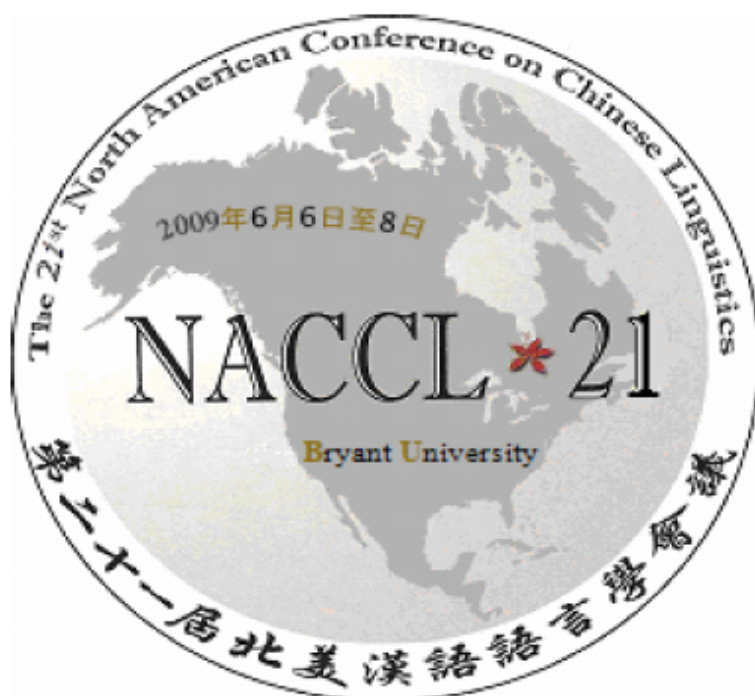21st North American Conference on

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PART 6. STUDIES IN GENERATIVE GRAMMAR

Serial Verb Construction in Mandarin Chinese:
The interface of syntax and semantics

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This study aims at providing a unified account of the serial verb construction as a complex predicate in Mandarin Chinese. Adopting the assumption that complex predicates may be broadly viewed as syntactic complexity to present cognitively complex events (Givon, 2009), the proposal of this study may differ from most previous studies on the clear boundary of the Chinese serial verb construction. The analyses focus on the internal structures of the clauses to explain the development of the specific syntactic pattern, using the theoretical proposal of clause linkage devices postulated in Role and Reference Grammar (e.g., Foley & Van Valin 1984, Van Valin, 1993, 1997; Van Valin & LaPolla, 1997). The study proposes three general types of serial verb constructions in Chinese. The findings support the view that the diachronic change actually demonstrates a general tendency of the development of serial verb construction cross-linguistically (see Foley & Olson 1985, Givon 1975, 2003; Lord 1973). The predictions from the theoretical framework of Role and Reference Grammar offer a general explanation of human language on the analysis of the interface of semantics and syntax, leading to the understanding of synchronic syntactic grammar with a diachronic perspective. The findings may help clarify Chinese grammar for language learners for their understanding and usage of this syntactic pattern.

1. Introduction[1]

This study presents a synchronic analysis of the serial verb construction in Mandarin Chinese (hereafter Chinese) to seek a unified account of this construction. The study examines the interface of syntax and semantics in this complex sentence structure, focusing on the internal structures of the complex predicates with an attempt to provide an explanation that may account for different syntactic patterns in this construction. The study applies the theoretical analysis of clause linkage postulated in Role and Reference Grammar (e.g., Foley & Van Valin 1984, 1985, Van Valin, 1981, 1986, 1993; Van Valin & LaPolla, 1997). The analysis is synchronic, but diachronic development also has been

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[1] An earlier version of this paper was published in the Davis Working Papers in Linguistics (1986). I would like to thank Robert Van Valin Jr. for his guidance leading me into functional studies of linguistics. Any error remains the sole responsibility of the author.

taken into consideration. The study proposes that, a. Chinese serial verb construction is a complex predicate construction with a fuzzy boundary; b. Some of the Chinese serial verb constructions have been developing from a complex clause into a simplex one; therefore the construction does not hold a single and/or consistent structure within. Finally, the diachronic change actually demonstrates a distinctive feature of the development of serial verb construction cross-linguistically (e.g., Foley & Olson 1985, Givon 1975, 2009; Lord 1973). Therefore, synchronic syntactic grammar should be analyzed with a diachronic perspective (e.g., Tao, 2005).

Although there has been a general consensus on the characteristics of the serial verb construction, previous studies disagree on what specific syntactic patterns should be included in this construction in Chinese (e.g., Baker, 1989; Bisang, 1995; Ding et al., 1979: 112-8; Givon, 2009; Li & Thompson, 1981; Noonan, 1985). It is hoped that the fuzzy boundary proposal of this study may help clarify this construction in Chinese grammar for language learners for their understanding and usage of this pattern.

2. Background information and data
2.1. Serial verb construction in Chinese

Serial verb construction, broadly defined, is a syntactic structure in which two or more verbs are juxtaposed to form a complex predicate to express a series of related actions within a single clause (e.g., Baker, 1989; Ding et al. 1979: 112-8; Givon, 2009; Li & Thompson, 1981; Noonan, 1985), with some general characteristics cross-linguistically: a. The verbs share the same grammatical subject; b. There are no connective markings to indicate the relationship of the verbs; c. The verbs are under the same grammatical categories, e.g., tense, aspect, and/or modality; and d. The verbs are in a fixed order with varied relationship based on the verb semantics.

The present study examines three types of syntactic patterns in the Chinese serial verb construction: Type I, the canonical pattern, Type II, the pivotal pattern, and Type III, the coverb pattern. Previous studies all agree on Type I serial verb construction because it is the canonical pattern that fits the general characteristics of this construction.

(1) a Zuo214 Xian55sheng   qu51 da214 dian51hua51 jiao51 che55 le.   (Ding, p. 116)
   Zuo Mr.   go make phone.call   hire car   CRS
             V_1 V_2 V_3
 'Mr. Zuo went to call for a taxi already (… went to make a phone call to hire a taxi).'

 b. $Ta55_1$ tuo55 le xie35 zou214 jin51 fang35 qu51.   (Ding, p. 114)
   3sg take-off PA shoe walk-enter house go
   V1   V1 V3   V4
 'He took off his shoes and went into the house.'

In example (1), the verbs present a simultaneous action (1a) or a consecutive action (1b). The sentence-final *le* in (1a) is shared by all the verbs in the clause. In (1b), the perceived main verbs are *tuo55* (take off) and *zou214* (walk), with *jin51* (enter) and

qu51 (go) as directional complements to the verb. These two complements are high-frequency verbs that often function as such cross-linguistically (e.g., Givon, 2009).

Concerning Types II and III serial verb construction, previous studies hold conflicting views. In Type II, the pivotal construction (or the 'switch function' serial verb construction, Aikhenvald, 2006: 14), the verbs do not share the same grammatical subject (example (2b)); however, some previous studies (e.g., Li & Thompson, 1981) have included this pattern in the Chinese serial verb construction whereas some other studies disagree. Ding et al. (1979: 118) claim that the serial verb construction is 连动式, Liándòng Shì, yet the pivotal pattern is a 'conjoined pattern' (兼语式, Jiànyǔ Shì), in which the object/undergoer of the first verb also acts as the actor of the second verb.

Ding et al further claim that Type I and II patterns may be identical in form and sometimes can only be differentiated by pronunciation. In example (2a-b), the sentences appear the same in writing. But with the change of tonal stress, (2a), with the second verb *qu51* (go) unstressed, presents a serial verb construction in which both verbs share the same grammatical subject. Example (2b), with *qu51* stressed, forms a pivotal construction: the pronoun *ta55* has a dual function of an undergoer and actor.

(2) a. 我叫他去。　　Wo214 jiao51　　　　ta55　　qu.　　　　　　(Ding et al, 1979:122)
　　　　　　　　　1sg　　call　　　　　　3sg　　go
　　　　　　　　　I'm going to call/get him.

　　b. 我叫他去。　　Wo214 jiao51　　　　ta55　　qu51.
　　　　　　　　　1sg　　tell/allow　　　3sg　　go
　　　　　　　　　I told/allowed him to go.

Contrary to Li & Thompson (1981), Ding, et al (1979: 118-122) and Aikhenvald (2006: 55) propose that the coverb pattern (Type III serial verb construction) belongs to the Chinese serial verb construction because it shares similar syntactic features with Type I serial verb construction (also see, Bisang, 1995). Aikhenvald (2006: 55) proposes that there are two types of serial verb constructions, the symmetrical (prototypical or canonical, such as the Type I construction in this study) and the asymmetrical pattern with a 'minor' verb from a closed class (i.e., coverbs) that tend to grammaticalize into markers of direction, etc. Coverbs exist 'on the fuzzy ground between verbs and prepositions (Van Valin, 1993: 201). They are used mainly to introduce oblique arguments, although sometimes the status of the arguments is questionable (e.g., Zhu, 2000). They form a class of lexical items which can be negated like verbs (e.g., Chao, 1968; Li & Thompson, 1974; Ross, 1981), and are considered prepositions by some (e.g., Li & Thompson, 1974, 1981). In (3), the coverb *cong35*: follow/obey, is rarely used as a full verb in modern Chinese.

(3)　　Cong35 nei51ge　　　Shi35beir Hu35tong　guo51qu.　　(Beijing97:29)
　　　　from　　that Cl　　　S　　　Lane　　　　　pass go
　　　　Pass through (from) the Shibei Lane.

In addition to the controversial views on Types II and III serial verb construction, some studies propose an even broader domain in the Chinese serial verb construction to include, for instance, the resultative verb compound (4a) (e.g., Aikhenvald & Dixon,

2006; Bisang, 1995; Hansell, 1993), the descriptive clauses (4b) (e.g., Li & Thompson, 1981:611), and the subordinating clause (governing verb, Bisang, 1985: 148) (4c).

(4) a   Wo214 chi55bao214 le.
      1sg   eat-full   CRS
      I am full (from eating).
  b. Ta55 yang214 le yi51zhi55 xiao214gou214 wo214 xiang214 mai214.
      3sg raise.   PA one Cl   little dog   1sg   want   buy
      He has/raises a little dog, (and) I want to buy (it).
  c. Wo214 kong214pa51 ta55   jin55tian55   bu51   hui35jia55.
      1sg   fear   3sg   today   Neg. go.back home
      I fear that s/he won't go back home today.

The present study does not consider these patterns as part of the serial verb construction, for reasons discussed in the next section.

Section 2.2 introduces clause linkage as proposed in Role and Reference Grammar. Section 3 examines the three types of the Chinese serial verb construction to propose a unified account of this construction. Section 4 concludes the study with some specific discussion of diachronic changes that impact the Chinese serial verb construction.

2.2. Role and Reference Grammar (RRG)

Role and Reference Grammar offers a semantic analysis of language. The theory 'takes language to be a system of communicative social action.' This approach believes that 'grammatical structure can only be understood with reference to its semantic and communicative functions.' The theory 'is concerned not only with relations of co-occurrence and combination in strictly formal terms but also with semantic and pragmatic co-occurrence and combinatory relations (Van Valin, 1993, Van Valin & LaPolla, 1997: 13).'

Based on cross-linguistic data on general syntactic patterns, RRG proposes that a complex sentence contains layered structures, from the outer to the inner: the sentence, the clause/peripheral, the core and the nuclear junctures. The core juncture may contain two nuclei, each with its own arguments and/or a shared argument, forming a nexus. Junctures are usually marked with the scope of different operators, which are morphemes that mark tense, aspect, modality, negation, etc. of the predicate verbs[2].

The peripheral layer operator includes tense or question particles that concern the narrative event with reference to the speech event. It locates the time of the reported event with respect to the time of the speech event, grounding the reported event in the real world with temporal orientation of the present act of speaking (Foley & Van Valin,

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[2] The *operator* is mainly a type of auxiliary verb or grammatical particle that is used in different linguistic analysis. Hopper (1999: 104-5) takes the first element of a string of auxiliaries as the operator that marks tense in English. Givón (2009) proposes that frequently used verbs tend to become grammaticalized and de-semanticized into operators on other predicates.

1984). In example (5) below, the clause contains two cores in a peripheral juncture, sharing the relative tense *le* (see footnote 3) and the question particle *ma*.

(5) D: ge33de   guo55li zha35 le ma?
   Place to   wok in fry CRS Q
   Did (you) place (it) into the pot to fry yet?

Modality is a core layer operator expressing the variable of actuality of the event, with its scope over both the nucleus and its arguments (actor and undergoer, Foley & Van Valin, 1985:216). In Chinese modality includes dei214: have to, yao51: desire to, ying55gai55: should, etc. The core juncture is illustrated below.

(6) a. Wo214   yao51/dei214/ying55gai55 hui35jia55 zuo51fan51 qu le.
   1sg   want / have to / should return home cook meal go CRS
   I want / have to / should go home to Cook now.

Aspects are the most common nucleus operator because it is concerned with the structure of the narrated event to express the temporal structure of the event, but not the arguments (actor/undergoer), e.g., complete and of no continuing relevance - perfective / non-durative aspect, etc, as exemplified below. Aspectual markers include: verb-*le*, Verb-*zhe*, Verb-*de*, etc.depending on specific semantic features of the verbs.

(7) Ta55 lao214 kan51*zhe* nei51 gou214 fen55xin. (Beijing 97)
   3sg always look-at-Dur that dog divide heart/attention
   He always stared at the (toy) dog to go off on a tangent.

The canonical serial verb construction, as RRG proposes, is a co-subordinate construction with the series of verbs co-depending on each other. It contains at least two+ core junctures to form a nexus, each containing a nuclear juncture with the verb being the nuclear and its arguments as the complements to present a series of actions or events.

Co-subordination is exemplified with two core junctures sharing at least one semantic operator at the clause level, such as a tense operator. At the core and nuclear junctures the operators may include negation particles, aspectual particles, modalities, and so forth. It is important to point out that although the requirement seems arbitrary; they are functional in nature because they reflect some general linguistic tendency where certain verbs may be modified at which syntactic levels (e.g., Van Valin, 1993).

Specific operators and clause structures are exemplified in the next section.

2.3. Data

The data used in this study mainly come from two sources: citations from Ding et al, (1979), mainly extracted from influential Chinese authors (thus from written texts); and data from the author's own collection of natural conversations (referenced by the place and time of the recording). Due to the nature of the analysis, different operators are

added to some examples; therefore, citations are often altered. For this reason, some examples do not have their original source indicated.

Tones are indicated with the numerical value of 1-5, following Chao (1968). This practice has to be used to document certain tonal changes, including tone sandhi changes, from data that come from transcripts of natural conversations.

3. Serial Verb Constructions

This section presents the analyses of all three types of construction by using the means of clause linkage from Role and Reference Grammar. The goal of the analyses, again, is to justify the proposal of the three as the Chinese serial verb construction.

3.1. Operator scope and Chinese serial verb construction

Role and Reference Grammar postulates that tense (at the peripheral layer), modality (at the core layer) and aspect (at the nucleus) markers may indicate clause formation of various types. The study predicts that on the outer juncture, the three types share the same illocutionary force operator, which includes the question marker *ma*, the aspectual or relative tense markers *le*[3] and its negative particle *mei35(you)*, and the future/intension marker *hui51*.

Furthermore, the series of verbs in the three types share one core layer operator, such as the modality marker, indicating that this Chinese construction is in the core juncture. The core layer operator in Chinese include: *yao51: want, intend, plan to*, a modality marker. This analysis differs from some previous claims (e.g., Bisang, 1995) which assume that tense, aspect and modality (TAM) operate similarly.

Finally, the analysis shows that at the nucleus layer the three patterns show some differences.

We first examine the descriptive clause and the governing pattern (Li & Thompson 1981: 611; Bisang, 1985: 148) to argue that they should not be considered sub-types of the Chinese serial verb construction.

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[3] Li, Thompson and Thompson (1982) take the sentence final *le* to be a perfect aspect marker to indicate a currently relevant state (CRS). They maintain that *le* "claims that a state of affairs has special current relevance with respect to some particular Reference Time"(1981:22). Thus, on their analysis, *le* expresses a temporal relationship between two states of affairs, and accordingly it has a fundamentally deictic meaning. It therefore meets the criteria proposed in Jakobson (1957) for a tense rather than an aspect category. (See also Friedrich 1985) It is a *relative* rather than an absolute tense category, because the reference time need not be the time of the speech act. Consequently, sentence final *le* will be considered to be a relative tense marker in this discussion. It will be seen that its distribution in complex sentences is precisely what RRG predicts the distribution of such a tense marker to be, and this distribution is very different from that of the perfective aspect marker *le*. It must be noted, however, that to say that sentence-final *le* is a tense marker is not to claim that it is solely a grammaticalized tense marker. It is clearly very complex semantically, with relative tense being one of its major meanings (e.g., Chan, 1980). Following the RRG theory of clausal operators, if an element expresses more than one operator, e.g. a combination of tense and aspect, then its scope relations and distribution in complex sentences will be those of the outermost operator that it expresses; in the case of an element expressing tense and aspect together, for example, it will pattern with the 'pure' tense markers rather than with the 'pure' aspect markers.

(8) a.   Ta55 yang214 le yi51zhi55 xiao214gou214 ni214 xiang214 mai214 ma?
         3sg raise.   PA one Cl   little dog   2sg   want   buy   Q
         He has/raises a little dog. Do you want to buy (it)?
   b.   Ni214 kong214pa51 ta55   jin55tian55   bu51   hui35jia55   ma?
         2sg   fear   3sg   today   Neg.   return home   Q
         Do you fear that s/he won't go back home today?

      In example (8a), the scope of the peripheral operator (the question particle *ma*) only covers the second juncture (intension of buying the dog). It does not question someone owning the dog. In (8b), the operator only covers the main clause predicate, but not the subordinate clause. The fact indicates that these patterns differ from the canonical serial verb construction – the series of verbs in them are not 'juxtaposed' to form a single predicate. Therefore, these two patterns are not considered as serial verb construction.

3.2. Peripheral Operator

      Contrary to examples in (8a-b), the peripheral layer operator functions at the outer layer of the three types of serial verb construction to cover the entire complex clause. Following are examples of the three types sharing the peripheral outer-layer operators, the question particle *ma* (9-11), a relative future (tense) marker *hui51* or the relative tense marker *le/mei35* (12-14).

(9) a. Ge33de   guo55li zha35 le   ma?   (Type I)
         Place to   wok in fry   CRS   Q
         Did (you) place (it) into the pot to fry yet?
   b. ?Ge33de   guo55li ma? Zha35 le   ma?
         Should (I) put (it) in the pot? Did (you) fry it?

(10) a. Ni214 jiao55 ta55 shuo55   Ying55wen35 le   ma?   (Type II)
         2sg   teach 3sg speak   English   CRS   Q
         Did you teach him to speak English?
   b.?Ni214 jiao55 ta55 le ma? shuo55   Ying55wen35 le   ma?
         Did you teach him? Do you / does he speak English?

(11) a. Ta55 dui51 ni214 shuo55 shi35hua51 le   ma?   (Type III)
         3sg   to 2sg   speak true.words CRS   Q
         Did he tell you the truth?
   b. *Ta55 dui51 ni214 le ma? ?shuo55 shi35hua51 le   ma?
         *He toward you? ?Did (he/you) speak the truth?

(12) a. Ta33 *hui51* hui35   niang35jia   guo51jie35   qu51 de.   (Type I)
         3sg   Fut return   mother home   spend festival go   De
         She will go to her mother's home to spend the holiday.

b. ?Ta33 *hui51* hui35   niang35jia. Hui51 guo51jie35   qu51 de.
   ?She will return to her mother's house. (She) will go there to spend the holidays.

(13) a. Ta55   po35po   *mei35* jiao51   ta55 hui35qu51.   (Type II)
     3sg   mother-in-law   Neg:P let/allow 3sg return go
     Her mother-in-law didn't tell (allow) her to go back.

  b. ?Ta55 po35po   *mei35* jiao51 ta55. Ta55 *mei35* hui35qu51.
     Her mother-in-law didn't call her. She didn't go back.

(14) a. Ta55 *hui51*   ba214 qian35 jiao55 gei214 ni214 de.   (Type III)
     3sg Fut   BA money hand.in give 2sg   De
     He will hand in the money to you.

  b. *Ta55   hui51 ba214 qian35. Hui51 jiao55 gei214 wo214 de.
     3sg   BA money hand.in give   1sg   Le
     He will get money. He will hand the money to me.

     Examples (9a)-(14a) demonstrate that the three types of serial verb construction share the same operators on the peripheral layer. Whereas examples (9b)-(14b) indicates the peripheral layer operator cannot function on individual verbs in the three types of serial verb construction. With types I and II, the peripheral layer operators break the complex clauses into separate simple clauses. But with Type III the peripheral operators cannot function alone with the coverbs. Similar results have been found when using the peripheral operator *le* and its negative counterpart *mei35(you)*. The findings indicate that the three types of Chinese serial verb construction form a single complex predicate which can only receive modifications from one peripheral layer operator.

3.3. Core layer operator
     Modality is the variable of actuality of the event, a core operator with its scope over both the nucleus and its arguments (actor and undergoer) (Foley & Van Valin, 1985:216). Chinese serial verb construction shares one core layer operator as well to form core junctures. The operator used here is *yao51: want, intend, plan to*, a modality marker.

(15) a. Ta55 *yao51* hui35jia55 kan51shu55.   (Type I)
     3sg want return home read   book
     He wants to go home to read (a book).

  b. Ta hui35jia55   yi214hou51   *yao51* kan51shu55.
     3sg return home   after   want   read book
     After he gets home, he wants to read a book.

  c. * Ta *yao51* hui35jia55 *yao51* kan51shu55.
     3sg   want return home want read book
     *He wants to go home to want to read.

     Example (15a) shows that the core operator has a scope over the entire core juncture so that the semantic interpretation is that the verbs *hui35jia55: return home* and

kan51shu55: read (a book) are the intension of the subject's (*ta55: s/he*). When a core operator occurs on the second verb in (15b), the sentence becomes questionable unless the time adverb *yi214hou51: after* is placed after the first verb phrase to separate the single clause into two individual clauses. This practice means that when the core operator modifies only the second verb, type I serial verb construction no longer exists and it changes into a complex sentence. Example (15c) shows that core operators are not allowed to go with both verbs (nuclei) in type I serial verb construction.

Next we examine Type II serial verb construction.

(16) a. Ta *yao51* qing214   ni214 chi55fan51.   (Type II)
       3sg want invite   2sg   eat meal
       He plans to invite you to dinner.
   b. * Ta qing214 ni214 *yao51* chi55fan51.
       3sg invite   2sg   want   eat meal
       *'He asks (invites) you to want to eat.
   c. * Ta *yao51*   qing214 ni214   *yao51* chi55fan51.
       3sg want   invite 2ag   want   eat meal
       *He wants to invite you to want to eat.

(17) a. Ta55 shi214   wo214 *xiang214* / hui35 jia55
       3sg make   1sg   want   return home
       He made me want to go home.
   b. Ta55 *xiang214* / *Yao51* rang51 /*shi214   wo214 hui35 jia55
       He wants to let/allow me to go home. But: *want to cause me to go home.
   c.*Ta55 *xiang214* / *yao51* rang51 / shi214   wo214 xiang214 hui35 jia55
       He wants to let/allow/cause me to want to go home.

In (16a), the core operator can cover the first core of the core juncture, similar to the Type I serial verb construction. But different from Type I, the semantic scope of the operator is over the first core only. The rest of the construction (the 'pivot' plus the second verb) falls under the scope of the first verb, hence only indirectly covered by the core operator. The unacceptable cases in (16b-c) indicate semantic limitations – the implausibility of inviting or making someone to want to do something.

If we take another modality operator *xiang214*, as in (17a), we can see that this operator goes with either the second verb (17a) or the first verb *rang51* (17b), but not both (17c), indicating that the first or second core, but not both at the same time, is able to have its own core operator, unlike Type I serial verb construction. The unacceptable verb *shi214* (17b) is due to the semantic constraints of this verb.

This analysis has two implications: first, the choice of operators at each juncture is primarily determined by verb semantics; second, Type II serial verb construction is similar with Type I in allowing only one core operator in the predicate; but different from Type I, a core operator may modify either verbs.

We now examine Type III, the coverb construction. In a canonical coverb pattern the verbs share the same grammatical subject. As demonstrated below, coverbs do not form a unified class because some have developed into prepositions yet some still retain their full verb status (e.g., Givon, 2009; Van Valin, 1993). Some studies consider all Chinese coverbs to be prepositions (e.g., Li & Thompson, 1974), in which case this pattern has developed into a simplex one with only one main verb. Due to high variability of the coverbs, the core operators work differently in this pattern.

(18) a. Ta55 *yao51*   gei214 ni214 xie214 xin51.   (Type III)
      3sg want   to   2sg   write letter
      He wants (plans) to write to you.
   b. *Ta55 gei214 ni214 *yao51* xie214 xin51.
      3sg   to   2sg   want   write letter
      *He to you wants to write.
   c. * Ta55 *yao51* gei214 ni214 *yao51* xie214 xin51.
      3sg   want   to   2sg   want   write letter
      *He wants to you want to write.

(19) a. Ta55 *yao51*   zai51 shu55dian51   mai214 hen214duo55 shu55.
      3sg want   at   bookstore   buy   very   many   book
      He plans to buy many books from the bookstore.'
   b. Ta55   zai51 shu55dian51   *yao51* mai214 hen214duo55 shu55.
      3sg   at   bookstore   want   buy   very many   book
      He wants to buy many books in the bookstore.'
   c.* Ta55 *yao51* zai51   shu55dian51   *yao51* mai214 hen214duo55 shu55.
      3sg   want   at   bookstore   want   buy   very many   book.
      *He wants to buy many books wants in the bookstore.'

(20) a. Fang35guan214 Ju35   *yao51* gei214   ta55   mai51 le.
      Housing-manage Bureau   want to-his-loss   3sg   sell   CRS
      The Housing Management Bureau plans/wants to sell (his house) on him.
   b. *Fang35guan214 Ju35   gei214 ta55   *yao51* mai51 le.
      *The Housing Management Bureau on him want/plan to sell (his house).
   c. *Fang35guan214 Ju35   *yao51* gei214   ta55   *yao51* mai51 le.
      *The Housing Management Bureau want on him want/plan to sell (his house).

If we compare the (b) sentences in (18) and (20), we realize that type III serial verb construction does not hold a consistent case. Some of the coverbs do permit the core layer operator *yao51: want, intend to* function at the middle of the core juncture between two cores (19b), whereas others do not allow it (18b), (20b). This phenomenon further confirms that the coverb pattern is not formed with two full verbs consistently. Diachronically, Chinese coverbs were full verbs which have developed into something else (e.g., Chao, 1968, Li & Thompson, 1974). Most of these coverbs have still retained

their verbal status and can still function as full verbs if used alone. But when they are used as the first verb in a serial verb construction, their status becomes questionable (e.g., Zhu, 2000). This issue is discussed later in this section.

The unacceptable (c) sentences in (18)-(20) demonstrate that a core layer operator is not allowed to function with each individual core in Type III, the coverb pattern. It can only modify the entire core juncture, just like Types I and II patterns.

Further tests on the three types of Chinese serial verb construction have been carried out using additional core layer operators, including, for instance, the manner adverbs *gao55xing51 de: happily* and *sheng55qi51 de: angrily*. The results turned out to be similar with the modality operator *yao51*. The phenomenon indicates that the Chinese serial verb construction in general is formed with two (or more) cores (nucleus plus core arguments) in a core juncture.

3.4. Nuclear Operators

Having determined the Chinese serial verb construction forms a core juncture under the same one peripheral layer operator on the outer layer (the clause level) and/or one core layer operator before the first verb (in most cases), we now turn to nuclear operators and their functions in the core juncture. The results now show some internal differences among the three types of serial verb construction.

Aspects are the most common nucleus operator because it is concerned with the structure of the narrated event to express the temporal structure of the event, but *not* the arguments (actor/undergoer) (Foley & Van Valin, Jr. 1984).

The nuclear operators are mainly aspect markers such as *zhe: durative, le: perfective* and *de: state* markers. We have noticed by now that in our analysis, semantic requirements should be fulfilled before syntactic rules can apply. This is not surprising since what we are dealing with are semantic operators. All operators bear their own semantic value and most of them have more than one lexical function. For instance, *zhao55/zhe* can be used as a full verb meaning *touch a spot*, as in *zhao55di: touch ground, touch down*; *liao214/le* means *finish* when used as a full verb.

We first look at Type I serial verb construction: The canonical pattern.

(21) a. Ni214 shi51   ke51,   zuo51 *zhe*   he55 shui214 ba.
     2sg   be   guest sit   Dur   drink water   Int
     You are the guest, please keep seated to enjoy some water.
   b. *Ni214 shi51   ke51,   zuo51 xia51   he55 *zhe* shui214 ba.
     *You are the guest. Sit down to be enjoying some water.
   c. * Ni214 shi51 ke51, zuo51   *zhe*   he55 *zhe* shui214 ba.
     *You are the guest. Keep seated and be enjoying some water.
   d. Ni214 shi51   ke51, zuo51   *zhe*   he55 *le* shui214 zai51shuo55.
     You are the guest. Keep seated to finish drinking the water, then (we) discuss it.

(22) a. Ta55   tuo55   *le* xie35 zou214jin51 qu51.
     2sg   take off   PF shoe walk   enter   go
     He took off his shoes and walked in.
  b. Ta55 tuo55xia xie35   zou214 *zhe55 / le*   jin51qu51.
     3sg take down shoe   walk-Dur / PF   enter go
     He took off his shoes and walked (with either zhe or le) in.
  c. Ta55 tuo55   *le*   xie35   zou214 *le*   jin51qu51.
     3sg take off   PF   shoe   walk   PF   enter go
     He took off his shoes and walked in.

(23) a. Ta55 zhi55 *zhe / le*   mao35yi55   kan51shu55
     3sg knit   Dur / PF   sweater   read book
     She is knitting while reading (with *zhe*).
     She finishes knitting, then reads a book (with *le*).
  b. Ta55 zhi55   mao35yi55   kan51 *zhe / le* shu55
     3sg knit   sweater   read   Dur / PF book
     When she knits she (has to) look at a book (with zhe).
     As for knitting, she has read a book (about it) (with le).
  c. Ta55 zhi55   **zhe / le* mao35yi55   kan51 **zhe / le* shu55
     3sg   knit   Dur / PF sweater   read   Dur / PF book
     She is knitting and reading (with zhe).
     She finished both knitting and reading (using le).

     Of the three examples of type I serial verb construction, (21) seems the most rigid one in that it does not allow *le* or *de* to occur at all. The fact maybe caused by the closely juxtaposed actions presented in an imperative mood – sitting and drinking should happen simultaneously. The type of request cannot allow perfective modifier. Note that in (21d), the two verbs may take both *zhe* and *le*, indicating that with the right semantic conditions, the verbs in Type I serial verb construction may share two nuclear operators, as RRG predicts in this peripheral layer juncture.

     Example (22) presents a sequential action of the verbs, allowing the perfective *le* to occur after either or both verbs. But for semantic reasons the durative *zhe* cannot be utilized here. When *zhe* is used with the second verb in (22b), it has turned into another marker describing the ways in which something is done. Here *zou214zhe: walk* implies a manner of motion: *to walk on foot*, as opposed to *by bus*, etc., and it no longer functions as the durative operator.

     In (23) *zhe* and *le* can both occur but with different semantic interpretations, as shown in the English translations. *Zhe* expresses simultaneous actions whereas *le* brings with it consecutive actions. While *le* is able to occur with both verbs in (23c), *zhe* is not permitted to do so. This is because when two actions are going on simultaneously, *zhe* operates on one of the actions to provide an accompanying action or a background to the other one. In Chinese, two simultaneous actions may be presented using a pair of

correlative markers such as *yi51bian55 Verb…yi51bian Verb….* But the pattern no longer constitutes a serial verb construction.

One may see that the predictions from RRG may work theoretically -- given enough semantic allowance, nuclear operators may occur freely in type I serial verb construction. In (21d), (22) and (23), *le* occurs in all the positions it should be able to function theoretically.

Now let's look at Type II serial verb construction, the pivotal pattern. This pattern differs from Type I in that the two verbs do not share the same grammatical subject.

(24) a. Feng55 chui55 *zhe* xue214hua55 man214tian55 fei55.
      Wind blow Adv/Dur snow flake full-sky fly
      The wind is blowing the snowflakes (making them) fly in the air.
  b. …Te51bie35 shi51 rang51   gu51xiang55 de feng55   chui55 *zhe *de*
      Especially be let/allow   hometown-Poss wind   blow-Dur
      (It's such a nice feeling) to let the hometown wind to blow (at me)
  c. ?Feng55 chui55 *zhe* xue214hua55 man214 tian55 fei55 *zhe / *de*.
      The wind is blowing the snowflakes (making them) flying in the air.

(25) a. Cheng35ji51 hao214 shi214*de* ta55 bei51 ji214suo214 da51xue35lu51qu214le.
      Grade   good cause/make-de 3sg by several-Cl big-school   admit CRS
      Good grades is the cause for him to be admitted by several universities.
  b. Xi55wang51 shi214 *de* ta55 kua51huo35 **de*.
      Hope makes him happy / *so happy that.
  c. *Xi55wang51 shi51 *zhe / de* ta55 kuai51huo35 *de*.
      *'Hope is making him so happy that (*zhe-de*).
      *'Hope (is so good that it) makes him so happy that (*de-de*).

The semantic reasons allowing *de* or *zhe* to occur after the first verb in pivotal construction is obvious from examples (24) and (25). When the second verb describes the state of event caused by the first verb, *de* is acceptable after the first verb ((24a) and (25a,b)), or after the second verb (24b). The particle *de* cannot function with the second verb at all (24b, c; 25b, c). In (25b-c), the occurrence of *de* at the end of the sentence results in ungrammaticality. This is due to semantic considerations also because it is an obvious case that *de* requires some further action to operate on the verb it follows, and therefore, it may never appear at the end of a sentence.

Examples (26) and (27) demonstrate a contrastive case with the verb *jiao51: call/tell/* and *allow* and the verb *rang51: allow*.

(26)   Ta55   po35po   jiao51 ta55 hui35jia55 qu51.   (Ding et al., 1979: 119)
        3sg   mother-In-law tell   3sg   return home go
        Her mother-In-law told her to go back (return) home.
  a. Ta55 po35po   jiao51 *le*   ta55   hui35jia55 qu51.
      Her mother-In-law has told (called) her to go home now.

   b. * Ta55 po35po   jiao51 ta55   hui35 *le* jia55 qu51.
      *Her mother-in-law   tells   her to have gone home.
   c. * Ta55 po35po   jiao51 *le*   ta55   hui35 jia55 qu51.
      *Her mother-in-law *allowed* her to have gone home (c.f., 26a).
   d. Ta55 po35po jiao51 *zhe*   ta55   hui35jia55 qu51 le.
      Her mother-In-law went home while calling her.
(27)   Ta55 po35po   rang51   ta55   hui35 jia55 le.
      3sg mother-In-law   allow   3sg   return home CRS
      Now her mother-In-law allows her to go home (didn't allow her to do so before).
   a. *Ta55 po35po   rang51 *le*   ta55   hui35 jia55 le.
      Her mother-in-law has allowed her to go home now.'
   b. *Ta55 po35po   rang51 *le*   ta55   hui35 le jia55.
      *Her mother-in-law allowed her to have gone home.'
   c. ?Ta55 po35po rang51 / jiao51   ta55   hui35 *le* jia55.
      Her mother-in-law allowed/let her to go home (to have returned home).

     In (26a), when *jiao51* carries the meaning *tell/call*, *le* is permitted to occur after this verb, yet when *jiao51* functions as *allow* (26c) and *rang51* in (27), it cannot take *le* because the lexical items have turned into a 'secondary verb (Ding et al, 1979)', implying permission for someone to do something. These verbs have now further developed into maybe derivational morphemes to pair with full verbs with the meaning of 'with permission to+Verb'. With *le/zhe*, *rang51* turns into a full verb means to *yield* or *give in*.

     In summary, as RRG predicts, nuclear operators can occur independently with each unit in the core juncture (e.g., (24a,b)) in type II serial verb construction, given the right semantic constraints. But some of the first verbs in this pattern have developed into 'secondary verbs' that have lost their full verbal status, similar to coverbs.

     Type III serial verb construction involve coverbs, the 'secondary verbs' that behave differently from full verbs (e.g., Ding et al., 1979; Van Valin, 1993; Wang, 1985; Aikhenvald, 2006). Coverbs have developed from full verbs historically (e.g., Chao, 1968). They often provide adverbial-like information to the main verbs, such as location, direction, means of conveyance, etc, forming a close semantic relationship with the core, the predicate verb. In this regard coverbs offer something other than verbs, similar to those of prepositions in English. The operators, as RRG suggests, provide both semantic and syntactic means to test the functions of coverbs, with nuclear operators *de: adverb of state*, *zhe: durative*, and verb-final *le/*mei35 *(negative)*: *perfective particles*.

(28) a. Zai51 nar51 *mei35* de35dao   da35an51.
      From   there   Neg   obtain-arrive   answer
      (They) didn't obtain any answer from there.
   b.*Cong35 nar51 *zhe / de / le* de35dao   da35an51.
      *(They) obtained the answer from-ing there.
   c. Cong35 nar51 de35dao   *le*   da35an51.
      From   there   obtain-arrive PF   answer
      (They) obtained the answer from there.

(29) a. Ta55 dui51 wo214   *mei35* shuo55 shi35hua51.
      3sg   to   1sg   Neg.   speak   true word
      He did not tell me the truth (but may have done so to others).
      Compare: Ta55 dui51 wo214 *hui51* shuo55 shi35hua51 de.
      He will tell me the truth (=He, to me, will tell the truth).
   b. Ta55 dui51*zhe* wo214 shuo55 *le* shi35hua51.
      Facing me, he told the truth.
   c. Ta55 dui51 wo214 shuo55 *le* shi35hua51.
      He told the truth to me.
   d. Zui214li214   dui51*zhe*   zi51ji214   chang51*zhe*   qing35ge55.
      Mouth-in   to-Dur   self   sing-Dur   love song
      In (his/her) mouth (s/he) is singing a love song to him/herself.

(30) a. Ta55 gen55 wo214   hui35 *le*   jia55.
      3sg   with   1sg   return-Perf   home
      He and I went home. (or: he went home with me)
   b. ?Ta55 gen55 wo214   *mei35* hui35 jia55.
      3sg   with 1sg   Neg.   return home
      ?He with me did not go home. He and I did not go home.
   c. Ta55 gen55 wo214   *mei35* que51ding51 guan55xi.
      3sg   with   1sg   Neg   confirm   relationship
      He and I did not (have not) confirm(ed) our relationship (official engagement).
   d. Ta55 gen55 *zhe* wo214   hui35 *le* jia55.
      Following me he went home (=he followed me and went home)
   e. Gen55zhe   gan214jue35   zou214
      Follow-Dur   feeling   walk
      Follow (your) heart.

(31) a. Ta55 gei214 Zhang55 Xiao51qin35   dang55 *le*   mi51shu.
      3sg to   Z   X   work-as-Perf secretary
      He served as a secretary to Zhang Xiaoqin.
   b. ?Ta55 … *gei214* Zhang55 Xiao51qin35 *mei35* dang55 mi51shu.
      ?He to Zhang Xiaoqin did not work as a secretary.
   c.* Ta55 gei214 *le / de / zhe* Zhang55 Xiao51qin35 dang55 mi51shu.
      *He serves as a secretary to-ed (le) / to so much (de) / to-ing (zhe) Zhang.

     All the (a) and (c) sentences in (28)-(30), plus (29b) and (31a) are acceptable to a various degree with *mei35* and *le*, the negative and positive perfective aspect particles, allowing the core operator to function on the second verb. But the operators cannot function on the coverbs in examples (28b), (30b) and (31b). To the contrary, (29b), (29d) and (30d-e) allow the durative particle *zhe* to operate on the coverb. In (30d) the verb *gen55: follow* has been turned into a full verb that can take a durative aspect. But (30e)

exhibits an idiomatic expression in which *gen55zhe* is a preposition. The same contrast can be seen in (29b, *dui51zhe: facing*) and (29d, *dui51zhe: to*).

Coverbs have not developed into a unified class of lexical items: some may have not been completely grammaticalized (e.g., Chao, 1968; Ding et al., 1979; Givon, 2009; Van Valin, 1993)) with individual differences along the developmental stages. Examples (28) through (31) present some variability among coverbs, but they all share a common syntactic feature in allowing the perfective particle to operate on the second verbs.

Some coverbs still have retained some vestigial verbal properties, e.g., taking *zhe* or *le*. But since these coverbs are not full verbs any more (e.g., Ding et al., 1981; Wang, 1985), *zhe* and *le*, when used with those coverbs, have also lost part of their syntactic functions as durative or perfective markers (Li and Thompson, 1981). *Le* is used with *chu35: minus* and *wei51: for* to form fixed expressions or compound words *chu35le: apart from, except, besides* and *wei51le: for the sake of* (Chao, 1968). *Zhe* is more productive. 'The list of coverbs which can take *zhe* must be learned (Li and Thompson, 1974, 1981).' (see Chao 1968:763; Li and Thompson 1974:261, for detailed discussions of the use of *zhe* with coverbs).

On the other hand, in some cases *zhe* still keeps its durative feature to cause the coverbs to 'compromise' e.g., the pairs *an51* and *an51zhe: according to*, *ai55* and *ai55zhe: against*, and *yan35* and *yan35zhe: along* mean the same; whereas *dui51: to* and *dui51zhe: to, towards* or *facing*, express somehow different prepositional functions with the former meaning merely *to* or *toward*, and the latter meaning *to face toward* or *facing*. In some other cases, *zhe* is able to form verbs, as in example (30d), in which the coverb *gen: with* plus *zhe* becomes a full verb meaning *to follow*. Even the word *ba214*, which has been considered a fully grammaticalized particle to mark some highly affected direct object, may go with *zhe* to form a verb, e.g., *ba214zhe: hold onto / occupy with persistence*. The narrowed verbal meaning of *ba214*[4] is still presented in it.

The unacceptable sentences (28b) and (31c) suggest that some coverbs have developed into prepositions and so should not be regarded as nuclei. To place nuclear operators (e.g., *zhe, le, de*) with these coverbs causes ungrammaticality. The predicate in these clauses, therefore, is a simplex one.

This phenomenon can also be found with Type II pattern, in which the undergoer of the passive/permissive verbs may be dropped, turning the first verb into derivational morphemes. For instance, *bu51xu214dong51: don't move!*; *bei51hai51/shou51hai51: to be victimized*. Examine the following usage:

(32) B: Ta55 mei35'ou5 rang51 ni21 tui51   (Beijing04:5)
         3sg Neg   allow 2sg   retire
      A: Bu35rang51 ne31:'e   Na21r neng35 *rang51 tui51* ya.
         Neg allow that   how   can   allow   retire Int
      B: They have not allowed/permit you (me) to retire yet.

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[4] In northern China *ba214* is a full verb means to hold a baby for 'toilet training', e.g., *ba214 niao51: hold(the baby) to pee*; or *ba214 hai35zi: hold the baby to let him/her pee*. Its basic meaning is still *to hold (with both hands)*.

A: Don't allow … How can they allow (you) to retire.

(33)   *Bai214* nei51   *gei214 nong55nong51*.   (Beijing98:32)
        BA   that   for   fix
        Get that fixed (for our benefit).

In both examples, the verbs *rang51* (Type II) and *gei214* (Type III) have turned into grammatical particles adding permission and benefaction to the second verb; thus changing the complex predicate into a simplex one (See Tao, 1986, for detailed discussions of these derivational morphemes and the different types of coverb patterns).

Nonetheless, the derivational morphemes have still retained their original functions as full verbs (*rang51, jiao51, shou51*), or coverbs (*gei214*). But they function more rigidly as full verbs than the rest of the lexical elements in their class. For instance, the causative morphemes *rang51* and *jiao51* do not allow nuclear operators to operate on them, whereas other full verbs all take modifications by those operators.

The question now remains whether Types II and III, the pivotal and the coverb patterns, should be included in the Chinese serial verb construction. The next section presents a unified account.

3.5. A unified account

With the analysis of clause linkage and semantic operators from the theoretical framework of RRG, the present study has demonstrated similarities and differences among the three types of syntactic patterns. The series of verbs in all three types share the peripheral layer operators at the outer layer. They also share one core layer operator at the core layer. When it comes to the nuclear operators, they may occur freely, given the right semantic constraint in types I and II serial verb construction (e.g., (21d), (22), (23) and (24c)). Type III differs from Types I and II concerning the nuclear operator, which may function with the second/governing verb in most cases. However, the nuclear operators can still operate on some of the secondary or coverbs, taking them as nuclei. Furthermore, with some of the verbs turning into auxiliaries, in both Type II and Type III, some complex clauses have turned into simplex predicates.

Having said that, this study hasten to add that lexicalization/grammaticalization of the verbs is a common feature that all three types share, at various degrees. In Type I, the directional complement *lai35: come* and *qu51:go* have been turned into 'secondary verbs' (e.g., Li & Thompson, 1981; Ding et al., 1979) or verbal complements. In Type II, the verbs *rang51/jiao51: allow* have been turned into causative markers. In Type III, the coverb *gei214* is often attached to the main predicate verb with *ba214* as the direct object marker, to add some benefactive or malefactive concept to the expression. Some of the lexical items from Types II and III have further developed into derivational morphemes, changing the complex predicate into a simplex one.

The differences of the three types of serial verb construction, therefore, illustrates a common feature of language and grammar. At any given stage, grammatical patterns do not remain constant, but always bear exceptional cases: some retain historical features whereas some develop into new grammatical patterns. Of the three types examined here,

Type I may be the most canonical type, Type II and III contain both historical features (of full verbs) and grammatical changes that turn complex predicates into simplex ones; thus moving out of the realm of serial verb construction.

Therefore, rather than excluding Types II and III as some previous studies propose, this study argues that the similarities of the three types outweigh the differences. All three should be included in the Chinese serial verb construction. The Chinese serial verb construction thus includes not just one, two or three distinctive sub-types. Instead, this construction contains three sub-types each with a gradually fuzzy boundaries under the general term of serial verb construction, with Type I showing the most prototypical or homogeneous characteristics of a serial verb construction, and Type III with the least homogeneous as a grammatical type:

(34) Chinese Serial Verb Construction: Type I > Type II > Type III

In this diagram, the left-most side indicates the most canonical and homogeneous form of the serial verb construction, and the right end has the least canonical / homogeneous pattern as the subtypes of this construction.

4. Conclusion

Following a study of clause linkage and operator constraints on the Chinese serial verb construction, this study has reached a conclusion that all three types should be included into the Chinese serial verb construction. Type III, the coverb pattern, contains the most fuzzy cases. The word "coverb" is a neutral term for a group of lexical items that actually fall into eight basic categories (e.g., Tao, 1986).

Lexical evolution in Chinese has led to the syntactic reanalysis of some main verbs as coverbs and verb complements, and has changed some complex predicates in types II and III (Pivot and coverb constructions) into simplex ones. This change actually demonstrates a distinctive feature of the development of serial verb construction cross-linguistically (see Foley & Olson 1985, Givon 1975, 2003; Lord 1973). The predictions from the theoretical framework of RRG, therefore, offer a general explanation of human language on the analysis of the interface of semantics and syntax, leading to the understanding of synchronic syntactic grammar with a diachronic perspective.

Finally, it is hoped that by allowing fuzziness in the definition of the sub-types of the serial verb construction, students who learn Chinese would be less puzzled when they encounter this construction with exceptional cases across the three sub-types.

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Grammatical Roles of the Head Noun in Chinese Relative Clauses

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Combination of grammatical roles in relative clauses (RC) is determined by a multitude of factors (Fox and Thompson 1990, Pu 2007, Ming and Chen 2009). This study shows that four factors (discourse functions of RCs, grounding mechanism, information status, and animacy of head nouns) interact with one another to determine which combination is favored in a Chinese discourse.

1. Introduction

The past two decades or so have witnessed an increasing number of analyses on relative clauses (RC) demonstrating that distribution and structural properties of RCs can be attributed to a multitude of factors such as information flow in discourse, information status of head nouns, humanness of head nouns, discourse functions of RCs etc (Givon 1993; Fox 1984; Fox and Thompson 1990; Chen; 1995; Chu 1998; Tao 2002; Pu 2007, Ming and Chen 2009). Functional-pragmatic analyses on linguistic structures in general and on RCs in particular demonstrate that linguistic structures arise from the discourse need and there is an isomorphic relation between syntax and pragmatics. The object of this study is to show that the distribution of Chinese RCs and the combination patterns of grammatical roles of their head nouns can be approached from a semantic-pragmatic perspective by examining the interaction between the semantic properties of the head noun and discourse functions of their modifying RCs. It also seeks to explain what motivates language users to use a particular type of relative causes (RC) to modify a particular type of head nouns (NP).

Chinese RCs, unlike their English counterparts, always precede their head NPs. The following are several examples where the head noun is italicized and the relativized noun inside the RC is spelled out as a zero (i.e.∅). For our purpose, three grammatical roles are distinguished: subject (S), object (O), and others (X). We first discuss the grammatical of the relativized head NP inside the RC. Subject RC is used to name RCs where the relativized head noun is the subject of the RC, object RCs to name RCs in which the relativized head NP functions as the object of the RC and X RCs refer to a RC whose head NP does not serve as the core argument of the RC, i.e. neither subject role nor object role. Object RC, subject RC, and X RC are exemplified in (1a), (1b), and (1c) respectively.

(1) a. Object RC: zero relativized NP as the object of the RC
   上面 抄录着我们都十分喜欢的一首小诗
  b. Subject RC: zero relativized NP as the subject of the RC
   这位 急于 离京 出走 的 男子 终于 低下 了 头.
  c. X RC: zero relativized NP as a non-core argument
   植树造林发展林业的确是关系国民经济和社会发展全局的一件大事。

The grammatical role of the head NP in the main clause is also coded. The relativized head NP which functions as the subject of the main clause is called subject head. In the same vein, a head NP which takes object role in the main clause is called object head. X head is utilized to name a head noun which is not a core argument in the main clause. Subject head, object head, and X head are illustrated in (2a), (2b), and (2c) respectively.

(2) a. subject head: head NP as the subject of the main clause
   焦裕禄用生命绘制的那张蓝图今天已经成为兰考 大地 的 现实 。
  b. object head: head NP as the object of the main clause
   我 不会 忘记 那些 令 他 老人家 饮恨 千古 的 人。
  c. X Head: head NP as a non-core argument of the main clause
   在 国内念大学 时对那些当过兵再来念书的男生总是佩服得要命

  Besides discussing the grammatical roles of the relativized head noun in the main clause and RC, we will also discuss their combination patterns. The combinatory patterns of the grammatical role in the main clause and that in the RC is represented as AB. For example, SS refers to a combination in which the relativized head noun is the subject in the main clause and the object in the RC. Three examples are presented in the following to illustrate some combinatory patterns of grammatical roles.

(3) SS: subject head modified by a subject RC
   这位 急于 离京 出走 的 男子 终于 低下 了 头.
  SO: subject head modified by an object RC
   焦裕禄 用生命绘制的那张蓝图今天已经成为兰考大地 的 现实 。
  XS: X head modified by a subject RC
   在国内念大学时,对那些当过兵再来念书的男生总是佩服得要命.

  Following previous studies (Fox 1984; Fox and Thompson 1990; Pu 2007), we only focus on core arguments in this study, that is, subject, object and their four combinatory patterns: SS, OS, SO, and OO.

2. Prior studies

Study of the impact of grammatical roles on relativization can be traced back to Keenan and Comrie (1977). According to the Noun Phrase Accessibility Hierarchy proposed by them, all languages conform to the following scale:

(4) Subject > Direct Object > Indirect Object > Obliques > Genitives > OComps

On this scale, if a language can relativize on a grammatical role lower on the scale, it can also relativize on the grammatical role/roles higher on the scale. For example, if a language allows for the relativization on an indirect object, it also permits the relativization on the direct object and subject higher in this scale. The focus of Keenan and Comrie (1977) is mainly on the structural properties of RCs and semantic properties associated with the head noun are not integrated in their study.

Fox (1984) argues against the Noun Phrase Accessibility Hierarchy and comes up with Absolute Hypothesis which states that if a language permits relativization, it at least must allow for relativization on P and S. The Absolute Hypothesis is based on her findings that subject RCs and object RCs tend predominantly to outnumber A (Agent) RCs where the relativized NP is the agent of the RC. The rarity of A RCs, according to her, can be attributed to the fact that A which in general is realized as a pronoun in conversational data is a better anchor than P which tends not to carry given information. In other words, grammatical roles alone can not account for the distribution of RCs in the discourse. Semantic properties associated with a grammatical role should be called into service to provide a better explanation of the distribution of RCs.

Givon (1993) discusses the role of semantic properties of the head noun. According to him, all referents must be grounded to make it relevant to the current discourse and RCs serve to ground the head NP. The information status of the head noun plays significant role in explaining the discourse function of the RC. If the head noun is definite and codes given information, the RC grounds the head NP anaphorically into preexisting mental structure. By contrast, if the head noun is indefinite and carries new information, the RC serves to cataphorically ground it to the subsequent discourse.

Fox and Thompson (1990) found that there is a remarkable skewed distribution of syntactic types of RCs in their conversation data. Their data shows that for nonhuman head noun the combination pattern SO is the dominant one and the combination pattern OO is seldom observed. For human head nouns, their discussion is limited to existential sentences where the head noun of the RC is mainly human and indefinite. The finding on human head noun is that subject RCs overwhelmingly exceed object RCs. According to Fox and Thompson, human head NP and nonhuman head NP are grounded differently. The former are mainly grounded by "being grounded by their own activities" whereas the latter by a given referent in the modifying RC. Their study convincingly shows that the distribution of syntactic types of RCs can be explained by exploring the discourse where they occur and that information flow in discourse plays a crucial role in determining the

syntactic types of RCs. Their discussion, however, does not cover the interaction between the information status of the head NP and the discourse function of the RC. In other words, they do not discuss the differences between given head NP and new head NP in terms of grounding and distributional patterns of RCs. What is more, human head NP in other position other than existential construction is not discussed.

Studies on RCs in Chinese have also attracted lots of attention from Chinese functional linguists (Chu 1998; Chen 1995; Chen 1997; Tao 2002; Pu 2007; Ming and Chen 2009). Among them, of particular interest to our study are Chen (1997) and Pu (2007) because both studies focus on the distributional patterns of Chinese RCs. Three patterns emerge from Chen's study. For nonhuman head nouns, SO is a favored choice in discourse. The second finding is that OO structure is also a preferred pattern for nonhuman head nouns. The third finding is that for human head nouns, subject RCs exceed object RCs regardless of the grammatical role of the head noun in the main clause.

Pu (2007) Studies various combination patterns of grammatical roles in Chinese RCs. She found that of the four possible combinations between S and O, SS is the most dominant one and SO is least frequent. OO combination is seldom observed in human subject heads and OS combination is rare in discourse. Three factors are reported to influence the choice of RCs. The first factor is a cognitive one, which states that object RCs are more marked than subject RCs. The second factor which influences the distributional patterns of RCs is a discourse-pragmatic one, i.e. the information status of head NP and the discourse function of RCs, and the third factor is the semantic properties of the head NP such as humanness, agentivity, saliency, and so on. Of the three factors, according to her, the first factor, i.e. markness, is the most important factor.

Previous studies on distributional patterns of RCs in Chinese have made great contribution to our understanding of the factors underlying the deployment of different syntactic types of RCs. The influence of information status of the head noun on the distributional patterns, however, has not been clearly spelled out and more researches are needed to provide a better understanding of the distributional patterns of Chinese RCs. This study hopes to make some contribution toward this end.

3. This study
3.1. Data
The data for this paper are extracted from a publicly available Chinese language corpus the Lancaster Corpus of Modern Chinese (McEnery et al. 2003). The Lancaster Corpus of Modern Chinese (LCMC), a one-million-word balanced corpus of written Mandarin Chinese, consists of five hundred 2,000-word samples of written Chinese texts selected from fifteen text categories published in Mainland China around 1991. LCMC provides web-based concordance search functionality, which greatly facilitates this research. The concordance results from LCMC always come with a complete sentence where the searched word occurs. The complete context where a RC occurs is examined

when it comes to determine the information status of the head noun and discourse functions of the RC.

3.2. Coding

Discourse oriented studies of RCs (e.g., Fox 1987; Fox and Thompson 1990; Givon 1993; Pu 2007) have identified various factors influencing the distribution of RCs. Of particular interest here are information status of the head noun, the animacy of head nouns containing a RC, grounding mechanisms, and discourse functions of RCs. In the following subsections, we will discuss the coding along the four dimensions:

- Information status of head nouns
- Animacy of head nouns
- Grounding mechanisms
- Discourse functions of RCs

3.2.1. Information status

The focus of this study is on the influence of the information status of the head noun on the distributional pattern of Chinese RCs. Therefore, it is not necessary to extract all RCs from the large corpus LCMC. Although Chinese does not have articles to index information status of a noun, it does provide linguistic clue as to where to find the head noun with different information status. As a result, we use a text analysis software Concordance (Watt, 1999) to extract all sentences where a demonstrative occurs and then eliminate all sentences where there lacks a RC. By doing so, we are able to extract head nouns which carry given information. In the same vein, with the help of Concordance, we extract all sentences where the numeral *yi* 'one' occurs and get rid of all sentences where there is no co-occurring RC. As a result, we succeed collecting RCs where the head noun encodes new information. Although it is a well established fact that the numeral *yi* 'one' is to index an indefinite noun which tends to be new and demonstratives such as *zhe* 'this' is to signal a definite noun which in most cases encodes given information, there is no absolute correlation between the information status of the head noun and their co-occurring linguistic units denoted by the numeral and the demonstrative. Sometimes it is possible to observe a mismatch between them.

3.2.2. Humanness

Following previous studies (Fox 1987; Fox and Thompson 1990; Pu 2007), humanness of the head noun containing a RC is also coded. Humanness of a referent has been shown to play a significant role in various studies. For example, Fox and Thompson (1990) observe that humanness of the head noun plays an important role in explaining the distribution of syntactic types of RCs in their conversation data in English. Pu (2007) also acknowledges the important role of humanness play in explaining the distributional patterns of Chinese RCs.

3.2.3. Grounding

We add grounding as one factor because grounding is closely related to animacy of head nouns and information status. Both Fox and Thompson (1990) and Pu (2007) include grounding as a crucial factor in accounting for the skewed distribution of different types of RCs. What is more, it is shown in Fox and Thompson (1990) that there is a positive correlation between grounding and discourse functions of RCs. To achieve effective communication, a speaker/writer presents new referents into the discourse in such a way as to make them relevant for the listener/reader at the point where they are introduced; and grounding is the primary way of making relevant NPs whose relevance is not clear from prior mention or situation (Fox and Thompson 1990). Following Fox and Thompson (1990), we focus on three kinds of grounding: anchoring, main clause grounding, and proposition linking. First, a new referent can be grounded through linking itself to a known referent in its modifying RC. The first way of grounding a new referent, according to Fox and Thompson (1990), is *anchoring,* is illustrated in example (5).

(5) 桌上留着朋友的一个留言，上面抄录着我们都十分喜欢的一首小诗。

In (5), the new referent 一首小诗 is grounded by the human subject 我们 "we" in the RC. The referent of the first person pronoun 我们 is a given one by virtue of the speaker's role as speech participant, and thus the RC containing the pronoun anchors the new referent 一首小诗, which is then made relevant to the current discourse through its connection to the given referent.

When the RC provides no grounding, the main clause can ground a new NP referent by relating it to a given discourse referent. In other words, a new referent can also be grounded by known information contained in a main clause. Fox and Thompson (1990) refer to this second way of grounding a new referent in the same main clause as the given referent as *main clause grounding*. This can be illustrated with example (6).

(6) １９８３年２月，张申府还以９０高龄写了一篇怀念罗素的文章。

The excerpt in (6) is preceded by a discussion of 张申府, which is a given referent in discourse. The new referent 文章 is grounded by the known subject 张申府 in the main clause and the modifying RC serves to characterize the head noun and provide additional information regarding the head noun.

The third way to ground a new referent is by means of *proposition-linking*, which, according to Fox and Thompson (1990), is to link an entity to given referents "by means of frames invoked in earlier discourse" or by way of a modifying RC which is linked to earlier proposition. Fox and Thompson (1990) provide the following as an example of proposition-linking (Fox and Thompson 1990, P. 109).

(7) B: Y'know I've been reading about people very old people lately,
　　A: Yea//:h?
　B: Like they had an article in the Rolling Stone with this guy who's supposed to be a hundred and thirty. The oldest American. He is a black who lives in Florida and they interviewed him,…
　B: and one thing they said in the article that was really intriguing was, in the United States at this point, there are over a hundred thousand people [who are over a hundred years old]

In this example, the entire head NP referent *a hundred thousand people* is grounded by the RC *who are over a hundred years old* by means of *proposition linking*: the new referent *a hundred thousand people* is made relevant to the current discourse by the established link between the RC and the earlier proposition *I've been reading about people very old people lately*.

3.2.4. Discourse functions of RCs

Having introduced different grounding mechanisms, we will proceed to discuss the discourse functions of RCs in the two constructions. Fox and Thompson (1990, p. 301) identify two major types of RCs according to their functional roles: characterization and identification. In the first type, the RC provides a characterizing assertion or description of a new head NP referent in a particular discourse situation to supply additional descriptive information regarding the head noun. In the second type the RC makes the referent of a head NP relevant at a point in a particular discourse situation when it is first introduced. They use the contrast in (8) to illustrate the two discourse functions.

(8) a. *This man* [who I have for linguistics] is really too much.
　　b. There's *a woman* in my class [who's a nurse].

While the RC in (8a) is used to ground the referent by virtue of providing a given referent *I* to anchor the new head referent *this man* and the RC in (8b) does not ground the referent; rather, it makes a characterizing assertion because the RC does not provide any *anchoring* given referent to identify the new referent *a woman*.

3.3. Statistics on Chinese RCS

Careful examination of the LCMC generates a total of 587 RCs. Of them, the subject RC overwhelmingly outnumbers the object RCs, by a ratio of 2 to 1. The following table presents different types of RCs

Table 1. Types of RCs

Types of RCs	Subject RC	Object RC	X RC
Percentage	360 (61%)	155 (26%)	72 (13%)

The preponderance of subject RCs over object RCs is compatible with previous studies on Chinese RCs. The ratio of subject RCs to object RCs in Chen (1997) and Pu (2007) approximates 3 to 1. In this study, the distribution of X RCs will not be discussed to get comparable data with previous studies. In the same vein, head NPs which do not take subject or object role is not considered either. After eliminating all those RCs whose head NPs occur in X position (i.e. neither subject nor object position), we get 434 RCs whose head nouns assume either a subject role or object role in the main clause as well as in the RCs.

We now present the distribution of RCs which co-occurs with a given head NP. Table 2 indicates that for a given head NP, regardless it is human (H) or not, subject RCs overwhelmingly exceeds object RCs. For a given human head NP, subject RCs are predominantly used to modify a subject head as evidenced by the high occurrence of SS (69.8% or 60 tokens). Object heads modified by a subject RC also makes up a sizable portion of the data (22.1% or 19 tokens). However, the combinations of OO and OS are rare in the data. For a given nonhuman (NH) head NP, a similar tendency is observed although the number of SS is decreased and that of OS is boosted. It is shown in table 2 that for a given nonhuman head NP, the most dominant combination pattern is OS which is slightly higher than SS.

Table 2. Given Information, Humanness, and Grammatical Roles of Chinese RCs

	SS	SO	OS	OO	TOTAL
H	60 (69.8%)	4 (5.8%)	19 (22.1%)	3 (3.4%)	86 (100)
NH	15 (30%)	7 (14%)	22 (44%)	6 (12%)	50 (100%)

Investigation of head NPs which carry new information shows different distributional patterns. For a new human head NP, subject RCs (45+54) overwhelmingly outnumber object RCs (3+2). The same tendency is not observed on new nonhuman head NPs. As shown in table 3, the number of subject RCs (15+81) is more or less the same with that of object RCs (25+73).

Table 3. New Information, Humanness, and Grammatical Roles of Chinese RCs

	SS	SO	OS	OO	TOTAL
H	45 (43.3%)	3 (2.9%)	54 (51.9%)	2 (1.9%)	104 (100%)
NH	15 (7.7%)	25 (12.9%)	81 (41.8%)	73 (37.6%)	194 (100%)

Table 3 shows that of the four possible combinations of grammatical roles, for new human head NPs, SS and OS predominantly exceeds SO and OO. However, for new nonhuman head, besides OS, OO also makes up a sizable proportion of the whole data and the combination pattern SS only accounts for a small portion of the data.

The data in table 2 and table 3 suggests that the combination of grammatical roles depends on the information status as well as humanness of the head noun. For human head NPs, subject RCs are favored regardless of the information status. By contrast, for nonhuman head NPs, information status plays a significant role in determining the use of

a particular type of RCs in discourse. If the information status is given, subject RCs are chosen over object RCs; if the information status is new, the preponderance of subject RCs over object RCs is not observed.

4. Discussion

The Findings presented in section 3 challenges some findings in previous studies (Fox and Thompson 1990, Pu 2007). The main focus of this section is show how information status interacts with humanness and discourse functions to determine the possible combination of grammatical roles.

4.1. Distribution of RCs modifying new nonhuman heads

According to Fox and Thompson (1990, P. 304), the nonhuman object heads do not tend to occur with object RCs. In other words, the combination OO is not expected for nonhuman head NPs.

Table 4. New Information, Humanness, and Grammatical Roles of Chinese RCs

	SS	SO	OS	OO	TOTAL
NH	15 (7.7%)	25 (12.9%)	81 (41.8%)	73 (37.6%)	194 (100%)

For nonhuman head nouns which encode given information, our data supports their observation as shown in Table 4. For nonhuman head NPs which carry new information, however, OO is one of the favored patterns (37.6% of the data). Our data also challenges the finding in Pu (2007) with regard to the OO combination. On her account, OO pattern is mainly observed on nonhuman head NPs and the information status of the head NP in OO is mainly given (see table 6 in Pu). To resolve the conflicting findings, we need to examine how a new nonhuman head NP is grounded in discourse. Functional linguists such as Fox and Thompson (1990) and Givon (1993) propose that all referents should be grounded to warrant its relevance to the current discourse. Givon (1993) further argues that a new referent differs from a given referent in terms of the way how it is grounded. For a new referent, it is grounded by the current text location because it can not be grounded by a previous mention or situation.

A careful study of the distribution of RCs containing a new nonhuman head shows that they predominantly occur in the object position of the main clause (see Table 3). The tendency for a new nonhuman head to occur in object position instead of in subject position is not surprising. The tendency for new nonhuman heads to be grammatical object has been well-established in several studies (DuBois 1987; Givon 1993; Fox 1984; Fox and Thompson 1990; Pu 2007). Non-humanness, newness, nontopicality are reported to be prototypical features associated with object position which predicts that a new nonhuman head containing a RC mainly occurs in object position. Unlike new nonhuman heads in English, which are mainly grounded by a given referent in the main clause, new nonhuman heads are grounded almost equally by RCs as well as by the main clauses. The observed difference of grounding for new nonhuman

heads can be attributed to the different positioning of RCs in English and Chinese. RCs in English differ from their Chinese counterparts in that modifying clauses precede head nouns whereas the opposite is true for their Chinese RCs.

The different positioning of RCs in the two languages has repercussions on the way how a new head is grounded. RCs in English do not tend to provide grounding for the object in on-line discourse processing because they are positioned after their modifying head nouns. As a result, new nonhuman head nouns are mainly grounded by a given referent in the main clause (Fox and Thompson 1990). What is more, the major way for a nonhuman head to be grounded is by virtue of human beings who own them, use them, and manipulate them (Du Bois 1980; Fox and Thompson 1990). Therefore in English the positioning of RCs and nonhumanness of the head noun conspire to prevent the occurrence of OO combination. Chinese RCs, by contrast, can serve to ground a new human head noun because they precede their modifying RCs. In on-line discourse processing, if the main clause does not provide a grounding referent, a RC can still fulfill the role of grounding by providing a grounding given referent. The sentence in (9) is to illustrate how a Chinese RC serves to ground a new nonhuman referent.

(9) 这 是 当时 张 作相 无法 解决 的 一 大 难题 。

The subject of the main clause 这 in (9) is a demonstrative which can not serve as a grounding referent. As a result, the RC serves the function of grounding by providing a given human referent. Investigation of the discourse shows that the OO combination is desired one for new nonhuman head noun because object RCs modifying object heads provide the necessary grounding for them to warrant their relevance to the current discourse. Chen (1997) also made the similar observation that OO combination mainly associates with nonhuman head nouns which carry new information. Her explanation, however, stand in striking contrast with the explanation provided in this paper. On her account, the new nonhuman head nouns in OO structure are mainly grounded by the subject of the main clause, i.e. main clause grounding, and the RC in OO structures mainly serves the discourse function of characterization.

Examination of the data extracted from the large corpus LCMC shows that the new nonhuman head noun is mainly grounded by the given referent in its modifying RC, therefore the main discourse function of the RC is to ground instead of characterizing the new nonhuman head noun. In other words, our finding regarding the deployment of OO structure is compatible with Chen (1997) although the explanation is different. The frequent occurrence of OO structure in the discourse is also reported in Pu (2007) and she explains the prevalence of OO structure in terms of humanness of the head noun. The argument is that the head noun in OO structure is mainly nonhuman and that nonhuman heads are mainly grounded by human beings who own them, use them, and manipulate them. As a result, the passive role played by the nonhuman being in relation to central human being is naturally realized by an object RC. Apparently, information status of the

head noun is not a factor to account for the occurrence of OO structure in her account. Investigation of our data suggests that information status is crucial for the prevalence of the OO structure for the nonhuman head noun and that for given nonhuman head nouns, the OO structure is not a favored choice in the discourse.

Having explained why the OO combination is a preferred one for new nonhuman head nouns, we now turn to answer why the combination OS (41.8% of the data or 81 tokens) is also a favored combination for them. Object heads occur in the later part of a sentence, besides being grounded by their modifying RCs, they may also be grounded by the given referent in the main clause, as in (10).

(10)　１９８３年２月，张申府还以９０高龄写了一篇怀念罗素的文章。

The example in (10) is preceded by discussion of *张申府* (proper name), which is a given referent in discourse. The new nonhuman head referent *文章* is grounded by the known subject *张申府* in the main clause. As a result, there is no discourse need to have the RC *怀念罗素* to ground the new nonhuman object head *文章* because the grounding has been taken care of by the given human referent *张申府* in the main clause and the RC turns out to serve the discourse function of characterization by providing additional, descriptive information regarding the new nonhuman head noun. According to Fox and Thompson (1990), characterization is mainly realized by a subject RC, therefore the combination OS is also a preferred choice in the deployment of Chinese RCs.

Compared with the occurrence of OS and OO which are preferred structures in discourse, for new nonhuman head nouns, the occurrence of SO is rare (12.9% of the data or 25 tokens) and that of SS is even rarer (7.7% of the data or 15 tokens). We first answer why the combination SO is not a desired one for new nonhuman head nouns. In terms of grounding, SO is a favored combination (Fox and Thompson 1990), as illustrated in (11).

(11)　昆明 地区 彝族 桑尼帕 支系 １９８５年 搞 的 一 次 宗教 活动 很 能 说
　　　明 问题。

The new nonhuman head *一次宗教活动* occurs in the subject position of the main clause. By the time it is introduced into the discourse, it is not grounded by the main clause because of its clause-initial position. As a result, the RC *昆明 地区 彝族 桑尼帕 支系 １９８５年 搞* serves to ground it by providing a given human beings *彝族 桑尼帕 支系* to warrant its discourse relevance. The question arises as to why SO is seldom observed in the data although it is a preferred combination in terms of grounding. We believe that the answer to this question lies in the information status and humanness of the head noun. It is well established on previous studies that humanness, giveness, saliency, and topicality are typical features associated with the subject position (DuBois 1987; Givon 1993; Fox 1987; Fox and Thompson 1990; Pu 1997; Pu 2007). It is not surprising that

nonhumaness and newness of the head noun discourages the occurrence of SO. The scarcity of SO for new nonhuman head nouns is consistent with previous studies (Chen 1997; Pu 2007). Chen observed that the SO structure is prevalent in the discourse and they mainly associate with nonhuman head nouns which carry given information. Pu (2007) also made the similar observation in her study.

Lastly we answer the question why the combination of SS is disfavored in the discourse. We believe that for new nonhuman head nouns, the rarity of SS can be attributed to two factors: 1) the mismatch between subject position and the newness and nonhumaness of the head noun; 2) the discourse functions of subject relatives. It is reported in previous studies that new, nonhuman head nouns are discouraged to occur in the subject position because it is mainly reserved for human, given, salient referents. Therefore new nonhuman head nouns are not expected to occur in the subject position of the main clause. On the other hand, According to Fox and Thompson (1990), the main discourse function of subject RCs is to characterize its head noun. A new nonhuman head noun occurring in subject position of the main clause needs to be grounded by its modifying RC to justify its discourse relevance to the current discourse. However, subject RC can not fulfill such discourse requirement.

4.2. Distribution of RCs modifying given nonhuman heads

The data with regard to RCs modifying given nonhuman head shown in Table 5 shows that for given nonhuman head nouns, the favored structures are OS (44% of the data or 22 tokens) and SS (30% of the data or 15 tokens) and the disfavored ones are SO (14% of the data or 7 tokens) and OO (12% of the data or 6 tokens).

Table 5. Given Information, Humanness, and Grammatical Roles of Chinese RCs

	SS	SO	OS	OO	TOTAL
NH	15 (30%)	7 (14%)	22 (44%)	6 (12%)	50 (100%)

The findings from our data challenges the finding in Chen (1997) where it is reported that for given nonhuman head nouns, OO and SO are the dominant patterns but supports Pu (2007) where it shows that SO is not a preferred choice. We believe that the different grounding mechanisms in relation to head nouns with different information status help to resolve the conflicting findings. According to Fox and Thompson (1990) and Givon (1993), all referents must be grounded to make it relevant to the current discourse. Givon (1993) further argues that a new referent differs from a given referent in terms of the way how it is grounded. For a new referent, it is grounded by the **current text location** because of the fact that it can not be grounded by a previous mention or situation. If a new referent is modified by a RC, the modifying RC tends to provide the grounding information because the RC occurs in the current text location of its modifying head owing to its proximity with it. By contrast, for a given referent, it is mainly grounded by **other text location** in previous discourse by virtue of its previous mention

or a frame established in prior discourse and the RC in general does not serve to ground the given head referent because it is already established in previous discourse. As a result, RCs modifying a given head referent are not deployed to provide grounding information but to characterize the given head noun by providing additional, descriptive information (Fox and Thompson 1990). For example,

(12)   这 场 涉及 到 家家户户 切身利益 的 重大 改革 ， 深深 牵动 着 每个 职工 和 家属 的 心。

The prior discourse in (12) centers around the discussion of the reform, therefore, by the time the head noun *重大改革* which occurs in the subject position of the RC is introduced in the discourse, it has been grounded by the previous discourse through the frame established. Consequently, there is no discourse need for the RC to ground it and the RC turns out to serve the discourse function of characterization.

Having shown that the SS combination is a preferred choice in discourse for given nonhuman head nouns, we now turn to the other favored combination OS. We believe that the explanation of the prevalence of SS can also apply to account for the favored choice of SO. The sentence in (13) shows an example where a given nonhuman object head *报道* is modified by a subject RC *赞扬 日本 老师*. The discourse prior to (13) is about a report where a Japanese teacher tries to boost his students' national pride by counting the number of Japanese cars passing a street intersection in a China. In other words, the head noun *报道* carries given information and its relevance to the current discourse has been well established in the previous discourse. Therefore there is no discourse motivation for the modifying clause to ground it. As a result, the RC is used to characterize the head noun and that is the reason why a subject RC is used.

(13)   我看 了 那 篇 赞扬 日本 老师 的 报道。

In short, subject RCs are chosen object RCs for a given nonhuman head noun owing to the information flow and the different discourse functions the two types of RCs play in the discourse. A related question arises as to why the number of SO approximates that of OS. We believe that the answer to this question is related to the interaction of the semantic properties the head noun and discourse requirements on the grammatical roles of a sentence. Subject position tend to associates with identifiable, given, specific human beings whereas object slot is reserved for new, nonspecific, unidentifiable nonhuman referent (DuBois 1987; Givon1993; Fox 1987; Fox and Thompson 1990; Pu 1997; Pu 2007). A given nonhuman head noun does not fit either of the two roles. Its givenness makes it a less than prototypical object while its humanness makes it a less than subject. Therefore it is expected that given nonhuman heads straddle across both grammatical roles.

Our attention now turns to the rarity of SO and OO in the discourse. Grounding function, according to Fox and Thompson (1990), tend to fulfilled by object RCs where a given human subject mainly serves to ground the head noun. As shown in previous discussion, a given nonhuman head need not to be grounded by the RC because it is already grounded by its previous mention or a frame established in prior discourse. For this reason, its modifying RC tends to serves the discourse function of characterization and characterization is mainly fulfilled by subject RCs (Fox and Thompson 1990). The combination of SO and OO, therefore, is not expected to be preferred choices in the discourse. For given nonhuman head nouns, the scarcity of SO is also corroborated in Pu (2007) where it is reported that OO structure mainly associates with new nonhuman head nouns and the combination of SO mainly used in conjunction with given nonhuman heads is seldom observed. Pu's explanation of the rarity of SO differs from the explanation offered by us. She argues that four factors conspire to the rare occurrence of SO. Firstly, object RCs are marked in the sense that it produces marked structures [S V ∅]; secondly the modifying RC is less informative because it provides repeated and redundant information; thirdly 'the definiteness, givenness, and topicality not only discourages a modifying RC but also disfavor the coding of a full NP' (Pu 2007, P. 49); lastly a subject slot is not a preferred position for the coding of nonhuman heads. According to Pu (2007), the first factor is the most important one. We, however, do not believe the object RCs are more marked than subject RCs. The reason is that the zero form resulting from relativization is different from the zero form in the main clause. The zero form in the main clause is to substitute frequently occurring referent conforming to "the light subject constraint" proposed by Chafe (1994) and that zero form is seldom observed in object position in Chinese discourse (Chu 1998; Pu 1997).

Zero forms resulting from relativization, however, are definitely different from zero forms in the RCs in terms of frequency of occurrence because relativization engenders zero forms regardless of the grammatical role of the relativized noun. For example, if the relativized noun is the object inside the RC, a zero form in object position is obligatory. In the same vein, a zero form in subject position is also mandatory if the subject position is relativized. In other words, it is hard to say that the zero form in the subject position is more frequent than that in the object position in RCs. Pu proposes that subject RCs are easier to process than object RCs in Chinese and that is the reason why there is a preponderance of subject RCs over object RCs. The research by Hsiao and Gibson (2003), however, showed that "contrary to the patterns found in all other languages, Chinese RCs showed a processing preference for object extractions" What is more, according to the Markedness principle, subject RCs are always more frequent than object RCs regardless of information status of the head noun. The data in Table 3, however, shows that for new nonhuman head nouns, subject RCs (81+15) do not exceed object RCs (73+25).

4.3. Distribution of RCs modifying given human head nouns

The data in Table 6 shows that for given human head nouns, the favored patterns are SS (69.8% of the data or 60 tokens) are (22.1% of the data or 19 tokens) and the two disfavored patterns are SO (5.8% of the data or 4 tokens) and OO (3.4% of the data or 3 tokens).

Table 6. Given Information, Humanness, and Grammatical Roles of Chinese RCs

	SS	SO	OS	OO	TOTAL
H	60 (69.8%)	4 (5.8%)	19 (22.1%)	3 (3.4%)	86 (100)

The other way to interpret it is that subject RCs predominantly outnumber object RCs. For given human head nouns, the preponderance of subject RCs over object RCs can be attributed to two factors. Firstly a given human head nouns does not need to be grounded by its modifying RC, which greatly reduces the occurrence of object RCs because object RCs are mainly used to ground their head nouns (Fox and Thompson 1990). Secondly, given human nouns tend to be deployed in subject positions of main clauses as well as subject RCs. Therefore, the pattern of SO and OO are disfavored for a given human head. Excerpt in (14) presents an example to illustrate how a given human head is grounded.

(14) 母亲 则 于 心灵 深处 对 幼子 怀 着 羞怯 而 不可 明 言 的 指望， 相
信 *这个 不 说话 而 贪 食 的* **孩子** 终究 会 大 有 前途 。

The head noun *孩子* in (14) functions as the subject of the subordinate clause. It codes old information because it is introduced into the previous discourse as *幼子*. What is more, its previous mention *幼子* is immediately adjacent to the head noun *孩子* of the RC. It is apparent that there is no discourse need to ground the given head referent at the moment it is reintroduced into the discourse (Givon 1993) because its identity and relation to the current discourse is well established in the prior discourse. As a result, the RC serves the discourse function of characterization to provide additional descriptive information. Therefore the association of a given human head with a subject RC is an expected tendency.

The next question is why the SS patterns are greater than the OS patterns although both of them are favored choice in discourse. The answer, we believe, lies in the semantic properties of the head noun. As a given human head noun, it is supposed to occur in subject position of the main clause because subject slot is mainly reserved for identifiable, given, human referent. Therefore the OS combinations are expected to lower than the SS patterns because the OS pattern results in a mismatch between the semantic properties of object head and the discourse requirements of the object slot which mainly associates with new, nonhuman referent.

4.4. Distribution of RCs modifying new human head nouns

Table 7 summarizes the distributional patterns of RCs and shows that the two most favored patterns are OS and SS. In contrast, SO and OO are strongly discouraged to occur in the discourse.

Table 7. New Information, Humanness, and Grammatical Roles of Chinese RCs

	SS	SO	OS	OO	TOTAL
H	45 (43.3%)	3 (2.9%)	54 (51.9%)	2 (1.9%)	104 (100%)

Contrary to Pu (2007) where SS is predicted to be the most dominant pattern for new human head nouns, SS is not found to be the most dominant one although it is a preferred it one. As shown in Table 7, OS structures are slightly greater than SS structures. The question arises as to why new human head nouns behave in a way similar to given human head nouns considering the fact that SS and OS are also the two favored combinations for given human head nuns. Can we apply the same explanation to account for the behavior of new human head nouns? The answer, we believe, lies in the way how a new human being is grounded. Givon (1993) argues that a new referent is grounded differently from a given referent. The former is cataphorically linked to the subsequent discourse via the modifying RC whereas the latter is grounded by its previous mention or a frame established in earlier discourse. Fox and Thompson propose that a human being is grounded from a nonhuman referent. Nonhuman referents are in general grounded by a given human referent either in the main clause (i.e. main clause grounding) or a given human referent in the RC (i.e. anchoring) who own, use, manipulate it. Human being referents, by contrast, do not need to be grounded by other human beings. Instead they, according to Fox and Thompson (1990), tend to be grounded by their own activities, which naturally produces subject RCs. That is the reason why for a new human head noun, subject RCs (45+54) predominantly outnumber object RCs (3+2), which naturally disfavors the occurrence of SO and OO structures. For example

(15)　一位 架子工 出身 的 局长 接受 记者 的 采访。
(16)　一位 头 戴 箬 帽、挂 着 竹竿 的 老汉，噙 着 热泪 紧握 副 省长 的
　　　手 说。
(17)　一个 穿 绿色 T恤 的 矮个子 插 到 前面 了

The human head nouns in these three examples are typical of the SS structures in our data. They are introduced into the discourse for the first time and thence can not be anaphorically grounded by their previous mention or a frame established in prior discourse. As a result, their modifying RCs function to provide grounding or distinguishing information to help the language receiver to single out the new referent and establish its relevance to the current discourse (Pu 2007). The human referents are grounded by their modifying RCs depicting its identity in (15), describing its appearance

in (16), and stating its dressing style in (17). All those grounding RCs describing a human being's activity or properties are naturally subject RCs. The other way to interpret it is that object RCs can not fulfill the function of describing a human being's behavior or properties. Once again, object RCs are not predicted to be normal pattern in the discourse, as concluded in previous researches (Fox and Thompson 1990; Chen 1997; Pu 2007).

We now revert to answer why SS structure parallel OS structures in terms of frequency of distribution. The following present two examples of OS structures.

(18)   采访 了 几 个 从 数十 里外 赶到 这里 参加 秋播 的 农机 专业户
(19)   笔者 问 一 位 被 挤 下 阵 来 的 中年 妇女 抢 什么

The human head referents in these two sentences carry new information because they are introduced into the discourse for the first time. Their modifying RCs ground them by describing their activities. The reason for the equal distribution of SS and OS structures, we believe, is related to the prototypical associations of a grammatical role. It is well established that subject role tend to associate with giveness and humanness and object role tend to associate with newness and nonhumanness. A new human referent, however, fit neither of them. As a human referent, it is expected to occur in subject position; as a new referent, it is supposed to occur in object position. The mismatch between the new human head noun and its associating grammatical role dictates that there is no single strategy to deploy it (Fox and Thompson 1990). That is the reason why a new human head referent is more or less equally across the subject position and the object position.

5. Conclusion

We hope that we have succeeded in our efforts to explain various distributional patterns of RCs. It has shown in this paper that information flow, semantic properties of the head noun such as information status and humanness, grounding, and discourse functions of RCs all play a role in explaining the distribution of RCs. The paper has made several important findings which challenge previous studies on the same topic: 1) OO is favored pattern for new nonhuman heads; 2) SS is mainly associated with given human head nouns; 3) Information status is of vital important in the explanation of combinatory patterns of grammatical roles. This study also shows that syntactic constructions are motivated in large part by functional considerations.

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Discourse-oriented Distributivity in Mandarin Chinese

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This paper discovers the phenomenon that in Mandarin Chinese when plurals are under focus of *zhiyou* 'only' or *lian* 'even', a distributive reading is derived by default. It is argued that this type of distributivity is not syntax marked, but is discourse-oriented, which shows linguistic effects of economic structuring sets of focus-introduced alternatives (Rooth, 1985, 1992). The proposal successfully predicts the following phenomena that are ignored in literature: i) the subject suffixed with the group marker *men* under focus can get a collective reading ii) the plural subject led by the contrastive focus marker *shi* can get a collective reading.

1. Introduction

Enormous amount of data in various typologically unrelated languages shows that the distributive mode of predication tends to be specifically marked in languages (Link, 1998). For example, 'each' in English and *je* in German are distributive markers; reduplication in Georgian (Gil, 1998) and Pashto specifies distributivity. In Mandarin Chinese, distributivity is marked by dou '*all*' or ge 'each'. See (1. a-b).

(1) a. Zhangsan he Lisi mai-le liwu.
    Zhangsan and Lisi buy-ASP gift
    Zhangsan and Lisi bought gifts.   --- collective (c) / *distributive (d)
    b. Zhangsan he Lisi dou/ge mai-le liwu.
    Zhangsan and Lisi all/each buy-ASP gift
    Zhangsan and Lisi both/each bought gifts. --- d/ *c

In (1a), when the distributive marker is absent, it gets a collective reading by default. This is different from its English counterpart (2), in which both collective and distributive readings are available.

(2) Zhangsan and Lisi bought gifts.
  a. Zhangsan and Lisi jointly bought gifts.   --- c
  b. Both Zhangsan and Lisi bought gifts.   --- d

In (1b), when *ge* 'each' or *dou* 'all' is inserted, only the distributive reading is available. The pattern in (1. a-b) is consistent with Link's generation that distributivity is marked in languages. However, in Mandarin another pattern seems not in accordance with Link's generation—when plurals are under focus, the distributive reading is derived by default (3. a-b).

(3) a. zhiyou Zhangsan he Lisi mai-le liwu.
   only Zhangsan and Lisi buy-ASP gift
   Only Zhangsan and Lisi bought gifts.   --- d
  b. lian Zhangsan he Lisi ye mai-le liwu.
   even Zhangsan and Lisi also buy-ASP gift
     Even Zhangsan and Lisi bought gifts.   --- d

In (3. a-b), Zhangsan and Lisi are under focus of 'only' and 'even', and the reading is distributive without the marker *dou* or *ge*. Where does the distributivity in (3. a-b) come from? Is it the same with the distributivity marked by *dou* or *ge*?

2. This study

      In this paper I propose this distributivity deriving system (3. a-b) is *discourse-oriented* and it shows linguistic effects of the cost of structuring sets of focus-introduced alternatives (Rooth, 1985, 1992).

      Given a fixed set of individuals, in order to get a focus interpretation, we have to form alternative sets. To get a collective reading, at least one alternative set should include more than one individual. Therefore, we have to give structure to the set(s) made of more than one individual. But there are more than one possibilities of forming the collective individuals given the initial set of individual individuals. However, this process of structuring groups (in all possible ways) is exempt to get a distributive reading because for distributive reading, all the alternative sets contains only one individual. In other words, we do not have to judge which elements can constitute groups. Comparing the two process of forming collective and distributive readings, we see that the collective reading involves structuring sets of focus-introduced alternatives (in all possible ways). This cost

makes the distributive reading much more competitive. The distributive reading in (3. a-b) shows the linguistic effects.

2.1. Different distributivity than *dou/ge*
2.1.1. focused subjects are compatible with collective predicates
        The distributivity derived in (3. a-b) is different from distributivity marked by *dou* and *ge* in two ways. First, they are compatible with collective predicates. See (4):

(4) a. zhiyou zhe sanshi-ge nanhai shi yi-ge   da qunti.
   only this thirty-CL   boy be one-CL   big group
   Only these thirty boys are a big group.   --- c
    b. lian zhexie wuhezhizhong   ye   shi   yi-ge   da qunti.
   even these disorderly crowds   also be one-CL   big group
   Even these disorderly crowds are a big group.   --- c

But as shown in (5), neither *dou* nor *ge* can occur with collective predicate.

(5) a. zhe sanshi-ge nanhai shi yi-ge   da qunti.
     this thirty-CL boy   be one-CL big group
     These thirty boys are a big group.   --- c
   b. *zhe sanshi-ge nanhai dou/ge   shi yi-ge da   qunti.
     this thirty-CL   boy all/each be one-CL big   group
     These thirty boys all/each are a big group.

2.1.2. collective reading is available under certain context for focused subjects
        Second, for (3. a-b), a collective reading is available in some context.

(6) a. zai wo renshi de fuqi zhong, zhiyou Zhangsan he Lisi mai-le liwu.
     at I know of couple among, only Zhangsan and Lisi buy-ASP gift
     Among the couples I know, only Zhangsan and Lisi bought gifts.   --- c
   b. wo renshi de fuqi dou mai-le liwu. Lian Zhangsan he Lisi dou song-le huaping.
     I know of couple all buy-ASP gift. Even Zhangsan and Lisi all give-ASP vase
     The couples I know all bought gifts. Even Zhangsan and Lisi sent a vast. --- c

In (6. a-b), Zhangsan and Lisi get a collective reading for the predicate 'bought gifts', which is impossible if they co-occur with *dou* and *ge*.
(7) *zai wo renshi de fuqi zhong, Zhangsan he Lisi dou/ge mai-le   liwu.

at I know of couple among, Zhangsan and Lisi all/each buy-ASP gift
 Among the couples I know, Zhangsan and Lisi both/each bought gifts.

The above contrasts indicate that the distributivity over focused subjects is different from distributivity marked by *dou* and *ge*. As distributive markers, *dou* and *ge* are incompatible with collective predicates due to the linguistic clash between two incompatible features, distributive vs. collecltive. On the other hand, the distributivity over focused subjects is not linguistically marked, and we propose it is introduced by discourse to save processing steps.

2.2. Discourse-oriented distributivity

In the alternative semantics of Rooth (1985, 1992), focus expresses a focus value $[\![\alpha]\!]^f$ in addition to its ordinary semantic value $[\![\alpha]\!]^0$. The former is a set of propositions from which the ordinary semantic value is drawn. So the focus semantic value for (9) is the set of propositions of the form 'x bought gifts'. Suppose the domain of individuals includes Zhangsan, Lisi, John, Mary, and Linda. For the distributive reading of (9), the alternative propositions are the following:

(8) $[\![$ [Zhangsan and Lisi] $_f$ bought gifts $]\!]^f =$
{Zhangsan and Lisi (each) bought gifts, John bought gifts, Mary bought gifts, Linda bought gifts}

Suppose in (3a) the collective reading was available, and we had the same knowledge of the domain, the alternative propositions would be the following:

(9) $[\![$ Zhangsan and Lisi] $_f$ bought gifts $]\!]^f =$
{Zhangsan and Lisi (jointly) bought gifts, John bought gifts, Mary bought gifts, Linda bought gifts}
/{Zhangsan and Lisi (jointly) bought gifts, John and Mary (jointly) bought gifts, Linda bought gifts}
/{Zhangsan and Lisi (jointly) bought gifts, John and Linda (jointly) bought gifts, Mary bought gifts}
/{Zhangsan and Lisi (jointly) bought gifts, Mary and Linda (jointly) bought gifts, John bought gifts}
/{Zhangsan and Lisi (jointly) bought gifts, John, Mary, and Linda (jointly) bought gifts}
 If collective reading could be derived from (3a), without any clue that in the

domain who and who could form a unit, there were five ways in structuring the groups of alternatives demonstrated in (9). Obviously it is much more difficult or even impossible to get (9) in processing (3a), compared to (8). Therefore, we propose that for economic reasons in semantic parsing, (3a) tends to be distributive unless the original alternatives are ready sets. For example, in (6a), the alternatives are 'the other couples I know' and for the collective reading, there is no question like who and who can form a unit. (10) serves as an example as well:

(10) zhiyou zhe-zu   tongxue wancheng-le renwu.
   only this-group student finish-ASP   task
   Only this group of students finished tasks.   --- c/d

(10) is ambiguous in that the group of students could jointly finished the task or they each finished their own tasks. Then why is the collective reading available? It is because for the collective reading, the unit of distributivity 'group' has been implied. The collective reading of (10) has the implication that except this GROUP, the other GROUPs did not finish the task. In this case, the alternatives introduced by the focus are groups instead of individuals, which is similar to (6a) in which 'couple' serves as the unit.

To sum up, we have seen that distributivity in the focus constructions differs from distributivity introduced by operators like 'each' and we propose it is discourse-oriented: when grouping is not implied, the distributive reading is derived to be exempt from numerous grouping possibilities.

This proposal explains the two observations in 2.1. Focused subjects are compatible with collective predicates because though the collective reading is more costly, when distributivity is illegitimate, a collective reading is still available. Moreover, when the context implies that the subject is in the form of a group, such as in (6), the collective reading is available.

3. Predictions

This proposal predicts that the collective reading may be available if the grouping of alternatives is implied in the discourse, because in this case the intricacy of structuring alternative groups is avoided. Especially considering in Mandarin collective reading is derived by default as in (1), we predict that the collective reading must be there if it is implied that the plural subject is a group instead of individuals. In this section, we see whether there are linguistic data that satisfy this prediction.

3.1. subject suffixed with –*men*

The first case we testify is subject suffixed with *men*. The morpheme *men* is referred to as a plural suffix (Li and Thompson 1981:40). But Iljic (1994), who follows Lü (1947) in arguing that *men* is instead a collective suffix. Iljic points out that nouns suffixed with *men* always refer to a situationally anchored and defined group. In fact, according to him, nouns suffixed with *men* are often used in the context of allocution, in which a large degree of subjectivity is involved. 'the speaker resorts to *men* whenever he has grounds to view several persons as a group, either relative to himself or relative to a third party'. Even in the pronominal system, *men* is not a plural suffix but a collective marker. 'the so-called plural of personal pronouns is not an addition or a multiplication of elements, but a grouping of entities into one whole according to their position relative to the origin.' (1994:97) 'we do not amount to several I's… but to a group in the name of which I speaks.' Iljic's argument is supported by Cheng (1999), and Cheng also points out that as a collective marker, *men* is not unique. Such markers have been reported for Ewe, Icelandic and Afrikaans (Den Besten 1996).

According to their arguments, the speaker would not use *men* until both the speaker and hearer have a good knowledge of the group the speaker refers to. Therefore, if the subject under focus is suffixed with *men*, we can assume that the speaker must also be aware of the unit of discourse alternatives introduced by focus. If we see *men* involves a process of grouping entities into one whole according to their position relative to the origin, it follows that the alternatives should also be in a group unit, which is structured according to the clues implied in *men*. Thus we predict that subject suffixed with –*men* in focus constructions should get a collective reading. (11) proves this prediction.

(11) a. zhiyou tamen mai-le   liwu.
      only they bought-ASP   gift
      Only they bought gifts.   --- c
   b. lian   tamen dou mai-le   liwu.
      even they   all   buy-ASP gift
      Even they bought gifts.   --- c

Unlike subjects that are not suffixed with *men*, (11) gets only a collective reading. See the contrast in (12):

(12) a. zhiyou tamen anshi   wancheng-le renwu.
         only they on time   finish-ASP task

Only they finished the task on time.　　　　--- c
　　b. zhiyou　Zhangsan he Lisi　anshi　wancheng-le renwu.
　　　　only　　Zhangsan and Lisi on time　finish-ASP　task
　　Only Zhangsan and Lisi finished the task on time　--- d

In our proposal, (12b) has to be distributive to save the process of structuring alternative individuals, because without proper context, we have no idea about the relationship between Zhangsan and Lisi and whether they can form a group, but only to see them as two individuals. Naturally, it follows that the alternatives must be in the unit of individuals as well. However, in a, *tamen* refers to a group that has been properly structured in that discourse by the speaker: the individuals that consist in *tamen* may belong to a working group or share some properties. This implies that the alternatives must also be in the unit of groups, and the grouping included in *tamen* makes the alternative groups obvious in the discourse.

3.2. Cleft sentence

Another way to testify the first prediction is through cleft sentences. Cleft sentences in Mandarin are leaded by the copular *shi* and usually imply a contrastive element. For example, subjects focused by *shi* occur most often in the context like this:

(13) A: Zhangsan jintian chidao　le.
　　　Zhangsan　today　late　Part
　　　Zhangsan was late today.
　　B: bu shi Zhangsan, shi Lisi chidao le.
　　　　not be Zhangsan, be Lisi　late　Part
　　　　It was not Zhangsan. It was Lisi that was late.

Since the cleft sentences would imply a contrastive set in the discourse, the collective reading should be available because it is exempt from structuring alternative groups.

(14) shi　Zhangsan he Lisi　mai-le　liwu.
　　　be　Zhangsan and Lisi　buy-ASP gift
　　　It is Zhangsan and Lisi that bought gifts.　---c/ ?d [1]

---

[1] The collective reading is the dominant one and for some speakers, the distributive reading is hard to get.

Unlike being under focus of 'only' or 'even', the subjects in (14) have both readings. But if the alternative set is given in advance, the collective reading is quite dominant.

(15) bu shi Zhangsan he Lisi de-le   da jiang, shi Jane he Mary.
     not be Zhangsan and Lisi win-ASP big prize, be Jane and Mary
     It is not Zhangsan and Lisi that won the big prize, it is Jane and Mary.   --- c/??d

(15) also proves the prediction that once it is clear how the alternative set is structured, the sentence gets a collective reading.

It is worth to note that for cleft sentence, in which collectivity and distributivity are competing with each other, the reading is sensitive to different predicates. The collective reading is more easily to get with some predicates than the others. See (16):

(16) shi Zhangsan he Lisi chiwan-le   zhuozi shang de fan.
     be Zhangsan and Lisi eat up-ASP desk above of food
     It was Zhangsan and Lisi that had eaten up the food on the desk.   --- c/??d
     It is difficult to get distributive reading from (16), because the distributive reading is about the scenario that Zhangsan and Lisi each has a desk with their food on, which is less normal than the picture that there is one desk with some food on it before and somebody has eaten up it. This is compared to the predicate 'bought gifts' in (14), in which the distributive reading is more easily to be realized. But for the predicate in (16), the distributive reading is not competitive at all.
     However, the predicate does affect the pattern in 2.1, in which distributive is still the only reading available, though the situation is relatively hard to get.

(17) zhiyou Zhangsan he Lisi   chiwan-le   zhuozi shang de fan.
      only Zhangsan and Lisi eat up-ASP desk above of food
      Only Zhangsan and Lisi eaten up their food on the desks.   --- d

Though discourse-oriented distributivity is sensitive to context, it does have the tendency that one reading may overwhelmingly dominant, as in (17). Our proposal accounts for this phenomenon and its prediction is proved by data of subject suffixed with *men* and cleft sentences.

4. Conclusion

It is discovered that when subjects are under focus of 'only' or 'even' in Mandarin, it gets a distributive reading instead of a collective one, which is contrary to Link's (1998) generalization that distributivity tends to be marked in all languages. To explain the phenomenon, we propose that distributivity is introduced in the discourse that structuring alternative groups is impossible.

Predictions of the proposal are proved by the cases of plurals suffixed with *men* and cleft sentences. *men* is a collective marker that designate the speaker's grouping and cleft sentences may imply a contrastive group. They both encode discourse information which helps structure groups.

Discourse-oriented distributivity is different from that introduced by operators like *each*. It is derived to make the semantic parsing easier. The question left is why this strategy is limited in Chinese, but is not adopted in other languages such as English. I leave this to my further research.

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香港粤语入文变异研究[1]：以香港报刊杂志语言使用为例

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香港是一个相对独立的言语社区，粤语入文是香港言语社区汉语书面语的标记变项，包含着三种变式：纯粤语口语文本、港式文白夹杂文本、港式标准书面语文本，呈有序的功能变异分布，适用于不同的语域。粤语入文不但是香港言语社区言文一致发展的需要，也是社区成员有意保有的一种言语行为模式，具有文化认同与归属的标记意义。丧失汉语共同语口语依托的香港书面语也是粤语入文变异产生的必然。

1. 引言

香港位于中国的东南端，由香港岛、大屿山、九龙半岛以及新界（含262个离岛）组成。面积1104平方公里。据香港特区政府统计处《二零零八年年中人口数字》显示：2008年8月居港人口约为698万，其中常住人口约为676万，流动人口约为21.6万。华裔人口在总居港人口中占95%，外籍人口占5%，人口密度为每平方公里6410人[2]。

香港总体语言使用的分布状态于1991、1996、2001年十年间的三次调查中显示，惯用语言的人口比例分别为：粤方言88.7%、88.7%、89.2%，普通话1.1%、1.1%、0.9%，其他中国方言7.0%、5.8%、5.5%，英语2.2%、3.1%、3.2%，其他语言1.0%、1.3%、1.2%[3]，接近或超过一个百分点变化的主要语言是粤方言和英语。这三组数据表明回归后的前四年，粤方言继续成为强势方言，英

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[1] 笔者曾就"言语社区"理论对香港粤语入文变异现象研究的方法意义请教过徐大明老师，在此致谢。文中谬误，由笔者负责。

[2] 数字资料来源于香港特别行政区政府公务员事务局GovHK香港政府一站通。取读时间:2009.06.19.〈http://www.censtatd.gov.hk/press_release/press_releases_on_statistics/index_tc.jsp?sID=2174&sSUBID=11920&displayMode=D〉

[3] 数字资料来源于香港特别行政区统计处《一九九一年、一九九六年及二零零一年按惯用语言划分的五岁及以上人口》（不含失去语言能力的人士）。取读时间: 2009.06.19.〈http://www.censtatd.gov.hk/major_projects/2001_population_census/main_tables/population_aged_5_and_over_by_usual_language_1991/index_tc.jsp〉

语地位没有因殖民统治结束而呈弱势，普通话的人口使用影响力度没有得到增强。粤方言和其他方言依然占据香港社会的主流生活语言，以 2001 年为例，在总数为 6417739 的人口当中，粤方言使用总人口为 5726972，其他汉语方言为 352562，英语为 203598，普通话为 55410[4]，"三语两文"的语言生态模式，即：粤语、英语、汉语共同语（普通话）"三语"，中文和英文"两文"，是香港语言的存现面貌。香港"三语两文"的语言使用特点，既是香港社会历史发展的沉淀，也是社会变革在语言层级上的投射，在强烈的社区网络互动下，约定俗成地演变成具有高度认同感和标记意义的变异模式。

社会语言学对变异的研究，更多集中于语音的变异，而且研究卓有成效。然而"语言变异可反映在语音、词汇、语法等方面，也可反映在语段特征、叙述语体的组织结构等较大语言结构方面。"（徐大明，2007：152），如果说语音、词汇的变异研究在理论建树和方法论的探讨上已取得长足的进步与发展，那么对于较大语言结构的变异研究则显得相对的滞后与薄弱。语音与词汇的变异多集中于口语方面，涉及语段、语篇特征的变异则体现为话语与篇章建构方面，这些变异的扩散，在深度上会引起语言结构的改变，但由于结构变异的缓慢性及对标准语书面语体更加紧密的依赖性，其变异考察的反馈从即时性角度而言，有其研究的难度。但书面语依然是语言使用的重要层级，对书面语变异的关注与研究也许可以完善语言变异在理论建设上的系统性。语言变异不但体现在共时的口语中，也可以体现在共时的书面语中，对较大语言结构变异上的尝试性探讨是本文的研究宗旨，也是本文选择香港粤语入文作为变异研究角度的出发点。

香港中文书面语呈多种文本变异：港式标准白话文文本、中英夹杂文本、文白夹杂文本、纯粤语口语文本等，在书面语上映射着香港言语社区"三语"并存的指项特征。本文仅对香港粤语入文言语习惯模式进行分析，试图阐释语言变异除了"所指"意义外，使用者的社会标记意义和象征意义也是语言的"隐喻"意义。变异的存在并不一定是语言的交际失误或者是习得失败，而可能是一种有意识的异化，蕴含着某种人群与其他社群相区别的言语行为特征。

对香港粤语入文的变异研究，本文主要以影响力大和受众面广的报纸杂志作为考察对象及语料来源的标准。报刊类：以《东方日报》、《苹果日报》为代表；杂志类：以《壹周刊》为代表。为了增强不同的言语社区其差异性也必然存在的论证，本文还抽取广州、南京部分销售量极高的报纸杂志作为横向比较的考察对象。广州：报纸《羊城晚报》；杂志《东张新望》。南京：报纸《扬子晚报》；杂志：《东方》。

2．粤语入文根植于香港是一个相对独立的言语社区

"根据言语社区理论，一个言语社区是一个有确定人口和确定活动地点，进行

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[4] 数字来源同注释 2。

频繁言语互动的社会群体。"，"具有人口、地域、互动、认同、设施这些要素"（徐大明，2004：18-28）。

虽然香港经历了 150 年的英国殖民统治，但在人口的结构上华人依然占据了 95％的比例。而且香港人口密度也是世界排名第二。从 2002－2007 年人口密度统计数字[5]表明，人口密度呈增长态势，2007 年，每平方公里的人口密度，以九龙为高：43350，其次为香港岛：16170，第三为新界及离岛：3770。高度密集的人口，以及文化背景相一致的社会网络，使香港在资讯的快捷和人际互动密度上闻名于世。

根据香港大学民意研究所钟庭耀博士所进行的传媒使用情况的一项民意调查统计数字表明，在拥有大专教育以上水平的香港人士中，每天看报者占 64.7％，每天看电视新闻者为 72.5％，每天上网超过两小时的为 31.3％。而最常看的报纸：《苹果日报》49.5％，《东方日报》22.4％，《明报》15.7％[6]。社会小网络和大众媒体互动是香港社会重要的交际互动模式。人口密度高，媒体密集，文化多元，通讯发达，使香港社会的聚结性极强。而传媒的有效互动所结集生发出来的强劲动力往往是任何一种有认同感的社会变革或者言语新模式得以扩散持续的根本。

港人对母语的认同感一直是强烈的，以香港大学民意网站于 1997 年 8 月 26－27 日与 2008 年 12 月 9－12 日通过真实访员以随机抽样方式所进行的电话问卷《市民身份认同感》为据，在"香港人"、"中国的香港人"、"香港的中国人"、"中国人"的认同感方面，1997 年 8 月与 2008 年 12 月，被访者身份认同两组百分比数据分别为：香港人 34.9/21.8，中国的香港人 24.8/29.6，香港的中国人 20.1/13.0，中国人 18.6/34.4。1997 年以香港人作为主要认同身份组合数字为：59.7％，而以香港社区身份相关的身份认同更高达 79.8％。2008 年以香港人作为主要身份组合数字为:51.4％，而与香港社区身份相关的身份认同依然保持相对大比分：64.4％。回归后的十年里，香港人的身份认同感虽然有所下降，但香港市民以"香港人"的身份认同感依然最高[7]。

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[5] 数字来源于香港特别行政区政府统计处《按区域划分的人口密度》。取读时间 2009.06.19.〈
http://www.censtatd.gov.hk/hong_kong_statistics/statistics_by_subject/index_tc.jsp?subjectID=1&charsetID=2&displayMode=T〉
[6] 香港大学民意网站,〈http://hkupop.hku.hk/〉，取读时间 2009.01.08。直接问卷调查人数为 1323，回应率为 87.2％，被调查者受教育水平大专以上占比列为 56％。
[7] 2008 年 12 月调查总样本数：1016，回应比例：69.3％。1997 年 8 月调查总样本数：532。每次调查的成功样本数目都在 500 以上。2000 年 5 月起，成功样本数目更增至 1000 以上，并且根据香港人口的年龄性别分布加权调整。访问对象为十八岁或以上之操粤语的香港市民。取读时间：2009.01.08.香港大学民意网站〈http://hkupop.hku.hk/〉。香港市民对自我身份认同的最新调查结果亦来源于香港大学民意网站 2008 年 12 月 16 日发布的

即使在殖民统治时期，粤语作为港人的母语，与英语的地位关系，也没有在口语交际上呈现出高变体和低变体的语码转换区别，因为粤语口语作为唯一的中文交际语言，在历变的自我调适中，其"文学语言"化也渐生层级上的变异，以应对不同语域的需求。同时，粤语更没有发生如泰国华人社区闽语在第三代逐渐出现的语言转用情况，而世界上大部分的华语社区第三代都面临着放弃本民族语转用英语或其他强势语言的现象[8]。但 1949 年至回归前，港英政府加大对英语的推广力度及弱化中文的语言政策的存在是不可争辩的历史事实。港英政府为了加强对高端人才的控制，规定："公务员的任用和升迁英文水平必须达到 E 级以上。"，并全力扶植以英文为教学语言的学校，"早自 1985 年开始，凡新设的学校，若不以英文为教学媒介均不能获得政府补助"，这些政府措施从而造成了"中、英文中学的比例从 60 年代的 1：2.5 发展到 70 年代的 1：4.3，从 80 年代的 1：7.4 再发展到 1：10。"（闵海霖，2008：48-51）。然而以英语为教学语言，学生往往因为对教师话语理解度的困难，学习效果则事倍功半。英语作为二语习得的现实，以及缺乏有效的即时语境的互动，港人在港习得英语的收效也并不理想。但政策上对中文的削弱，是一种极其强劲的语言规划，会深刻影响着语言发展的走向，因为从语言存在的意义来说，最根本的是使用的功利及所赋予的价值评判。

从 1949 年至 1978 年，香港与中国大陆几乎处于隔绝状态，关禁亦使文化交流几乎中断，从而加剧了作为共同语"国语"和"白话文"制衡力量的丧失。而此前，香港虽属殖民统治，但其文化教育仍与内地有着紧密的联系，1932 年出版的《国音常用字汇》确立了国语以北平音系为标准音的地位，而白话文运动也奠定了"白话文"成为书面语的典范代表。"战后初期，香港中英文中学的课程多采用 1933 年傅东华编商务印书馆出版的《复兴初级中学教科书·国文》或郑文瀚、张文治编的《中华文选》及《新编高中国文》"（陈必祥，1987：333－334），1949 年，香港政府教育司署开始不批准中学采用国内编印的中国语文和中国历史课本（陈必祥，1987）。

社会的相对独立，是言语社区疆界构成的基础，殖民统治下的香港，以及近 30 年与汉民族共同语的完全隔绝，使以占据人口 95%的华裔人口把粤语认定为自己的母语，欠缺政府的规划与支持，缺乏官方机构的监察与指引，香港中文书面语变异的多样化成为必然。港人因汉语共同语（国语、普通话）制衡力量的瓦解，以及英语作为法定语言的强势及其作为现实语境中的二语习得地位的劣势，终使粤语入文成为港人母语文化的重要代表。

新闻公报。

[8] 新加坡语言转用现象例证来源于徐大明先生《儿童双语发展与家庭社会网络》，《民族教育研究》2000 年增刊。

3． 粤语入文是香港中文书面语的标记变项

社会语言学的诞生是基于对形式语言学的反动，对语言功能本质意义的再思考。其目的在于解释语言的符号不仅仅是单纯的语言学上的"所指"意义，而隐喻着错综复杂的社会因素和深刻的文化内涵。语言变异模式的形成既是特定语境下语言使用的结果，同时也是特定言语社区成员交际模式的需求，交际规范的标记。粤语入文是香港言语社区在中文书面语使用中最具特征意义的标记变项。之所以称之为变项[9]，是因为以香港中文新闻文本为研究对象的书面语，可以分出三种主要变式：港式标准白话文文本（或曰粤语文学语言）、港式文白夹杂文本、纯粤语口语文本。港式标准白话文文本指以粤语为读音，但语法规范以现代白话文（国语阶段）为标准，一般不采用粤语方言字和汉字记音方式的书面语，但在语法规范和词汇系统上又与普通话书面语有差异，非通粤语使用者可以阅读，可懂度为高。港式文白夹杂文本指兼具粤语口语和现代白话文书面语风格的书面语，一般直接引语部分是粤语口语化文本，叙述部分基本保留现代白话文特点，是基于香港文（现代白话文）言（粤语）脱节，为增强阅读可读性，贴近现实语言面貌，而采取的一种书面语过渡变式（郭骏，2008），其文本有粤方言字和汉字记音特点，粤语特有词汇也常有出现，非通粤语使用者有一定的阅读难度；纯粤语口语文本指完全与粤语口语一致的书面语，口语化极强，有大量的粤方言字和记音汉字，非通粤语使用者一般不能卒读。

粤语入文变项的产生，也基于这样的一个语言使用的现实，对于香港这个相对独立的言语社区，粤语已经不是一般意义上的地域方言，而具有超方言的语言地位，香港社会一直以来都以粤语学语文，朗读课文，社会媒体和专业人士也经常推行对粤语正音，从英语词汇中存在的 Cantonese(粤语)和 Mandarin（官话、普通话）两词，可见粤语在香港的地位，港人关于中文的概念是根植于粤语环境中形成的。以下是香港、广州、南京三地报纸杂志书面语使用情况抽样调查的对比分析。

表1．香港、广州、南京报纸版面内容及书面语使用情况

抽样报纸	香港《苹果日报》（对开）	广州《羊城晚报》（对开）	南京《扬子晚报》（四开）
出版时间	2008.9.29	2009.1.5	2008.12.11
A 叠版页数	30	16	48
B 叠版页数	18	16	16
C 叠版页数	16	无	16
DE 叠版	有	无	无
共同语标准白话	小部分政论杂文	全部	全部

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[9] 徐大明认为，变项和变式是一组概念，一个变项由一组变式构成，两个以上变式才能构成一个变项。《当代社会语言学》，100-101 页。

文文本			
港式标准白话文文本	AB 严肃新闻（不含标题和直接引语部分）	无	无
港式文白夹杂文本	ABC 大部分	无	无
纯粤语口语文本	C 小部分、文中直接引语、设计对白、E	无	无
语篇语感	粤语(白话文加口语)	普通话	普通话
文字	繁体汉字＋粤语字	简体字	简体字

注：1. 报纸每日版面页数一般不固定。2. A 叠：新闻、体育；B 叠：经济；C 叠版：娱乐（内地报纸 A 叠内容基本与香港相同，但 BC 叠分类及内容不同。）
3. D 叠：马经；E 叠：副刊(含少儿不宜娱乐文本)。4. 语言使用考察以语篇文本为单位。

表 2. 香港、广州、南京杂志书面语使用情况

抽样杂志	香港《壹周刊》(综合)	广州《东张新望》（娱乐）	南京《东方》（文化娱乐）
出版时间	2008.08.21	2009.12.18	2008.12.26
期号（总）	第 963 期	第 65 期	第 469 期
页数	144	132	80
文章篇数(专栏)	28 篇+2 栏	38	38
共同语标准白话文文本	0	8	38
港式标准白话文文本	1 （专栏）	0	0
港式文白夹杂文本	28	3～4	0
纯粤语口语文本	1(明星专栏)、其他文本中的大部分直接引语、设计对白	26(明星娱乐新闻)	0

语篇语感	粤语（白话文加口语）	粤语＋普通话	普通话
文字	繁体汉字＋粤语字	简体字＋粤语字	简体字

注：1. 以销量高为抽样标准。2. 不含广告文本。3. 以语篇文本为考察单位，少数变异字词不计入。4. 文本归属判断取相对值。

从以上报纸杂志的语言使用情况来看：

（一）粤语入文是香港汉语书面语最主要的变项标记。粤语入文三种变式具有功能上的分布特点，港式标准白话文文本适用于严肃新闻报道，文本倾向于传统书面语的庄重风格。文白夹杂是港式书面语的主体，是言文脱节的文本具象呈现和语言的自我调节的结果：叙述采用现代白话文，直接引语则粤语口语化文本，以口语为叙事基调的文本接近于全粤语口语入文风格。纯粤语口语文本一般在记录直接引语和娱乐性及消遣性极强的文本中大量出现。这种变体分布已具有约定俗成的特点。

（二）香港与南京报纸书面语使用情况的巨大差异，以及广州报纸的书面语使用情况与南京保持一致，可以证明社会因素对语言使用和变异产生的控制力量，由于南京广州地区的中文书面语以普通话为基础，没有发生具有社区言语特征的语言变异倾向，其中学校普通话教育的制衡，以及社会标准语的使用环境的充分，是维持标准语影响力，尤其是标准书面语影响力的重要因素。语言政策中标准语的确立是维持语言地位的一个重要社会影响因素。

（三）强势语言，尤其是在经济与文化上拥有强势力量的语言，具有一定的同化力量。广州娱乐杂志大量采用香港的书面语模式，是对其娱乐文化趋同的态度选择，也是地域文化接近，容易引起语言借用的一个证明。由于文化上的强势，语言潜在的扩散影响力，可能会以超越语言的方式在前期进行渗透影响，正如西方文化和日本动漫文化的影响，并不是首先以语言习得为开端的，而是以一种文化的模因（meme）[10]或曰文化象征符号的标签化渐进渗透的。此点的思考是由《东张新望》这样一本在广东省销量排行冠军，却在北京、上海、广东同步上市的娱乐杂志所引发的。当然，政治中心的语言强势也具有影响作用，香港回归后，共同语地位明确，以普通话为基础的书面语文本，在香港的报纸中也有限采用。语言强势影响如何扩散，如何运作，此点不在本文中展开，作为相关问题，留待后续研究中论证。

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[10] "模因"为何自然先生对"meme"一词的翻译，指文化领域内人与人之间相互模仿，散播开来的思想或主意，具有传承性，是人们的一种自觉或不自觉的模仿行为。（何自然主编，谢朝群、陈新仁编著《语用三论：关联论·顺应论·模因论》，上海教育出版社，2007。）

香港粤语入文的三种变式，是汉语在香港言语社区生存状态下的自我调节和顺应。从更大范围的汉语言语社区来考察，虽然香港汉语的标准书面语与口语已基本脱节，但标准语书面语教育的存在，也就意味着传承的使命没有终结。香港初、高中所选的语文课文大部分为经典的传统名篇，分文言文和白话文两类，以启思出版社出版《生活中国语文》为例，中一上（初中一年级上册）讲读部分的课文目录有[11]：1 中山先生的习医时代（郑子瑜）、2 岳飞之少年时代（佚名）、3 桃花源记（陶潜）、4 燕诗（白居易）、5 背影（朱自清）、6 木兰辞（佚名）、7 风筝（鲁迅）、8 羚羊木雕（张之路）。中五（高中二年级）讲读部分的课文目录有：1 念奴娇·赤壁怀古（苏轼）、 2 青玉案·元夕（辛弃疾）、3[中吕]山坡羊·骊山怀古（张养浩）、4 停车暂借问（节录）（钟晓阳）、5 庄暴见孟子章（孟子）、6 六国论（苏询）、7 孔乙己（鲁迅）、8 请客（王力）。

书面语中以现代白话文为范式的文本是构成香港言语社区成为汉语言语社区成员的一致性因素，也是维系汉语作为母语文化稳定性的唯一通途。而粤语入文的差异又使其在社区层次上有别于其他社区。"历史和政治进程总是引发语言建设的过程，这一过程就是随时选择一种共同的地道的说法（无意识中形成的共同语或者说被普及的方言），然后就采取的形式加以固定或者严格规范化，使之成为规范语言的典范。"（罗郎·布洛东，2000:67）。粤语入文虽不能说是一种规范语言的典范，但作为香港言语社区的言语交际模式，其文化认同和身份象征意义是非常顽强的，时至今日，香港语文教学语言是采取普通话还是采用粤语，仍处于争议的阶段。

粤语入文从语言使用的本质上来说也是言文一致的需求所致。"香港做为一个世纪以来相对独立的华语社会，粤方言成为这一社会的共同语。言文脱节使人们再一次感觉记录的困难，一种言文一致的书面语体便应运而生。但汉语的文学语言自始是以北方话为基础的文化积淀，使白话文依然具有巨大的同化力量，因此，以粤方言为基础的书面语体一般只出现在消遣类的文本中。"（邓小琴，1998:37-46），因此，粤语入文不但是语言发展的需要，也是香港言语社区成员有意保有的一种言语行为模式，具有文化认同与归属的标记意义。

4． 粤语入文是有序的异质变体

粤语入文变异遵循着语言的变异规则，呈现出有序异质的特点。"语言虽然是异质的，但并不杂乱五章、毫无秩序的；语言之所以能成为社会的交际和认同工具，是因为它有很强的同一性。其同一性并不体现为绝对的同质性，而是体现为各有差异的语言活动形成的一个有序的系统。"（徐大明，2006:11），粤语入文变项在功能的层级上也体现为高低变体（C.A.Ferguson，1959）的使用状态。其有序的异质变体，可从粤语入文程度多少分为三个层级的变体：纯粤语口语文本、港式文白

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[11] 不列教材中导读和自习篇目。

夹杂文本、港式标准书面语文本，其文本特色如下：

4.1 纯粤语口语文本

纯粤语口语文本，有人又称之为"粤语白话文"。由于不论是典范白话文文本，还是纯粤语口语文本，港人均以粤语的语音来阅读，而粤方言文白夹杂现象严重，所以，"粤语白话文"之说很难界定港式标准白话文与"文白夹杂"白话文之间的差别，所以本文不采用此种说法。

纯粤语口语文本是香港粤语入文最明显的一个功能变项，也是与汉语标准书面语相差最大的一种变体。其特点就是"言文一致"，既粤语口语（言）与书面语（文）完全相符，实现"我手写我口"之愿望。由于粤语语音基本保留了汉语中古音的面貌，加上古南越语的底层残留，粤语词汇文白历时叠加现象严重，能完整记下粤语口语词汇的汉字有限，为弥补文字记录语言之不足，在纯粤语口语文本中，粤语方言字和汉字记音的现象非常普遍。造字无可厚非，但大量汉字表音不表意也是一种汉字使用的变异行为。纯粤语口语文本中，汉字既表意又表音，加上粤方言字穿插其中，以及完全脱离共同语书面语的语法规范及用词标准的语感，这对于不通粤语阅读者来说几乎难以卒读。汉语共同语口语交际语境的缺失是这种文本得以存在的前提，而日常交流中的粤语化，则为之提供了坚实的语言依托，而其所蕴含的交际随意、轻松风格，及准确记录口语，再现言语的即时性效果，也促使这种文本在交际需求中走向成熟，并约定俗成。其语言使用特点在记录口语对话，直接引语的文本中最能体现。如：

（1） 大家係成年人，呢啲係人哋嘅[1]家事，我哋外人唔知發生乜嘢事，最緊要係當事人大家決定。（《蘋果日報》2008.7.6 .C1）——普通话翻译，即：大家都是成年人，这些是人家的家事，我们外人不知道发生了什么事，最重要的是当事人大家一起来决定。

（2） 李家誠說：『其實都傳咗好耐，我哋係結婚，但細節唔講啦！（點樣求婚？）太私人問題唔方便講，依家係預備階段，有好消息會同傳媒講，細節唔好問，合適時候會公布，我諗唔會同子淇一齊出嚟好似開記者招待會公佈，我可以講嘅[2]係，會喺香港擺喜酒。（子淇婚後退出娛樂圈？）未諗。』（《東方日報》2006.12.9.C22）——普通话翻译，即：李家诚说："其实都传了好久，我们是要结婚，但是细节不好讲了。（怎样求婚？）太私人问题了，不方便讲，现在是准备阶段，有好消息会和传媒讲的，细节就不好问，合适的时候会公布，我想不会跟子淇一起出来好像开记者招待会那样公布，我可以讲的是，会在香港摆喜酒。（子淇结婚后退出娱乐圈？）没想过。"

（3） Mandy 見到『令女』兩個字，因爲筆畫簡單，所以仲識得點讀，之[1]後

諗咗一陣，就好醒目咁問：『係咪用嚟形容我，即係話我靚女呀？因爲讀音好似。』哈，竟然畀佢估中。（《東方日報》2008.11.23.CC12）——普通话翻译，即：Mandy 看到"令女"两个字，因为笔画简单，所以还懂得怎么念，之后想了一会，就很机灵地问："是不是用来形容我，就是说我是靓女呀？因为读音很像。"哈，竟然被她猜中了。

　　方言入文自古就有，但如此成熟的入文现象还是少有的，其语法规则及用词完全与粤语口语吻合。在文本中最明显的标记是汉字除了表意字外，还有不少的表音字。其中有两种变异类：一类为固有汉字（含被现代汉语废用的古汉字），但在上述粤语口语文本中几乎丧失表意功能，如：呢、乜、依家、耐、諗、仲、畀、估。第二类是粤语方言字，是为记录粤语口语而造的。大部分采用形声法造字，但"意符"比较抽象，一般以"口"字为旁：啲哋嘅嘢咗嚟喺咗咁咪。

4.2　港式文白夹杂文本

　　这类文本是香港汉语书面语中最常见的文本，其语法规范以现代白话文为基础，但却融入了大量口语的语感，以及粤语词汇，是一种介于粤语文学语言与粤语口语的过渡文本。这也是因为港人欠缺共同语口语语感浸染，用粤语思维，在习得汉语标准书面语的过程中，长期丧失共同语口语互动的必然。言文不能互动协调的结果，使港人的书面语表达在口语和书面语的相制相协中自成一体，在言事议事中遵循庄重之风，在转述与话语引用中遵循再现原貌，从而造就了文白夹杂，适用于各种语域需求的文本变体。由于文白夹杂，亦文亦语，对港人而言，是一种严肃度与庄重度高于纯粤语口语文本的语体，而又不会与口语语感相去甚远。当然与新闻的真实性客观性的诉求也有一定的关系，因而成为港式传媒书面语变体中最富生命力的文本模式。如：

（４）　對於陳太不再參選，不少泛民主派人士<u>感到可惜之</u>[2]<u>餘</u>，同時充份肯定陳太過去七個月<u>在立法會作出的</u>[1]貢獻。民主黨創黨主席李柱銘表示，陳太過去七個月在議會內十分<u>勤力</u>，每次會議都<u>有出席</u>，其最近一次發言，更令他印象深刻，『<u>陳太最近一次促請政府提交副局長資料嘅</u>[3]<u>發言，真係精彩絕倫，冇其他人可以講到，因爲佢真係好熟悉政府運作，同埋佢真係好有心。</u>』（《蘋果日報》2008 年 7 月 6 日 A2）

（５）　台上一分鐘，台下十年功。運動員在台下苦練多時，<u>為的</u>[2]就是上台爭奪金牌的[3]一刹那；同樣由香港隻身跑到上海，創立運動百貨公司『Sport 100』（運動一百）的[4]張國倫，耕耘十年，<u>亦押註在今年的</u>[5]<u>北京奧運。</u>
　　『運動一百』是内地最大的[6]運動百貨公司，一站式售賣 Nike、Adidas

等一百二十個知名的 [7] 中外品牌；全國有六十間店，年營業額達十億元人民幣。一個香港人隻身到内地開創事業，<u>經已</u>不容易；要兼顧各方競爭，并摸熟内地不同地方的 [8] <u>政經民情</u>，做到遊刃有餘，則更難。張國倫說，做生意就如他喜愛的 [9] 運動馬拉松：『<u>要留意后來者競爭，同時唔可以亂自己嘅 [4] 步伐，贏嘅 [5] 就係那份經驗與堅持。</u>』（《壹週刊》2008.08.21.82 頁）（注：此篇為全文語篇）

（6）　六班車取消　過境巴發財　<u>玩殘</u>中港客/電纜毀壞　直通車陷癱/九鐵安排混亂　乘客轟欺騙/芝痲官稱遭襲擊惹恐慌/粵意外通報仍不足(注：以《东方日报》(2006.12.9.A4)新闻标题为例)

虚线"⌣⌣⌣"部分是粤语口语文本，但倾向于文雅表达，并没有完全口语化，采用一定数量的常用方言字，而且这些方言字已经具有定型特点，不可以随意选用其他汉字记音。实线"＿＿"部分是粤语语法特点，粤语一般不使用"在……上"介词结构，"有"字具有副词词性功能。浪线"﹏﹏"部分是粤方言词汇："勤力"（努力）、"经已"（已经）、"政经民情"（政治、经济、民情）、"玩残"（捉弄得很厉害）。加着重点的字，体现了粤语中保留了一定的古汉语词汇特点，即单字成词。以上这些语法和用词特点，娴熟地交错使用，文白夹杂，别具风格。

4.3　港式标准白话文文本

这类文本在新闻类的书面语中主要出现在社会要闻板块（不含文中直接引语和新闻标题），尤其是在报道国内、台湾、国际新闻，以及比较严肃的政论、时评时常常采用。这种以粤语读音为标准语音，而又注重对规范白话文继承与遵守的书面语体，是香港学校教育所倡导的，也是香港专业人士用以书面交往的正规中文文本。在香港的众多报纸中，《明报》的受众定位是高层人士和教育界，因此，《明报》也是在文本使用上最为规范和传统，可做为港式标准白话文文本存现的代表性报纸。但其销量也因此不能与受众面较广的《东方日报》和《苹果日报》抗衡。《苹果日报》虽销售量不敌《东方日报》，但在影响力方面，独占鳌头，因而，粤语入文的程度也是较其他两报为高。其他专题性和受众定位比较明确的报刊，亦以其专业性和风格的"读者设计"的不同呈现出粤语入文强度的不同。需要说明的是，本文探讨的三种文体变式，是一种相对的风格类别划分，而不是语言的绝对变式。港式标准白话文文本一般少用粤语口语的表达模式，语法规范，用词典雅，但由于词汇系统与大陆不同，加之中学语文课较注重文言输入，使其与大陆现代汉语标准书面语存在一定的差异。如：

（7）　毒奶風暴<u>或</u>導致本港公立醫院奶類供應緊張。一向供應雀巢產品予住院病人的 [10] 瑪麗醫院预計，由於雀巢產品必須<u>獲</u>確認不含三聚氰胺才會恢

復供應，病房短期內可能沒有足夠奶類產品，院方計劃改以維他荳奶代替。（《蘋果日報》2008.9.29.A2《產品化驗需時　奶類供應緊張公立醫院或以荳奶代替》）

（8）　金融海嘯席捲全球, 在俄羅斯由於利息<u>高企</u>**及**缺乏信貸渠道, 興建中的 [11] 歐洲最高建築物俄羅斯塔也在前日宣布停工, 雖然發展商表示并未放棄計劃, **但**在目前經濟情況下, 未能預計何時才能復工. ***該***國另一些地產發展商**亦**<u>劈價</u>兩成半賣樓。（《東方日報》2008.11.23.A19《歐洲最高樓不敵高息錢荒　海嘯殺到　俄羅斯塔叫停》

（9）　澳門賭業界傳奇女子兼香港上市公司世紀建業（集團）有限公司股東司徒玉蓮，與現於世紀建業擔任核心管理層<u>兼</u>大股東的 [12] 兩子一女曾昭武、昭政**及**昭婉，發生溏心風暴式的 [13] 爭產糾紛。司徒玉蓮昨日<u>入稟</u>高院<u>聲言</u>她才是公司**及**公司名下產業的 [14] <u>實益</u>擁有人，**因**她與三名子女前年<u>曾</u>協議將有關資產轉回她名下，**以**換取她促使解除昭武的 [15] 一項共三億元<u>之</u> [3] 貸款擔保，以及償還聲稱拖欠三名子女的 [16] 一千三百萬元。不過子女們至今逾兩年仍未履行承諾，因此她要求法院頒令強制子女們履行有關協議**及**作出賠償。（《東方日報》2008.11.23.A1《『街市偉』紅顏知己　上市王國爆溏心風暴　賭后爭產　告三子女》）

　　以上文本语法基础基本与现代汉语标准书面语保持一致，但用词和行文语感有一定的差异，主要体现在喜用长句，修饰成分较多，衔接手段的关联词和代词经常采用单字古汉语虚词，副词和介词也往往采用古汉语虚词，从而使行文凸显古雅之风。

　　做为衔接手段，上文中加粗字为单字关联词：及、但、亦、因、以等；斜体加粗"该"为单字代词。加着重点字是古汉语介词：予、以、于、与。加双线标记的单字古汉语副词：或。还有定中结构标记词：之，也是使用频率极高的古汉语虚词。可见，单音节词是语篇上保有古雅之风的主要功能标记。当然，由于是现代白话文，其中也不乏双音节词的关联词和副词，如：由于、虽然、以及；未能、仍未。而实词部分，不但有因社会体制不同，还有因香港社会长期沿用并约定俗成的古体中文公文格式影响，而形成的事物名称、专业术语和一般词汇的相异：或（可能）、劈价（降价）、入禀（告状）、声言（声称）、实益（beneficial、有使用权的）、颁令（颁布法令）等。

4.4."嘅"、"的"、"之"结构助词文本使用的个案考察

　　"嘅"是在粤语中表定中结构或"的"字结构关系的粤方言字，"的"是现代汉语白话文的常用结构助词，"之"则是古汉语常用结构助词。之所以择取"嘅"、"的"、"之"三个结构助词在香港中文书面语的使用状况中做个案研究，是因为这

三个结构助词的功能分化在体现香港粤语入文的变异特征及其规律上具有典型意义。

以上文所举的 9 个文本语料为考察对象，"嘅"、"的"、"之"的使用频率及出现文本语境，见表 3 。

表 3．"嘅"、"的"、"之"的使用情况比较

文本语境 使用 助词　　频率	纯粤语口语文本	港式文白夹杂文本	港式标准白话文文本
嘅 $_5$	2	3	0
的 $_{16}$	0	9	7
之 $_3$	1	1	1

注：1.以上列 9 个文本例子为一个集合单位来考察，文本中用上标数字表示出现的次序，如："的 ^{5}"表示"的"在此为第五次出现。
2.表 3 中词的下标数字则表示该词在此集合单位中共出现的次数。如："之 $_3$"表示一共出现了三次。

从"嘅"、"的"、"之"文本使用个案的考察，可见三个结构助词的使用功能分布与粤语入文的有序变异规则吻合，其表明：

（一）"嘅"主要使用于纯粤语口语文本和港式文白夹杂文本中，是粤语入文在语法层面上的标记项，"嘅"是用于记录粤语结构助词"的"的方言字，因而其功能的分布主要在于记录口语或者直接引语这些具有低变体特征的语域中。

（二）"的"的使用频率是最高的，说明典范的现代白话文语法规范的制约作用在香港中文文本中依然占有强势，尽管缺失了汉语共同语口语的互动语境，但汉语书面语的历时渗透和汉文化认同的内核所在，使粤语入文呈限度存现，在香港常用中文文本中，彰显文雅及庄重语体风格的文本基本采用"的"字为结构助词。

（三）"之"在粤语中具有独特的语用地位，不论是口语还是书面语均属常用词。从上列文本考察中，可见"之"可出现在不同语域，这也实证了粤语保留大量古语词的事实。港式文白夹杂文本的盛行，由此可窥得一斑。

本文对粤语入文变项所离析出的三种变式，是一种以语音变异研究方法来考察语体变异的尝试，如果说语音变项中存在着旧式、新式、还有过渡式的话，一般意义上，新式与旧式没有逆转发展演变的可能，即新式逐渐代替旧式，但并存状态也可能会持续相当长的时间，但这种代替论对于词、句，甚至语篇的新旧变式而言，则未必是可以成立的。新词未必能够最终代替旧词，句法的丧失有复生的可能，而本文所探讨的三种变式：纯粤语口语文本、港式文白夹杂文本、港式标准白话文文

本，很难称得上绝对的新旧式。相对而言，纯粤语口语文本是新式，港式标准白话文文本为旧式，但前者为低变体，后者为高变体，有各自适用的语域，有功能上的分布，而过渡式的文白夹杂文本，由于最能体现香港言语社区言文一致的语言使用需求，而最富活力。任何变异的肇始，均与语言使用的功能需求有关，语音的不可逆转性是绝对的还是相对的？词句语篇的变式最终是否演变为功能的细化，这是本文引发的思考。

粤语入文变异在功能上的规律性分布，强度上渗透性的渐入层次，体现了粤语入文有序变异的特点，也正基于此，香港言语社区汉语书面语交际互动才可以实现。

5. 结论

社区是语言变异产生的基础，言语社区拥有一致性的言语交际模式，言语交际行为的约定俗成基于认同的前提与文化归属的需求，语言变异的存在不一定是一种下意识的言语失误或者习得不能，有时变异是社区成员有意识遵守的共同语言行为规约，是言语社区成员的身份标记，具有超"所指"的象征意义。如果说，社区是第一的，语言是第二的，社区是语言的依托，那么语言则是书面语的存在基础。无论一种书面语承载多少经典，如果丧失口语的依托，就会产生变异，甚至变革。汉语文言文使命的终结映射着香港粤语入文变异产生的必然，同时也证明语言存在的本质意义：语言是人类的最后家园（海德格尔），语言是语言使用者的需求，并制约着使用者，一路前行。

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The Meaning of S-topics in Mandarin: a Crosslinguistic Comparison

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Rooth (1985, 1992) proposes the question/answer congruence condition based on alternative semantics: the ordinary semantic value of a question must be the subset of the focus semantic value of its corresponding answer. However, Bürning (1997, 1999) argues that some question/answer constructions in English and German, including partial topics and contrastive topics with the topic accent, which are called S-internal topics (S-topics), do not respect this condition. He proposes that an S-topic induces a topic semantic value, i.e., a set of questions, which includes the original question as one of its members. In addition, he further points out that an S-topic implies an implicit disputable question, which is still under discussion. It should be noted, however, that Chinese is not a stress language, so an S-topic with the topic accent cannot make an infelicitous dialogue felicitous. An S-topic in Chinese needs to be triggered by another contrastive topic or licensed by an adverb like *zhi* 'only'. I will suggest that such a difference is due to the fact that stress in tone languages plays no role in meaning. Moreover, the remaining question implied by a contrastive topic triggered by another contrastive topic should be overtly realized, or further being answered in Chinese.

1. Introduction

According to Rooth (1985, 1992), in addition to the ordinary semantic value, a sentence with a focused phrase induces a secondary semantic value, i.e., the focus semantic value, which is represented as $⟦S⟧^f$. A congruent question and answer pair must satisfy the following condition: $⟦Q⟧^o ⊆ ⟦S⟧^f$.[1] However, Bürning (1997, 1999) argues that some question/answer constructions in English and German, including partial topics and contrastive topics, as in (1-4), do not respect this condition.

[1] Since the focus semantic value of an answer is contextually determined (Rooth 1992, Bürning 1997, 1999), Krifka (2001) points out that the ordinary semantic value of a question is the subset, superset, or equivalent to the focus semantic value of the focus semantic value of the answer. No matter which option is chosen, it does not solve the problem raised by S-topics. I leave it for further research.

(1)   A: What did the pop star wear?
       B1:#   The female pop stars wore [caftans\]_F.[2]
       B2:   The [/female]_T pop stars wore [caftans\]_F.
(2)   A: Was hatten die Popstars an?
       B1:#   Die weiblichen Popstars trugen [Kaftane\]_F.
       B2:   Die [/weiblichen]_T Popstars trugen [Kaftane\]_F.
(3)   A: Which book would Fritz buy?
       B1:#   Well, I would buy [The Hotel New HAMPshire\]_F.
       B2:   Well, [/I]_T would buy [The Hotel New HAMPshire\]_F.
(4)   A: Welches Buch würde Fritz kaufen?
       B1:#   Ich würde [Das Hotel New HAMPshire\]_F kaufen.
       B2:   [/Ich]_T würde [Das Hotel New HAMPshire\]_F kaufen.

(1B1) and (1B2) express the same proposition: *the female pop stars wore caftans*. Their focus semantic values are the same as well: λx [the female pop stars wore x], which is not the superset of the ordinary semantic value of the question, i.e., λx [the pop stars wore x]. The condition on the question/answer congruence proposed by Rooth rules out both (1B1) and (1B2) as felicitous answers for (1A). According to Bürning, (1B2) is a felicitous answer for (1A). (1B2) differs from (1B1) in that the subject NP bears a rising pitch contour (henceforth the topic accent). The contrast between (B1) and (B2) in (2-4) shows the same pattern. He terms this kind of constituents as S-topics.

        In Bürning (1997, 1999), two types of topics and focus are distinguished. At any stage of discourse, there is not only a common ground shared by the participants, but also a certain restricted range of possibilities for the conversation to continue. These possibilities are called discourse topics (hereafter D-topics). The most common way to establish a D-topic is to ask a question. Generally speaking, the answer corresponding to the question phrase in a question/answer pair is the focused part while the other part is taken to be background. He further points out that S-topics have some semantic or pragmatic functions. The first one is to be understood "what the rest of the sentence is about or the entity anchoring the sentence to the previous discourse" (Bürning 1999:145), as in (5).[3]

(5)   A: What did you buy on 59th Street?
       B: On 59th Street, I bought the shoes.

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[2] "/" stands for the rising pitch contour while "\", the falling one.
[3] The topic in (5) is a phrase taken from the previous sentence. Somehow, it is not a contrastive topic. I will not explore its semantic/pragmatic function. For more details, see Bürning (1997, 1999).

The second one is to "narrow down" a given D-topic. This is called the partial topic, as in (1B2) and (2B2). The third one is to "move the conversation away from an entity given in the previous discourse" (Bürning 1999:145). This is called the contrastive topic, as in (3B2) and (4B2). The fourth one discussed by him is the so-called purely implicational topic, as in (6B2).

(6)   A: Did your wife kiss other men?
        B1:   My wife [didn't\]$_F$ kiss other men.
        B2:   [/My]$_T$ wife [didn't\]$_F$ kiss other men.

Both (6B1) and (6B2) are felicitous answers for (6A). (6B2) differs from (6B1) in that the additional accent on *my* implies that other wives will be considered.

In contrast, no matter what pitch accent (or stress) is put on the S-topics, the felicity of the whole dialogue in Chinese is not improved, as in (7B2). In Chinese, a partial topic must be rescued by an unanswered question, as in (7B3), or by another related answer, as in (7B4), rather than the topic accent.

(7)   A: mingxing xihuan chi shenme shuiguo?
              star   like   eat what   fruit
              'What fruit do the stars like to eat?'
        B1:#   (wo zhidao) nan   mingxing xihuan chi [pingguo]$_F$.
              I   know   male star   like   eat apple
              '(I know) the male stars like to eat apples.'
        B2:#   (wo zhidao) [nan]$_T$ mingxing xihuan chi [pingguo]$_F$.
              I   know   male   star   like   eat apple
              '(I know) the male stars like to eat apples.'
        B3:   wo zhidao [nan]$_T$ mingxing xihuan chi [pingguo]$_F$,
              I   know   male   star   like   eat apple
              danshi wo bu zhidao [nun]$_T$ mingxing xihuan chi shenme shuiguo.
              but   I   not know female star   like   eat what   fruit
              'I know the male stars like to eat apples, but I do not know what fruit the female stars like to eat.'
        B4:   wo zhidao [nan]$_T$ mingxing xihuan chi [pingguo]$_F$,
              I   know   male   star   like   eat apple
               [nun]$_T$ mingxing xihuan chi [juji]$_F$.
              female star   like   eat orange
               'I know that the male stars like to eat apples and the female stars like to eat oranges.'

There are three purposes in this paper. I will first explore the meanings of S-topics in Chinese based on Bürning's proposal (1997, 1999). In addition, I will compare the S-

topic constructions in Chinese and English. The difference is due to the stress parameter. Finally, I will follow Bürning's proposal in that a sentence can be divided into three parts: topic, background, and focus, instead of background and focus.

This paper is organized as follows. Section 1 introduces this paper. Section 2 reviews some literature. In section 3, I will propose a plausible analysis for Chinese S-topics. Section 4 concludes this paper.

2. Literature review: Bürning (1997, 1999)

In Bürning (1997, 1999), S-topics include the partial topic, the contrastive topic and the purely implicational topic, which are related to the previous discourse in some way, as in (1-4) and (6). They differ from focus in that they carry a rising pitch contour while a focused phrase, a falling pitch contour, as in (8). The text in (8) shows that the PP with a rising pitch contour cannot be the focus of the sentence.

(8) A: Where did you buy the shoes?
     B:#   [Auf der /NEUNundfünfzigsten Straße]*$_F$ habe ich die SCHUHE\
            gekauft.

He further points out that the S-topic constructions contradict with Rooth's question/answer congruence condition $⟦Q⟧\ ^o ⊆ ⟦S⟧\ ^f$. Take (3) for example. Because the focus semantic value of $⟦3B1⟧$ or $⟦3B2⟧$ are the same: λx [I would buy] , which is not superset of the $⟦3A⟧$: λx [Fritze would buy]. Although Rooth's condition correctly predicts that (3B1) is not a felicitous answer for (3A), it wrongly rules out (3B2) as a felicitous answer for (3A). A similar contrast exists between (1B1) and (1B2). We leave the contrast between (6B1) and (6B2) for a moment. He further gives a unified analysis for these three types of S-topics. In the sense of Rooth's alternative semantics, he argues that in addition to the ordinary semantic value and the focus semantic value, an S-topic induces a topic semantic value. In this situation, the topic semantic value of a sentence with an S-topic and focus is a set of sets of propositions, i.e., a set of questions. Rooth's question/answer congruence condition is revised as follows.

(9) Question/Answer Condition
     The meaning of the question must match one element in the topic value of the
     answer A ($⟦Q⟧\ ^o ∈ ⟦A⟧\ ^t$).   (Bürning, 1999:148)

In Bürning's analysis, a sentence with an S-topic induces a set of sets of propositions, i.e., a set of questions, as in (10). According to (9), the original question matches one element of the set of the topic semantic value of a sentence containing an S-topic, i.e., the third member. In his analysis, given a question, the answerer does not answer the original one, but a related one. This is called the contrastive topic.

(10)   {{I would buy *War and Peace*, I would buy *The Hotel New Hampshire*, I would
        buy *The World According to Garp*, ...},
        {Rufus would buy *War and Peace*, Rufus would buy *The Hotel New Hampshire*,
        Rufus would buy *The World According to Garp*, ...},
        { Fritz would buy *War and Peace*, Fritz would buy *The Hotel New Hampshire*,
        Fritz would buy *The World According to Garp*, ...},
        { Fritz's brother would buy *War and Peace*, Fritz's brother would buy *The Hotel
        New Hampshire*, Fritz's brother would buy *The World According to Garp*, ...}, ...}

    With this notion in mind, I will examine whether his analysis can be extended to
account for the S-topic constructions in Chinese. Let us take the partial topic into
consideration first, as in (7). The rising pitch contour cannot make an infelicitous
dialogue felicitous. An overt contrastive topic is required. The same felicitous contrast
exists in the contrastive topic constructions, as in (11).

(11)   A: Zhangsan yao he   shenme?
            Zhangsan will drink what
            'What will Zhangsan drink?'
        B1:#   wo yao he   [hong cha]$_F$.
               I   will drink red   tea
               'I will drink red tea.'
        B2:#   [wo]$_T$ yao he   [hong cha]$_F$.
               I   will drink red   tea
               'I will drink red tea.'
        B3:   [wo]$_T$ yao he   [hong cha]$_F$,
               I   will drink red   tea
               danshi wo bu zhidao [Zhangsan]$_T$ yao he   shenme.
               but   I   not know Zhangsan   will drink what
               'I will drink red tea, but I do not know what Zhangsan will drink.'
        B4:   [wo]$_T$ yao he   [hong cha]$_F$,
               I   will drink red   tea
               [Zhangsan]$_T$ yao he   [lu   cha].
               Zhangsan   will drink green tea
               'I will drink red tea and Zhangsan will drink green tea.'

Because of no contrast between (11B1) and (11B2), it seems that the topic accent plays
no role in the contrastive topic constructions in Chinese. However, the contrast between
(11B1) and (11B3) shows that an unanswered question following the first conjunct with a
contrastive topic makes the dialogue felicitous. This question can be further answered, as
in (11B4).
    Now our attention turns to the purely implicational topic. In this respect, an answer

with or without a following remaining question is a felicitous answer for the original question. However, the sentence with a following contrastive topic implies that other wives are taken into consideration, as in (12B3, 4), while the one without it does not, as in (12B1).

(12)   A: ni de qizi wen qita-de   nanhaizi ma?
            you DE wife kiss other-DE boy   Q
            'Did your wife kiss other boys?'
       B1: wo de   qizi [mei-you]$_F$ wen qita-de   nanhaizi.
            I   DE wife not-have   kiss other-DE boy
            'My wife did not kiss other boys.'
       B2: [wo]$_T$ de   qizi [mei-you]$_F$ wen qita-de   nanhaizi.
            I   DE wife not-have   kiss other-DE boy
            'My wife did not kiss other boys.'
       B3: [wo]$_T$ de   qizi [mei-you]$_F$ wen qita-de nanhaizi,
            I   DE wife not-have kiss other-DE boy
            danshi wo bu zhidao [ni]$_T$ de qizi you-mei-you   wen qita-de   nanhaizi.
            but   I   not know you DE wife have-not-have kiss other-DE boy
            'My wife did not kiss other boys, but I did not know whether your wife
            kissed other boys.'
       B4: [wo]$_T$ de   qizi [mei-you]$_F$ wen qita-de   nanhaizi,
            I   DE wife not-have   kiss other-DE boy
            danshi [ni]$_T$ de qizi [wen-le]$_F$ qita-de   nanhaizi.
            but   you DE wife kiss-PF other-DE boy
            'My wife did not kiss other boys, but your wife kissed other boys.'

From the discussion mentioned above, the topic accent in English and German can make a dialogue containing a partial topic or a contrastive topic felicitous. In Chinese, no such topic accent can be utilized to make such dialogues felicitous. A disputable question or another answer is required. However, in all of these languages, an S-topic implies a disputable question. In what follows, I will propose an analysis to account for how to build an S-topic construction in Chinese, and explore the semantic/pragmatic effects of S-topics.

3. A plausible analysis
3. 1. A theoretical setting
In this section, I will follow Reich's (2007) and Kuo's (2008) analyses for short answers of multiple questions and gapping to build an S-topic construction in Chinese. Moreover, I will follow Bürning's analysis for the semantics/pragmatics of S-topics. Following Roberts (1996), Reich (2007) gives a uniform analysis for short answers and gapping. A short answer is the answer for an explicit salient multiple question, as in (13),

while gapping is another kind of short answers for an implicit salient multiple question, as in (14). In (14), the reconstructed *wh*-question is *who ate what*. At LF, all the *wh*-phrases undergo covert *wh*-movement to CPSpec. The ExClo(Q) is $\exists y \exists x[x$ ate $y]$, which entails FClo(A), i.e., $\exists y \exists x[x$ ate $y]$. In this situation, the verb *ate* can be deleted (cf. Kuo 2008). If this analysis is on the right track, it can be extended to account for the issue about S-topics. I will come back to this issue in the next section.

(13)   A: Who bought what?
        B: John apples, Bill bananas, Jack oranges.
(14)   [JOHN]$_F$ ate [BREAD]$_F$, and [[HARRY]$_F$ ~~ate~~ [BANANAS]$_F$]~Γ]

Now let us turn to the issue about the meaning of S-topics. In the sense of Rooth's alternative semantics, Bürning (1997, 1999) assumes that in addition to the ordinary semantic value and the focus semantic value, the S-topic in the answer induces a topic semantic value, i.e., a set of sets of propositions or a set of questions, as in (9), repeated below.

(9)   Question/Answer Condition
      The meaning of the question must match one element in the topic value of the
      answer A (⟦Q⟧ $^o \in$ ⟦A⟧ ^{t}).   (Bürning, 1999:148)

Moreover, he argues that an S-topic implies a disputable remnant question. The relevant definitions are defined in (15-17).

(15)   Given a sentence A, containing an S-topic, there is an element Q in ⟦A⟧ ^{t} such
        that Q is still under consideration after uttering A.   (Bürning, 1999:150)

(16)   Disputability:
        A set of propositions P is disputable given a common ground CG, DISP(P, CG),
        iff there are propositions $p \in P$ such that p is informative and nonabsurd with
        respect to CG; formally DISP(Q, CG) iff $\exists p \in Q$: $p \cap CG \neq CG$ & $P \cap CG \neq \phi$.

(17)   Implicature connected with S-topics in a sentence A: $\exists q[q \in$ ⟦A⟧ ^{t} & DISP(q,
        CG$\cap$ ⟦A⟧ ^{o})]   (Bürning, 1999:151)

With these notions in mind, I will examine whether his analysis can be extended to account for the S-topic constructions in Chinese.

3.2. The explanatory reality
3.2.1. The partial topic

As mentioned before, Chinese differs from English in that the topic accent on the S-topic in English can save an infelicitous dialogue. In Chinese, a remaining question or a list of complete answers following the S-topic makes the dialogue felicitous, as in (7B3) and (7B4). Here arises a question: how to build a partial topic construction in Chinese? I will assume here that English or German can build a partial topic construction in terms of the topic accent and implies a disputable question while Chinese builds a partial topic construction only by listing its contrastive part. That is, it is construction-specific. However, there is still a remaining question: how to get a set of questions in the S-topic constructions? In what follows, I will adopt Reich's (2007) and Kuo's (2008) analyses in that the following contrastive conjunct induces an implicit question in the former conjunct.

Take (7B3) for example. Since the question word *shenme shuiguo* 'what fruit' in the second conjunct is the same as the original question. The crucial is that the subject *nun mingxing* 'female stars' in the second conjunct contrasts with the subject *nan mingxing* 'male stars' in the first conjunct. I will assume here that the contrastive topic in the second conjunct, like the contrastive focus in the gapping construction, makes the subject of the first conjunct a contrastive topic. Therefore, the contrastive topic in the second or latter conjunct behaves like the topic accent in English and German. In this situation, the first conjunct gets a topic semantic value, i.e., the set of questions: *who likes to eat what fruit*? It is a set of questions. This set of questions is equal to the set of questions induced by the topic accent in English and German. The focus semantic value of the first conjunct is (18a); moreover, its topic semantic value is (18b). According to Question/Answer Condition (9), the original question matches one element in the topic value of the answer A ($[\![Q]\!]^{\,o} \in [\![A]\!]^{\,t}$), i.e., the third member.

(18)   a.   {the male stars like to eat apples, the male stars like to eat oranges, the male stars like to eat bananas, …},

       b.   {{the male stars like to eat apples, the male stars like to eat oranges, the male stars like to eat bananas, …},
            {the female stars like to eat apples, the female stars like to eat oranges, the female stars like to eat bananas, …},
            {the stars like to eat apples, the stars like to eat oranges, the stars like to eat bananas, …}, …}

Now our attention turns to (7B4). I will assume here that the answers in the first and latter conjunct are the focused parts, since they correspond to the questioned part of the original question. They induce a focus semantic value. In (7B4), *pingguo* 'apple' and

juji 'orange' correspond to the questioned part of the original question, *what fruit*. In this situation, The contrastive topic in the second conjunct induces a topic semantic value of the first conjunct. It is a set of questions as well, as in (18b). In this situation, the ordinary semantic value of the question is one of the members of the topic semantic value of the second conjunct, i.e., the third one in (18b).

3.2.2. The contrastive topic

After the partial topic construction has been discussed, I will examine whether Bürning's (1999) analysis can be extended to account for the other two S-topic constructions. In this section, I will explore the contrastive topic construction. The felicitous contrast between (11B2) and (11B3) shows that another contrastive topic is required. The embedded clause in the second conjunct contains an unanswered question phrase corresponding to the questioned part of the original question. Therefore, it is the focused part. I will assume here that the contrastive topic in the second conjunct makes the subject of the first conjunct become a contrastive topic. In this situation, it induces a topic semantic value, i.e., a set of questions. The focus semantic value and the topic semantic value of the first conjunct are represented as (19) and (20), respectively.

(19)   {I will drink red tea, I will drink green tea, I will drink coffee,
         I will drink juice, …}
(20)   {{I will drink red tea, I will drink green tea, I will drink coffee,
         I will drink juice, …},
         {Zhangsan will drink red tea, Zhangsan will drink green tea, Zhangsan will drink
         coffee, Zhangsan will drink juice, …},
         {Lisi will drink red tea, Lisi will drink green tea, Lisi will drink coffee, Lisi will
         drink juice, …},
         {Wangwu will drink red tea, Wangwu will drink green tea, Wangwu will drink
         coffee, Wangwu will drink juice, …}, …}

Therefore, the original question is one of the topic semantic value, i.e., the second member, and thereby satisfying Bürning's Question/Answer Condition. (11B4) can be explained in a similar way.

3.2.3. The purely implicational topic

In this subsection, let us take a look at the purely implicational topic. (12B1), (12B2), (12B3) and (12B4) are felicitous answers for the question (12A). However, the difference among them is that in (12B3) and (12B4), a contrastive phrase in the second conjunct appears while in (12B1) and (12B2), no contrastive phrase appears. I will assume here that the contrastive phrase in the second conjunct makes the subject of the first conjunct become an S-topic. In this situation, the focus semantic values of the first

conjunct in these four sentences are the same, as in (21a). The topic semantic value of (12B3) or (12B4) is the (21b). Therefore, the original question is equal to (21a), and is one member of the topic semantic value of (21b). Therefore, (12B1), (12B3) and (12B4) are all felicitous answers for (12A). The issue on the semantic/pragmatic difference between them will be discussed in the next section.

(21)   a. {my wife kissed other men, my wife did not kiss other men}
        b. {{my wife kissed other men, my wife did not kiss other men},
            {your wife kissed other men, your wife did not kiss other men},
            {John's wife kissed other men, John's wife did not kiss other men, …}, …}

To sum up, English and German use the topic accent to make a dialogue containing an S-topic felicitous, and this topic accent implies a disputable question. In contrast, Chinese uses a contrastive topic construction to make a dialogue containing an S-topic felicitous, and this contrastive topic triggers a disputable question, which should be overtly manifested or answered.

3.3. Disputability

In the preceding section, we have shown that the topic accent can build S-topic constructions in English and German while it cannot in Chinese. Chinese S-topic constructions require at least one disputable question or a contrastive answer following it. According to Bürning (1999), this S-topic induces a secondary topic semantic value. His analysis correctly accounts for the semantics/pragmatics of the sentences containing a contrastive topic, a partial topic, or a purely implicational topic. In what follows, I will turn to the issue about the implicature implied by the S-topics.

He argues that an S-topic implies that an unanswered question is still under consideration. In this situation, when the hearer answers (3B1) for the question, (s)he does not answer the asker's question properly. The subject NP *I* in the answer is different form the subject NP of the original question *Fritz*. According to Bürning, an S-topic with the topic accent implies a disputable residual question contained in the topic semantic value, i.e., the third member in (10). This is implied by the topic accent in English and German. On the other hand, since the topic accent cannot save the conjunct with only an S-topic in Chinese, at least one contrastive conjunct with a disputable question or a related answer is required. (11B2) cannot be analyzed as an S-topic construction while (11B3) can. In (11B3), the contrastive topic in the second conjunct contrasts with the subject in the first conjunct. Therefore, the former triggers the latter as a contrastive topic. In this situation, the unanswered question can be analyzed as the implicature implied by the S-topic. As mentioned before, a contrastive topic in Chinese must be triggered by another contrastive topic. In (11B3), the subject in the embedded clause in the second conjunct triggers the embedded subject in the first conjunct as an S-topic. If this is correct, the disputable question corresponds to the third member in (18b). This question can be

further answered as (11B4).

After discussing the contrastive topic, I will examine the implicature implied by the partial topic, as in (7). Like the contrastive topic, the partial topic in Chinese cannot be saved by the topic accent only. A contrastive conjunct is required, as shown by the felicitous contrast between (7B1) and (7B3). The subject *nun mingxing* 'the female stars' in the second conjunct triggers the subject *nan mingxing* 'the male stars' in the first conjunct as an S-topic. In this situation, the partial topic implies a disputable question. It corresponds to the second member in (20).

Finally, I will examine the issue about the purely implicational topic, as in (12B3). Like the contrastive topic and the partial topic, the purely implicational topic in Chinese is triggered by a contrastive topic in the following conjunct. In (12B3), the embedded subject in the second conjunct triggers the subject in the first conjunct as a contrastive topic. According to (15), there is still a disputable question waiting for being answered, which is represented by the embedded clause in the second conjunct. It corresponds to the second member in (21b). It can be further answered, as in (12B4).

From the discussion mentioned above, the topic accent in Chinese cannot make a phrase become an S-topic. An S-topic in Chinese must be triggered by a contrastive phrase in the following conjunct. Moreover, Chinese differs from English and German in that the disputable question must be overtly realized, or answered.

3.4. A remaining problem about *zhi* 'only'

As discussed in the previous section, Chinese, unlike English, requires a contrastive topic in the following conjunct to make a phrase in the preceding conjunct become an S-topic. The sentences in (22-24) do not support this argument.

(22) A: Zhangsan, Lisi han Wangwu zuotian   mai shenme dongxi?
          Zhangsan Lisi and Wangwu yesterday buy what   thing
          'What did Zhangsan, Lisi and Wangwu buy yesterday?'
      B1: wo zhi zhidao [Zhangsan]$_T$ zuotian   mai [pingguo]$_F$.
          I   only know Zhangsan   yesterday buy apples
          'I only knew that Zhangsan bought apples yesterday.'
      B2: wo zhi zhidao [Zhangsan]$_T$ zuotian   mai [pingguo]$_F$,
          I   only know Zhangsan   yesterday buy apples
          wo bu zhidao [Lisi han Wangwu]$_T$ zuotian   mai shenme dongxi.
          I   not know Lisi and Wangwu   yesterday buy what   thing
          'I only knew that Zhangsan bought apples yesterday, but I did not know
          what Lisi and Wangwu bought yesterday.'
          (The partial topic)
(23) A: Zhangsan yao he   shenme?
          Zhangsan will drink what
          'What will Zhangsan drink?'

> B1: wo zhi zhidao [Lisi]$_T$ yao he   [lu cha]$_F$.
>   I only know Lisi   will drink green tea
>   'I only know that Lisi will drink green tea.'
> B2: wo zhi zhidao [Lisi]$_T$ yao he   [lu cha]$_F$,
>   I only know Lisi   will drink green tea
>   wo bu zhidao [Zhangsan]$_T$ yao he   shenme.
>   I   not know Zhangsan   will drink what
>   'I only know that Lisi will drink green tea, but I do not know what
>   Zhangsan will drink.'
>   (The contrastive topic)

(24) A: ni   de qizi wen qita-de   nanhaizi ma?
            you DE wife kiss other-DE boy   Q
            "Did your wife kiss other boys?'

> B1: wo zhi zhido [wo]$_T$ de   qizi [mei-you]$_F$ wen qita-de   nanhaizi.
>   I only know I   DE wife not-have   kiss other-DE boy
>   'I only knew that My wife did not kiss other boys.'
> B2: wo zhi zhido [wo]$_T$ de   qizi [mei-you]$_F$ wen qita-de   nanhaizi,
>   I only know I   DE wife not-have   kiss other-DE boy
>   wo bu zhidao [ni]$_T$ de qizi you-mei-you   wen qita-de   nanhaizi.
>   I   not know you DE wife have-not-have kiss other-DE boy
>   'I only knew that [my]$_T$ wife did not kiss other boys, but I did not know
>   whether your wife kissed other boys."
>   (The purely implicational topic)

The above three sets of data show that when *zhi* 'only' is inserted, the contrastive phrase in the following conjunct is optional. The question is how *zhi* licenses an S-topic.

3.4.1. A hybrid theory of association with focus proposed by Krifka (2006)

In order to answer this question, we need to examine the meaning of *zhi*. As pointed out in Chomsky (1973), the strongest argument for LF movement for the focused expression is weak crossover effect, which is argued to violate the Leftedness Condition, as in (25) and (26). However, Rooth (1985) argues that the element within an island can be associated with the focusing adverbs like *only*, as in (27a,b).

(25) a. *Who$_i$ did his$_i$ mother like t$_i$?
     b. *His$_i$ mother likes everyone$_i$.
(26) a. His$_i$ mother likes John$_i$.
     b. *His$_i$ mother likes JOHN$_F$.

(27) a. John only bought the books that JOHN$_F$ gave to Mary.
     b. John only bought the books that John gave to MARY$_F$.

If the focused element in (27a) or (27b) undergoes LF movement, it will violate the island condition. He suggests that the focused element introduces a set of alternatives, which projects upward. In alternative semantics, the focused element does not undergo LF movement. However, Drubig (1994) points out that association with focus does exhibit the island sensitivity, as in (28). In Structure Meaning theory (SM), the LF representation of (28) can be represented as (29).

(28) Mary didn't invite [the man in a black$_F$ suit]$_{FP}$ to the party
     a. but she invited the man in a purple$_F$ suit.
     b. but the man in a purple$_F$ suit.
     c. *but in a purple$_F$ suit.
     d. *but a purple$_F$ suit.
     e. *but purple$_F$.
(29) LF: Mary
          didn't [the man in a black$_F$ suit]$_{FP\ 1}$[invite t$_1$ to the party]]
          [but [the man in a purple$_F$ suit]$_{FP}$]

If the sentence with a focus phrase does not contain a focused element, it is ungrammatical, as in (30a). Furthermore, if the focused element does not correspond to the focused element in the preceding clause, it is ungrammatical, as in (30b). In addition, the unfocused elements must stay the same, as in (30c).

(30) Mary didn't invite [the man in a black$_F$ suit]$_{FP}$ to the party
     a. *but (she invited) the man in a purple suit.
     b. *but (she invited) the woman$_F$ in a purple suit.
     c. *but (she invited) the woman in a purple$_F$ suit.

Based on these data, Krifka suggests that the focus operator *zhi* in the apparent counterexamples like (27) involve association with the syntactic island that contains the focused element, which is called the focus phrase (FP). In the structure meaning theory, the syntactic island containing the focused element undergoes movement, which is a case of piped-piping at LF. In this situation, no island violation occurs.

He further explains the semantic contribution of the focused element within the focus phrase.

(31) a. only liked [the man that introduced Bill$_F$ to Sue]$_{FP}$
     b. only liked [the man that introduced Bill to Sue$_F$]$_{FP}$

In the first case, the alternatives are men that introduced someone to Sue; in the second case, the alternatives are men that introduced Bill to someone. Given a situation that Greg introduced Bill to Sue, George introduced Ben to Sue, Glen introduced Bill to Sigrid, and John likes Greg and Glen but not George. In this situation, (31a) is true because among the men that introduced someone to Sue, John only likes Greg, while (31b) is false because among the men that introduced Bill to someone, John does not only like Greg but also Glen. Therefore, the focused element within the island does have truth-conditional effect. Based on the above observation, Krifka (2006) proposes a hybrid theory of association with focus. It means that although the focus operator does not associate with the focused element directly, but with the focus phrase, while the focused element within the focus phrase determines the set of alternatives, as claimed in Alternative Semantics. In what follows, I will explore whether this analysis can be extended to analyze the data involving *zhi* 'only' in Chinese.

3.4.2. The properties of *zhi* 'only' in Chinese

To begin with, unlike *only*, *zhi* is only an adverb, so it cannot appear directly before the focused NP (cf. Beaver and Clark 2003, Rooth 1985). In this situation, *zhi* in Chinese is an adverb, but not an adnominal modifier or determiner, since it cannot appear immediately before the noun phrase.

(32) a. zhi you Zhangsan$_F$ mai zhe yi-ben shu.
         only have Zhangsan buy this one-CL book
         'Only Zhangsan bought this book.'
     b. *zhi Zhangsan mai zhe yi-ben shu.
         only Zhangsan buy this one-CL book
         'Only Zhangsan bought this book.'
     c. *Zhangsan mai zhi [zhe yi-ben shu]$_F$.
         Zhangan   buy only this one-CL book
         'John bought only this book.'
     d. Zhangsan zhi mai [zhe yi-ben shu]$_F$.
         Zhangsan only buy this one-CL book
         'John only bought this book.'

The second property of *zhi* is that the associated part in Chinese can be moved to the preverbal position optionally. (33b,c) seem to support the structural meaning approach, since the focused element moves to the complement of the focusing adverb overtly.[4] We

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[4] The element focused by some focusing adverbs like *zhi* occurs after the focus adverbs while the one focused by some focusing adverbs like *dou* must occur before them. I assumes that the former is moved to the complement position of its focusing adverb while the latter is moved to the specifier of its focusing adverb.

can assume that the focused element in (33a) moves to the complement position at LF. I leave the issue on the optionality of overt movement for further research.

(33) a.   Zhangsan zhi kan [xiaoshuo]$_F$.
           Zhangsan only read novel
           'John only reads novels.'
     b.   Zhangsan zhi you   [xiaoshuo]$_F$ cai   kan.
           Zhangsan only have novel   CAI read
           'John reads only novels.'
     c.   zhi you   [xiaoshuo]$_F$ Zhangsan cai   kan.
           only have novel   Zhangsan CAI read
           'Only novels, John reads.'

The third property is that when the phrase focused by *zhi* is inside an syntactic island, the whole island, but not the focused element, undergoes overt movement.

(34) a.   zhi you Zhangsan$_F$ xie de shu, Lisi cai   kan.
           only have Zhangsan write DE book, Lisi CAI read
           'Lisi only read the books that Zhangsan wrote.'
     b.   *zhi you   Zhangsan$_{iF}$, Lisi cai   kan t$_i$ xie de   shu.
           only have Zhangsan   Lisi CAI read   write DE book
           'Lisi only read the books that Zhangsan wrote.'

The fourth property of *zhi* is that it does not directly associate with the focused element. Therefore, it should exhibit the island-sensitivity. The grammatical contrast between (35a) and (35b) confirms this, since the whole complex NP island must be coordinated.

(35) a.   Zhangsan zhi   mai [$_{NP}$ [$_{CP}$ [Lisi]$_F$ xie   de] shu],
           Zhangsan only buy   Lisi   write DE book
           bu mai [$_{NP}$ [$_{CP}$ [Wangwu]$_F$ xie   de shu]].
           not buy   Wangwu   write De book
           'Zhangsan only buys the books that Lisi writes, but does not buy the books
           that Wangwu writes.'
     b.   *Zhangsan zhi mai [$_{NP}$ [$_{CP}$ [Lisi]$_F$ xie de] shu],
           Zhangsan only buy   Lisi write DE book
           bu mai [Wangwu]$_F$.
           not buy Wangwu
           '*Zhangsan only buys the books that Lisi writes, but does not buy Wangwu.'

The final property of *zhi* is that the focused element, but not the focus phrase, determines the set of alternatives of the focus phrase. This can be shown by the semantic difference among (36a), (36b) and (36c).

(36) a. Zhangsan zhi   zhidao Lisi mai [pingguo]$_F$, [5]
          Zhangsan only know   Lisi buy apple
          bu zhidao Lisi mai [xiangjiao]$_F$.
          not know Lisi buy banana
          'Zhangsan only knew that Lisi bought apples, but did not know that Lisi bought
          bananas.'
      b. Zhangsan zhi   zhidao [Lisi]$_F$ mai pingguo,
          Zhangsan only know   Lisi   buy apple
          bu zhidao [Wangwu]$_F$ ye   mai pingguo.
          not know Wangwu   also buy apple
          'Zhangsan only knew that Lisi bought apples, but did not know that
          Wangwu bought apples, too.'
      c. Zhangsan zhi zhidao Lisi [mai]$_F$ pingguo,
          Zhangsan only know Lisi buy   apple
          bu zhidao Lisi [mai]$_F$ pingguo.
          not know Lisi sell   apple
          'Zhangsan only knew that Lisi bought apples, but did not know that Lisi
          sold apples.'

If the set of alternative is determined by the focus phrase, the sets of alternatives of (36a-c) must be the same. However, they have different truth-conditional effects. Given the situation that *Zhangsan* knew that *Lisi* bought other fruit except apples, (36a) is false, but (36b, c) are true. In contrast, given the situation that *Zhangsan* knew that someone else except *Lisi* bought apples. (36b) is false while (36a, c) are true. Moreover, assuming the situation that *Zhangsan* knew that *Lisi* has some relation to apples, (36c) is false while (36a, b) are true. From the above discussion, we can conclude that the set of alternatives is determined by the focused element, not the focus phrase.

To sum up, from the discussion mentioned above, the following conclusion about *zhi* can be obtained. The first one is that *zhi* is an adverb. The second one is that the focus phrase can optionally move to the complement of the focus operator. These support the structured meaning approach. The third one is that from the coordination test, association with focus exhibits the so-called island-sensitivity. The final one is that although the focus operator does not associate with the focused element directly, the set of alternatives

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[5] The felicity of (36a) and (36c) seems to support that contrastive topics do not need to move to the preverbal positions in Chinese. A similar phenomenon exists in German, as pointed out in Büring (1997).

is determined by the focused element. With these in mind, I will assume Krifka's hybrid theory of association with focus to account for the S-topics of Chinese in the next subsection.

3.4.3. *Zhi* licenses S-topics and introduces a residual question

In what follows, I will adopt Krifka's hybrid theory of association with focus to account for the Chinese S-topic issue. That is, *zhi* associates the focus phrase only, but the set of alternatives is determined by the focused element. It has been argued that *zhi* can focus on any element within an island. When a different element is focused, it yields the truth-conditional effect. However, when a D-topic appears, the focused element is fixed.

(37) a.   Zhangsan yao   chi shenme dongxi?
           Zhangsan want eat what   thing
           'What does Zhangsan want to eat?'
      b.   wo zhi zhidao [Lisi]$_T$ yao chi [pingguo]$_F$,
           I   only know   Lisi   want eat apple
           wo bu zhidao [Zhangsan]$_T$ yao chi shenme dongxi.
           I   not know Zhangsan   want eat what   thing
           'I only knows that Lisi will eat apples, but I do not know what Zhangsan will eat.'
      c.   #wo zhi zhidao Zhangsan yao chi [pingguo]$_F$,
           I   only know   Zhangsan want eat apple
           wo bu zhidao [Wangwu]$_T$ yao chi shenme dongxi.
           I   not know Wangwu   want eat what   thing
           'I only knows that Zhangsan will eat apples, but I do not know what Wangwu will eat.'   (Contrastive topics)
(38) a.   Zhangsan han Lisi yao mai shenme dongxi?
           Zhangsan and Lisi want buy what   thing
           'What will Zhangsan and Lisi buy?'
      b.   wo zhi   zhidao [Zhangsan]$_T$ yao mai [pingguo]$_F$,
           I   only know   Zhangsan   want buy apple
           wo bu zhidao [Lisi]$_T$ yao mai shenme dongxi.
           I   not know Lisi   will buy what   thing
           'I only know Zhangsan will buy apples, but I do not know what Lisi will buy.'
      c.   #wo zhi zhidao Zhangsan han Lisi yao mai [pingguo]$_F$,
            I   only know   Zhangsan and Lisi will buy apple
           wo bu zhidao [Jialiu]$_T$ yao mai [xiangjiao]$_F$.
           I   not know   Jialiu   will buy banana
           'I only know Zhangsan and Lisi will buy apples, but I do not know Jialiu will buy bananas.'   (Partial topics)

(39) a.   ni   de taitai you-mei-you wen qita de nahaizi?
         you DE wife have-not-have kiss other DE boy
         'Did your wife kiss other boys?'

      b.   wo zhi zhidao [wo]$_T$ de taitai mei-you wen qita de   nahaizi,
         I only know   I   DE wife not-have kiss other DE boy
         wo bu zhidao [ni]$_T$ de   taitai you-mei-you wen qita de   nahaizi.
         I   not know your DE wife not-have-not kiss other DE boy
         'I only knew my wife did not kiss other boys, but I did not know whether
         your wife kissed other boys.'

      c.   #wo zhi zhidao wo de   taitai mei-you wen qita   de nahaizi,
         I   only know   I DE wife not-have kiss other DE boy
         ye zhidao [ni]$_T$ de taitai you-mei-you wen qita de nahaizi.
         also know your DE wife not-have-not kiss other DE boy
         'I only knew that my wife did not kiss other boys, but I also knew whether
         your wife kiss other boys.   (Purely implicational topics)

The question is why the focused element of the focusing operator is fixed when a D-topic appears. Take (37c) for example. Since the subject of the original question is the same as the subject of the answer in the first conjunct, and the object is the focused part corresponding to the original question, the adverb *zhi* does not associate with any constituent. It does not induces a disputable question; therefore, it is at odd with the second conjunct. This can be accounted for by Krifka's (2001) assumption that the backgrounds of the first conjunct and the following conjunct must be the same, that is, ⟦FP⟧^{A} is equal to ⟦FP'⟧^{A}. The background of the first conjunct is $\lambda x[$Zhangsan wants to eat x] while the one of the second conjunct is $\lambda x\lambda y[y$ wants to eat x]. In this sitution, ⟦FP⟧^{A} is not equal to ⟦FP'⟧^{A}. In contrast, the embedded subjects of the first conjunct and the second one are contrastive topics in (37b), so their backgrounds are the same, i.e., $\lambda x\lambda y[y$ wants to eat x]. Thus, ⟦FP⟧^{A} is equal to ⟦FP'⟧^{A}. In addition, the embedded subject is the element focused by *zhi*, so it induces a set of questions, including the original question, thereby satisfying (9). This account for why the S-topic must induces a set of alternatives.

Furthermore, differently from Horn (1996), who argues that the presupposition of the sentence with *only* is the proposition expressed by the sentence without *only*. The assertion part is that all the alternative propositions are equal to the presupposition. This will not account for why an S-topic implies a disputable question. I will not discuss the issue about presupposition induced by *only*. I will suggest that the sentence with *zhi* 'only' implies a negative alternative implicature, as in (40). Therefore, at least an alternative question is still under discussion.

(40) ONLY(FP)(B)=B(F)∧∀X∈ALT(FP)[B(X)→X=FP]∧imply: ∃Y ∈ALT(FP) ∧Y≠X
      ∧ [¬B(Y)]

In the sense of the hybrid theory of association with focus and (40), (23B1) can be represented as follows.

(41) 〚I only [knows that [Lisi]$_T$ will drink [green tea]$_F$]$_{FP1}$ [t$_1$]]〛
    $=\forall X\in$ 〚knows that Lisi will drink green tea〛^{A} [〚I〛 (X)) $\rightarrow$ X= 〚knows that Lisi will drink green tea〛 $\wedge$
    imply: $\exists Y\in$ALT(〚knows that Lisi will drink green tea〛^{A}) $\wedge Y\neq$ 〚knows that Lisi will drink green tea〛 $\wedge\neg$ 〚I〛 (Y)
    $=\forall X\in$ {[KNOW (WILL-DRINK(GREEN-TEA)(LISI))]}
    [(I)(X) $\rightarrow$ X= [KNOW(WILL-DRINK(GREEN-TEA)(LISI))] $\wedge$
    imply: $\exists Y\in$ALT([KNOWS(WILL-DRINK(GREEN-TEA)(LISI))])$\wedge$
    [$\neg$(I) (Y)]

To sum up, although a rising pitch contour in Chinese cannot make an infelicitous dialogue felicitous, a contrastive topic or an adverb is required. In this section, I adopt Krifka's (2006) hybrid theory of association with focus to account for why when *zhi* is inserted, no contrastive topic is required, since it can induce a set of alternatives as the topic semantic value.

4. Conclusion

From the preceding sections, we can reach the following conclusion. First, in some languages like English and German, S-topics can be marked with the topic accent while in some languages like Chinese, S-topics cannot. I will suggest that this difference is due to the Stress Parameter. Since German and English are stress languages, stress plays an important role in meaning; however, Chinese is not a stress language, but a tone language, stress plays no role in meaning. In order to express the meaning induced by the S-topic accent in English and German, Chinese S-topic constructions need to be triggered by another contrastive topic or adverbs like *zhi* 'only'. This should be explored by examining other languages. Moreover, an S-topic makes an infelicitous dialogue felicitous, since it induces a topic semantic value including the ordinary semantic value of the original question as its member to satisfy the Question/Answer Condition. Finally, if a sentence contains an S-topic, it should be divided into three parts: Background, S-topic, and Focus, rather than Background and Focus.

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Possessor Raising and BA Construction[*]

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In this paper, I discuss a subset of the BA construction and argue that possessor raising (movement) must be involved. Contrary to Huang's (2008) base-generation approach, I show that a multiple possessor example of the BA construction can only be compatible with the movement approach. Furthermore, I argue that it is not true that we can only have inalienable nominals in possessor raising as proposed in the literature. I show that this seemingly obligatory requirement is due to a semantic restriction on the BA construction itself. Once we make use of the recursive *v*P projection to circumvent this requirement, inalienable nominals can also be employed.

1. Introduction

Huang (2008) proposes a base-generation account for the pseudo-Double Object Construction [pseudo-DOC] in (1). Although *he* ('drink') is usually used as a transitive verb, in this special construction it seems to function as a ditransitive verb. As shown in (1), the verb *he* ('drink') takes two arguments: *Sala* ('Sara') and *san-ping jiu* ('three bottles of wine'). Note that the first argument *Sara* also receives a special Affectee reading in this construction. That is, *Sara* is affected by the event of *Grissom*'s drinking of three bottles of wine. For example, if *Grissom* drinks *Sara*'s three bottles of wine, *Sara* loses some of her possessions.

(1) Geruisen he-le   **Sala**   san-ping   jiu.
    Grissom drink-ASP Sara   three-CL   wine
    'Grissom drank three bottles of wine on Sara.'

Huang proposes a structure like the one in (2) to explain the Affectee reading on *Sara*. The argument *Sara* (NP2) is base-generated in Spec, VP, where an Affectee theta-role is assigned. In order to get the right word order, the verb has to raise to the *v* position, consistent with Huang, Li and Li's (2009) hypothesis that *v* in Chinese must be overtly filled. Note that although it is possible to interpret *Sara* (NP2) as the possessor of the *three bottles of wine* (NP3), this is not a necessary reading. For example, (1) is also compatible with a scenario in which *Grissom* and *Sara* go to a bar together, and *Sara* pays for Grissom's wine. Huang argues that the optional possessor reading on *Sara* is

incompatible with a possessor raising approach, since possessor raising denotes an obligatory possessor reading. If there is a possessor reading, it is simply derived through context.

(2)

```
                        vP
                      /    \
                   NP1      v'
                   Agent   /  \
                        vDO-TO  VP
                              /    \
                           NP2      V'
                          Affectee /  \
                                VACT  NP3
                                    Theme/Patient

        Geruisen        Sala  he-le    san-ping jiu      = (1)   (pseudo-DOC)

                           verb raising

        Geruisen  BA    Sala  da-shang-le   shou      = (3)   (BA construction)
```
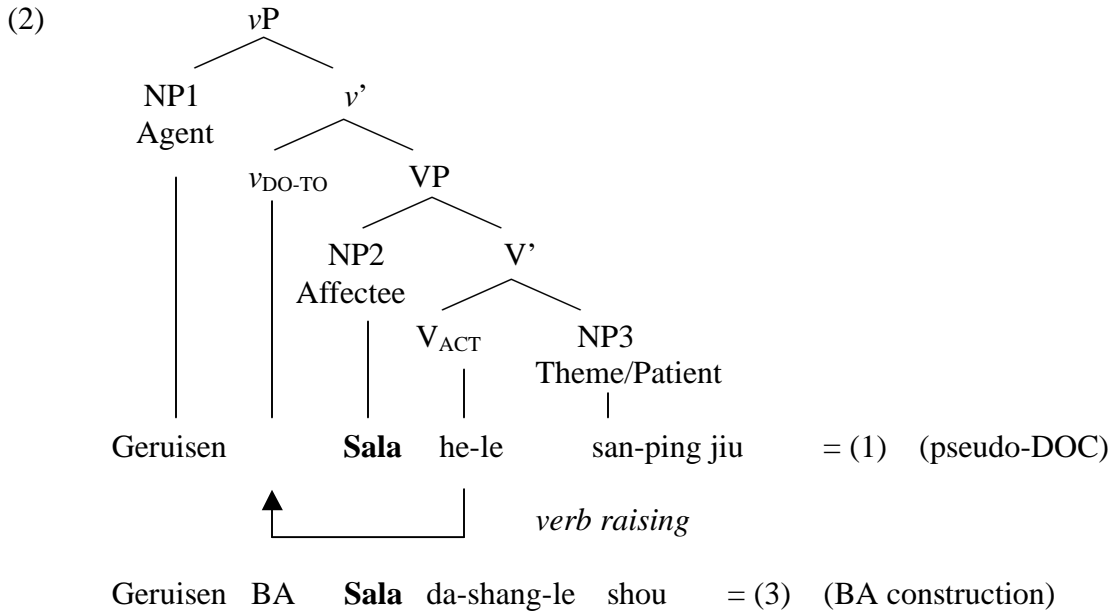
Moreover, Huang argues that the BA construction in (3) is a subtype of this pseudo-DOC construction. In example (3), *Sara* (NP2) also has to be interpreted as an Affectee. Hence, for Huang, *Sara* in (3) also has to be base-generated under Spec, VP to receive the Affectee theta-role. Unlike the pseudo-DOC example in (2), BA is inserted at the *v* position. Since the *v* head is overtly filled, the verb can just stay in situ.

(3) Geruisen ba **Sala**   da-shang-le   shou.
    Grissom BA Sara   hit-hurt-ASP hand
    'Grissom hit Sara on her hand.'

However, in example (3), but not in example (1), NP2 *must* be interpreted as a possessor of NP3. If the BA construction shares the same structure as the pseudo-DOC, it is unclear why there is an obligatory possessor reading on *Sara* in the BA construction under the proposal that the possessor reading depends on context. Because of this obligatory possessor reading in the BA construction, I propose that the pseudo-DOC and BA constructions, although both involve an Affectee projection, have different derivations: base-generation of NP2 in (1) (cf. Huang), but possessor raising of NP2 in (3).

    In the following discussion, I will first present a multiple possessor example of the BA construction, which cannot be captured by Huang's analysis. Then I will show

how my proposal can explain this example. I also argue that the obligatory possessor reading on *Sara* is not simply derived from an inalienable nominal pair in (3). Given the proposed analysis, we can also find alienable nominals with an obligatory possessor reading in the BA construction.

2. A puzzle

First, consider an example like (4), where we can find a possessor without an Affectee interpretation. This Chinese example is inspired by the multiple accusative construction in Korean (cf. Yoon 1990 and Vermeulen 2005).

(4) Geruisen ba [NP **Nike**] [NP **taitai**] da-shang-le [NP shou].
    Grissom BA   Nick   wife   hit-hurt-ASP   hand
    'Grissom hurt Nick's wife's hand.'

There are two possessor-possessee relations in example (4): *Nick* and his wife, as well as *Nick*'s wife and her hand. *Nick*'s wife receives the Affectee reading in (4) since it is her hand which is hurt. However, *Nick* does not necessarily have to be affected. For example, if *Nick* were not aware of the event of his wife's hand being hurt, he would not be affected at all. Under Huang's base-generation account, this particular example cannot be fully explained. Note that in between BA and the verb, there are two NPs now. In order to accommodate both of them, a base-generation approach can either posit a recursive *v*P projection or a recursive Affectee projection to host the NP *Nick*. This is shown in (5). However, no matter which projection is chosen, theta-role assigning problems arise. If the recursive *v*P is chosen, the NP2 *Nick* will receive no theta-role. On the other hand, if the recursive Affectee projection is chosen, now the NP2 *Nick* can get an Affectee theta-role. However, getting the Affectee theta-role means that *Nick* must be obligatorily affected, which is contrary to fact.

(5)
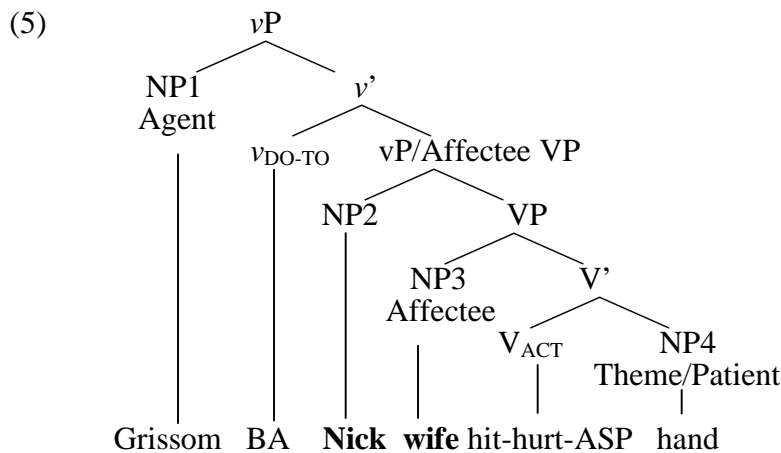
A possible way for Huang to circumvent the above two problems is to say that somehow the NP2 *Nick* can form a constituent with the NP3 *wife* and gets the possessor theta-role from it. Although this can solve the theta-role problem, the NP2 *Nick* will end up without Case. Note that if NP2 is part of NP3, a genitive marker *-de* is required, as shown in (6).

(6) Geruisen da-shang-le   [**Sala** *(de) shou].
    Grissom hit-hurt-ASP   Sara   DE   hand
    'Grissom hurt Sara's hand.'

Hence, this shows that even if the NP2 *Nick* and the NP3 *wife* form a constituent, the NP2 *Nick* cannot get its case checked. There is no *–de* marker in example (4); therefore, there is no Case available. Furthermore, there is evidence showing that the NP2 *Nick* and the NP3 *wife* clearly do not form a constituent. As shown in (7), in between *Nick* and *wife*, we in fact can insert an adverb and a copula.

(7) Geruisen ba [NP **Nike**] (you   shi) [NP **taitai**] da-shang-le [NP shou]
    Grissom BA   Nick   again is   wife   hit-hurt-ASP   hand
    'It is again Nick's wife whose hand was hurt by Grissom.'

    To summarize, the multiple possessor example in (4) is problematic for a base-generation account. Moreover, there are also adjective restriction and resumptive pronoun differences between example (1) and example (3). (See Appendix for details.) If example (1) (pseudo-DOC) and example (3) (the BA construction) share the same underlying structure, these differences are surprising.

3. My Proposal
    In this section, I will propose an account to distinguish the BA construction from the pseudo-DOC. Because of the Affectee reading, I adopt Huang's idea that there has to be an applicative projection in both constructions (cf. Tsai 2008 and Pylkkänen 2008). But in contrast to Huang, I propose that possessor raising (movement) takes place in the BA construction. The proposed structure is shown in (8). As one can see, the pseudo-DOC basically follows Huang's proposal. However, for the BA construction, NP2 first merges with NP3 and gets its possessor theta-role from NP3. Then NP2 moves to Spec, ApplP and gets Case from *v*.[1]

---

[1] The movement of BA will be discussed in Section 4. Since it is not relevant to our current discussion in this section, I will simply put it aside for now.

(8)   *v*P

NP1   *v*'

v   ApplP   Applicative Projection

NP2   Appl'

Appl   VP

Spec   V'

V   NP3

Grissom   drank$_i$ **Sara** t_i three bottles of wine   (pseudo-DOC, = (1))

Grissom   BA$_k$ **Sara**$_i$ t_k hit-hurt-ASP   [t_i hand]   (BA construction = (3))
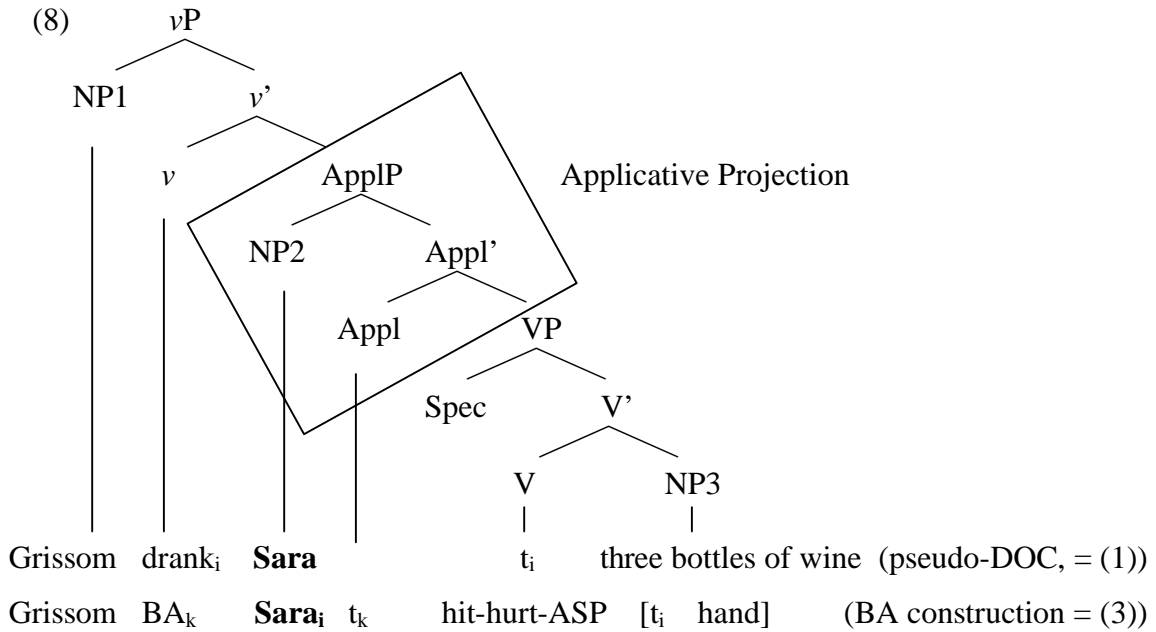
The proposed analysis has the following advantages: First, the optional vs. obligatory possessor reading in the two constructions can be explained. For a pseudo-DOC like example (1), *Sara* is based-generated under Spec, ApplP; hence, the possessor reading is only contextual. But for the BA construction, as in example (3), *Sara* first merges with *hand* and gets a possessor theta-role from it; hence, an obligatory possessor reading is necessary.

Second, the lack of an Affectee interpretation in example (4) can also be explained. The example is repeated here as (9).

(9) Geruisen ba [$_{NP}$ **Nike**]   [$_{NP}$ **taitai**]   da-shang-le   [$_{NP}$ shou]
    Grissom BA   Nick   wife   hit-hurt-ASP   hand
    'Grissom hurt Nick's wife's hand.'

Assuming that recursive *v*Ps are available in Chinese (cf. Sybesma 1999 and Huang, Li and Li 2009), after *Nick* gets the possessor theta-role from *wife*, it raises to the Spec of the recursive *v*P to check its case. The NP *Nick* only gets the possessor theta-role, hence there is no obligatory Affectee reading on it. By adopting this structure and analysis, there is no theta-role conflict problem and no case problem either, as illustrated in (10).

(10) vP

Grissom v'

BA₃ vP   recursive vP

Nickᵢ v'

t₃ ApplP

[tᵢ wife]ⱼ Appl'

t₃ VP

hit-hurt-ASP [tⱼ hand]
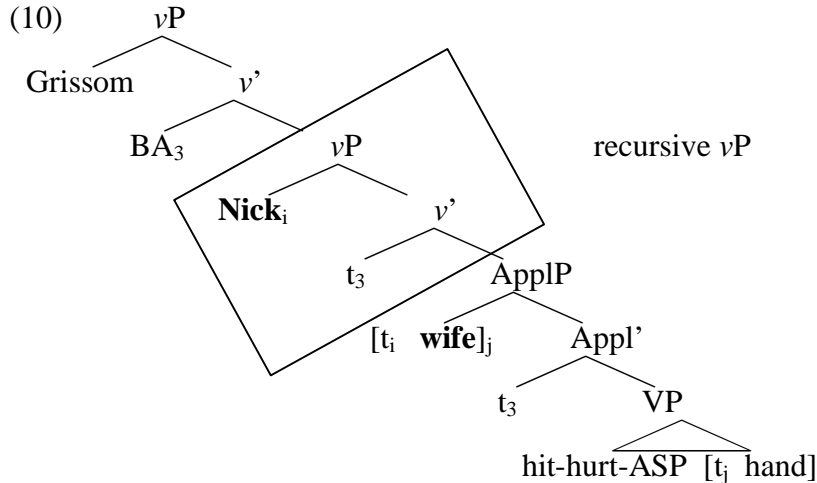
A prediction can be made under the current analysis: The postverbal NP *hand* in (1), repeated here as (11), should be able to move to a preverbal position. And there should be no need to have a genitive marker *-de* between *Sara* and her hand. This prediction is borne out in (12) (cf. the structure in (10)).

(11)   Geruisen ba **Sala**   da-shang-le   shou.
         Grissom BA Sara   hit-hurt-ASP   hand
         'Grissom hit Sara on her hand.'

(12)   Geruisen ba **Sala** (de) shou   da-shang-le.
         Grissom BA Sara   hand   hit-hurt-ASP
         'Grissom hit Sara on her hand.'

With *–de* in between *Sara* and *hand*, this means that *Sara* and *hand* are both under Spec, ApplP. *Sara* gets the possessor theta-role and checks its case with the genitive marker. On the other hand, if there is no *–de* in between, this means that after getting the possessor theta-role from *hand*, *Sara* raises to the Specifier position of the recursive *v*P and then gets case from the higher *v* head (occupied by BA). Since both derivations are legitimate, the genitive marker *–de* is therefore optional in example (12).

4. More on BA construction

Before proceeding to the conclusion, in this section I will address another issue related to possessor raising in the BA construction. According to the literature (cf. Cheng and Ritter 1988 and Yoon 1990), only inalienable nominals (part-whole or body-part nominals) are possible candidates in the BA construction. Therefore, if the nominals are

pairs like *Sara* and *hand,* as in example (3), they are allowed. On the other hand, if the nominals are pairs like *Sara* and *three bottles of wine*, as in example (13), the result is ungrammatical.

(13)   *Geruisen ba   Sala he-le   san-ping jiu.   (alienable nominal)
         Grissom BA Sara drink-ASP three-CL wine
        'Grissom drank three bottles of wine on Sara.'

Inalienable nominals have been reported to have some special properties. They have to come at least in a pair, which denotes a superset-subset relation like *whole-part* and *body-part* relations (cf. Zhang 2009). I claim that the reason that only inalienable nominals are compatible with the BA construction is because the BA construction comes with its own special restriction. And this special requirement can be fulfilled nicely by the use of inalienable nominals in the BA construction. Cheng and Ritter (1988) schematize the following BA-linking filter to illustrate this special restriction.

(14)   BA-linking Filter
           Ba   Verb
           <affected theme$_i$>   <X$_j$ <affected theme$_k$>>
           *unless i = k

I interpret the above BA filter as follows: the BA NP has to be a <u>semantic object</u> of the verb. This filter is reminiscent of another name given to the BA construction: the retained object construction. That is, the BA NP needs to be the 'object' of the verb. Now let us see how this BA filter works in a typical BA construction. An example is shown in (15), and the structure is shown in (16).

(15)   Geruisen ba Sala$_i$ da-shang-le   t$_i$.
          Grissom BA Sara   hit-hurt-ASP
          'Grissom hurt Sara.'

(16)
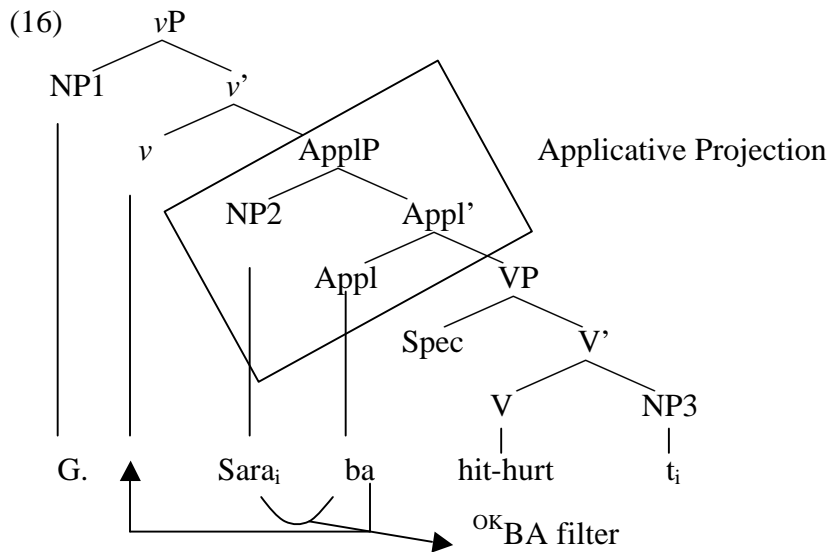
The derivations of example (15) are as follows: First, the verb has to be able to project an Applicative Projection right above VP. And I assume that BA can be inserted at the head position of the ApplP. If BA is inserted, an NP must move to Spec, ApplP to satisfy the thematic properties of BA. In example (15), *Sara* then has to move to Spec, ApplP to receive the Affectee theta-role from BA. Next, we check the BA filter to see if the BA NP is a semantic object of the verb. Since *Sara* is the direct object of the verb, the BA filter is satisfied. Finally, following the assumption that *v* has to be overtly filled in Chinese (cf. Huang, Li, and Li 2009), BA then moves to the head position of *v*P.

      The BA construction involving the possessor raising case is repeated here as (17). And the structure is shown in (18).

(17)   Geruisen ba <u>Sala</u>   da-shang-le   <u>shou</u>.   (inalienable nominal)
        Grissom BA Sara   hit-hurt-ASP hand
        'Grissom hit Sara on her hand.'

(18) vP
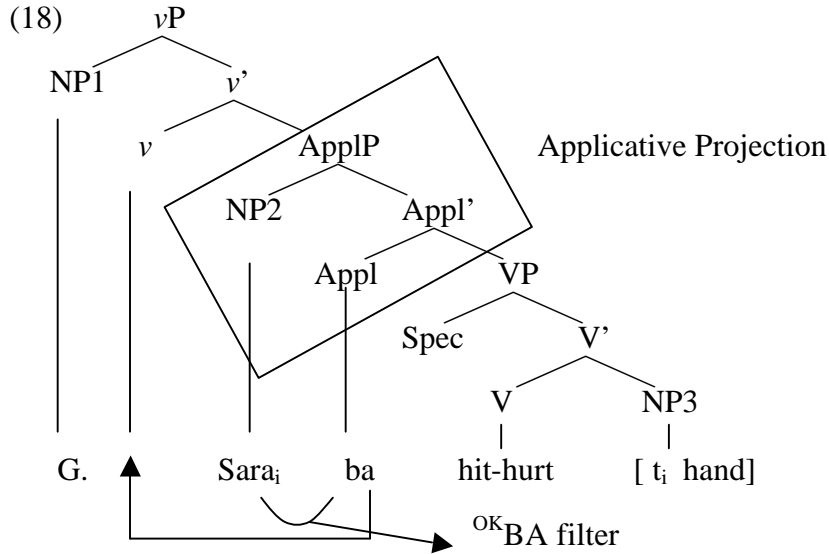
Similar to the example in (15), an applicative projection is also projected, and BA is inserted in (17). After getting the possessor theta-role from *hand*, *Sara* moves to Spec, ApplP to get the Affectee theta-role. Now *Sara* is the BA NP and can also be counted as the semantic object of the verb. This is because if *Sara's hand* is hurt, *Sara* is hurt as well (the subset-superset relation). After the BA filter is satisfied, BA can move to the v head.

The example with the alienable nominals are repeated here as (19). The structure is shown in (20).

(19)   *Geruisen ba   Sala   he-le   san-ping jiu.   (alienable nominal)
           Grissom BA Sara drink-ASP three-CL wine
           'Grissom drank three bottles of wine on Sara.'

(20)   *v*P

NP1   *v*'

    v ApplP   Applicative Projection

     NP2 Appl'

       Appl VP

         Spec V'

          V   NP3

G.   Sara$_i$ ba drink [t$_i$ three bottles of wine]
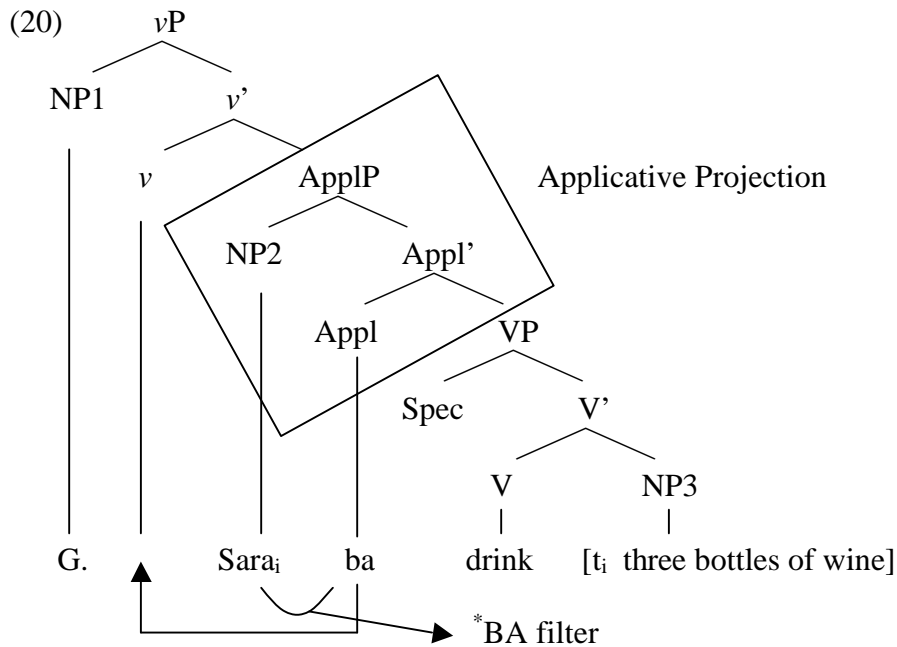
              *BA filter

Though everything is almost the same as in example (17), the problem with example (19) is that the BA filter cannot be satisfied. When *Sara* becomes the BA NP, it is apparently not a semantic object of the verb. Drinking three bottles of wine does not entail drinking *Sara*. Hence, this example has to be ruled out.

   However, recall that the same pair *Sara-three bottles of wine* is compatible with a pseudo-DOC construction, repeated here as (21).

(21) Geruisen he-le   Sala san-ping jiu.   (pseudo-DOC)
    Grissom drink-ASP Sara three-CL wine
    'Grissom drank three bottles of wine on Sara.'

As shown in (22), *Sara* is base-generated under Spec, ApplP. Hence, no BA filter needs to be satisfied. Example (21) is therefore grammatical.

(22)
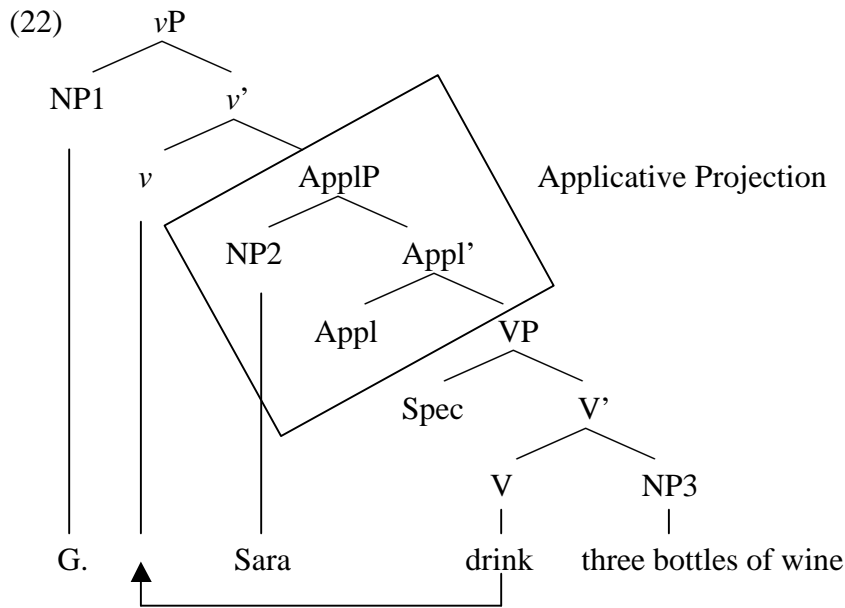
Based on the current analysis, we can make the following prediction: It should be possible to have alienable nominals in the BA construction by making use of the recursive *v*P once the BA filter is satisfied. Furthermore, we should get an obligatory possessor reading on the first NP of this alienable nominal pair. This prediction is borne out in (23).

(23)　　a. Geruisen ba Sala san-ping jiu　　he-le.　(alienable nominal, but ok)
　　　　　　 Grissom BA Sara three-CL wine drink-ASP
　　　　　　 'Grissom drank Sara's three bottles of wine.'
　　　　 b. [TP Grissom [*v*P BA_k [*v*P Sara_j [ApplP [t_j three bottles of wine]_i t_k
　　　　　　 [VP drink t_i]]]]]

Note that in example (23), both *Sara* and *three bottles of wine* are in preverbal positions. The structure in (23b) shows that *three bottles of wine* is in Spec, ApplP, where it receives the Affectee theta-role. As for the NP *Sara*, it gets the possessor theta-role from *three bottles of wine* and raises to the Spec of recursive *v*P. Since *Sara* gets the possessor theta-role from *three bottles of wine*, this explains the obligatory possessor reading reported on *Sara*. Hence, example (23) shows that the possessor reading in the BA construction is not simply caused by inalienable nominals themselves. The possessor reading on the alienable nominals in example (23) can only derived by the mechanism of possessor raising.

5. Conclusion

In this paper, I have shown that the BA construction cannot be subsumed under the pseudo-DOC construction as proposed by Huang (2008). In addition to the Affectee projection, possessor raising (movement approach) has to be involved in the BA construction. I have also demonstrated that the obligatory possessor reading is not simply caused by the appearance of inalienable nominals. Once the BA filter restriction is satisfied, alienable nominals can be used in the BA construction and an obligatory possessor reading is also available.

APPENDIX

As noted in the literature (cf. Cheng and Ritter (1988), Yoon (1990), Vermeulen (2005)), the possessee 'hand' in (3) allows only restrictive modifiers (see (24)), whereas there is no such restriction in (1) (see (25); note that the order between the adjective and the numeral + classifier is changeable).

(24)   a. Geruisen ba   **Sala** da-shang-le   [zou [shou]].
          Grissom BA   Sara   hit-hurt-ASP   left   hand
          'Grissom hit Sara on her left hand.'
      b. *Geruisen ba   **Sala** da-shang-le   [piaoliang de [shou]].
           Grissom BA   Sara   hit-hurt-AS   beautiful   hand
          'Grissom hit Sara on her beautiful hand.'

(25)   a. Geruisen he-le   Sala [hen gui   de [san-ping [jiu]]].
          Grissom drink-ASP Sara   very expensive   three-CL wine
          'Grissom drank three very expensive bottles of wine on Sara.'
      b. Geruisen he-le   Sala [san-ping [hen gui   de [jiu]]].
          Grissom drink-ASP Sara   three-CL   very expensive   wine

Notice that the insertion of a resumptive pronoun changes the grammaticality of (24).

(26)   a. Geruisen ba   **Sala** da-shang-le   [(***ta**) zou [shou]].
          Grissom BA   Sara   hit-hurt-ASP   she left   hand
          'Grissom hit Sara on her left hand.'
      b. Geruisen ba   **Sala** da-shang-le   [*(**ta**) piaoliang de [shou]].
          Grissom BA   Sara   hit-hurt-ASP   she beautiful   hand
          'Grissom hit Sara on her beautiful hand.'

See Kuo (2009) for detailed analyses.

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The Function of *měi* in *měi*-NPs[*]

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This paper analyses the function of *měi*. Assuming the distributive property as an absolute property of being sensitive to singularities (or atoms), we propose that *měi* is really a distributive operator by observing the structure of the quantification domain of *měi* + *yī*/num + CL. Being a distributive operator, *měi* always selects atoms as its argument. However, when followed by a num-CL sequence, the atomic structure shows indeterminacy with respect to the atoms contained. It is such an indeterminacy property that determinates the anti-episodicity of *měi* + num + CL sentences, and excludes the occurrence of *dōu*, which is the *iota* operator and can only be defined on a set with stable elements.

1. Introduction

Měi has been hotly discussed in recent research on Chinese quantification and nominal expressions (Lin 1998, Huang 2005, Pan et al. 2005, Yuan 2007, Cheng 2009, etc.). From the previous discussions we can see that whether *měi* is a distributive operator or not is the most debatable issue. In this paper, based on some newly-discovered data, we wish to argue that *měi* is to be better described as a distributive operator.

The data mainly concern the change of the number which occurs in *měi* nominal constructions. Aside from the fact that *měi* occurs with *yi* ('one')+ CL + NP, which is the most usual distribution of *měi* and is more familiar to us, *měi* can also occur with

numbers larger than *yi*. What is interesting is that when the number following *měi* is larger than one, the distribution of the *měi* + num + CL + NP construction[1] is highly restricted compared with *měi* + *yī* + CL + NP. This is illustrated by the following examples.

Group 1: distributive predicates can be predicated on *měi* + *yī* + CL + NP constructions, but not on *měi* + num + CL + NP constructions.

(1) Měi yī (/*liǎng)-gè xuéshēng dōu bìyè-le.
  MEI one (/two)-CL student DOU graduate-SFP
  'Every student graduated.'
  '*Every two students graduated.'

Group 2: *dōu* occurs well with *měi* + *yi* + CL + NP constructions, but not with *měi* + num + CL + NP constructions.[2]

(2) Měi yī (/*liǎng)-gè xuéshēng dōu chī yī-kuài dàngāo.
  MEI one (/two)-CL student DOU eat one-CL cake
  'Every student eats one piece of cake.'
  'Every two students eat one piece of cake.'

Group 3: perfective marker *le* can occur with *měi* + *yi* + CL + NP constructions, but not with *měi* + num + CL + NP constructions.

(3) Měi yī (/*liǎng)-gè xuéshēng chī-le yī-kuài dàngāo.
  MEI one (/two)-CL student eat-ASP one-CL cake
  'Every student ate one piece of cake.'
  '*Every two students ate one piece of cake.'

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[1] Here we use 'num' to represent numbers other than one.
[2] Luo (2009: Chapter 5) discusses data as in Group 2 and Group 3, We will come to his analysis in Section 4.

Group 4: the only case which allows not only *měi* + *yī* + CL + NP but also *měi* + num + CL + NP is when the predicate in the sentence contains an indefinite object but involves neither *dōu* nor a perfective marker.

(4)   Měi yī (/liǎng)-gè xuéshēng chī yī-kuài dàngāo.
          MEI one (/two)-CL student   eat one-CL cake
       'Every student eats one piece of cake.'
        'Every two students eat one piece of cake.'

Obviously, restrictions on the occurrence of *měi* + num + CL + NP are directly brought out by num, since when the number is *yī*, all the restrictions suddenly disappear. Then why are there such differences between *měi*-NPs with *yī* and those with num? Can these contrasts be nicely accounted for by any of the accounts in the above-mentioned papers? Or is it the case that none of the differences shown by the examples has any implication for the description of the function of *měi* and should receive another treatment?

In this paper we propose that viewing *měi* as a distributive operator is the most advisable point for explaining the above data as well as other distributions of *měi*. We take the property of being distributive as a necessary behavior of being sensitive to singularities or atoms, following what is commonly assumed to be distributive in previous literature, and argue that all kinds of *měi* nominal constructions (including even *měi* + num + CL) show its sensitivity to singularities. What distinguishes *měi* + *yī* + CL from *měi* + num + CL is that when the number is larger than one, the atoms in the atomic structure of *měi's* quantification domain become indeterminate: any structure that contains num-member groups is fine for the sentence with *měi* + num + CL to be true. It is such a kind of indeterminacy that restricts the co-occurrence of *měi* + num + CL with perfective marker *le* and with *iota* operator *dōu*.

The organization of this paper is as follows. Section 2 is a review of previous discussions on the function of *měi* in the literature. We will look into the analyses of Lin (1998) and Cheng (2009) and point out their drawbacks. Section 3 is devoted to arguing for the main proposal of this paper. We agree with Huang (2005) that *měi* is a distributive

operator, and we try to support this point by showing that the structure of the quantification domain of *měi* always contains atoms or singularities, which ensures the invariant characteristic of *měi*'s being a distributive operator. Section 4 presents a novel analysis of the data presented at the beginning of this paper. It is shown that the distinction in distributions between *měi* + *yī* + CL + NP and *měi* + num + CL + NP can be ultimately traced back to *měi*'s distributive function. Section 5 presents the conclusion and briefly discusses the remaining issues.

2. Previous research on měi: Lin (1998) and Cheng (2009)

Since our position in this paper is that *měi* is a distributive operator, and Lin (1998) and Cheng (2009) directly stated that *měi* is not distributive, we will first review their points in detail here.

Lin (1998) argues that *měi* is a sum operator rather than a distributive one. His main evidence comes from sentences like the following:

(5)   Měi yī zǔ   (de) xiǎohái dōu   huà-le   yī-zhāng huà.
      MEI one group *de* child DOU draw-*le* one-CL picture
      'Every group of children drew one picture.'

Lin points out that in this example the distribution is not down to the individual child, but to the groups of children; if *měi* is a distributive operator, the result would be that each child drew a picture, but not that each group of children drew a picture. He thus claims that *měi* actually functions as a sum operator which takes an element of type <e, t> and yields an element of type e which denotes the maximal collection of the individuals expressed by the predicate.

Cheng (2009) agrees on Lin's (1998) intuition that there is a maximal collection of the individuals involved in (5), but she argues that such a maximal collection is not produced by the *měi*-NP, but is a result of the cooperation of *měi* and *dōu*. In Cheng's opinion, *dōu* can be treated as a definite determiner (i.e. the *iota* operator), introducing the contextual domain restriction for strong quantifiers. In the case of *měi-dōu* occurrence, *měi* is a universal quantifier and receives the domain restriction provided by *dōu*. Such a treatment of the *měi-dōu* occurrence in Chinese is inspired by data from Chinese free

choice items (FCIs). In Chinese, *nǎ*-CL as an FCI can occur with or without *dōu*, and displays a difference between definite and indefinite interpretation just as FCIs in Greek and English do, with definite FCIs expressing an expectation of existence, but not with indefinite FCIs. Thus *dōu* in FCIs is analyzed as an *iota* operator. The following are the English examples and their Chinese counterparts (adapted from Cheng 2009).

(6)   a. If any student calls, I am not here.   b. Whichever student calls, I am not here.

(7)   a. Rúguǒ nǎ-gè   rén   dǎ- diànhuà lái, jiù shuō wǒ bù zài.

       If which-CL person telephone come then say I not be

       'If anyone calls, say that I'm not here.'

      b. Wúlùn   nǎ-gè   rén   dǎ-diànhuà lái, wǒ dōu bù zài.

        No-matter which-CL person telephone come I DOU not be

        'Whoever calls, I'm not here.'

Cheng (2009) argues that the *dōu* in *měi* sentences is also an *iota* operator; *dōu* as an iota operator provides *měi* with a contextually determined quantification domain, and helps *měi*-NP denote a maximal collection of the individuals.

We are of the view that Lin's point on *měi* is not without problems. As we can see from examples like (5), Lin's reasoning is based on an assumption that when an operator takes a plural NP or a collective NP as arguments, in order to assume the operator is distributive, the distribution must be down to atomic individuals the set of which constituting the denotation of those NPs. This seems to us to be dubious. If it were on the right track, then we would judge *all* in English and *suǒyǒu*, *quánbù*, *yíqiè* in Chinese as distributive operators. As will be shown later on, which is also the common point in literature, what a distributive operator selects as its argument must ensure an atomic structure of the quantification domain, which means that the distribution would never be down to the inner parts of the denotation of the NP chosen by the distributive operator. Moreover, viewing *měi* as a sum operator runs difficulties when the following data are considered.

(8)   a. * Měi yī-gè rén   dōu   shì tóngxiāng.[3]

         MEI one-CL person DOU is same-town-folks

       '* Everyone is a from the same hometown'

      b. * Měi yī-gè rén   dōu   shì fūqī.

        MEI one-CL person DOU is couple

       '*Everyone is a couple.'

(9)   a. Tāmen dōu shì tóngxiāng.   b. Tāmen dōu shì fūqī.

       They DOU are same-town-folks   They DOU are couple

         'They are from the same hometown.'   'They are couples.'

If *měi* can really do summing, then sentences in (8) would be predicted to be true, for the symmetric predicates must select plural individuals as their arguments and the summing function of *měi* would insure plurality of the argument. The oddity of (8) shows that *měi yī-gè rén* is not of type e, so it cannot be predicated on by symmetric predicates. (9), on the other hand, is grammatical, showing the difference between *tāmen*, which is of type e, and *měi yī-gè rén*, which we propose is of type <e, t>. Note that this is also the problem that Pan et al.(2005) fails to solve, since they also assign *měi* the summing function, of which the prediction runs counter to the fact in (8).

For Cheng's point that *měi* is a universal quantifier, since her analysis shares similarities with Lin's analysis, and since such an analysis will also fail to distinguish between *měi* and *suǒyǒu*, *quánbù*, *yíqiè,* we think it is not the most advisable account.

Agreeing with Huang (2005), Our position is that, *měi,* in actuality, is a distributive operator. We propose our further reasoning in the next section.

3. *měi* as a distributive operator
3.1. The structure of the quantification domain of *měi*

The main evidence for *měi*'s being a distributive operator comes from the shape of the structure of *měi*'s quantification domain. As is discussed in previous literature (Link 1983, Chierchia 1998, among others), the property of a quantifier always requires that the structure of its domain be of some shape. This is so because there is a diversity of the

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[3] These examples are proposed by Haihua Pan (p.c.).

structure of the domain of discourse and different quantifiers are sensitive to different structures. The diversity of the discourse structure can be described in terms of lattice structure (Link (1983) and Landman (1989)), which manifests itself as singularities, pluralities or the U-closed sets of atoms. Domains with different shapes constitute denotations of different types of NPs ⸺ singularities are the denotation of singular definite NPs, pluralities are the denotation of plural definite NPs, and the U-closed sets of atoms the denotation of mass nouns. The following shape, quoted from Chierchia (1998b), completely contains the three types of denotations: the individuals at the bottom are the singularities; the sets above the individuals are the pluralities; and the whole is the U-closed sets of atoms constituting a complete atomic semilattice structure which qualifies as the denotation of mass nouns.

(10)
$$\{a, b, c, d, \ldots\}$$
$$\{a, b, c\} \quad \{a, b, d\} \quad \{b, c, d\} \quad \{a, c, d\} \ldots$$
$$\{a, b\} \quad \{a, c\} \quad \{a, d\} \quad \{b, c\} \quad \{b, d\} \quad \{c, d\} \ldots$$
$$a \qquad b \qquad c \qquad d \quad \ldots \, = At$$

Since a quantifier has to take an NP argument as its restriction, the denotation of the NP usually restricts the structure of the quantification domain the quantifier operates on; or we can say that a quantifier which takes certain kind of NP as arguments has certain requirement for the shape of the structure of its quantification domain. Take English quantifiers for example. We can give the following classification (adapted from Chierchia (1998b)).

(11)　　English quantifiers
　　　　Singular quantifiers: *every*, *each*
　　　　Plural quantifiers: *many*, *few*, *several*, *a few*
　　　　Mass quantifiers: *much*, *little*, *a little*
　　　　Sg+Pl+M quantifiers: *the*, *no*, *some*, *any*

Related to our discussion of *měi* is the first line of (11), where *every* and *each* are classified into singular quantifiers. *měi*, as will be shown below, can also be viewed as a

singular quantifier. Consider the following data.

(12) a. měi (yī) běn shū   * měi shū
         MEI (one) CL book   MEI book   ('every book')
      b. měi (yī) gè xuéshēng   * měi xuéshēng
         MEI (one) CL student   MEI student   ('every student')
      c. měi (yi) shēng shuǐ   * měi shuǐ
         MEI (one) CL water   MEI water   ('every liter of water')

Those ungrammatical expressions in (12) show that *měi* is unable to combine with common nouns without CLs in between. Then what properties do Chinese common nouns have? And what does the CL contribute to realization of *měi*'s function?

Chinese common nouns, as discussed in Chierchia (1998a, b), can be viewed as mass nouns denoting U-closed sets of atoms, since they always occur bare and do not differentiate between mass and count semantically and morphologically. Classifiers are then indispensible to ensure the combination of numerals with nouns, mapping or partitioning pluralities into atoms on which counting can be done. In the case of *měi*, as illustrated in (12), classifiers are obligatory to make *měi*-NPs legitimate, from which we may conclude that *měi* in Chinese is parallel to *every* in English in that both require the domain of quantification contain atoms or singularities. The requirement of *měi* for classifiers contrasts sharply with *suǒyǒu*, *quánbù*, *yíqiè* and *rènhé*. The latter can precede common nouns without the help of classifiers.[4]

(13) a. suǒyǒu / quánbù / yíqiè (*gè) xuéshēng
           all   / all   / all (CL) student   'all students'
      b. rènhé (*gè) wèntí
         any   (CL) problem   'any problem'

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[4] *rènhé* can be analysed as expressing FCs (free choices) in Mandarin Chinese, which is often followed either by common nouns, as in *rènhé xuésheng* ('any student'), or by *yī* + CL + NP, as in *rènhé yī gè xuéshēng* (lit. any one student). But *rènhé* cannot be followed directly by a classifier plus a common noun, as in **rènhé gè xuéshēng*.

c. měi   * (gè) xuéshēng

    MEI   (CL)   student   'every student'

For *suǒyǒu*, *quánbù*, *yíqiè* and *rènhé*, we can assume that the domain they quantify over must be plural (for the first three), or may be plural (for the last one), contra the domain selection of *měi*.

We have thus demonstrated the distributive property of *měi* by anatomizing the nominal construction *měi* + (*yī* +) CL + NP. The reader can see that what we basically adopt for our argumentation is the thesis that being distributive is merely being sensitive to singularities (this idea is also used in Chierchia 1998b[5]). Based on this point, there is no doubt that cases as in (12) exactly show that *měi* is a distributive operator. But note that besides individual classifiers such as *běn* (in (12a)) and *gè* (in (12b)) and measurers such as *shēng* (in (12c)), there are also group-like classifiers which can occur in *měi*-NPs, as is shown in (14). Recall that Lin (1998) uses examples containing *měi yī-zǔ xiǎohái* ('every group of children') to prove that *měi* is a sum operator rather than a distributive one. In what sense can they be incorporated into the distribution usage of *měi*?

(14) a. měi (yī) zǔ xuéshēng

        MEI (one) group student   ('every group of students')

    b. měi (yī) duī shū

        MEI (one) pile book   ('every pile of books')

    c. měi (yī) shuāng xiézi

        MEI (one) pair   shoes   ('every pair of shoes')

Besides providing an account of the examples in (14), another step to be taken, if we want to defend the thesis that *měi* is a distributive operator, is that we need to solve the issues proposed at the beginning of this paper, namely the issues concerning *měi* + num + CL. How can we still think that *měi* is a distributive operator when the number involved is apparently larger than one?

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[5] Chierchia (1998b) said: "For example, a distributive universal quantifier like *every* must be restricted to singularities, for that is what being distributive means."

3.2. Cases with *měi* + *yī* + *zǔ* and *měi* + num + CL

Cases in (14) are comparatively easier to deal with. In traditional Chinese grammar, classifiers like *zǔ, duī* and *shuāng* are viewed as collective classifiers in contrast with individual classifiers as in (12a, b) (see Fang 1992, among others); they apply to a plurality of individuals to form a group, a pile, a pair, etc. Yet, pluralities reflected by collective classifiers are different from pluralities isolated purely by plural nouns or mass nouns. Pluralities in plural nouns and mass nouns, we can say, are merely abstract sets of atoms; that is, we take the atoms as being together simply because the morphological form of the noun encodes such information. Pluralities in collective classifiers, however, are not abstract but concrete: atoms involved are tightened together by some visible or real criterion[6]. Chierchia (1998b) has discussed collective nouns like *committee*, *pile*, *bunch*, *group* in English.

The abstract-vs.-concrete distinction between group-level plurality and set-level plurality and criteria-associated analysis for *groups* mentioned above are exactly what Chierchia used in his paper. Based on the difference in plurality between collective nouns and plural nouns, Chierchia suggests that collective nouns be viewed as denoting atomic individuals rather than pluralities and thus the set At of atoms (recall the bottom line of the picture in (10)) in the domain of discourse be sorted into groups and ordinary individuals. We think that Chierchia's treatment of English collective nouns can be modeled for the treatment of Chinese collective classifiers: collective classifiers in Chinese map pluralities into group-like atoms. And since *měi* in cases with collective classifiers also selects atoms, just as what it does with individual classifiers, we can of course take it as a distributive operator.

The difficulty seemingly lies with *měi* + num + CL. We can easily perceive (*yī*+) CL + NP as denoting atoms or singularities, even if the classifier is a collective one, as is analyzed above. But when the number is *liǎng* ('two') or *sān* ('three'), as in *měi liǎng/sān gè rén* ('every two/three persons'), isn't it obvious that the denotation of num-CL becomes plural?

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[6] More will be said on the property of such criteria when we discuss the difference between *měi yī zǔ* and *měi liǎng gè rén.*

The answer, however, is still negative. In such a case, we still have singularities, only that the criterion for shaping atoms is different from that for cases with collective classifiers. We have discussed the ways for collective classifiers to be taken as mapping pluralities into atoms—the mapping is not arbitrary; rather, it is based on some criterion. The criteria for grouping are what individual atoms share together—members in the same group satisfy the same criterion, and are contextually determined—they can either be some property manifested by the members themselves, e.g. sex, age for human beings, color, size, space arrangement for materials, etc., or the events the members participate in. Whichever criterion the grouping is based on, the criterion must be perceivable. That is, if the grouping criterion is the event the members participate in, the event must be what has happened or is taking place: only under this situation can we discern the groups because it is the events that tie up the sub-participants and make them form a group. Since the on-going of the event can be a criterion for grouping, we may say *every group of children drew a picture* even if the children in the same group have different sex, different age or wear different fraternity.

On the other hand, if the event has not yet taken place and we have not got natural groups formed by contextually-determined criterion, for example, if we face a classroom of students who stand together without following any order, it is unlikely that we give such orders like *every group of students draw a picture* unless we have partitioned the whole students into different groups. We can group the students by, say, age or sex, so we often hear such statements in Chinese like *nánnǚ tóngxué fēnchéng liǎng-zǔ, měi yī-zǔ ná yīgè qiú* ('Boys be one group and girls be one group. Each group get one ball.') in PE classes. We can also group the students by what the event requires for the number of the members which qualifies as its minimum legitimate participants. (We will mention this requirement simply as 'the number requirement' henceforth.)

The latter, namely the number criterion, is the most crucial for our argumentation. When the event has not yet taken place and we only know the number requirement of the event, we have not got existing groups as the participants of the event. However, we still can use the number requirement as a 'signal' of the group-like participants and let *měi* choose it as its argument. That is what we have in *měi liǎng/sān-gè rén.* It is reasonable to take what num-CL does as packing individual atoms as group-like atoms, for when the event involved in *měi*-sentences only requires that the minimum legitimate participant be

individual atoms, what *měi* chooses as its argument would never exceed the size of individual atoms, as is shown in the examples in Group 1 in Introduction, repeated here as (15). We add one more example as in (15b).

(15) a. Měi   yī (/*liǎng)-gè xuéshēng dōu   bìyè-le.
          MEI one (two)-CL   student   DOU graduate-SFP
          'Every student graduated.'   '*Every two students graduated.'
       b. Liǎng-gè xuéshēng dōu   bìyè-le.
           Two-CL student   DOU graduate- SFP
          'Both of the students have graduated.'

graduate is a distributive predicate which can only be true of atomic individuals[7]. We can say *both of the students have graduated* (as in (15b)), describing a case where there are two specific students who are known by both the speaker and the hearer and they have graduated. In such a case *graduate* is not applied to the group denoted by *both of the students* but to each of the two students. In other words, *both of the students* do not denote a group; it only denotes the sum of individuals: a$\oplus$b[8] (assuming that the two students are *a* and *b*).[9]

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[7] Here the term 'distributive predicate' is defined on the basis of whether a predicate is predicated on individual atoms or not. Link (1983) gives a formula which defines what being a distributive predicate means.

   (i) *Distr* $(P) \leftrightarrow \wedge x \, (Px \rightarrow At \, (x))$

This formula is paraphrased as "for *a predicate P is distributive, if and only if for all x, if P is true of x then x is an atomic individual*". But adopting the argumentation of this paper, we can think of any predicate as distributive since following Chierchia (1998) we have augmented in *At* groups as one sort of atoms. The traditional definition of distributive predicate is based on naturally existing atoms as a starting viewpoint, while if we think that all predicates are distributive we are taking the requirement of the event for its minimum legitimate participant as a basis and think that it is such a requirement that determines whether a certain number of individuals is a group or only forms a set of atoms.

[8] Link (1983) used the sign $\oplus$ to indicate the sum operator.

[9] Following Link (1983), we can give (16c) the following semantic formula:

   (i) *Q (σ *x Px) Px: *x* is a student Q: graduated

To accurately represent the distributive meaning of (16c), the star-operation on Q is needed; otherwise we got the collective reading where the group of those two students graduated, which is

(15b) shows that although the number of the members involved in the subject nominal expression exceeds the size of the minimally legitimate participant the event requires, the predicate can still predicate it and the distributive reading is automatically produced. However, when the operator *měi* is added, as in (15a), we get an ungrammatical sentence since what the event requires for the size of its minimum legitimate participant does not match what *měi* chooses as its argument. This proves that what *měi* chooses as its argument must be an atom, or a singularity, since without thinking of it this way, it would be predicted that the distributive predicate *graduate* behaves the same way as it does in (15b) and thus (15a) would be perfect with the distributive reading automatically produced. Since the fact is to the contrary, we think even in cases with *měi* + num + CL what *měi* chooses are atoms but not pluralities.

3.3. Indeterminacy of the structure of the quantification domain for *měi* + num + CL

According to the above analysis, it is the distributive predicate that causes the un-acceptability of (15b). Being that as it may, what if we substitute a collective predicate for *graduate?* For instance, what if we substitute *lift a piano* for *graduate*? The result, we find, is still unacceptable, as (16) shows.

(16)   *měi liǎng-gè xuéshēng dōu táiqǐ-le yī-jià gāngqín.
          MEI two-CL student DOU lift-*le* one-CL piano
        'Every two students lifted one piano.'

However, according to our analysis above, (16) is predicted to be true, for the mismatch between what *měi* chooses as its argument and the number requirement of the event is gotten rid of by using the collective predicate *lift a piano*, which is often carried out by more than one people. That such a prediction is not borne out forces us to look more deeply into these examples. Is it that our analysis is not on the right track, or is it that there are some other factors that influence the acceptability of sentences containing *měi* + num + CL as a subject and a collective predicate? (17) shows that keeping the same subject and predicate while omitting *dōu* and the perfective marker *le* can turn the

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meaningless in the actual world.

sentence into a grammatical one.

(17) Měi liǎng-gè xuéshēng tái yī-jià gāngqín
           MEI two-CL student   lift one-CL piano
           'Every two students lift one piano.'

Remember we have proposed this phenomenon at the beginning of the paper (as shown be examples in Group 2). What is crucial behind this fact, we suspect, concerns the function of aspect marker *le* and the so-called *iota* operator *dōu*, and the indeterminacy of the structure of the quantification domain of *měi* + num +CL. Here we discuss the latter and leave discussions of *le* and *dōu* to the next section.

We have argued that both *měi*'s in *měi yī-zǔ* and *měi liǎng-ge rén* choose atoms as arguments. If in '*měi yī-zǔ*' $|p(\text{x})| = 2$, namely the cardinality of $p(\text{x})$ is 2, and since in '*měi liǎng-ge rén*', *měi* also chooses groups containing two persons as arguments, can we say the domain for *měi yī-zǔ* and that for *měi liǎng-gè rén* have the same structure? [10] Hardly, it would seem. As we have mentioned above, *zǔ* is used for cases when there are contextually-determined groups. In this sense, then, we can say that the structure of the quantificational domain for *měi* in *měi yī-zǔ* is contextually set, consisting of different groups which act as atoms. Since the groups are invariant at the point when they are conceived of as groups under the criterion, the structure of the domain consisting of such invariant atoms is also stable.

Měi liǎng-gè rén is, however, totally different from the above picture in that the quantificational domain has an indeterminate structure. The domain structure is indeterminate because the atoms contained in it are under-determined. The only property we know about the structure is that the atoms of the structure must be groups of two members——this is expressed by the number *liǎng*. Nothing beyond this is conveyed. The requirement for the cardinality of the members of the groups can be met by several possibilities, since one individual can combine with any other individual to form a 2-member group. So, if there are 6 persons, *a, b, c, d, e, f* in the domain, we will find 15

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[10] Following Chierchia (1998), here *x* represents variables over groups introduced by *zǔ*, and *p* is a function from group into the plurality or set constituting that group. After the type shifting, we can then calculate the cardinality.

possibilities meeting the requirement that in each group there are 2 members.

(18) {{a, b}, {c, d}, {e, f}}   {{a, b}, {c, e}, {d, f}}
      {{a, b}, {c, f}, {d, e}}   {{a, c}, {b, d}, {e, f}}
      {{a, c}, {b, f}, {d, e}}   {{a, c}, {b, e}, {d, f}}
      {{a, d}, {b, c}, {e, f}}   {{a, d}, {b, f}, {c, e}}
      {{a, d}, {b, e}, {c, f}}   {{a, e}, {b, f}, {c, d}}
      {{a, e}, {b, d}, {c, f}}   {{a, e}, {b, c}, {d, f}}
      {{a, f}, {b, e}, {c, d}}   {{a, f}, {b, c}, {d, e}}
      {{a, f}, {b, d}, {c, e}}

měi liǎng-gè rén can be true of all these structures since in each of them the groups are of two members, meeting the cardinality requirement. Then can we tell which of the 15 possible structures finally enters into the event? The answer is, we cannot do so until the event happens. The difference between *měi yī-zǔ* and *měi liǎng-gè rén* is thus made clear. The crucial point is whether the structure of the domain is determined or not. For *měi yī-zǔ*, the structure is determined, containing groups of n members which are set by some contextual criterion; for *měi liǎng-gè rén*, however, the structure is not determined—any structure that contains 2-member groups is fine for the sentence to be true.

4. Explanations for the incompatibility between *měi* + num + CL and perfective marker *le* and *iota* operator *dōu*

Out of the relevant literature that we have consulted, only Luo (2009) discusses the issue of why *měi* + num + CL cannot co-occur with *dōu*. Luo argues that *dōu* is an event-associated distributive quantifier; that is, *dōu* maps individuals or events into events only, but not into individuals. However, sentences with *měi* + num + CL as in *měi wǔ-gè rén zuò yī-tiáo chuán* ('every five people take one boat') has nothing to do with events, since they do not allow perfective marker *le*, which marks the existence of events, hence the oddity when *dōu* occurs.

In Luo (2009), the incompatibility between *měi* + num + CL and the perfective marker *le* was only mentioned as a piece of evidence for *měi* + num + CL sentences'

being eventless; no further analysis was provided for why such a kind of *měi* sentences have the property of being eventless and thus exclude *le*. In this section we will attempt to provide an explanation, and we will explain why *dōu* is always also excluded in sentences with *měi* + num + CL.

4.1. *le*'s episodicity vs. the indeterminacy of the domain structure of *měi* + num + CL

In Giannakidou & Cheng (2006), Chinese perfective marker *le* is analyzed as the signal of episodic sentences. Episodic sentences in G&C (2006) mean sentences 'involv[ing] (in a particular world) just one event that happens at a particular point in time' and are thus 'event-specific'. That *měi* + num + CL fails to co-occur with *le* suggests that *měi* + num + CL sentences are anti-episodic, or as in Luo (2009), eventless. Then why does *měi* + num + CL cause such an effect? The answer, we suggest, lies in the indeterminacy of the domain structure of *měi* + num + CL. We have pointed out in section 3 that although *měi* in *měi* + num + CL invariably selects atoms (i.e. groups) as its argument, just as what it does in *měi* + *yī* + CL, the atomic structure is indeterminate in the sense that any structure that contains num-member groups is fine for the *měi* + num + CL sentence to be true. We have seen that for a domain containing 6 persons, there are 15 possibilities for *měi liǎng gè-rén* (*lifting a piano*) to be true. Due to this fact, we have no way to get specific events, hence the incompatibility of *měi* + num + CL with *le*.

4.2. *dōu* as the *iota* operator

Dōu co-occurs very well with *měi* + (*yī*+) CL, and in most cases such a co-occurrence is obligatory. Thus the incompatibility between *měi* + num + CL and *dōu* gives us a seeming surprise. However, if we recall that the structure of the quantification domain has an indeterminacy property for *měi* + num + CL, and adopt G&C's (2006) point that *dōu* in Chinese is exactly the *iota* operator which yields the maximality effect, such a phenomenon is easy to account for. That is, the indeterminacy of the structure of the quantification domain makes the *iota* operator undefined. The definition for ι, as in Landman (1991) or Chierchia (1998), requires that it pick out the greatest element of a set. But if the elements of a set are not yet determined, then how can the greatest element be picked out?

The indeterminacy of the structure of quantification domain of *měi* + num + CL

reminds us of the indeterminacy of FCIs. It is commonly assumed that there is an indeterminacy property for the denotation of the FCI, since it bears a possible world variable *w* and does not have a stable denotation. Chinese FCIs are often expressed by wh-NPs with or without *dōu.* One of the wh-words*, nǎ* ('which'), behaves in the same way as *měi* in that *nǎ* can also be followed by *yi*-CL or num-CL. Can *nǎ* be followed by num-CL when used as an FCI?

(19)   a. nǎ yī-duì (/?liǎng-gè rén) tái zhuōzi lái wǒ dōu bù shōu.
                Which one-pair (/two-CL person) carry desk come I DOU not accept
                'Whichever pair carries the desk here, I will not accept it.'
                '*Whichever two persons carry the desk here, I will not accept it.'

The question marker shows that the sentence is marginal, probably suggesting that the FCI only allows indeterminacy over different possible worlds, but does not allow indeterminacy over different possible values in one world.

5. Recapitulations and remaining issues

This paper analyzes the function of *měi*. Assuming the distributive property as an absolute property of being sensitive to singularities (or atoms), we propose the thesis that *měi* is really a distributive operator by anatomizing the structure of the quantification domain of *měi* + *yī*/num + CL. Being a distributive operator, *měi* always selects atoms as its argument. However, when followed by a num-CL sequence, the atomic structure shows indeterminacy with respect to the atoms contained. It is such an indeterminacy property that determinates the anti-episodicity of *měi* + num + CL sentences, and excludes the occurrence of *dōu*, which is the *iota* operator and can only be defined on a set with stable elements.

There are still some remaining issues. We have observed that *měi* + num + CL cannot co-occur with *dōu.* But if something else is added, for example, if *zhǐ* ('only') is added in the predicate, the sentence becomes fine, as in (20).[11] What does *zhǐ* contribute

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[11] Thanks to Lingfei Wu for reminding the first author of such a kind of *měi* sentences, and thanks to Shizhe Huang and Xiaogang Li for discussing such a phenomenon and other issues concerning *měi* with the first author.

to rescue the sentence? We leave this issue open.

(20)   Měi liǎng-gè xuéshēng dōu zhǐ chī   yī-kuài dàngāo.
         MEI two-CL student DOU only eat one-CL cake
         'Every two students only eat one piece of cake.'

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Stance-taking with *Wo Juede* in conversational Chinese

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The present paper deals with one of the most common Mandarin epistemic phrases, *Wo Juede*, and demonstrates that in addition to epistemic self-expression, it has also developed addressee-oriented functions to manage the discourse-pragmatic considerations of everyday talk. Specifically, we find that the mitigative quality of *Wo Juede* has extended from representing speaker's epistemic uncertainty to one that focuses on managing recipient's possible responses. Using quantitative corpus analysis, as well as qualitative conversational analytic methods, this study finds that the use of *Wo Juede* can often be seen as *positioning the speaker's awareness of the addressee's possible objection to a proposition*. Furthermore, it is argued that such a function is uniquely suited for its frequent performance characterized as a *joint-assessment initiator* in sequences of collaborative evaluation.

1. Introduction

Although stance-taking, particularly the expression of epistemicity, has been an extensively studied phenomenon in linguistics, much of the current literature has been limited to English as the investigated language medium. In contrast, this paper shall be based on a Mandarin Chinese (henceforth Chinese) spoken corpus, examining the use of a frequent discourse chunk, namely *Wo Juede* (我觉得), or literally translated as 'I feel' in English. The most literal definition of *Juede* (觉得) is "to *feel*". Two commonly-used reference sources, the *Xiandai Hanyu Cidian* (现代汉语词典) and *Xiandai Hanyu Babai Ci* (现代汉语八百词), list "to have a certain feeling (产生某种感觉)" as *Juede*'s primary semantic definition. The other recorded definition of *Juede* is "to have a certain opinion (有某种意见)". In *Xiandai Hanyu Cidian,* it is further noted that such an opinion framed by *Juede* is expressed as uncertain (语气较不肯定). Hence, together with the 1st person pronoun *Wo* (我), we can basically translate *Wo Juede* as "I think" or "I feel", indexing the speaker as either expressing a personal feeling or positing a hedged opinion. In other words, *Wo Juede* (henceforth used to represent any constructions with *Wo Juede* as a constituent) may be used to express an affective state or the epistemic certainty of a

speaker. To the best of our knowledge, while there exist sporadic literature on epistemic modality in Chinese, a focal study on *Wo Juede* has not yet been attempted.[1]

Through the quantitative analysis of a spoken corpus, it is found that similar to English, the "1st singular pronoun + cognitive verb" construction is a recurrent format used to formulate a variety of epistemic phrases frequently found in Chinese conversation. In particular, *Wo Juede* is found to be one of the most routinized form in conversational Chinese. In simple epistemic terms, *Wo Juede* can be understood as expressing the less-than-certain commitment of the speaker towards a proposition. However, our analysis will show that as a spoken discourse chunk, the deployment of *Wo Juede* also functions to achieve **interactional goals** rather than simply indexing the beliefs of a speaker. Specifically, we find that speakers *regularly and proactively utilize Wo Juede to mitigate in environments where an upcoming disagreement or disaligned response is expected*, sometimes even in opposition to strong personal belief in the proposition posited. We also argue this discourse-pragmatic function is often seen to work in sequences of collaborative assessments, where *Wo Juede* is a *joint-assessment initiator* that calls for a corresponding assessment from its recipient, thus allowing for a back-down in the possible scenario of a disaligned second assessment.

2. The prevalence of *Wo Juede* constructions in conversation

At this juncture, there may be reservations as to why even examine *Wo Juede* as a coherent "lexical bundle" in conversational data. Biber et al. (1999) comprehensive investigation of different registers in English reveals that stance-taking is considerably more common in conversation than in written registers. Additionally, he finds that there is a heavy reliance on the verb complement construction (e.g. I think…, He knows…) to mark stance in conversation (typically with complementizer *that* omitted), especially when controlled by the verbs *think*, *know*, and *suppose* (p984). Scheibman (2002) similarly finds that "I + verbs of cognition" constitute a striking percentage in his conversational data, with *I think* as the most common epistemic phrase, and concludes that "I + verbs of cognition/verbal process" seems to constitutes *an autonomous epistemic modal construction in conversational English to routinely do some sort of stance-taking* (p163). Further evidence is found in Thompson and Mulac (1991) in which they argues that *I think* are grammaticized units of subjects and verbs introducing complement clauses. Finally, Kärkäinen's (2003) microanalysis of the functionality of each instance of *I think* within its contextualized interactive environment[2] conclusively

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[1] With the exception of Tomoko Endo, a fellow colleague at UCLA, who is currently in the process of writing her dissertation on *Wo Juede*.

[2] In investigating the various functions of *I think*, Kärkäinen categorize them positionally within turns and intonation units (IUs). This differs significantly with my own treatment of Chinese *Wo Juede*. First of all I did not subscribe to IU as the unit of investigation for my study. Secondly, although I also work within the framework of conversation analysis, I do not believe that

establishes that its interactional function within conversation is multi-faceted (p115-174), and does not necessarily function epistemically (meaning to present the speaker's actual belief of a proposition) in conversation. The above evidences point towards the use of various "I + verb predicate" construction, and especially *I think*, as autonomous units of discourse markers deployed by the speaker as vehicles to organize and possibly manage the trajectory of unfolding interactive talk, thus resulting in the prevalence of *I think* in conversational discourse.

How then does the use of *Wo Juede* in Chinese compares with *I think*? To examine the frequency of *Wo Juede* constructions in conversation, we draw on data from the conversational Chinese corpus CallFriend, comprising of approximately 200,000 characters transcribed from 60 unscripted telephone conversations, each lasting between 5 to 30 minutes.[3] For each conversation, both the caller and callee are native speakers of Mandarin Chinese from Mainland China. All calls are domestic and were placed inside the continental United States and Canada. As a comparison, a written Chinese corpus, the Lancaster Corpus of Mandarin Chinese (LCMC) was also utilized (McEnery & Xiao, 2004). This corpus has approximately 1 million characters, and was designed as a Chinese match of the Freiburg-LOB Corpus of British English (FLOB) with 15 different registers. Later, in examining the functions of *Wo Juede* using conversation analytic methods, this study further accessed 8 audio-recordings from the CallFriend corpus, accumulating to about 4 hours of conversational data. These were then complemented with approximately 3 hours of personal video recording of multiparty Chinese conversation between native speakers engaged in everyday talk around the dining table during mealtime or playing card games. In all, 7 hours of audio or video recordings were examined for this purpose.

From the spoken and written databases described above, we find that similar to the findings of Scheibman (2002) and Kärkäinen (2003) based on conversational American English, the 1st person pronoun *Wo* also has the preponderance to overwhelmingly occur in conversation.

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referencing the position of epistemic phrases (EPs) within turns is productive. A more basic unit in CA, the turn-constructional unit (TCU), should be utilized, as this is the basic unit determining *possible turn completion*. In the emerging trajectory of talk, it is the hearable end of a TCU that informs the next speaker to possibly initiate the next turn, and hence subjecting the prior turn to be possibly complete. In other words, the current speaker does not unilaterally determine the completion of his own turn, but in concert with the next possible speaker. Hence to categorize the position of EPs within a turn (and most probably a multi-TCU turn) to "explore a possibility of a change of speaker at the point where an epistemic marker occurs (Kärkäinen 2003:87)" seems to be misplaced, if the purpose is to investigate the relationship between EPs and interactivity. For the purpose of my study, I have categorized *Wo Juede* in terms of its *relative position to the proposition within its scope*, to be TCU-initial or TCU-final.

[3] Canavan, Alexandra & George Zipperlen. CALLFRIEND Mandarin Chinese-Mainland dialect. Linguistic Data Consortium, Philadelphia. 1996.

Table 1: Tokens of *Wo* in Spoken and Written corpus of Chinese

	Raw Frequency	*Norm. Frequency (per 10,000)*
Spoken Corpus (≈ 200,000 char.)	6372	**323.4**
Written Corpus (≈ 1,000,000 char.)	5576	55.7

In Table 1, after normalizing the number of instances between the two corpora of differing size, we find that *Wo* is strikingly 5 times more likely to occur in conversation than in written form. But how are these *Wo* instantiated in conversation? By surveying *Wo* and its verbal collocations, we find that *Wo Juede* is indeed a major player in Chinese conversation.

Table 2: Top 10 Right Collocates of *Wo* in Chinese conversation

Rank	*Wo + Right Collocates*	*Gross Translation*	Tokens
1	我就 （就是，就是说，就说，就觉得）	"I + then/only/really"	449
2	**我觉得 - *Wo Juede***	**"I think/feel"**	**243**
3	我现在	"I now"	228
4	我说	"I say/said"	219
5	我跟 （跟你说，跟你讲）	"I + *Pre.* (I tell you)"	211
6	我想	"I think"	201
7	我也 （也不知道，也就，也没，也不是）	"I also"	180
8	我知道	"I know"	175
9	我是 （是希望，是想，是觉得）	"I + *Modal*"	123
10	我这 （这边，这里，这样，这个）	"I + here/this"	108
		Total:	2137
		Total # of Agentive Wo:	4986
		Percentage:	42.86%

Using our conversational corpus, Table 2 tabulates the top 10 right collocates of *Wo*, regardless of its word class. Two general observations can be made. Firstly, the top 10 "*Wo* + right collocate" construction already accounts for 42% of all instances of agentive *Wo* found in my conversational corpus[4]. That is to say the high frequency of *Wo* in

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[4] Readers may be puzzled by the difference in total tokens of *Wo* in Table 1 compared to Table 2. This is because in Chinese, the form for agentive first person singular pronoun (equivalent to English "I") and first person singular pronominal object (equivalent to English "me") are undifferentiated, both uses the form *Wo*. In Table 1, the total tokens of agentive *Wo* and object *Wo* for both spoken and written corpus were compared, on the premise that the ratio of agentive *Wo* and object *Wo* in both corpora were more or less equal. Table 2 tabulates the top right

Chinese conversation can be accounted for by the repetitive usage of a limited number of top "*Wo* + right collocates" constructions, many of which are "*Wo* + verb of cognition" constructions. Secondly, within these constructions, *Wo Juede* is found to be the most common of all "I + verb predicate" construction with 243 instances. The most common right collocate *Jiu* (就) is actually a prolific adverb with multiple meaning that can be placed before a wide range of verb predicates. In a nutshell, we have evidence to support that similar to conversational English, many "I + verb predicate" construction are bundled epistemic phrases frequently deployed in conversational Chinese, with the use of *Wo Juede* as one of the most frequent and productive. It remains for interactional linguists of Chinese to identify and describe what these discourse markers are, and what their function is within the interactive environment of Chinese conversation. The rest of my paper shall now focus on providing a detailed analysis *Wo Juede* constructions and a description of its interactive functions in Chinese conversation.

3. Predominant usage of *Wo Juede* as opinion-framing device to initiate assessment

As mentioned earlier, to do a more detailed conversation analytic examination of *Wo Juede*, this study analyzed 7 hours of audio and video recordings. By definition, *Wo Juede* constructions can either be positing either a personal feeling about something or a hedged opinion. Examination of the recordings shows that the difference between these two types can be primarily identified through the constituent that *Wo Juede* frames. Personal feelings are often expressed by an emotive verb signifying affective states after a *Wo Juede* phrase, for example[5]:

A: 对。那-(.) 电影就是我看了小说: 再看电影<***我觉得***特别:
    'Yes. Th- (.) movie I've seen its novel: before the movie< ***I felt*** very:'

B: 失望
    'disappointed'

A: 特失h望hh.
    'Very dis(h)appointed hh.'

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collocates of agentive *Wo*, and hence we had to omit all instances of object *Wo* from our calculation of overall percentage.

[5] My choice of a 2-line transcription omitting individual lexical and grammatical glosses, leaving only the Chinese orthography and translation, are due to page restrictions. Furthermore, as my analysis is more dependent on the sequence of talk, rather than the explication of individual lexical items, the short 2-line transcription should not pose a problem to understanding the examples. Basic transcription symbols follows conversation analytic practice set out by Gail Jefferson (2004).

In contrast, *Wo Juede* constructions positing hedged opinions are instances where the speaker can be heard to be commenting or evaluating, as opposed to expressing affect, such as "*我觉得*也未必呢 (*I think* that's not necessarily so)". However, there are a minimal number of instances in our recordings where it is clear from the discourse context that the speaker is actually conveying personal feelings even though no emotive verbs were used:

A: =对:难多了-< .hh 我感:觉当然我也觉得可能就是水平不好: 或者怎么样哈<我也不-
搞不清楚但是我想:: 可能 .hhh 我自己的感觉<凭我自己的感觉*我觉得*还是难多:了
'=yes: much more difficult-< .hh I think of course I also think perhaps it's just my poor standards: or something eh< I also d- couldn't understand it but I thi::nk maybe .hhh my own feelings< based on my own feeling *I felt* it was still much more difficult'

Further quantitative analysis of these two types of *Wo Juede* shows that their frequency of usage is highly skewed towards utilizing *Wo Juede* primarily as an opinion-framing device. By exhaustively examining 7 hours of conversational Chinese data and extracting all instances of *Wo Juede*, I gathered a collection of 83 *Wo Juede* constructions used within an interactive context. The sequential environments in which these *Wo Juede* appeared were then transcribed for further detailed analysis.

It is noteworthy that out of 83 tokens, only 15 were of the "*I feel*" type positing affective states and personal feelings. Additionally, we also found a single instance where 2 tokens of *Wo Juede* were in neither of the two prototypical usages defined above. In this instance, *Wo Juede* occurred in a question format to rebut in an accusatory tone:

A: *我觉得*怎么不合适啊。 *我觉得*你在石晶那儿住的时间长是吗
'In what way did *I think* it unsuitable? *I think* you've stayed too long at Shi Jing's place, is it?'

Revealingly, the great majority of *Wo Juede* (66 tokens) were used as opinion-framing devices. While *Wo Juede* positing affective states and personal feelings are not rare, we take a statistical point of view that it is the opinion-framing *Wo Juede* which constitute the frequent and significant usage in conversational Chinese. This study shall thus focus on the use of *Wo Juede* that does epistemic stance-taking, and locate its discourse-pragmatic functions within an interactive context. Correspondingly, we have omitted the 17 non-typical tokens of *Wo Juede* and the remaining 66 instances were further examined for *Wo Juede*'s primary interactive functions.

Two technical observations can be made about *Wo Juede*'s **position** and **composition** within an interactive sequential environment when used to frame opinions. By composition, we mean that the deployment of *Wo Juede* can be made in a TCU-initial position (i.e. before the proposition framed), such as "*我觉得*他得自己寄材料 (*I think he has to mail the materials himself*)", or TCU-final position (i.e. after the proposition framed), such as "你们现在学校还是富*我觉得* (*Your school now is still rich I think*)".

Typically, TCU-initial and TCU-final *Wo Juede* are prosodically marked. TCU-initial *Wo Juede* occurs at the start of a new TCU, usually marked with a pitch reset and the whole *Wo Juede* construction occupy a full IU (intonation unit). Here the recipient can hear an upward and incomplete intonation contour at the end of *Wo Juede*, signifying more talk is upcoming and that *Wo Juede* is made relevant to the upcoming talk. TCU-final *Wo Juede*, on the other hand, are typically "added" after a possibly complete TCU, prosodically marked by lower pitch, reduced loudness and a quickened tempo. This informs the recipient that the deployment of *Wo Juede* is "latched onto" the preceding TCU and is meant to frame it as opposed to starting a new TCU.

By position, we refer to the position of the *Wo Juede* construction within an interactive sequential environment as being responsive to a previous opinion/assessment, or the *Wo Juede* construction being the initiator of a new opinion/assessment. The term "assessment" is used generically to refer to any opinion framed by *Wo Juede*. The use of this term follows Pomerantz's (1984) analysis on using preferred or dispreferred next assessment, and is chosen to highlight the responsive nature of differing assessments within sequential talk. As with Pomerantz (1984), we are able to clearly demarcate the use of *Wo Juede* as self-initiating a 1st assessment, or as a responsive 2nd assessment. At this point, it bears to reiterate that 1st or 2nd assessments are not simply positionally defined, but sequentially organized. By this I mean that a next TCU assessing a similar topic is not necessarily a 2nd assessment. For an assessment to be defined as a 2nd, it must be seen to be *a responsive next* to a 1st assessment about a common topic, necessitating a turn transition or change in speaker. Therefore a speaker within his own current turn may continually frame multiple 1st assessments using *Wo Juede* to opine on different topics or provide a different take on a similar topic.

Taking these two dimensions (the relative position of *Wo Juede* to its proposition, and the use of *Wo Juede* construction as 1st or 2nd assessment), we examined all 66 instances of *Wo Juede* construction and categorized them into Table 3.

Table 3: Distribution of opinion-framing *Wo Juede*

	TCU-initial	*TCU-final*	
1st assessment	50	9	**59**
2nd assessment	7	0	**7**
	57	**9**	

As with the usage of *I think* in conversational English investigated by Kärkäinen (2003), our results also found that the predominant usage of *Wo Juede* is as a TCU-initial stance marker, constituting 86.4% (57 out of 66) of all *Wo Juede* constructions used for framing opinions. The TCU-final usage of *Wo Juede* are often deployed as "after-thoughts", self-motivated upon completion of an assessment, or other-motivated through lack of recipient response (denoting possible objection), or perhaps other paralinguistic cues necessitating the need to mitigate. These *Wo Juede*, though not extraordinary rare, is still

a very infrequent construction, and does not seem to considerably alter the more general interactive function of *Wo Juede*. Therefore, this study shall not focus on making a distinction based on its compositional difference, though a note on the use of TCU-final *Wo Juede* seems necessary.

Focusing on the positional dimension, it is found that the predominant usage of *Wo Juede* is to initiate a 1ˢᵗ assessment, almost 9 times as frequent when compared to doing a 2ⁿᵈ assessment, constituting 89.4% (59 out of 66) of all *Wo Juede* constructions used for framing opinions. A natural inference from this result is that *Wo Juede* is not primarily utilized to take a responsive next stance (2ⁿᵈ assessment) towards a prior assessment, but is itself more often pro-actively used to frame a 1ˢᵗ assessment in a certain way. My detailed analysis of *Wo Juede*'s interactive function shall concentrate on how and why it is utilized as a 1ˢᵗ assessment.

4. Using *Wo Juede* to preface possible upcoming disagreement/disalignment

By carefully analyzing the sequential environment where *Wo Juede* constructions are used to posit a 1ˢᵗ assessment, we find that they often occur in environment where the speaker is highly attuned to what he/she is about to proposed (these can occur as evaluations, suggestions or criticisms framed by *Wo Juede*) as being possibly disagreeable to the recipient.

For example, in a telephone conversation between couple Xiaojie and Xiaomin, the boyfriend Xiaojie suddenly shifts the topic to his impending visit to where Xiaomin is living by announcing his arrival schedule. The transcript starts with Xiaojie trying to remember his exact arrival time.

(1) *Housing 15.14*

01   小杰： 等我:就是说::（0.2）我现在机票不在手边儿.hh
        Xiaojie:wai:t I mean (0.2) I don't have the ticket at hands now .hh

02   我记得是八点十:五到雅特兰达. 晚上
        I remember I'll be at Atlanta at eight fifteen. at night

03   小敏： 嗯（0.2）你要我去接你吗. 还是:（0.7）
        Xiaomin: nn (0.2) you want me to fetch you. or: (0.7)

04 →   *我觉得:* 不- 不要我不去接你了吧.<让石晶去接你吧
            I think, I better n- not go and see you.<let Shi Jing fetch you

05   小杰： 也行. 没关［系
        Xiaojie:That's okay. No [problem

06   小敏: ［因为（.）你要他要是:接了我再去接你你
          Xiaomin: [Because (.) if he: fetches me then go to you you

07   还是得:: 正正点就是［至少半个小时啊］
          still:: exactly [at least half an hour   ]

08   小杰: ［怎么接了你再一］噢你说他从班上喔
          Xiaojie: [how come fetch you the-] oh you mean from class

09   小敏: 嗯嗯嗯
          Xiaomin: yes yes yes

10   小杰: 没关系.可以.没问题
          Xiaojie:Doesn't matter. Okay. No problem

Though no ethnographic detail is available to me about these two conversationalists, it is clear from examining the entire 30 minutes telephone conversation that the couple are currently involved in a long distance relationship, with both parties living in the U.S. With this basic information, and given that Xiaojie has decided his arrival time is newsworthy by announcing it, leaves for Xiaomin the question of "why that now". Given their relationship, Xiaomin's natural reading was that the announcement was made as an implicit request for her to welcome him at the airport. Notice then how line 03-04 was formulated to deny this possible request. After acknowledging receipt of the information, Xiaomin ask Xiaojie if he wanted her to go to the airport, but before a transition of turn could take place, Xiaomin self-selects to hold her turn with "还是: (or…)", effectively preventing a proffered answer from Xiaojie. After a long pause of 0.7 seconds, Xiaomin finally broach the sensitive suggestion of herself not going to airport but to let Shi Jing alone go fetch Xiaojie instead. This is done using *Wo Juede* to frame her 1st assessment of what should be done. At line 05, although Xiaojie seems to readily accepts her suggestion, it is hearable that Xiaomin rushes to do further accounting from line 06-07 that it is inconvenient for Shi Jing to pick her up before going to the airport. Even though this sequence did not result in an eventual disagreement to the suggestion, the upshot from the above-described practices is simply that Xiaomin was acutely aware her suggestion was a sensitive one highly susceptible to disagreement. It is thus illuminating that *Wo Juede* was used to mark such anticipation to disalignment/disagreement by framing the focal line at 03-04.

     In the next example, *Wo Juede* was used to frame a criticism. The following excerpt is from another telephone conversation between two female friends, Wangli and Lihong. Right before the start of the transcript, Wangli announced that she had gotten news that a mutual friend of theirs was pregnant, only to find Lihong updating her instead

that a baby boy has already been borne by this mutual friend. Wangli then expressed surprise at line 01.

(2) *Motherly 24.15*

01 王丽： 诶<=<u>你怎么知道</u>>的啊<
    Wangli:Oh<=How did <u>you</u> ><u>know</u><

02 李红： 我- 我听他们说啊. 我我那个：哼他们.都有.打电话过来说嘛.
    Lihong:I- I heard them say it. I I:: erm they. also. called me.

03 王丽： ［<u>是</u>: ］
    Wangli:[oh:]

04 李红： ［我听］说但是我现在我也没跟他打电话因为我不知道
    Lihong:[I heard] but I don't call her now because I don't know the

05   ［他家的电话号码.
      [number of her place

06 → 王丽： ［***我觉得*** 你- 你- 你那(h)儿的消息还挺灵通的啊. =
    Wangli:[***I think***, y- y- y(h)our ability to gather news is quite amazing.=

07 李红： =呃因为我在（这儿）毕竟还近一些嘛.
    Lihong:=erm that's because I'm nearer (to them)

08   (.)

09 王丽： ［ <u>对</u>: ］
    Wangli:[yes]

10 李红： ［就是说］有有那个能拿他们有有人来了什么的就
    Lihong:[I mean] there- when- when they come over for something, they'll

11   ［是说（   ）
      [I mean (   )

12 王丽： ［就过去. 唉: 生个男孩
    Wangli:[they just came over. Oh: they've a boy

The news of the birth of a baby boy by a mutual friend does not privilege epistemic authority for one friend over the other, assuming that the relationship of both parties to the mutual friend is more or less equal. However, from Lihong giving news of the birth in contrast to Wangli's news of pregnancy, shows that Lihong obviously has updated knowledge not accessible to Wangli, and hence of questionable epistemic authority. At line 01, Wangli's surprise at Lihong's access to this knowledge is not only evident in her forthright questioning, but also clearly audible in her high-pitched exclamation. In response at line 02 and line 04-05, Lihong's also seems to orient to this possibly questionable epistemic authority by downplaying her pro-activeness in acquiring information, and stating categorically that she does not have privileged access over Wangli. Even so, at our focal line 06, Wangli interrupts at a non-transition relevant place with a 1st assessment of Lihong's ability to "gather news". The evaluative term used for this assessment "还挺灵通的" is best described as "amazingly extensive", which is possibly disparaging and critical. Furthermore, this possibly disapproving assessment is doing a characterization of the recipient, making the move doubly liable to upcoming disagreement. Appreciably, this action is also initiated through the vehicle of a 1st assessment framed by a *Wo Juede*. Lihong then goes on from line 07 and line 10-11 to continually try to account for the assessment given at line 06, evidencing that it has indeed been heard as insinuatingly critical by the recipient.

The above two examples are clear instances in which speakers proactively used *Wo Juede* to hedge a possibly disagreeable proposition. However, it is plausible to construe of any initiated opinion, assessment or proposition as possibly disagreeable. The action of proffering a new opinion, assessment or proposition of any kind has the de facto consequence of positioning the speaker for possible disagreement/rejection/disalignment from the recipient, making the speaker susceptible to a dispreferred next turn. Thus the pro-active use of *Wo Juede* to hedge commitment on a proposition makes sense in the unenviable possible scenario of a disagreement. From this perspective, while *Wo Juede* as a frequent conversational practice may on the semantic level denote the epistemic stance of a speaker, it also functions interactionally to mark the speaker's proactive anticipation of possible disalignment/disagreement from the recipient, and also possibly pre-empting the recipient of what is about to be said as being disagreeable.

Unsurprisingly, all 7 instances of *Wo Juede* constructions as 2nd assessment were found to be in disagreement or disalignment with a prior 1st assessment. A typical example is given in the following exchange, again between couple Xiaojie and Xiaomin. In this segment, the main conversation topic revolved around looking for a suitable rental apartment for Xiaomin who was alone in a foreign city. The excerpt begins with the boyfriend Xiaojie assessing the rental cost of apartments after they have more or less discussed the merits of each apartment.

(3) *Housing 5.59*

01   小杰: 那- 就是说如果要论便宜的话可能还是那个: 吴晶他们那儿便宜.
          Xiaojie: the- I mean if we're looking at price maybe tha:t Wu Jing's place is still cheaper

02   小敏: 得了 [吧]
          Xiaomin: Enough of that [((suggestive particle))]

03   小杰: [你就看] uh?
          Xiaojie: [you just consider] uh?

04 → 小敏: 我*我觉得*也: 也未必呢
          Xiaomin: I- ***I think*** that's not necessarily so

05   (0.4)

06   小杰: 怎么 [会呢
          Xiaojie: How is that [possible

07   小敏: [因为你想你那个: utilities 你用的话
          Xiaomin: [because, you see, if you use the utilities

08   小杰: 吴晶跟你说的什么utilities啊
          Xiaojie: What has Wu Jing told you about utilities

In line 01 Xiaojie provides an initial assessment of Wu Jing's apartment as the cheapest overall and hence probably the most suitable choice. This is immediately countered by Xiaomin at line 02 with an overtly strong dismissal (grossly translated as "*Enough of that*") of Xiaojie's initial assessment. However it can be seen that Xiaojie was not a prepared recipient of Xiaomin's talk at line 02 because he self-selects to continue his turn after possible completion at line 01, resulting in partial overlap of his TCU at line 03 with the end of line 02. It is possible that Xiaojie's ill-preparedness to receive line 02 has caused trouble in fully perceiving Xiaomin's dismissal, hence his initiation of repair with a open-class repair initiator *uh* after the overlap. However, it is also hearably the case that part of the dismissal at line 02 was spoken 'in the clear', and that was plausibly enough for Xiaojie to register the dismissal of his assessment. In any case, in the face of a highly dispreferred action (the dismissal of his assessment), repair-initiator *uh* at line 03 prefaces more upcoming possible disagreements. Our focal line 04 by Xiaomin is a 3rd turn repair, other-initiated by Xiaojie at line 03 and targets trouble-source at line 02. Though the repair proper at line 04 re-issues the disaligned 2nd assessment to a 1st assessment at line 01, it is also reformulated with *Wo Juede* to

mitigate the certainty of her disagreement. This reformulated mitigation is not only performed through *Wo Juede*, but also through the addition of adverbial "也未必 – not necessarily". In essence line 04 has backed down from the original strong dismissal at line 02. After a significant 0.4 second gap of silence at line 05, Xiaojie pursues Xiaomin's disaligned 2nd assessment by asking for an explanation for her disagreement at line 06.

Our focus is: what function does *Wo Juede* at line 04 perform in this exchange? It is undoubtedly so that this *Wo Juede* was hedging a dispreferred 2nd assessment (i.e. disagreement), but does is this instance of hedging a reflection of Xiaomin's epistemic stance or is it better understood from by looking at its interactional function? Our sequential analysis of example (3) shows that it is in response to further disagreement prefaced by *uh* at line 03 that Xiaomin backs down from her original stance of strong dismissal to one that is mitigated by *Wo Juede*. As such it is improbable that the deployment of *Wo Juede* at line 04 signals that Xiaomin has suddenly had an actual 'change of heart' in her commitment that Wu Jing's apartment is not the cheapest, which was strongly displayed with the dismissal at line 02. In fact at line 07, she continues to defend her conviction by posing utility bills as a factor that's going to significantly increase the cost of renting Wu Jing's apartment.

Summarily, we find that in conversation, there exist a multitude of circumstances in which proactive mitigation of an opinion would be preferable. These opinions or assessment can sometimes be projectably disaligned with the recipient's own view, based not on the talk provided, but on para-linguistic factors that both speaker and recipient are aware of. Frequently, as a conversational practice, *Wo Juede* is deployed to satisfy this interactive need. As a 2nd assessment, *Wo Juede* prefaces the upcoming assessment as disaligned with the prior assessment. But when used predominantly as 1st assessment, *Wo Juede* constructions is shown to be the vehicle for a plethora of speech acts routinely found in everyday conversation, such as suggestion and criticism. Our analysis shows that while it continues to mitigate the proposition, such a move also *marks the speaker's proactive anticipation of possible disalignment/disagreement from the recipient*, and also possibly pre-empting the recipient of what is about to be said as being disagreeable. It may then be instructive to note that from our examination of 7 hours of conversational data, *Wo Juede* does not appear uniformly. There is one 30-minute telephone conversation where *Wo Juede* did not appear at all, and a couple of continuous conversation where concentrated clusters of *Wo Juede* occur. These clusters are clearly in environment of disputes, or where participants are working jointly to reach a consensus on a certain topic.

5. *Wo Juede* as a Joint-assessment initiator

We argue that another reason why *Wo Juede* is used predominantly to posit a 1st assessment is that *Wo Juede* also functions interactionally to invite collaborative evaluation on the initiated proposition. In positing a hedged 1st assessment, *Wo Juede* not

only allows but also invites the recipient of this 1st assessment to make a relevant 2nd assessment (disaligned or not) on the proposition framed by *Wo Juede*. By inviting for a 2nd assessment, I mean to suggest that the use of *Wo Juede* functions to make a 2nd assessment from the recipient *conditionally relevant*, in the sense that should a 2nd assessment not be proffered after a 1st assessment posited by *Wo Juede*, such an absence is made out to be meaningful and consequential. Hence, I have termed *Wo Juede* as a *joint-assessment initiator*.

While most sequences progress smoothly with a 2nd assessment provided after the *Wo Juede* construction, the evidence for *Wo Juede* acting as a joint-assessment initiator is most cogent in cases where a 2nd assessment from the recipient of *Wo Juede* constructions is not forthcoming or absent. In a nutshell, we can analyzed that speakers of *Wo Juede* makes a joint 2nd assessment *conditionally relevant* because the withholding or absence of such 2nd assessment from recipient in the next turn after *Wo Juede* triggers actions by the prior speaker *in view of this absence*. Thereby reflexively evidencing that *Wo Juede* has indeed made a 2nd assessment conditionally relevant. Actions in view of a 2nd assessment not forthcoming after *Wo Juede* constructions may be in the form of non-talk in the sequence in wait for the 2nd assessment (i.e. a gap in the sequence), overtly asking for the 2nd assessment to be provided, re-issuing the 1st assessment again, triggering further accounting on why such a 1st assessment was made, or a total back-down from the speaker's 1st assessment altogether. While we have multiple examples of the above, due to space restrictions, we will provide a single instance.

We take the most analytically compelling instance where the absence of such a 2nd assessment after *Wo Juede* causes the speaker to totally back-down from her initial proposition. The sequence below is taken from a Taiwanese variety talk show where artistes and stars appear to chat with the hosts. In this segment, various female artistes are made to remove their make-up. After a barrage of implicit criticism of popular advertisement model Caishi's skin color as being 'yellowish', the hostess Xiao S then questions her on why she agreed to appear on the show despite having to risk appearing on TV without make-up.

(4) *Caishi*

01   小S： 所以你本来接到这个通告你完全没有犹［豫
        Xiao S: so initially when you got this notice you totally did not he[sitate

02   采诗：   没有-OK啊。无所谓啊＝
        Caishi: [not- it's ok. It doesn't matter=

03   小S： ＝所以你对自己很有自信是不是
        Xiao S: =so you're very confident of yourself right?

04 → 采诗： 没有<u>因</u>为***我觉得***我还蛮吃香的一点就是我眉毛还蛮浓的
　　　　　Caishi: no because ***I think*** an advantage I have is that my eyebrows are quite thick

05 　　　　　　　（0.9）

06 　　　采诗： 好啦（0.3）˚ 对不 ⌈起
　　　　　Caishi: okay　　（0.3）　˚ Sor⌈ry

07 　　　　　　　　　　　　　　　⌈((audience laughter))

08 　　　小S： 眉毛浓是真::的啊
　　　　　Xiao S: (but) it's true your eyebrows are thick

　　　　Xiao S's candidate understanding of Caishi being unhesitant at all in receiving the notice to appear on TV without makeup at line 01 was aimed at an implicit accusation of Caishi being over-confidence of her natural looks, and thereby appearing pompous. To this, Caishi rushes in to mitigate such an image by saying removing make-up in public isn't such a big deal at line 02, resulting in slight overlap. At line 03, Xiao S continues to push this agenda by overtly proposing another candidate understanding of Caishi as being "very confident" and ends with the tag question to secure her recipient's answer. Again, Caishi attempts to deflect this with an initial weak negation, before using *Wo Juede* to propose that her advantage, and hence her valid confidence, was that her eyebrows appeared thick even without make-up. At this point, there was an extremely long gap of 0.9 seconds at line 05 after the use of *Wo Juede*, with no uptake of a collaborative assessment from anyone. Thus it is revealing that at line 06, Caishi has taken the prior non-uptake of a 2nd assessment at line 05 as a disagreement to her proposition framed by *Wo Juede* at line 04, by responding with a back-down and a apology (presumably for incorrectly proposing she had an advantage.). Line 08 is also illuminating in that the hostess Xiao S then acknowledges Caishi's thick eyebrows, but glaringly fails to acknowledge the advantage she had proposed at line 04. Here we see how *Wo Juede* has initiated joint-assessment but resulted in a non-uptake from co-participants. Analytically, the back-down at line 06 triggered by non-uptake at line 05 is only understandable on the premise that a 2nd assessment has been made *conditionally relevant* in line 05 after *Wo Juede* posited the 1st assessment at line 04.

　　　　Throughout this study I have characterized *Wo Juede* as a pre-emptive move anticipating upcoming possible disagreement, as well as an initiator of joint-assessment. This may have erroneously shaped the impression that a disaligned 2nd assessment is the norm after a 1st assessment using *Wo Juede*. However the fact is, most initiation of proposition by *Wo Juede* actually progressed smoothly into co-participants jumping in with aligned agreements. In other words, by using *Wo Juede*, the speaker is actually working to successfully garner co-participants' validation of one's own 1st assessment *at*

a minimal cost. In one final revealing example, we see how *Wo Juede*'s interactive function to invite joint-assessment can be manipulated to achieve other actions and interactive goals.

In example (5), taken through a video-recording of 4 participants over home-made lunch, one couple Wangdong (W.D.) and Yuqi has invited another couple friend, Xiaoxie and Liuyu over for a hotpot meal. While in a state of incipient talk, Yuqi suddenly initiates a new sequence, as indicated by her initial particle (诶 or translated as 'oh') at line 01 projecting an unanticipatory line of conversation.

(5) *Fishing for Compliments*

01 → 雨琦: 诶其实>*我觉得*<这个菜还挺好吃的吼
      Yuqi: Oh actually >*I think*< this vegetable is quite nice right

02   王东: 嗯:=
      W.D.: nn:= ((agreement particle))

03   刘宇: =嗯::[:
      Liuyu: = nn::[:

04   雨琦: [我不知道买什么菜我就买了这个菜[( )
      Yuqi: [I didn't know what to buy so I bought this one [( )

05   刘宇: [° 对.这个菜特别进味儿
      Liuyu: [° yes. This vegetable is especially tasty

06   雨琦: 嗯
      Yuqi: nn ((agreement particle))

At focal line 01, Yuqi initiates a *Wo Juede* as 1st assessment of the green vegetables they had been eating from the hotpot. In the video, it can be seen that as the utterance comes to an end at line 01, Yuqi's final gaze was directed at her husband Wangdong, selecting him as the proper recipient of her assessment, though the utterance itself was devoid of any proper names or pronominal mentioning of a selected recipient. Hence at line 02, Wangdong provides the 2nd assessment in the form of a standard agreement token "嗯". However Yuqi's long time friend Liuyu also respond at line 03 to the 1st assessment despite not being selected as the recipient. Video analysis shows that as Yuqi was doing the 1st assessment at line 01, Liuyu was focused on her bowl with her gaze downwards, preventing her from accurately gauging who the proper recipient of line 01 is. By the time she lifts her gaze towards Yuqi, Yuqi had already completed her utterance and diverted her own gaze from Wangdong as well. Nevertheless, it seems that

the 1st assessment using *Wo Juede* at line 01 had implicated Liuyu's additional agreement token at line 03, despite her lack of knowledge on who the recipient is. In contrast, Liuyu's husband Xiaoxie who is also seen in the video, had full access to Yuqi's gaze and hence did not respond to line 01. By the start of line 04, Yuqi has already shifted her gaze towards Liuyu (due to her prolonged responsive agreement token at line 03) selecting her to be the recipient of line 04, and proceed to state nonchalantly that she had instinctively chosen this type of vegetable despite not knowing which kind to buy.

Notice that line 01-04 is an extremely interesting sequence on how *Wo Juede* is utilized to partially accomplish what can be idiomatically characterized as "fishing for compliments". By initiating a 1st assessment using *Wo Juede*, Yuqi can first safely gather joint agreement on her assessment that the vegetables they are eating is commendable, before launching line 04 to reveal that she was the one who had bought it. The implications of such a sequence is not lost on Liuyu, who immediately provides an upgraded assessment (from 挺好吃的 (quite good) to 特别进味儿 (especially tasty)) of the vegetables at line 05, thus implicatively complimenting that Yuqi had made an excellent decision. A likely hypothesis is that should 1st assessment with *Wo Juede* at line 01 fail to solicit favorable responses, then Yuqi would have had the option not to proceed with line 04 revealing her possibly poor choice of vegetable. In other words, we see here that the use of *Wo Juede* accomplishing lack of commitment to a assessment is plausibly not an indication of the speaker's actual belief, but in service of an interactive need, that of garnering co-participants' validation in her assessment. In this case, we can see that *Wo Juede* has been utilized to "check the bath-water", or *to minimized cost of proffering an opinion (in terms of possibly being disagreed upon) with its hedging property, while at the same time securing joint-assessments from co-participants*. This pro-active approach in using *Wo Juede* can prove relevant in a wide-ranging spectrum of conversational actions.

6. Conclusion

Stance-taking has been a recent topic of importance for linguistics. In particular, most studies have been centrally concerned with the stance of epistemicity, and the forms that it takes in language. Furthermore, it has been shown that stance-taking is especially prevalent in the conversation register, and that the verb complement construction is the primary form of epistemic stance-taking in conversation. How do these findings correspond with Mandarin Chinese? Preliminary investigation of conversational Chinese provides strong evidence that the "I + verb predicate" epistemic phrase is also the predominant structure used. Distinctively, *Wo Juede* is one of the most used epistemic phrases as attested by our quantitative corpus analysis. However, qualitative conversational analysis has also shown that speakers' epistemic stance may not be the underlying motivation driving the frequencies. It is the interactional need between conversationalists to achieve collaborative assessment at a minimal cost that has made *Wo Juede* constructions such a regular and routinized occurrence.

Our analysis indicates that the predominant use of *Wo Juede* can be better understood as a pre-emptive hedging in anticipation of disalignment/disagreement from the recipient. Furthermore, as a 1st assessment, *Wo Juede* constructions also act to invite joint assessment. We can also see how both interactive functions work inter-dependently as participants need to progressively work towards mutual consensus while providing for contingencies of "negative face". This study indicates that apart from ascribing epistemic phrases as a reflection of the speaker's inner state of mind (i.e. epistemic state), routinized practices should be investigated through the interactive functions they accomplished in conversation.

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Preferred Argument Structure in Chinese: A Comparison Among Conversations, Narratives and Written Texts

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The purpose of this study is to investigate the relationship between information flow and preferred argument structure across different text types. A number of studies in both ergative and accusative languages confirm Du Bois' (1987) grammatical constrains. Chinese is neither an ergative nor accusative language. The results of my Chinese data do not truly confirm Du Bois' constraints. Transitivity is found to be the main key to trigger the discrepancy on argument types distribution between Sacapultec and Chinese. Ellipsis, lack of case-marking system, text difference and topic continuity are assumed to play significant roles on distribution of argument structure and information status in terms of grammatical roles. Chinese spoken discourse and written texts display the similar grammatical constraints and information statuses. The consistent tendency shows that new information prefers O role and given information favors roles A and S. Given information appear relatively less in conversations than in narratives and written texts.

1. Introduction

Du Bois' (1987) research on the ergative language is one of the pioneered studies in exploring information flow in terms of argument roles. Based on Du Bois' study, a number of studies in both ergative and accusative languages have been carried out. English, French, Spanish, German, Hebrew, and Japanese are all accusative languages, and they display an ergative-absolutive pattern of information flow in spoken discourse. The data studied show the tendency, which confirms Du Bois' (1987) grammatical constrains, that the speaker tends to avoid producing more than one lexical argument or more than one new argument per clause, and to avoid having a lexical or introducing a

new referent in the A-role argument position. In this study, I would like to examine my mother language, Chinese. Chinese is neither an ergative nor accusative language; therefore, it would be noteworthy to see if the ergative grammatical pattern is also applicable in Chinese. Different from previous researches which mainly aim at spoken discourse, I will focus my data in three different text types: conversations, narratives, and written texts.

1.1. Grammatical roles and PAS

The descriptive 'subject' with traditional sense is not a proper term to address ergativity since the case-marking system of ergative-absolutive languages differs from the system of nominative-accusative languages. Givon (2001) indicates that in nominative-accusative languages, the case-marking morphology codes the grammaticalized subject and direct object regardless of semantic roles or transitivity. However, in an ergative pattern, the subject of an intransitive verb and the direct object of a transitive verb share an absolutive case-marking, most commonly zero, whereas the subject of a transitive verb displays ergative case-marking. Figure 1 shows how these two types of case-markings code their grammatical roles. In the ergative type, S is grouped with O, while in accusative type S is grouped with A.
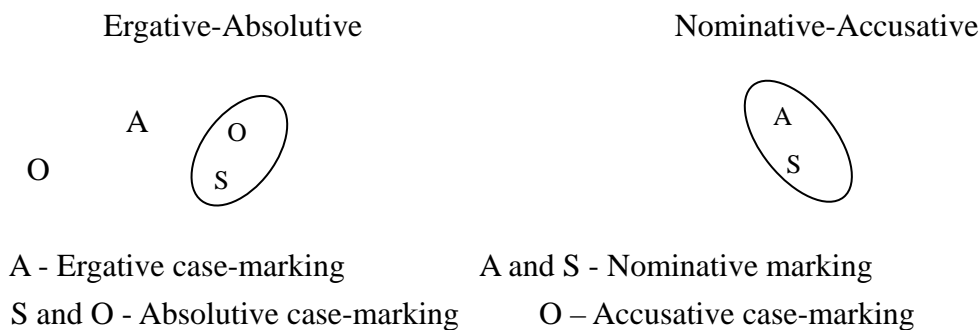
A - Ergative case-marking   A and S - Nominative marking
S and O - Absolutive case-marking   O – Accusative case-marking
Figure 1. Case-marking system and grammatical roles

Because the traditional grammatical categories do not fully apply in the ergative marking system, Dixon (1979) characterizes A as 'the NP in a TRANSITIVE clause which CAN BE AGENT', O as 'the OTHER OBLIGATORY NP in a TRANSITIVE clause', and S as 'the ONLY OBLIGATORY NP in an INTRANSITIVE clause' (p. 108).

Following Dixon, Du Bois (1987) defines grammatical roles A, S, and O as follows: 'S is a mention which is the sole argument of an intransitive verb (and is cross-referenced absolutively on the verb), or the subject of a non-verbal ('equational' or 'copular') predicate; A is the argument of a transitive verb which is cross-referenced ergatively; O is the argument of a transitive verb which is cross-referenced absolutively' (p. 815).

PAS, proposed by Du Bois, refers to the strong tendency for speakers to avoid producing more than one lexical argument or more than one new argument in a clause, and the tendency to avoid having lexical or new referents in the A-role argument position. He found that in Sacapultec new information preferentially appears in the S and O roles, whereas A role tends to carry given information. Du Bois claims that the distribution of new information in the ergative patterning of discourse extends to accusative languages as well. PAS of Sacapultec Maya is formulated by Du Bois as below:

One Lexical Argument Constraint: Avoid more than one lexical argument per clause.

Non-lexical A Constraint: Avoid lexical A's

One New Argument Constraint: Avoid more than one new argument per clause.

Given A Constraint: Avoid new A's

1.2. Information flow in discourse

Chafe (1994) indicates that 'information flow is a prime example of how discourse factors may influence grammatical patterning' (p.215). A distinction for given/new information has been suggested by Chafe (1987), in which 'active' and 'inactive' correspond to the traditional terms 'given' and 'new'. Given information is defined as that which is already active for the speaker and assumed to be already active to the listener as well, whereas new information is that which is currently in a listener's consciousness, but is not yet activated. 'Information may be accessible because it was active earlier, or because it is inferable from information that was active earlier' (Chafe 1994 p. 216). According to Chafe (1994), given information is usually verbalized with pronoun or ellipsis, whereas new information is verbalized with a prominent word or phrase.

Chui (1994) found that information flow of nominal referents correlate more with word order than with syntactic roles in Mandarin Chinese. She indicates that 'given

information in conversation or oral narratives is preferred before the verb, either in A, S or O; new information appears more readily after the verb, either in S or O' (p.145).

1.3. Lexical arguments in clauses

That clauses with a highly transitive verb contain at least two lexical arguments is a general assumption in the linguistics tradition. However, Du Bois' (1987) evidence of the ergative language, Sacapultec, points out a strong tendency which indicates that in either transitive or intransitive clauses, clauses with zero or one lexical argument are common, whereas clauses with two lexical arguments are rare. In Mandarin, noun morphology is categorized into three types: lexical full noun, lexical pronoun, and zero form. By investigating naturally occurring Mandarin discourse, Tao and Thompson (1994) found that the majority (61%) of transitive clauses in Mandarin conversations contain only one overt argument, while only 19% transitive clauses have two overt arguments. Besides, their data show that 'while transitives tend to reduce the number of arguments that are fully specified, the majority of non-transitives sustain the lexical coding of the one argument associated with them' (p.19). In Tao and Thompson's data, the majority of non-transitives (60%) are specified with an overt argument.

2. Research questions

Following Du Bois (1987), a great deal of researches on accusative languages has confirmed the quantity and role constraints of the ergative pattern. Since Chinese does not belong to either type of these two languages, I would like to see weather ergative PAS also holds for Chinese. I will examine the relationship between grammatical pattern and information flow in terms of different text types to see how PAS display in each text. The research questions which will direct this study are:

1. Do the constraints proposed by Du Bois hold in Chinese spoken discourse?
2. What is the distribution of argument types across different text types?

3. Methodology
3.1. Data

The data in this research consist of two ordinary conversations, three personal narratives, and five short written texts. In order to have similar numbers of clauses,

different amounts of data for each text type were collected: 159 clauses for conversations; 121 for narratives; 131 for written texts. The conversation and the narrative data were tape recorded. All the subjects are native speakers of both Mandarin and Taiwanese. The setting for the first conversation was a restaurant where two friends were having dinner and discussing their Sunday plan. The other conversation took place in a religious fellowship hall. This conversation was mainly produced by two speakers, one male and one female, who were talking about their experience of taking injection. Another speaker, father of the female speaker, broke into the conversation from time to time. These two conversations are produced mostly in Mandarin and mixed with a small portion of Taiwanese. The three narratives are speakers' personal experiences. The narrators were asked to narrate the most unforgettable experiences in their lives. As to the written texts, which were extracted from a Chinese book titled 心情故事 [Mood Stories]. The book is a collection of personal stories, and the stories are contributed by different writers. The five stories used for my data were selected randomly from this book.

3.2. Data analysis

The analysis is both quantitative and qualitative. The results will be explicated along with tables, figures, and statistical numbers. I will also compare my data and findings with those from other researches.

3.2.1. Transcription, Intonation units and clauses

The spoken data were transcribed according to the Du Bois et al (1993) transcription system. In the transcripts, each line represents an intonation unit. According to Du Bois, an intonation unit is 'a stretch of speech uttered under a single coherent intonation contour' (p. 46). Many scholars (Givon 1983b; Chafe 1987, 1994; Ono and Thompson 1995) have agreed that the 'clause' is the basic information unit in human discourse. In English, the term 'clause' refers to a predicate and its core arguments. In Chinese the most frequent grammatical structure of intonation units is the elliptical clause with zero arguments. Tao's (1996) definition of clauses is adopted in this study, which is 'a non-modifying verbal expression (including copular expressions), with or without zero-marking arguments, but excluding single nominal' (p. 17).

3.2.2. Grammatical roles

By employing Dixon's (1979) core semantic-syntactic primitives and Du Bois's (1987) core grammatical roles, Tao and Thompson (1994) define the grammatical roles of A, S, and O in their study: A is the most agent-like argument of a transitive verb; S is the single argument of an intransitive verb; O is the most patient-like argument of a transitive verb. Tao and Thompson's definition of grammatical roles A, S, and O is adopted in the present study. There are still other grammatical roles besides core argument roles A, S, and O in languages, such as bolique and indirect objects. Since core arguments are the main focus, other non-core arguments will not be taken into account.

3.2.3. Information status

Chaft's (1987) formulated categories of 'given', 'new', and 'accessible' information status will be used in this study. Given information refers to a referent which has been mentioned in previous context; new information refers to a referent which has not been mentioned previously; accessible information refers to a referent which was previously unmentioned, but was part of previous active entity-based frame.

4. Findings and discussion
4.1. Preferred clausal type

The distribution of clauses in terms of transitivity is presented in Table1 which shows the discrepancy in percentages between transitive and intransitive clauses among three different texts. The percentage of transitive clauses is approximately twice as more as of intransitive clauses in all three types of texts. Thus, we can say that transitive clauses are favored in Chinese regardless of text types.

	Conversation		Narrative		Writing	
	N	%	N	%	N	%
Transitive	100	62.9	80	66.1	88	67.2
Intransitive	59	37.1	41	33.9	43	32.8
Total	159		121		131	

Table 1. Transitivity among three types of texts

4.2 Lexical arguments in clauses

Transitivity further connects in the mind with arguments. In general, the argument types in Chinese can be characterized as zero arguments, pronouns, and full nouns. Though transitive verbs can have two arguments in a clause, zero-marking arguments and pronouns are also possible to fill in these two argument positions. Figure 2 shows the distribution of clauses (transitive and intransitive combined) which contain zero lexical argument, one lexical argument, and two lexical arguments in conversations, narratives, and written texts respectively.
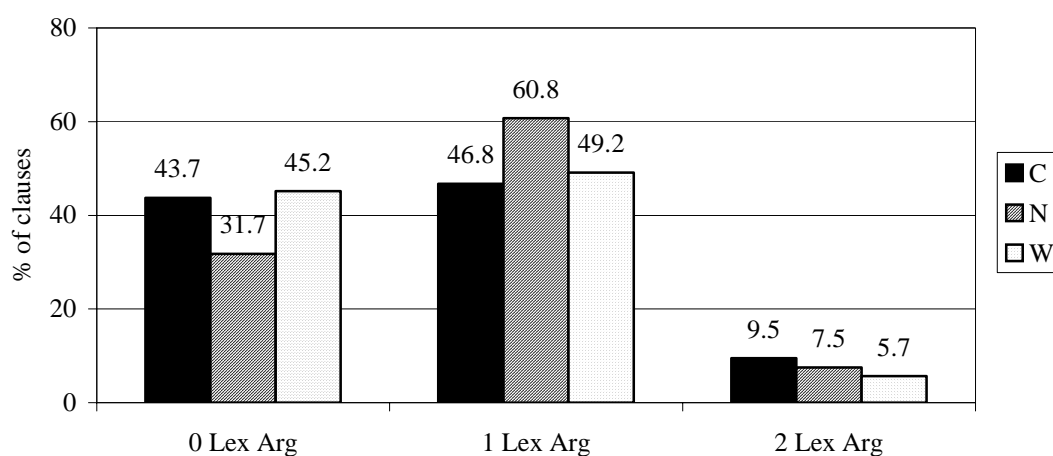
Figure 2. Distribution of clauses with zero, one and two lexical arguments

From Figure 2, we see that clauses with zero or one lexical argument are common, whereas clauses with two lexical arguments are rare, which seems to confirm with Du Bois' 'One Lexical Argument Constraint'. However, after thinking over in detail, we wonder where are the percentage values of zero lexical and one lexical argument from? Are they contributed by transitive clauses or intransitive clauses? Since transitive verbs can have two lexical arguments while intransitive verbs can have no more than one lexical argument. Therefore, it is necessary to separate transitives and intransitives in order to see their individual distribution for lexical arguments. Table 2 shows the numbers and percentages of clauses with zero, one, and two lexical arguments in transitive and intransitive clauses among three types of texts separately.

	0 Lex Arg						1 Lex Arg						2 Lex Arg					
	C		N		W		C		N		W		C		N		W	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Transitive	18	18.0	2	2.5	14	15.9	63	63.0	66	82.5	64	72.7	19	19.0	12	15.0	10	11.4
Intransitive	41	69.5	25	61.0	32	74.4	18	30.5	16	39.0	11	25.6	0	0.0	0	0.0	0	0.0
Total	59	43.7	27	31.7	46	45.2	81	46.8	82	60.8	75	49.2	19	9.5	12	7.5	10	5.7

C=Conversation   T=Transitive   I=Intransitive

Table 2. Transitivity and numbers of lexical arguments in clauses

Table 2 tells the inside story of Figure 2. Du Bois' 'One Lexical Argument Constraint' would be borne out by my data only if transitive and intransitive clauses are combined together. After separating these two types of clauses, the constraint does not hold for Chinese any more. This constraint strongly holds for Sacapultec because in this language both clauses with zero argument and one argument are the majority regardless of transitivity. My Chinese data display greatly different results from Du Bois'. In Chinese transitives, clauses containing one lexical argument are overwhelmingly predominant, and its percentage is much higher than clauses with zero lexical or two lexical arguments. Comparing to Sacapultec, transitive clauses with zero arguments are relatively fewer in Chinese. Thus, we may say that in Chinese there is a strong tendency for transitive clauses to contain one lexical argument, and clauses with zero or two lexical arguments tend to be avoided regardless of texts. With respect to the intransitive clauses, Du Bois' data show that clauses with zero and one lexical argument hold similar percentage (51.9% to 48.1%), whereas in Chinese the percentage of intransitive clauses with zero lexical arguments is approximately two or three times more than of clauses with one lexical argument. This tendency holds for all three types of texts.

4.3. Why clauses with one lexical argument are favored?

Since transitive clauses are the preferred clausal type in all three Chinese texts, we expect a higher percentage in two lexical arguments. However, the question arises is why in reality the percentage of one lexical argument is much higher? I assume that the answer is strongly related to languages-specific properties, case and ellipsis. Chinese is a language which does not have a case marking system. Take the singular third personal

pronoun as an example, 他 (he) can stand for both the subject and object of a transitive verb and for the subject of an intransitive verb as well. For avoiding confusion, speakers seldom put two third personal pronouns in a transitive clause unless the referents are present. It is more frequent to have different personal pronouns appearing in the two argument positions. Since two third personal pronouns in a clause are not prevalent, then transitive clauses with one pronoun and one lexical noun and with two overt lexical nouns are supposed to be relatively common. Yet the statistics do not support what we expect, in which clauses with two lexical arguments only occupy small portion. This is further caused by ellipsis, a special feature in Chinese. Zero anaphora and elliptical forms are prevailing grammatical structure in Chinese. This specific feature makes the numbers of lexical arguments in transitives reduced to one. This phenomenon explains why in transitives clauses with two lexical arguments are much less than clauses with one argument. Thus, we may say that ellipsis and lack of case-marking system make the clauses with one lexical argument predominant. Moreover, the two singular third personal pronouns, 他 (he) and 她 (she), and the impersonal pronoun, 它 (it), are pronounced exactly the same in Chinese. In order to avoid confusion under some circumstances, speakers tend to produce lexical arguments instead of pronouns. The following example demonstrates the confusing situation.

王先生和王太太個性很不同,他很內向而她很外向,他喜歡看書而她喜歡跳舞。

The example definitely will cause confusion in spoken discourse since the listener cannot make a distinction by hearing the identical pronunciation for both third personal pronouns. In order to make the statement clear, the speaker normally will use lexical nouns for the identification. However, this example will not cause any problem in writing because there are two distinct characters standing for these two third personal pronouns respectively, which explains why in written texts clauses containing two lexical arguments are relatively fewer than those are in conversations and narratives. The particularly low percentage of zero lexical argument shown in narratives indicates that speakers tend to avoid producing clauses with zero lexical argument when they narrate personal experiences. I assume that it is because the speaker and the listener do not have the sharing experiences. When the narrator tells his/her own private experience, he/she

needs to introduce new things along with the story which is not known by the listener, and new information is normally represented by lexical nouns. This explains why clauses with zero lexical argument are much less in narratives than those of in the other two texts. As for the intransitive clauses, once again, ellipsis plays an important role for the distribution. It is noteworthy that the result from my data is not only different from Du Bois' in Sacapultec but also different from Tao and Thompson's (1994) in Chinese. Tao and Thompson found that the majority of intransitives (60%) are specified with one lexical argument while my data show that clauses with zero lexical arguments are the majority of intransitives.

After finding the frequency of lexical arguments in term of transitivity, I would like to examine the distribution of lexical arguments among grammatical roles. Table 3 shows the numbers and percentages of lexical arguments among grammatical roles.

	Conversation		Narrative		Writing	
	N	%	N	%	N	%
A	20	17.4	15	13.6	14	14.4
S	15	13	17	15.5	11	11.3
O	80	69.6	78	70.9	72	74.2

Table 3. Numbers of lexical arguments in grammatical role

The majority of lexical arguments appear in O role while A and S contain comparatively much smaller proportion of them, which is much different from what was found in Sacapultec. In Sacapultec, substantial proportion of lexical arguments goes to roles S and O. In Table 3, we see that in Chinese lexical arguments occur much less not only in A role but also in S role. Lexical arguments tend to avoid both A and S positions, and the phenomenon is consistent in both spoken discourse and written texts. Thus, Du Bois' 'Non-lexical A Constraint' does not truly hold for Chinese. It would be more suitable if the constraint is modified as 'Non-lexical A and S Constraint' since lexical arguments disfavor both A and S.

In the following, three commonly used argument types will be explored in order to see how is the distribution of each argument type in terms of grammatical roles. Table 4 displays numbers of argument types among grammatical roles.

	Zero argument						Pronominal						Lexical Argument					
	C		N		W		C		N		W		C		N		W	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
A	26	26.0	37	46.3	48	54.5	54	54.0	28	35.0	26	29.5	20	20.0	15	18.8	14	15.9
S	19	32.2	15	36.6	12	27.9	25	42.4	9	22.0	20	46.5	15	25.4	17	41.5	11	25.6
O	4	4.0	0	0.0	1	1.1	16	16.0	5	6.0	15	17.0	80	80.0	78	94.0	72	81.8
Total	49	20.7	52	27.6	61	27.9	95	37.5	42	21.0	61	31.0	115	41.8	110	51.4	97	41.1

C=Conversation   N=Narrative   W=Written text

Table 4. Numbers of argument types among grammatical roles.

It is obvious that O role is filled with a great deal of lexical arguments, and it seems to have a hierarchy emerged according to numbers of lexical arguments in each role. O role contains the most lexical arguments, then S role has much less of them, and A has the least. The hierarchy is O > S > A in the percentage of lexical arguments, and this hierarchy is applicable to all three texts. By examining roles A and S closely, we see that in conversations pronominals occupy the biggest portion among three argument types; in narratives, zero-marking arguments appear the most; in written texts, zero-marking arguments have the highest percentage in A role while pronominals appear the most in S role.

4.4. Why argument types distribute differently in each role and how is the distribution related to texts?

Topic continuity is the reason to affect the distribution of various argument types in terms of grammatical roles. Humans are the main topics in these three texts. According to Chui (1994), human referents mostly appear in A or S positions. Since human referents are repeatedly mentioned in the content, they tend to re-appear by zero-marking arguments or pronouns. Generally new information is represented by full NPs, whereas zero-marking arguments and pronouns carry the information which have been known by both the speaker and the listener. In Chinese new information is usually introduced in O position (it is evident in the later section), and that explains why O is mostly filled with lexical arguments. Du Bois indicates that genres correlate with information pressure. The relative high or low of information pressure depends on the ratio of new entities in clauses. In some genres, pressure is relatively high, such as third person stories about

strangers, and in others, it is often low, such as conversation between friends or family members. In my data, the conversations are produced among intimate friends, and interlocutors refer to each other with first and second person pronouns, which explain why pronominals hold the substantial portion in roles A and S. In narratives, the experience each narrator uttered is personal and private, so the listener does not have the sharing background. Since more new entities need to be brought up by the narrators, the percentage of lexical arguments in roles S and O would be relatively higher. As to the higher percentage of zero-marking arguments in A and S, it is because the narratives are first person monologues, ellipsis is used a lot to replace the first person pronoun. Written texts in the present study consist of five short stories, and all the protagonists are humans. I expected to see more zero-marking arguments occurring in roles A and S, but the result does not seem to accord with my original expectation. I assume that it is related to the length of each story. The numbers of clauses for these five stories are 19, 19, 21, 30, and 43. The stories are short, so the protagonists are shifted too frequent. Each time when the protagonists are shifted, lexical nouns and pronouns have to be brought up to specify the change. That is why zero-marking arguments appear much less than they usually are in longer-length writing.

4.5. New arguments in clauses

Each argument position and grammatical element has its own specific properties. The appearance of argument types among argument positions is the grammatical dimension of PAS. In current section, pragmatic dimensions of PAS will be discussed.

The relationship between new arguments and transitivity is illustrated in Table 5.

	0 New Arg						1 New Arg						2 New Arg					
	C		N		W		C		N		W		C		N		W	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Transitive	40	40.0	20	25.0	22	25.0	53	53.0	52	65.0	55	62.5	7	7.0	8	10.0	11	12.5
Intransitive	50	84.7	31	75.6	34	79.1	9	15.3	10	24.4	9	20.9	0	0.0	0	0.0	0	0.0
Total	90	62.4	51	50.3	56	52.0	62	34.1	62	44.7	64	41.7	7	3.5	8	5.0	11	6.3

Table 5. Numbers of clauses with zero, one, and two new arguments.

The percentages of intransitive clauses with zero and one new argument are similar with what Du Bois found in Sacapultec, in which clauses with zero new arguments are predominant. However, the distribution of transitive clauses is opposite to Sacapultec. In Sacapultec, the percentages of clauses with zero verse one new argument distribute similarly regardless of transitivity (72.4% to 27.6% in transitives and 73.0% to 26.9% in intransitives). My data show that the majority of intransitive clauses contain zero new argument, while less portion of clauses have one new argument. In transitives, the distribution is inverse, in which substantial numbers of clauses contain one new argument whereas relatively less portion of clauses has zero new argument. Do Bois found no single clause contain two new arguments in Sacapultec; however in Chinese, clauses with two new arguments are found in all three texts. Du Bois' 'One New Argument Constraint' holds for Chinese as well, but only it is not an absolute avoidance as in Sacapultec.

4.6. New arguments in grammatical roles

My result has shown that lexical arguments favor role O in Chinese. Similarly, there might be a tendency for new arguments to favor or disfavor certain roles. Table 6 presents numbers of clauses with various information statuses among grammatical roles across three different text types.

	Given						New						Accessible					
	C		N		W		C		N		W		C		N		W	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
A	80	80.0	68	85.0	67	76.1	15	15.0	10	12.5	18	20.5	5	5.0	2	2.5	3	3.4
S	45	76.3	27	65.9	32	74.4	11	18.6	11	26.8	8	18.6	3	5.1	3	7.3	3	7.0
O	34	35.1	18	22.5	22	25.3	54	55.7	58	72.5	61	70.1	9	9.3	4	5.0	4	4.6
Total	159	63.8	113	57.8	121	58.6	80	29.8	79	37.3	87	36.4	17	6.5	9	4.9	10	5.0

Table 6. Grammatical roles and information status.

Table 6 tells us that substantial numbers of new arguments occur in role O regardless of text difference. Since O role monopolizes the new arguments, there are relatively much smaller proportions of them appearing in roles A and S. The distribution of new arguments is different from what was found in Sacapultec. In Sacapultec, a large portion

of new arguments goes to roles S and O, while only a small portion appears in role A. Why do new arguments in Chinese tend to appear in O position but not A and S positions? Topic continuity again plays a critical role for the distribution. To make sure if new arguments do have salient relations to role O, we should check what is the proportion of new arguments in each role. Based on Table 6, Figure 3 shows the proportions of different information statuses in each grammatical role among three texts.

(a) Argument roles in converstions

(b) Argument roles in narratives
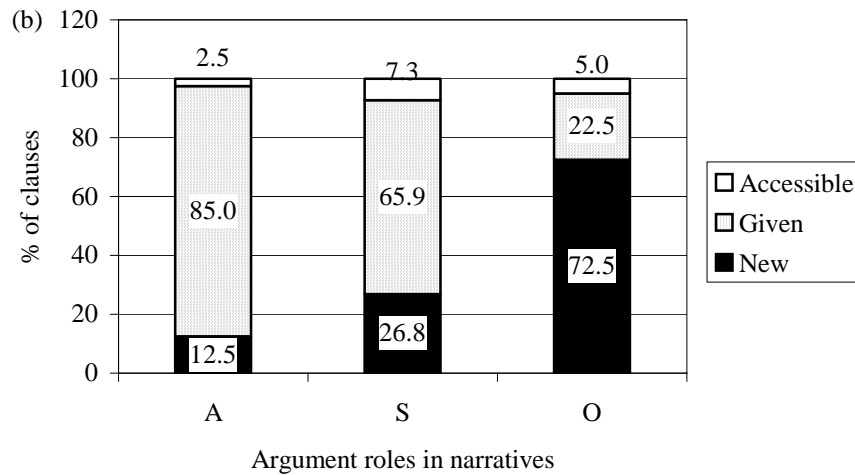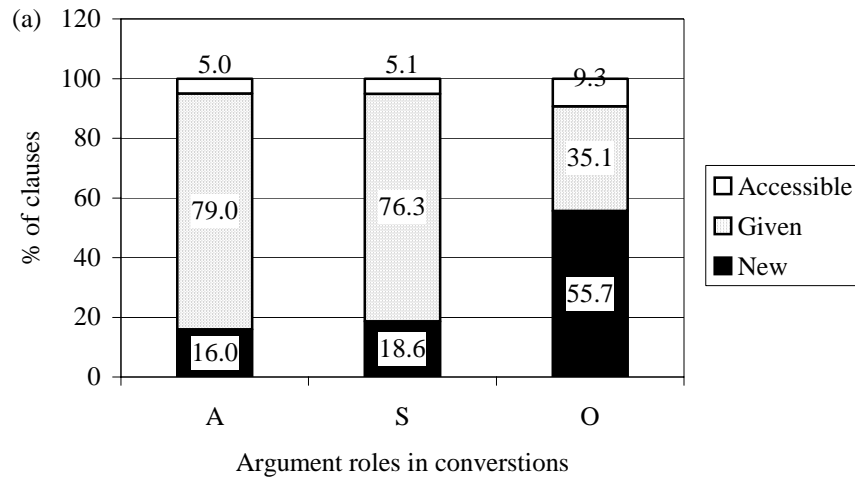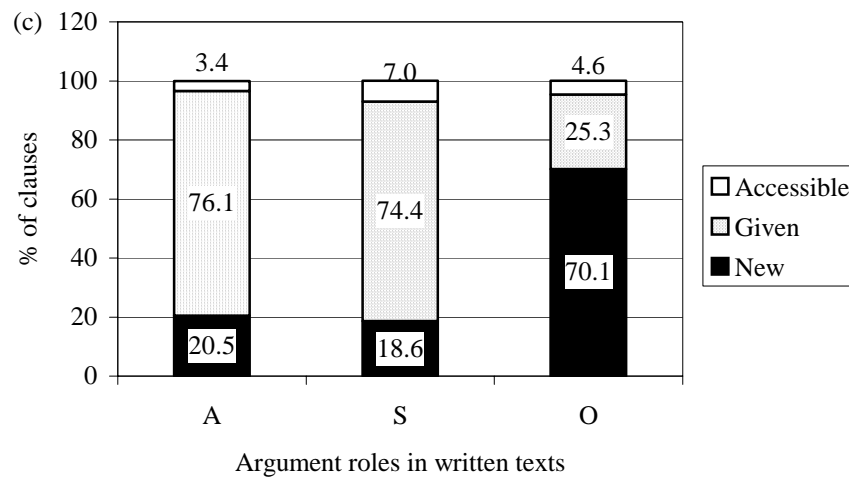
Figure 3. Information statuses among grammatical roles.

Figure 3 confirms that new arguments favor O role, and roles A and S contain much smaller amounts of new arguments respectively. The similar distribution holds for all three texts; therefore, it suggests that there should be a role constraint on information status. In Sacapultec speakers tend to avoid introducing a new referent in A position, but in Chinese new referents are avoided to appear in both roles A and S. Du Bois' 'Given A constraint' only partially holds for Chinese. In order to fit the tendency better for Chinese, the constraint should be modified as 'Given A and S Constraint' or 'New O constrain'.

4.7. Relation between grammatical and pragmatic dimensions.

Many scholars have pointed out the relationship between NPs and information flow. A full NP is used when the referent represents new information, whereas a pronoun is selected when the referent represents given information. In Chinese, given information is not only carried by pronouns but also by zero-marking arguments. Comparing Table 3 and Table 5, we see that lexical arguments and new arguments distribute similarly among grammatical roles regardless of text difference. Therefore, there is a strong connection between morphological type 'lexical' and information status 'new'. In Table 4 and Table 6, argument types and information statuses also distribute similarly among grammatical roles. Again the morphological types 'zero', 'pronominal', and 'lexical' correlate with information statuses 'accessible', 'given', and 'new'.

5. Conclusion

In this study, I investigated the relationship between preferred argument structure and information flow in three different Chinese texts, attempting to find whether texts affect the distribution of grammatical pattern and information status. From grammatical and pragmatic aspects, my Chinese data display potential PAS in distribution of clausal types, morphological types and information flow across grammatical roles among three different texts.

Transitive clauses are the preferred clausal type for both spoken and written texts. Transitivity is the crucial factor to affect distribution of argument types between Sacapultec and Chinese. Language-specific features, ellipsis and lack of case-marking system, also take part in the discrepancy. Text difference and topic continuity play significant roles on distribution of argument types and information statuses in each grammatical position. Role O is mostly filled with lexical and new arguments, while roles A and S contain mostly given information and relatively much less lexical arguments.

In sum, my Chinese data do not totally confirm to Du Bois' grammatical and pragmatic constraints. Overall, Chinese spoken discourse and written texts display the similar grammatical constraints and information statuses. The proportion of each argument type distribute differently in roles A and S in terms of texts. As for information status, all three texts show the consistent tendency that new information prefers O role and given information favors roles A and S. Given information appear relatively less in conversations than in narratives and written texts, and which is due to low information pressure.

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Chinese Discourse Markers in Oral Speech of Mainland Mandarin Speakers

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The present paper investigates the frequency and functions of Chinese discourse markers in oral speech of native Chinese speakers from mainland China. Most of the previous studies on Chinese discourse markers examine the speech of Mandarin speakers from Taiwan. Data for the study were gathered using individual sociolinguistic interviews. The native Chinese speakers were ten graduate students at an American university originally from mainland China. Fourteen discourse markers are identified in my data. Each marker is described when it is used as a DM in the data, and its textual and/or interpersonal functions are further analyzed. All the discourse markers used by the participants are ranked by the order of their frequency as well.

1. Introduction

Discourse markers tend to occur most prevalently in impromptu oral speech (Ostman 1982). Research on discourse markers (DM) in the last few decades has become an important topic. Numerous studies deal with definitions and different functions of discourse markers by native speakers (e.g., Schiffrin 1987 on English; Miracle 1991 on Mandarin Chinese; Onodera 2004 on Japanese). However, this is still an area neglected by research in oral speech of native Chinese speakers from mainland China. Most of the previous studies on Chinese DMs examine the speech of Mandarin speakers from Taiwan, according to my knowledge. Therefore, the present paper investigates the frequency and functions of Chinese DMs in oral speech of native Chinese speakers from mainland China.

2. This study
2.1. Definition of discourse markers

The working definition of discourse markers in this study is as follows: first, they are grammatically optional or syntactically independent; without the discourse marker,

the grammaticality of the utterance remains intact. Second, they have little or no propositional meaning. If the discourse marker is removed from the utterance, the semantic relationship between the elements they connect remains the same. Third, they have textual and/or interpersonal functions. Phonological features are a good reference for judgment of a discourse marker; however, since some markers show phonological features more than other markers, phonological features are not a restricted criterion in this study for discourse markerhood.

2.2. Framework of analysis

The analytical framework of my study is based on DM studies of Brinton (1996), Aijmer (2002), and Muller (2005). Their DM analytical methods are all based on Halliday's language functions (1970): ideational, interpersonal and textual functions. Discourse markers in my study will be analyzed for both textual and interpersonal functions. In my analysis, the interpersonal and textual functions are not mutually exclusive, as they can co-occur in the same discourse (Aijmer 2002). Therefore, some markers serve primarily interpersonal functions, some markers signal primarily relationships between clauses, and some markers may have both textual and interpersonal functions.

2.3. The data

The ten native Chinese participants involved in this study were graduate students (five male and five female) at the University of Florida originally from mainland China. The interviewer is the researcher herself. She came from mainland China. She was a graduate student of the same university as the participants. Before the data collection started, the participants were not told by the researcher what she was looking for in their speech, in order to make sure that their speech was not influenced by the study: i.e., they would not produce more or fewer discourse markers on purpose.

Individual sociolinguistic interviews were conducted to elicit discourse markers in this study. Each participant was interviewed for about fifteen minutes. Topics for the interviews were personal in order to elicit an oral narrative register about those topics, such as hobbies, weekends, sports, favorite teachers, favorite movies and TV programs. After all the data were recorded on the cassette tapes, they were digitized in order to be transcribed more efficiently using computer software.

2.4. Results and discussion

2.4.1. Quantitative analysis

Fourteen Chinese lexical units are identified as Chinese discourse markers. The frequency of each marker per person was calculated according to the total tokens per thousand words. Table 1 shows these discourse markers in decreasing order of frequency in the collected Chinese data: *ranhou, jiushi, nage/zhege, wo juede, shenme, shenme (de)/shenme zhilei de, jiushishuo, qishi, haoxiang, dui, na, suoyi, erqie,* and *fanzheng*. As can be seen from the table, *ranhou* ("then") was used the most frequently, while *fanzheng* ("anyway") was used at the lowest rate in this study.

Table 1. Frequency of Chinese Discourse Markers in the Chinese interviews (per 1,000 words)

Speaker	ranhou 'then'	jiushi 'precisely be'	nage/ zhege 'that/this'	wo juede 'I think'	shenme 'what'	shenme (de) 'referent-final tags'	jiushishuo 'that is to say'
1 Dong	7.9	2.6	7.1	0.4	0.4	2.6	1.5
2 Feng	3.1	1.6	4.7	0	3.1	1.9	0
3 Bing	3.2	5.2	2.1	2.1	4.2	4.2	2.5
4 Lian	15.8	5.8	13.6	7.1	4.5	2.3	2.3
5 Xia	16.3	5.5	5.5	1.3	1.0	2.0	1.5
6 Qiu	11.5	8.3	9.5	2.0	0.3	0.6	0.3
7 Peng	12.1	1.6	3.9	3.9	1.2	0.8	0.8
8 Jun	9.3	11.9	4.0	4.0	1.7	0.7	2.0
9 Fang	14.4	14.5	1.4	5.1	1.4	0.9	0
10 Juan	8.7	8.9	2.5	6.9	1.0	0.3	2.5
Total	102.3	65.9	54.3	32.8	18.8	16.3	13.4
Average	10.2	6.6	5.4	3.3	1.9	1.6	1.3

Table 1 (continued)

Speaker	qishi 'actually'	haoxiang 'seem'	dui 'yeah'	na 'in that case'	suoyi 'so'	erqie 'more-over'	fanzheng 'anyway'	Total/1,000 words
1 Dong	0.4	0	0.8	0.8	0	0	0	24.5
2 Feng	0	0.4	0	0	0	0	0	14.8
3 Bing	0.7	0	0.7	0.7	0	0	0	25.6
4 Lian	0	2.6	1.3	0.3	0	0.6	0	56.2
5 Xia	0.8	0.3	0.3	0	1.0	0	0	35.5
6 Qiu	3.8	0	0	0	0.3	0.6	0	37.2
7 Peng	1.6	0	0	0	0	0	0.4	26.3
8 Jun	1.0	1.7	2.7	0	0.3	0	0.3	39.3
9 Fang	0.5	1.4	1.0	0.5	0	0	0	41.1
10 Juan	3.0	1.2	0.2	0.3	0.3	0	0	35.8
Total	11.8	7.6	7.0	2.6	1.9	1.2	0.7	336.3
Average	1.2	0.8	0.7	0.3	0.2	0.1	0.1	33.6

2.4.2. Qualitative analysis

In the following section, the use of each lexical unit as a discourse marker will be discussed. In the examples, (…) is the symbol of the omitted utterances in that turn by the speaker.[1] The following are the abbreviations of the Mandarin Chinese gloss when there is no lexical English equivalent (Li & Thompson 1981: xxiii).

CL   classifier

COMP   comparative

CRS   currently relevant state (le)

CSC   complex stative construction (de)

EXP   experiential aspect (-guo)

GEN   genitive (-de)

NOM   nominalizer (de)

PFV   perfective aspect (-le)

PL   plural

PRT   particle

Ranhou ("then")

DM use of ranhou. Wang (1998) suggests that the discourse function of ranhou marks a temporal succession between prior and upcoming topics in discourse. She also claims that the core meaning of ranhou is to mark continuation (Wang 1998). Su (1998) finds that ranhou has three functions as a DM: condition or concession, verbal filler and topic-succession. However, in my view her first function overlaps with the third one. Therefore, I argue that in my data, ranhou serves two textual functions: topic-succession and verbal filler. In (1), Dong tells the interviewer the reasons why he likes San Francisco the most among American cities. He uses ranhou to mark the sequence of his thoughts or ideas. Ranhou loses its temporal meaning here, and it serves the function of topic-succession. In (2), Jun tells the interviewer what type of teacher he likes. There is an obvious pause after ranhou here indicating that the speaker needs time to search for the following words. It is used as a verbal filler in this case. In addition, the fact that it is collocated with another connective, yinwei ("because"), also indicates its filler function here.

---

[1] The purpose of omitting some sentences in an example is that the complete utterances of an example are too long.

Example (1):

Dong: (…) ta you shan,   you kaojin hai, <u>ranhou,</u> lishi   shang ta
         it have mountain   also near sea then   history on   it

you you tade zhege … zhege chengshi qishi   zai meiguo lai   shuo
also have its this   this   city   actually in America come   say

suan shi ye   bijiao   lao de   yi   ge chengshi. (…)
count be also comparatively old NOM   one CL city

'(…) It has mountains. It is also near the sea. And <u>then</u> its history has its …
actually in America this city is considered relatively an old city too. (…)'

Example (2):

Jun: wo zai meiguo   de hua, yinwei   cai gang   lai   ma, <u>ranhou</u> …
      I at America   if   because only just   come PRT then

yinwei   mei ge xueqi   zhi   neng xuan   jiu ge xuefen
because   every CL semester only can choose nine CL credit

de   ke, bijiao   xihuan de hua, yiban   wo xuan   de
NOM class comparatively like   if   generally I choose NOM

ke   dou shi wo xihuan de   ke.
course all be I   like   NOM course

'In America, because I just came here, and <u>then</u> … because I can only choose
nine credits of courses each semester, the teachers I like, generally speaking, the
courses I choose to take are what I like.'

Na ("in that case")

DM use of <u>na</u>. Miracle (1991: 92) suggests that <u>na</u> establishes "the connection of
and thus the relevance of the following unit of talk to a prior unit of talk." In my data,
when <u>na</u> is used as a connective and loses the implied result meaning, it is considered a
DM. Furthermore, <u>na</u> is not stressed when it is used as a DM. It is found to have two

textual functions. First, within a turn, <u>na</u> is used for topic shifting or introducing a new aspect of the topic. In (3), Juan replies to a question about her hobbies. <u>Na</u> functions as a frame marker, indicating a shift in the topic. It has already lost the semantic meaning "in that case." Second, <u>na</u> is used to initiate a new turn. It is only used by the interviewer in the data to initiate a new question for the interviewee, as in example (4).

Example (3):
Juan: yeyu aihao a,   <u>na</u>   wo juede, ting ge   a,
      extra hobby PRT in that case I   think   listen song PRT

ranhou … kan shu. (……)
then   read book

'Hobbies, I think, listening to music, and … reading. (…)'

Example (4):
Binmei: <u>na</u>   riben you   shenme haowan de?
        in that case Japan have what   fun   NOM

'What does Japan have for fun?'

Suoyi ("so/therefore")

DM use of <u>suoyi</u>. Fang (2000) finds that <u>suoyi</u> is bleached in some cases and it serves the function of going back to the previous topic. Wang and Huang (2006) find that <u>suoyi</u> is a topic initiator and functions to mark topic shift. In my data, Wang and Huang's (2006) "topic initiator" function is not found. Fang's (2000) use of <u>suoyi</u> is found in my data, but could be more correctly interpreted as "closing the current topic." I illustrate this textual function with the following examples. In (5), the speaker talks about her experience of choosing a major at the university. <u>Suoyi</u> is used at the end of her turn indicating that she is ready to give the floor to the hearer. Therefore, here, it serves the function of closing the conversation. In this situation, <u>suoyi</u> is not stressed.

Example (5):
Qiu: (…) houlai   fanzheng ye   jiu   jieshou le   zhege
          afterward anyway   too just accept PFV   this

mingyun, jiu jue   le.   <u>Suoyi</u>.
fate,   just wonderful CRS So

'(…) Afterward I accepted this fate anyway. It is just wonderful. <u>So</u>'

Erqie ("moreover")

DM use of <u>erqie</u>. Fang (2000) finds that <u>erqie</u> is used for topic shifting when it is semantically bleached. In my data, it is found to have the same textual function of topic shifting when used as a DM. For instance, in (6), the speaker at first wants to talk about the features of Jiangsu province. He feels that it is not easy to explain because the province is divided into two parts (south and north) and each part has its own features. Therefore, <u>erqie</u> here is used not to add further information to his previous utterance; instead, after <u>erqie</u>, there is a different aspect of the topic.

Example (6):
Jun: Jiangsu de tedian, qishi   gen qishi   gen mei   ge sheng   de
     Jiangsu GEN feature actually with actually with every CL province NOM

wenhua shi bu tai yiyang. Jiangsu sheng   de hua, en <u>erqie</u>
culture be not very same   Jiangsu province if   uh moreover

 Jiangsu sheng   fen jiang nan jiang bei. Jiang nan   de   tese,
Jiangsu province divide river south river north river south NOM   feature

(…)

'As to the features of Jiangsu province, actually every province's culture is not quite the same. As to Jiangsu province, uh <u>moreover</u> Jiangu is divided into South and North. The characteristic of south of Jiangsu, (…)'

Dui ("yeah")

DM use of <u>dui</u>. To my knowledge, there is nothing in the literature yet about this marker. In my study, <u>dui</u> is used as a DM inside a turn when it can be omitted from the utterance and the utterance retains its semantic intactness. And it is never stressed in the

data. It occurs either sentence-initially or finally. <u>Dui</u> serves a textual function—a pause filler or a delay device. In (7), the speaker talks about what type of music she likes to listen to. She tells the interviewer at the beginning of the turn that she wants to listen to American music because she is abroad now. And then she tells the interviewer that she doesn't like Chinese pop songs. <u>Dui</u> serves a pause filler at the beginning of her sentence.

> Example (7):
> Lian: biru   shuo wo ting xiang ting   yixia   en…jiu   shuo
>   example say I very want listen a while uh precisely say
>
> meiguo   zhe zhong didao   de   yinyue. (…) Zai wang shang
> America this type authentic NOM music   at internet on
>
> keyi ting   yixie nage bieren gei tuijian   de   gequ a
> may listen some that others   give recommend NOM song PRT
>
> shenme zhilei de.   <u>Dui</u>, zhongwen ge wo zai guo   nei ye   queshi hen
> things like that   yeah Chinese   song I in country in also indeed quite
>
> shao   ting.
> seldom   listen
>
> 'For example, I really want to listen to uh ... authentic American music. (…) I listen to the songs recommended by others through the internet and things like that. <u>Yeah</u>, I seldom listened to Chinese songs even when I was in China.'

Nage/zhege ("that/this")

    DM use of <u>nage/zhege</u>. Huang (1999: 88) analyzes the distal <u>nage</u> and the proximal <u>zhege</u> as a pause marker by speakers to "make a lexical choice or to formulate a syntactic frame or to gather their thought." In my data, <u>nage/zhege</u> are found to serve a textual function: that of verbal filler. The speaker often pauses after <u>nage</u> or <u>zhege</u> and <u>nage/zhege</u> are not stressed when used as DMs. In (8), Qiu tells the interviewer about her hobbies. She uses <u>nage</u> for a lexical or content search.

Example (8):
Qiu: hua   hua   a,   chang ge, chang jingxi,
     paint   picture PRT sing song sing   Beijing opera

ranhou <u>nage</u> … qishi   wo ting xihuan yundong de. (…)
then   that   actually I quite like   sports   NOM

'Painting, singing, singing Beijing Opera, and then … actually I like sports too. (…)'

Jiushi ("precisely be")

     DM use of <u>jiushi</u>. <u>Jiushi</u> consists of the adverb *jiu* ("precisely") and the copula *shi* ("be"). According to Fang (2000), the information after <u>jiushi</u> is half-new information and half-old information; therefore, the function of <u>jiushi</u> is helping to establish the semi-active topic. Biq (2001) analyzes the grammaticalization of <u>jiushi</u> and suggests that it becomes a DM when it is semantically reduced and serves as a pause filler or floor holder. In my data, <u>jiushi</u> is found to have two textual functions. First, it functions as a pause filler/floor holder and second, it helps to refer to an earlier topic. There is often a pause after <u>jiushi</u> when it is used as a pause filler and it is not stressed when used as a DM. In (9), the speaker talks about a movie she likes very much. There is a pause after each underlined <u>jiushi</u> indicating that the speaker needs time to search for the following words. In (10), the speaker talks about her trip to Sichuan province. Before <u>jiushi</u>, she mentions that "the people there are relatively naïve." After <u>jiushi</u>, she tells the hearer that the people she mentioned before are Zang people. Here, <u>jiushi</u> loses its original semantic meaning. Instead, its function is to refer to a topic that already exists.

Example (9):
Qiu: (…) nage nage pai de   hen hao. Ta *jiu*   shi .. yinwei
      that that shoot CSC very good it precisely be   because

nage xiaoshuo wo jiu   hen xihuan. Nage xiaoshuo, ta <u>jiushi</u>
that novel   I precisely very like   that novel   it precisely be

ta na   xiaoshuo xie de   xiang sanwen. (…)
he that novel   write CSC similar essay

'(…) That movie was shot very well. It .. because I like the novel very much. That novel, it .. his novel was written like an essay. (…)'

Example (10):
Lian: (…) wo juede na difang nage fengjing tebie xiuli, ranhou
        I think that place that scenery very beautiful then

na bian ren bijiao chunpu. <u>Jiu shi</u> nage .. zang zu
that side people relatively naïve precisely be that Zang clan

ren, tongbao ta bijiao chunpu.
people fellowmen he relatively naïve

'(…) I think that place, the scenery is particularly beautiful, and then the people there are relatively naïve. The Zang fellowmen are relatively naïve.'

Jiushishuo ("namely/that is to say")

DM use of <u>jiushishuo</u>. Biq (2001: 64) suggests that when <u>jiushishuo</u> is used as a discourse marker, the speaker uses the expression to "claim the floor, or to tell the interlocutor, 'I have got things to say.'" In my data, it is found to serve the textual function—helping the speaker to hold the floor. In (11), Lian talks about whether she likes New York or not. She feels that it is good to go shopping, etc. there, but living there is not good. So <u>jiushishuo</u> in this case does not have its original function—further elaboration. It is used as a floor holder.

Example (11):
Lian: en niuyue wo juede nage difang, shopping a, ranhou nage chi
      uh New York I think that place shopping PRT then that eat

chi fan a, keneng bijiao hao. Danshi <u>jiushishuo</u> nage ..
eat dinner PRT perhaps relatively good but that is to say that

en zhu zai niuyue, (…) naxie difang bu shihe shenghuo. (…)
uh live in New York those place not suitable living

'Uh I think New York, that kind of place, it is perhaps fine to go shopping and have dinner. But uh living in New York, (…) those places are not suitable for living. (…)'

Haoxiang ("seem")

DM use of haoxiang. No previous study has analyzed haoxiang as a DM, to my knowledge. When it is considered a DM in my data, it is used with an interpersonal function—to mitigate the speaker's opinion, thus making the utterance indirect and more polite. In (12), the speaker talks about his new hobby—swimming. But he also complains that the pool near his home is not clean. By using haoxiang, he softens his opinion and seems more indirect.

Example (12):
Jun: (…) haiyou zai zhe haiyou yi ge aihao. Houlai,   chabuduo
          also   in   here also one CL hobby later   almost

xue hui le.   Danshi nage youyong chi haoxiang bu tai   ganjing,
learn can CRS   but   that swim   pool seem   not very clean

gao zai shen shang dou shi yi gen mao yi gen mao de. (…)
make at body on   all   be one CL hair one CL hair NOM

'(…) Here I have another hobby. I almost learned how to swim later, but the swimming pool doesn't seem very clean. So my body was covered with some feathers after swimming. (…)'

Fanzheng ("in any case/anyway")

DM use of fanzheng. To my knowledge, analysis of this marker is not found in the literature. In my data, when it is considered a DM, it serves a textual function—holding the floor; and closing some part of the conversation and at the same time opening up a new slot in the discourse. It is often followed by a pause. In (13), the speaker is asked to talk about what sports he likes. After volleyball occurs in the list, he pauses. Fanzheng is used to hold the floor for the speaker and to close the previous part of the conversation

and continue a new part of the topic. It loses the original meaning and thus becomes a DM in this case.

> Example (13):
> Peng: (…) ranhou …haiyou shenme, wo chuzhong   de   shihou ye
>   then   also   what   I middle school NOM time too
>
> da paiqiu.   Houlai bu da le.   En … <u>fanzheng</u> … Youyong wo
> play volleyball later not play CRS uh   anyway   swim   I
>
> ye xihuan.
> too like
>
> '(…) And then … what else? When I was in middle school, I played volleyball too. Later I stopped playing. Uh … I like swimming too.'

Qishi ("actually")

DM use of <u>qishi</u>. No previous study has analyzed <u>qishi</u> as a DM, to my knowledge. In the data, when <u>qishi</u> is used as a DM, it serves an interpersonal hedging function—making the speaker's utterance more indirect—and a textual function on holding the floor. In (14), Peng tells the interviewer that he came to study in the U.S. earlier than his college classmates. The interviewer then asks him if this is because his English is good. If <u>qishi</u> is omitted in this sentence, his reply lacks modesty to the hearer. With <u>qishi</u> in the reply, Peng makes himself more indirect. So <u>qishi</u> functions as a mitigator. On the other hand, there is a pause after <u>qishi</u>. The pause allows the speaker to search for words, so it also functions as a floor-holder.

> Example (14):
> Binmei: yinwei ni yingyu hao,   shi   ma?
>   because you English good right PRT
>
> 'Because your English is good, right?'
>
> Peng: wo yingyu <u>qishi</u> ..   hai xing, (…)
>   I   English actually still fine

'My English is fine. (…)'

Wo juede ("I think")

DM use of <u>wo juede</u>. In the literature of Chinese discourse markers, no previous studies have been published about this expression, to my knowledge. <u>Wo juede</u> literally means "I think." It can be placed sentence-initially, medially and finally. All uses of <u>wo juede</u> in my data are considered DMs and it serves an interpersonal function: it expresses one's deliberative thoughts; on the other hand, it is also used to mitigate one's opinion because its user doesn't want to impose his/her opinion upon the hearer. In (15), the speaker makes comments about his teacher. He doesn't think one of his teachers is responsible enough. By using <u>wo juede</u>, the speaker means only that he thinks that the teacher is not responsible; his opinion may not include anybody else's.

Example (15):
Peng: (…) you yi ge   laoshi, <u>wo juede</u> ta bu shi na zhong tebie
          exist one CL teacher, I think   he not be that kind very

fu   zeren   de. Yinwei   si   zhou xialai, ta zhi
take responsibility NOM because   four week since he only

chuxian guo   yici. (…)
appear   EXP   once

'(…) One of the teachers, <u>I think</u> he is not the kind of very responsible teacher, because he only appeared once during four weeks. (…)'

Shenme ("what")

DM use of <u>shenme</u>. Literature on the discourse marker of <u>shenme</u> does not exist, to my knowledge. In my data, it is found to have two functions: the first is an interpersonal one—it is used as a hedge to express weak commitment; the second is a textual one—it can be a pause filler. In (16), the speaker talks about his English study when he was in China. <u>Shenme</u> does not have any particular semantic meaning in this case. It is used as a hedge, which makes it possible for the speaker to be less abrupt. In (17), the speaker talks about a TV show he and his roommate often watch together at dinner time. <u>Shenme</u>

becomes a pause filler for the speaker to search for words. It is always followed by a pause when <u>shenme</u> is used as a filler.

> Example (16):
> Bing: (…) wo men gaozhong   hai   gen   Aodaliya yi   ge gaozhong
>   I PL high school even with   Australia one CL high school
>
> hai   <u>shenme</u> lian   yi   xuexiao ne. (…)
> even what   connect friendship school PRT
>
> '(…) My high school and a high school even in Australia are sister schools.'
>
> Example (17):
> Bing: (…) jiushishuo … women jiu   shi chi fan de   shihou
>   that is to say we   precisely be eat meal NOM   when
>
> kan   kan,   zhenghao zhenghao   zai nage <u>shenme</u> ..en wancan shijian
> watch watch   exactly exactly   at   that what   uh supper time
>
> de   shihou, hui hui he   wo de   roommate kan   zhe yige jiemu. (…)
> NOM when   will will with I   NOM roommate watch this one show
>
> '(…) That is to say, we watch the program when we have dinner because the show time is exactly .. uh our supper time. I watch this show with my roommate. (…)'

Shenme/shenme de/shenme zhilei de ("referent-final tags")

When <u>shenme</u>, <u>shenme de</u> or <u>shenme zhilei de</u> are used at the end of a list, they function as the same referent-final tag DMs in English as were analyzed at the end of the English DM part of this section. All uses of them are considered DMs in the data. These discourse markers have not been discussed in the literature yet, to my knowledge. <u>Shenme/shenme de/shenme zhilei de</u> has an interpersonal hedging function which takes one of two aspects: invoking common ground between the speaker and the hearer; and marking approximation. For example, in (18), the speaker talks about what hobbies he has. He thinks of the hobby "surfing the internet" and <u>shenme de</u> indicates something

similar which he likes to do at home. <u>Shenme de</u> could function to let the hearer infer other similar examples, and also could signal to downplay the importance of what has been said.

> Example (18):
> Feng: (…) zai jia.   aihao, hai zhen   xiang bu dao you shenme aihao. chang
>   at   home hobby yet indeed think not up have what   hobby   sing
>
> ge   tiao   wu   dou bu gan   le,   mei yisi. Ranhou shang
> song dance dance all not do   CRS not fun   then   surf
>
> shang wang   <u>shenme de</u>.   Zhe suan   yeyu aihao ma?
> surf   internet that sort of thing   this count   extra hobby PRT
>
> '(…) At home. Hobby, I really can't think up anything. Singing, dancing, I don't do them anymore, because they are not fun. And then surfing the internet <u>that sort of thing</u>. Does this qualify as a hobby?'

3. Conclusion

The study has identified and analyzed fourteen Chinese discourse markers in the oral speech of mainland Mandarin speakers. Some of them haven't been discussed before in the literature, for example, dui ("yeah"), haoxiang ("seem"), fanzheng ("anyway"), wo juede ("I think"), shenme ("what"), shenme/ shenme de/shenme zhilei de ("referent-final tags").

Discourse markers are difficult for foreign/second language learners to acquire if learners are not exposed to natural Chinese. The pragmatic functions of these markers are not taught in formal language classrooms, nor do they appear in Chinese learning dictionaries or textbooks. One pedagogical implication of this study is that curriculum writers and teachers should put more focus on the pragmatic functions of discourse markers (Hellermann & Vergun 2007) rather than just focus on semantic meanings of these words in textbooks and classrooms. Another implication of the study is that curriculum writers and language teachers should use more authentic listening and speaking materials (He & Xu 2003).

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Romanization Patterns in Chinese as Evidenced by a Personal Name Corpus

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Chinese has a lengthy and often non-uniform history of transliteration and Romanization patterns, from systems such as Wade-Giles and Pinyin to more extemporized attempts. One domain of language severely resists conformity—personal names. The multiple romanized variants of a Chinese name stem from historical source patterns and personal choices. Romanization standards are often inconsistent or unobserved, and may diverge from existing orthographic intuitions.   This study shows that a sizable corpus of personal names in romanized form is integral to any attempts at reconciliation and record linkage; its strength is shown in the confluence among statistical methods, human factors, and linguistic knowledge. The results constitute a type of surface form grammar, one based on the corpus romanization patterns rather than underlying forms and sources.

1. Introduction

Record linkage is the term for one of the newer yet now-widespread applied applications of computational linguistics. Through methods including synonym lists and letter comparisons, an algorithm can match personal name records containing variants such as Tom and Thomas, as well as misspellings or previous-unknown variants such Thhomas or Tohmas.

Without a truthed corpus to corroborate the process, the success rate of any linkage method is unverifiable. Conventional wisdom may cause a plurality of agreement, yet opinions will still vary. My own name can be used as an example. If one compares Tom McClive to Thomas Mac Cleavon, those familiar with Western names would agree that Tom and Thomas are closely-used variants of the same name, and that two records using those names could refer to the same person. As to the surname, the Mc and Mac are both a variant of the Scottish-origin prefix loosely meaning "child of", clearly corresponding, and Cleavon can be shown to historically be a variant of Clive.

Record linkage still is not like a mathematical equation where x = y; one cannot say for sure that a Tom and a Thomas are the same person, but we can assign a certain degree of confidence to a yes or no answer. The confidence, difficult to quantify, would still not be without human intuition; those more familiar with the names may feel that the

surname comparison in question is likely not the same name (I would certainly feel this way), while those unfamiliar with the names may find them perfectly acceptable variants.

Questions of sameness in written Chinese names can mostly be solved by looking at the characters, but the task becomes quite complicated when dealing with the romanized forms. Comparing the romanized names of the martial artists Bruce Lee and Jet Li gives one nothing but the representative sounds. Since most of the world does not use Chinese characters, and most computer records do not contain them, their Romanized versions are the forms that are dissembled.

The dialects, and perhaps different languages, that fall under the colloquial categorization umbrella of "Chinese" have a lengthy and often non-uniform history of transliteration and Romanization patterns, from popular, largely accepted systems such as Yale, Wade-Giles, and Pinyin to more extemporized attempts.

Bruce Lee and Jet Li indeed happen to have the same character for their surname (李), but this is not at all evident by their spelling, which clearly comes from two different eras and two different transliteration traditions. LI is more of a pinyin-style construction, while LEE is a more Western-influenced fossilization. The name Robert E. Lee clearly is not connected historically to either men, but also shares the same surface form surname, and any record linkage would start a surname comparison by connecting the group.

2. Challenges of Chinese Romanization

One particular challenge with romanization in monosyllabic East Asian languages such as Chinese is the consistently increased semantic weight each letter carries. By design, a contrived romanization system does not contain any extraneous symbols. Most have no silent letters or adjustments for regional or personal variation. The silent "H" in "Thomas" would not be allowed in a designed system for English, as the TH combination would overlap with the established TH digraph for the voiceless interdental fricative, unless it somehow is needed to contrast with, say, an unaspirated [t] sound.

This semantic weight demands that each letter present in a transliterated surface form be initially accorded an assumed status of deliberateness. That extra H, we first assume, must mean something, though this is certainly not always the case. A difference of one letter between two words can make a lexical distinction in any representative system, but the letters in shorter words carry more weight. One complication for any language's romanization is that there are usually competing systems used, making the letter differences harder to judge. Consider:

ZANG = TZANG
ZANG ≠ ZHANG

The surface forms ZANG and TZANG can mean the same word, through two different romanization systems who represent the phoneme [dz] in different ways, even

though the letter in question, T, would not seem to be incidental. However, another type of one-letter difference between the forms ZANG and ZHANG makes them into two different words even though that letter in question, H, is historically often merely ornamental.

The historical and generally accepted variants on a common name like THOMAS stem from geographic distribution across an area, with some changes coming from efforts to conform to local phonological patterns, and some arbitrary, perhaps even capricious, spelling changes. One could still look at a list of Tomas, Tomash, Tomaj, Tomac, Thoma, Tomaso, Tomaq, Tuomo, Tuomas, Tomek, and Tamhas, along with the nickname and variants rule creations such as Tom, Thom, Tommy, and Tommie, and still perhaps judge them to be the same name, although some geographical variants such as the English John being the Scottish Ian may not be as recognizable. But the variants of a name that has been romanized can come from entirely different sources. The Chinese name CAI may also be realized as Tsai, Zai, Tsay, Tsair, Tzai, Tzay, and Tsae, among other forms.

The variants of CAI listed above have few common attributes; they share a single letter, A, all possess an onset, and most of them are an open syllable. That's little to connect them. Many reference works for Chinese names try to list common variables, but as with the romanization system itself, there is no way to enforce or ensure these lists and the divisions between them. Listing of variations may ignore the human factor, saying that ZHÀO with a fourth tone may have one list of variants, while ZHĀO with a first tone may have a different list.

The process of romanization, or any transliteration in general, has its own set of en suite issues. They include such challenges as:

(1) A different inventory of sounds between two languages.

(2) A common inability to perform a direct A → B type of transliteration. It is often the case that one symbol cannot be replaced by one other symbol. Even if a common pattern exists, the surface forms may differ due to the phonological environment.

One example comes from Korean where the symbol ㄱ is realized as a voiceless velar stop [k] in one environment, as voiced [g] in another, and as nasal [ŋ] in yet another, thus being transliterated as "k", "g", or "ng" depending on its position.

ㄱ = as /k/ in 고려   /g/ in 적용   /ng/ in 직면

Another example comes from Japanese, from a more logographic writing system analogous to Chinese. The character 田 is pronounced [ta] when in the beginning of a word, and as a voiced [da] when at the end, such as in Tanaka and Yamada.

(3) Imperfect alphabet symbol inventory. There is no mass consensus on representation.

(4) Adoption of dormant letters (such as Q and X), digraphs or trigraphs, and diacritics. Sounds that cannot easily be represented in romanization through the most commonly used letters are often assigned such lesser-used letters such as Q and X, or are represented through digraphs or trigraphs, or even diacritics.

One example comes from Thai, where the Royal Thai Government System of transliteration decrees that the Thai vowel เ ือะ should be transliterated as UEA, a vowel combination that no native English speaker could correctly pronounce by sight.

Beyond these general linguistic difficulties, there are the human factors that can lead to orthographic variation, the reasons that individual, non-native transliterations will choose certain realizations. Some of these issues, often leading to particular forms with Chinese, are:

(1) Not knowing the phoneme inventory. The difference between the pinyin realizations CH and Q may not be discernable to non-native speakers without a minimal pair, and thus someone may hear QING but write CHING. The same holds true for other pairs such as ZH~J and SH~X.

(2) Trying to represent each sound. With a retroflex consonant and a semi-vowel, the pinyin SHI may sound more like a SHIR to a non-native speaker.

(3) Conforming to native orthography. Even without trying to represent each perceived sound nuance, non-native speakers will often use their own perceived native orthography pattern, especially with vowels, leading to such forms as SHIH.

(4) Wedded to fossilized forms. Anyone who has been to a Chinese restaurant in America has seen such dishes as Szechwan beef or General Tso's Chicken. These forms, like the LEE realization of the name LI, have become fossilized and popularized and are unlikely to go away.

(5) OCR or transcription errors. Instances of a form such as CHANS may be determined to be CHANG, with the G~S switch attributed to either an OCR error or some other type of transcription inaccuracy.

(6) Concatenation and segmentation. The convention of how to write a Chinese given name has changed over the years, and still varies according to location. A given name with two syllables YA and HONG is usually written concatenated as YAHONG in China, as YA-HONG in Taiwan, and as YA HONG in Hong Kong and other Chinese communities such as Singapore. When performing record linkage, it is of course more helpful to have consistency. The form that is preferred is a segmented YA HONG, to be able to work with each element separately.

(7) Forcing non-western names into the canonical western name format. Dr. Sun Yat-Sen might find his name written as YAT S. SUN while living in the West. Many times the second element of the given name is treated in the same way as a Western-style middle name.

(8) Hypercorrection. Many romanization systems have spelling conventions that violate the perceived rules of the target language. An orthographically correct name such as HSIN may be perceived by an English speaker to be a misspelling of SHIN.

(9) Finally, people recording names make the general type of mistakes and typos with Chinese names as they would with any others. The occurrence of mistakes for non-Chinese speakers is likely to be higher, as the letter patterns are not familiar.

What occurs from this list of nine phenomenon is that we are left with a grammar of surface forms. The romanization patterns that occur in Chinese names are their own corpus, without reliable mappings or underlying forms, and without any way to get back to those items. With some form of underlying grammar, HSIN and SHIN can be judged as different lexical entries. With a grammar of surface forms, they cannot. There may still be a high degree of probability for difference, but there is also some probability degree for sameness.

With a grammar of surface forms, even positing an underlying form is problematic, perhaps even unhelpful. Knowing the commonly associated underlying Chinese characters for particular surface forms doesn't conclusively show sameness. All probability judgments must be made based on knowledge of the romanization systems and the human factors.

3. Challenges of Personal Names

Personal names sit at the intersection of orthography and personal choice. The multiple Romanized variants of a Chinese name, such as Li, Lee, Le, and Yi, stem from historical source patterns and personal choices, much in the same way that English can have Cathy, Kathy, and Kathie. Personal names tend to break the rules of the language, in their spelling conventions and formation. My own surname, McClive, breaks English phonology rules with its sonority-bending four consonants in a row MCCL orthography-bound onset.

The canonical Chinese name has three elements: one element serving as a surname (in other words, a family name that can be passed down through generations), and two serving as the individual-identifying given name, although one-element given names have become more popular in recent generations. Each element corresponds to one written Chinese character and thus one syllable. An adopted Western name is sometimes appended to the given name.

One unintended consequence from romanizing a Chinese name is that the order may be reversed, in accordance with Western conventions. The normal surname-given name order of a name such as LI YAHONG is often written as YAHONG LI. While many, if not most, of these reserved names can be identified as to which elements are the surname and given name, a more ambiguous constructions such as LI ZHANG is not so easily identified. Each element is plausible both as a surname and as a given name.

4. Surface Realization Splits, Mergers, and Variants

To illustrate the surface form grammar, it is not difficult in Chinese to find three characters with very similar phonetic realizations, minimal triplets. Their representative romanization forms, from perhaps different transliteration systems, clearly do not form a one-to-one correlation. The character 褚 may have a surface form of CHUH at times but also appear as QU, a split. The character 楚 may appear as CHU, not overlapping the other characters, while the character 芻 may not even be traceable to a particular surface form in a corpus. It is also not difficult to imagine a merger of two characters being realized by the same surface form.
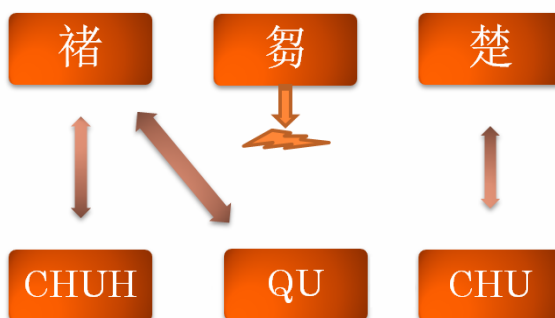
According to the parameters set by the Pinyin romanization system, the above three characters should all be written with the letter combination CHU (ignoring tonal diacritics for now), but it is possible that only one character will be traced to a CHU surface form. The many-to-one relationship that the romanization system projects (characters to surface form) is already a deviant from the one-to-one that a general population might imagine in a transliteration system; the imperfect mappings demonstrated above further complicate the issue.

Consider the character 蔡, with a sound pattern [ts^{h}a^i], transliterated as CAI according to Pinyin. With an initial sound that is not naturally an initial in English, and with a diphthong vowel, its romanized form could vary even more than the relatively simpler CHU above. Even with the same simple syllable structure, the romanized form could vary more. If we assume there could be:

(1) Three onset possibilities: C, TS, TZ

(2) Three vowel possibilities: AI, AY, AE
(3) One possible coda ending: R (thus, two possibilities: R or nothing)

These combinations would create 3*3*2 = 18 possibly variants, with forms such as CAI and TSAER. Moreover, the variants tend to me more untidy in several senses. They have less alphabetic letters in common, which would affect such comparative techniques as edit distance, and they have more substantial consonant variation, which would affect a method such as Soundex keys.

Moreover, the standard four tonal markers from such systems as Pinyin are very often lost in name copra. Though the majority of the world's computers are now able to employ diacritics in their character sets, social practices dictate that they are very often not entered, and once they are lost, their lexical distinction value is gone. Unless the context is clear, it is impossible to tell if CAI is CÀI or CÁI.

The eighteen possible variants above multiply when a complete personal name (given name and surname) is considered, instead of just a single name segment. Consider a standard-form three-element Chinese name with a syllable structure of CV.CV.CVC that has these qualities:

(1) The initial and final consonants each have two variants.
(2) The internal consonants may or may not be doubled.
(3) Each vowel has two variants.

This creates a pattern like: $[C_1C_2][V_1V_2]CC?[V_1V_2]CC?[V_1V_2][C_1C_2]$

At each of the seven positions, there are two choice points, which yield 2^7, or 128 possibilities. For longer names, or names in which there are more alternations or conditions, the number of variants is even greater.

As an example of how a single variation path can be linked to others, consider the vowel combination IE. It may have a set of three variants {YI, E, IEH}, and some of those variants may have their own set of variants, such as {YI, YE, I} and {E, AY, AE}. Furthermore, there may be an overlapping set {E, AY, EA}, and almost all of them may have an optional H ending. The resulting complicated tree would look like:
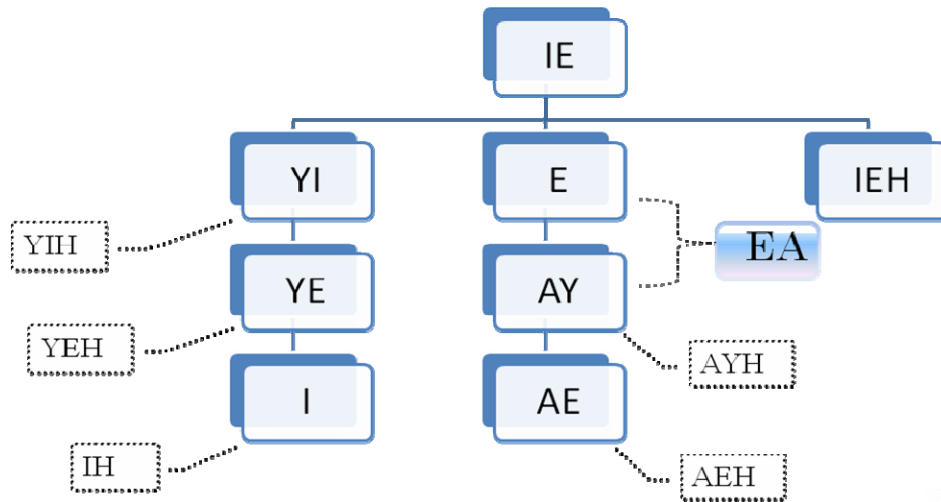
Attempts at such mappings may naturally lead to positing rules for linkage of the variant forms. It may be easy to determine that YE and YI are variants, or YI and EI. Yet if we put forward that YI and E are variants, does the same hold true for YI and AE, or for AEH and IEH? If connections are made this way, the suggestion that E and I are variants, from the tree above, would logically extend to minimal name pairs such as XENG and XING, a bold implication.

An inverse method to ferret out larger variant patterns is to look at traditional variants using whole name elements, but this also can lead to the type of overreaching seen above. We could examine two groups of traditional variants, based on known historical variants of common name elements as evidenced by direct character mapping:

    WANG, WONG, ONG
    HUANG, HWANG, WONG

The first line would suggest that a W initial is compatible with a null initial, and that A is transposable with O. The second group would suggest that H and W initials are interchangeable, and a vowel variant grouping of {UH, A, O}, all suggestions that are also potentially overreaching.

The eventual solution may involve a detailing collecting of each variant grouping, to control exactly how each variant linkage can work. Two groupings could be concocted, labeled group numbers 101 and 102, whereby variants are defined by being intergroup but not crossing group boundaries:

    101 SHIH, HSI, SHI, SHII, SHYI, XI
    102 SHIH, SHI, SHY, SHYH, SHYR, SHYY

Thus, SHIH can match SHYI and can match XI, but XI and SHI cannot match each other. This would be an exact, but quite tedious, method of defining variants.

5. Use of a Name Corpus

One of the advantages of a potentially large corpus, with hundreds of thousands of personal names, is confidence in the presence of surface forms. If it happens enough in the world, it is probably in the corpus. One can posit surface forms then use the corpus to check for their existence. We are able to return to our CAI example and check for variants by listing possible alternative consonants {TS, TZ, Z} and vowels {AY, AIR, AE}, then checking for their name part frequency. If the occurrence looks somewhat like the chart below:

Variant	Count	Frequency
CAI	5225	0.82963
TSAI	544	0.08638
ZAI	499	0.07923
TSAY	11	0.00174
TSAIR	3	0.00047
TZAI	8	0.00127
TZAY	8	0.00031
TSAE	0	0.00000
CAY	5	0.00079
CAE	1	0.00015
TZAE	0	0.00000

At this juncture, a cutoff point is chosen, perhaps after the third variant or perhaps including the next few most populous variants, and the remainder are discarded as being statistically insignificant to be considered. These name elements of course are representative of surface forms present, and not necessarily equal to each other, yet they show the distribution of possible variation, both in whole form and, possibly considered, in individual phone transliteration. A TZ initial, for instance, may be perceived to be somewhat archaic by today's romanization schemes and standards, yet its presence in the corpus shows that it is not yet entirely absent in the world.

As a practical application, consider the challenge of segmenting Chinese name parts. Most Chinese from China who have a two-element (two character) given name write the romanized version as a concatenated form, such as YAHONG or QINGYING. With record linkage, it is highly advantageous to segment these names back into their two elements before working with them. With a name such as QINGYING, the division seems obvious, QING+YING, but with YAHONG there could be two candidates,

YA+HONG and YAH+ONG. Consider the following list of Chinese given names and their possible segmentation candidates:

a.	XIAOOU	[['XIAO', 'OU'], ['XIA', 'OOU'], ['XIAOOU']]
b.	HAIANG	[['HAI', 'ANG'], ['HA', 'IANG'], ['HAIANG']]
c.	ZHENGAI	[['ZHENG', 'AI'], ['ZHEN', 'GAI'], ['ZHE', 'NGAI']]
d.	CHAKWANG	[['CHAK', 'WANG'], ['CHA', 'KWANG']]
e.	CHAWONG	[['CHAW', 'ONG'], ['CHA', 'WONG']]
f.	CHIAHAO	[['CHIAH', 'AO'], ['CHIA', 'HAO']]
g.	CHIHSIEN	[['CHIH', 'SIEN'], ['CHI', 'HSIEN']]
h.	GUANEN	[['GUAN', 'EN'], ['GUA', 'NEN']]
i.	LAIMUNG	[['LAI', 'MUNG'], ['LAIM', 'UNG']]
j.	MINHAN	[['MINH', 'AN'], ['MIN', 'HAN'], ['MI', 'NHAN']]
k.	SHINAE	[['SHIN', 'AE'], ['SHI', 'NAE']]

The candidates for (g) above include a non-standard CHIH and a possible Wade-Giles produced HSIEN. The strength of a corpus is that it allows us to compile a large list of possible variant candidates, using them in ways such as assigning degrees of probability or confidence. If we check the frequency occurrence of the four element candidates involved in the two segmentation scenarios, we might find that we can support the HSIEN candidacy more strongly than the SIEN. A frequency distribution confidence could also help us lean toward discouraging the XIAOOU and HAIANG candidates in (a) and (b), respectively.

The advantages of a corpus are rarely stand-alone. For a more holistic approach, these frequency confidences would need to be combined with other tools such as knowledge of Chinese syllable structure and of linguistics in general. Our knowledge of Chinese tells us that the NGAI candidate of (c) is unlikely because of its initial, likewise with the NHAM of (j).

Still, while knowledge of Chinese and Linguistics would also help eliminate candidates such as XIAOOU in (a), referenced above as a strength of using a corpus, corpus usage would further lend confidence to preference of segmentation scenarios when the candidates are not distinguished by linguistic form. The third segmentation candidate for (c) may be eliminated because of the NGAI element in the third scenario, but the first two scenarios are both viable in form, syllable structure, and sonority. It may, of course, be impossible to confidentially posit only one segmentation scenario (likely in this case), but the existence of a corpus again may allow us to assign confidence degrees to likely scenarios, by confirming that the ZHENG+AI patterns, or even the ZHENG and AI elements considered separately, occur far more frequently than the ZHEN+GAI pattern and elements.

As another example of the confluence of methods that leads to romanization comparisons, consider an individual case of comparing two name elements, CHWEANG and JWAEN.

Our first setting uses edit distance, a computational linguistics comparative method that compares the strings letter by letter, and seeks to answer the question of how far apart the two strings are by examining the steps needed to change one into the other (Levenshtein, 1966, Wagner and Fischer, 1974). It assigns penalty-type points for operations of letter deletion, insertion, substitution, and reversal (here, all are 1.0 except for reversal at 1.5), then sees how many points must be used to turn one name into the other and normalizes that figure across the lengths of the two strings.

For our two strings of CHWEANG and JWAEN, the resultant grid of the edit distance process would look like this:

Longer string: CHWEANG length: 7
Shorter string: JWAEN length: 5

		-1	0	1	2	3	4	5	6	7
				C	H	W	E	A	N	G
-1		***	***	***	***	***	***	***	***	***
0		***	0	1	2	3	4	5	6	7
1	J	***	1	1	2	3	4	5	6	7
2	W	***	2	2	2	2	3	4	5	6
3	A	***	3	3	3	3	3	3	4	5
4	E	***	4	4	4	4	3	3.5	4	5
5	N	***	5	5	5	5	4	4	3.5	4.5

The edit distance process returns an integer between zero and 1.0. The result in this case is 0.357 (somewhat rounded), a not-good score, and certainly nothing that would pass any system's internal threshold to be considered a viable match.

In other words, some strictly computational methods would fail us in this comparison case. This form of edit distance does not take into account the linguistic structure of the string, the romanization pattern similarities, or the phonetic similarities.

Let us consider a better method that takes into consideration some of the romanization and phonetic properties of the letters, along with the syllable structure. One advantage of an East Asian language such as Mandarin Chinese is that each word is only one syllable, and thus the initials, the vowel cluster, and the finals can be considered separately.

If we use a syllable parser, each element can be compared individually, with a degree of similarity assigned for each, and then either normalized or averaged across the strings:

Beginning Consonants	Glide: W or Y	Vowels	Ending Consonants
CH	**W**	**AE**	**NG**
J	**W**	**EA**	**N**
Pretty good	Same	Perhaps	Not likely

With this method, a CH and J comparison must be considered as the phonemic minimal pair that they are, along with considering the effect of this difference upon Chinese (phonemes, and thus a possible lexical distinction). The glides W are the same. The AE and EA vowels are a reversal, a potential but not probable match. The N and NG endings have one letter in common but are distinct phonemes in Chinese.

To make the operation simple, an arithmetic assignment of 0.8 for the "pretty good" CH~J status, 1.0 for the glide status of "same", 0.5 for the AE~EA "perhaps", and 0.2 for the NG~N "not likely" gives us an 0.625 average result. These scores could be weighed or refined to produce an even more accurate comparison number of course, but it seems clear already that this basic 0.625 result is more appropriate for a CHWAENG~JWEAN comparison than the 0.357 outcome that edit distance alone produces.

6. Conclusions

Size matters. Having a large corpus allows most romanization patterns to become evident; without a critical mass of names, the lack of a particular surface pattern could not be assumed to be significant. With a large enough sampling, there is a certain degree of confidence that if a particular surface form happens in the world, it will likely be present in the corpus. Furthermore, the strength of a corpus is that employing frequency statistics alone on romanization patterns often is more reliable that using linguistic knowledge.

Humans matter. The human factor cannot be discounted in analyzing data. The surface form results of various intuition, guesswork, and imperfect knowledge still show up, factors independent from orthographic patterns or linguistic knowledge.

Linguistics still matters. Despite the advantages of a sizable corpus and perceptions of human nature, we still need linguistic knowledge. Computational methods such as edit distance often fall somewhat short. Many techniques are often based on math or statistics, and we usually find that we need more than that.

Finally, we must still admit that there is no absolute value to surface forms. Without further information, it is impossible to verify that TCHANG and CHANG map to the same underlying sound pattern, much less the same Chinese character, lexical entry, and individual person. Surface forms usually are not accompanied by a truthed corpus. The idea of a variant, and any rules to their usage, is still often left to a human decision.

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Aspect and Modality of *yinggai*

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The paper investigates the semantic constraints on the interpretation of the modal auxiliary *yinggai* in Chinese. It shows that both situation aspect and aspect markers can restrict its interpretation, but temporal adverbials cannot. It argues that the aspect markers can restrict the interpretation of *yinggai* by affecting the addressee's presupposition about the settledness of a relevant situation; temporal adverbials do not necessarily alter the interpretation of *yinggai* because *yinggai* can either scope over or fall within the scope of a temporal adverbial it appears with, depending on the situation aspect of the modal predicate.

1. Introduction

The Chinese modal auxiliary verb *yinggai* can express epistemic possibility and deontic necessity. As an epistemic modal, *yinggai* means that the speaker is almost certain about the occurrence of a situation. The epistemic judgment the speaker arrives at is usually based on relatively objective circumstance or situation which may or may not be explicitly stated (Tsang 1981, Li 2004, and others). For example,

(1) a. Zhe huir ta *yinggai* zai jia ne.
      now   he should at home NE.
      He should be at home now.

  b. Taiyang xia shan le, ta *yinggai* dao-LE   jia le.   (adapted from Li 2004: 145)
     sun   fall hill LE he should get PERF home LE
     The sun has set. He should have got home.

In (1a), the situation, based on which the assessment is made, is not stated but can be assumed as "as far as I know, he is often home at this time". In (1b), this situation is explicitly expressed that "the sun has set" and it should be case that he got home.

As a deontic modal, *yinggai* expresses necessity arising from certain duty, custom, a body of law, or a set of moral principles, which do not have to be explicitly stated either. For instance,

(2) a. Ni *yinggai* duo chuan yi jian yifu, waimian kongpa hen liang.   (Li 2004: 173)
     you should more wear a piece clothes outside I'm afraid very cool
     You should put on more clothes. It's very cold outside, I'm afraid.

   b. Ta *yinggai* wei zhe jian shi   fuze.
      he should for this CL matter responsible
      He should be responsible for this matter.

In (2a), "putting on more clothes" is necessary because it is cold outside; in (2b), the reason for why "he should be responsible" is not stated but can be inferred as "the facts or the situation suggest the necessity".
        While *yinggai* is not ambiguous in (1) and (2), regardless of whether or not the contextual information is provided, it is ambiguous in (3) and (4), as the translations show.

(3) Zhe ge wenti hen rongyi, xueshengmen *yinggai* hui huida.
    this CL question very easy students should know how to answer
    a. This question is very easy, (so) it is highly probable that the students can answer it.
    b. This question is very easy, (so) the students are supposed to be able to answer it.

(4) Wo shuo de hua,   ni *yinggai*   dong.
     I   say DE word you should understand
    a. It is highly probably that you understand what I said.
    b. You are supposed to understand what I said.

        The different modal meanings expressed by *yinggai* in (1)-(4) raise the question as to what factors other than context, if any, impact the interpretation of the modal. In this paper, I show that aspectual features of the situation within the scope of *yinggai* contribute to its interpretation. I also show that the perfective markers *–le* and *–guo* are always associated with the epistemic *yinggai*, because they can lead to the presupposition in the addressee that the situation within the scope of *yinggai* is settled.
        The rest of the paper is organized as follows. Section 2 reviews previous linguistic analyses with regard to the interaction of temporality and modality; section 3 discusses the role of aspect in the interpretation of *yinggai*; section 4 concludes.

2. Temporality and modality

        Linguistic analyses of the interaction of temporality and modality show that the interpretation of modal auxiliaries is "uniquely determined" or "at least severely restricted" by relevant temporal configurations (Laca 2008). Condoravdi (2001, 2003), for example, argues that a modal is epistemic when the situation expressed by the modal complement is in the past or present relative to the modal time; it may or may not be

epistemic when the situation is in the future of the modal time. Werner (2006) approaches the issue from a different perspective. He argues that the temporal location of the situation scoped within (English) epistemic modals may be past, present, or future, whereas that of (English) non-epistemic modals (e.g., deontic modals) is future. The relationship between the modality of a modal auxiliary and the temporality of the relevant situation is represented by (5a) and (5b) and exemplified by (6a) and (6b).

(5) a. Epistemic modals ← Past, Present
    b. Deontic modals → Future

(6) a. He may have won the game.   (Epistemic)
    b. He may win the game.   (Epistemic or Deontic)

In (6a), the modal complement with the perfect *have* is understood to express a past event, and so *may* is epistemic. In (6b), the event of winning the game is interpreted to be in the future, hence *may* can be epistemic or deontic.

        Why is a modal epistemic when the temporality of the situation it scopes over is non-future? This, according to Condoravdi (2001), is because whether a modal is epistemic depends on whether a relevant issue is presupposed to be settled or not; settledness is always presupposed when the relevant issue is located in the past or present with respect to the modal time. For instance,

(7) a. He might have the flu (now).
    b. He might have won the game (yesterday).

In (7a), the state of his having the flu is located in the present time. The speaker knows the issue of whether he has the flu is settled, but he/she does not know in which way it is settled. Similarly, in (7b) whether he won the game yesterday is already settled, but the speaker does not know how it is settled. In both sentences, the settledness of the relevant non-future situation leads to the epistemic interpretation of *might*.

        The relationship between temporality and modality shown in (5) seems to correctly predict the reading of *yinggai* in (8) and (9), but not that in (10) and (11).

(8) Ta *yinggai* shi **zuotian** lai de.   (Epistemic)
    he should SHI yesterday come DE
    It should be yesterday that he arrived.

(9) Ni **yihou**   *yinggai* shi ge hao haoshi.   (Epistemic/Deontic)
    you in the future should be CL good teacher
    You should be a good teacher in the future.

(10) **Zuotian** ta *yinggai* qu xuexiao yi tang.　　　　(Deontic)
　　Yesterday he should go school one CL
　　He should have gone to school yesterday.

(11) Ta *yinggai* **hui** lai.　　　　　　　　　　(Epistemic)
　　He should will come
　　He should come.

In (8), the event of his coming happened yesterday, so *yinggai* is epistemic. In (9) his being a good teacher is located in the future by the adverbial *yihou* 'in the future', so both epistemic reading and deontic reading are possible with *yinggai*, although the epistemic reading is preferred when out of context. (10) contains a past time adverbial *zuotian* 'yesterday', but contrary to our expectation, *yinggai* expresses deontic (and counterfactual) modality. In (11), the event of his coming is located in the future by the future modal *hui* 'will', and yet *yinggai* only has the epistemic reading rather than both. (10) and (11) suggest that temporality is not the sole factor that decides the interpretation of *yinggai* in a sentence. In next section, I will show that the aspectual information conveyed by the complement of *yinggai* contributes to its interpretation as well.

3. Aspect and the modality of *yinggai*
3.1. Situation types and the modality of *yinggai*
　　We have seen in (8) and (9) that the temporal location of the situation in the scope of *yinggai* restricts its interpretation. We have also seen that temporality of the relevant situation alone is not sufficient to explain the interpretation of *yinggai* in (10) and (11). In this section, I will show that the interpretation of *yinggai* varies with whether the relevant situation is stative or eventive.

　　Yinggai can be either epistemic or deontic when it is before a verb phrase expressing a stative situation, even though the epistemic one is often preferred in out of blue context. For instance, *yinggai* in (12) and (13) takes the stative predicates *zhidao* 'to know' and *hen mei* 'very beautiful' respectively and expresses epistemic modality and deontic modality in both sentences.

(12) ta *yinggai* zhidao zenme chuli zhe jian shi.
　　He should know how to handle this CL matter
　　He should know how to handle this matter.

(13) Nar de chuntian *yinggai* hen mei.
　　There DE spring should very beautiful
　　Spring should be very beautiful there.

Yinggai only has a deontic reading when it is before a verb phrase expressing an eventive

situation except in a few cases to be discussed in (20). For instance, in (14) and (15) below, *yinggai* taking an eventive predicate is deontic.

(14) Ta *yinggai* gei mama da ge dianhua.
    He should to mum make CL call
    He should call his mum.

(15) Wo *yinggai* zao dianr likai.
    I should earlier leave.
    I should leave earlier.

Adding a temporal adverbial to sentences like (12)-(15) does not alter the reading of *yinggai*: it is still ambiguous with stative predicates, but unambiguous with eventive predicates.

(16) a. ***dangshi*** ta *yinggai* zhidao zenme chuli zhe jian shi.
     At that time he should know how to handle this CL matter
    a. He probably knew how to handle this matter at that time.
    b. He is supposed to know how to handle this matter at that time.

    b. ***xianzai*** ta *yinggai* zhidao zenme chuli zhe jian shi.
     now   he should know how to handle this CL matter
     a.   He probably knows how to handle this matter now.
     b.   He is supposed to know how to handle this matter now.

    c. ***yihou***   ta *yinggai* zhidao zenme chuli zhe jian shi.
    In the future he should know how to handle this CL matter
     a.   He probably will know how to handle this matter in the future.
     b.   He is supposed to know how to handle this matter in the future.

(16a) is modified by the past time phrase *dangshi* 'at that time'; (16b) is modified by the present time phrase *xianzai* 'now'; and (16c) by the future time phrase *yihou* 'in the future'. *Yinggai* in all three sentences takes a stative predicate and expresses the speaker's epistemic judgment or the deontic necessity of a situation, as the translations illustrate. The reading of *yinggai* with eventive predicates cannot be changed by temporal adverbials either. For example, *yinggai* in (17a)-(17c) below is deontic regardless of the time adverbials it appears with.

(17) a. ***Zuotian*** ta *yinggai* gei mama da ge dianhua.
     Yesterday he should to Mom make CL call
    He should have called his Mom yesterday.

   b. ***Xianzai*** ta *yinggai* gei mama da ge dianhua.
      Now   he should to mum make CL call
      He should call his mum now.

   c. ***Mingtian*** ta *yinggai* gei mama da ge dianhua.
      Tomorrow he should to mum make CL call
      He should call his mum tomorrow.

However, adding an aspect marker or a future modal auxiliary to the modal predicate can change the interpretation of *yinggai* in (12)-(15).

(18) a. ta *yinggai* zhidao –***le***   zenme chuli   zhe jian shi.
         He should know PERF how to handle this CL matter
         He should know how to handle this matter now.

     b. Nar   de chuntian *yinggai* ***hui*** hen mei.
        There DE spring should   will very beautiful
        Spring should be very beautiful there.

(19) a. ta *yinggai* gei mama da –***guo/-le*** dianhua le.
         He should to mum make PERF   call   LE
         He should have called his mum.

     b. ta *yinggai* ***zai***   gei mama da   (-***zhe***) dianhua.
         He should PROG to mum make IMPERF call
         He should be calling his mum (now).

   c. ta *yinggai* ***hui*** gei mama da dianhua.
      He should will to mum make call
      He should call his mum.

In (18a), the perfective marker *–le* suffixing to the stative verb *zhidao* 'to know' indicates a change of state. *Yinggai* in (18a) is epistemic, expressing the speaker's conjecture that the change of state from "not knowing" to "knowing" took place in the past. In (18b), the future modal *hui* appears before the stative predicate *hen mei* 'very beautiful', making *yinggai* epistemic only. In (19a), the eventive verb phase after *yinggai* contains the perfective marker *–guo/-le*. *Yinggai* in this sentence is epistemic not deontic, expressing the speaker's judgment about the possibility of the occurrence of a past event. In (19b), the verb phrase after *yinggai* takes the progressive marker *zai*, which presents the relevant situation as ongoing. Since the aspectual feature of an ongoing event resembles a state,

both epistemic reading and deontic reading is possible with (19b), with epistemic reading being primary. In (19c), *yinggai* is followed by the future modal auxiliary *hui* 'will' , only expressing epistemic modality.

It should be pointed out, however, that *yinggai* scoping over a zero-marked eventive predicate expressing a future event may be epistemic when occurring in an epistemic environment that may or may not be overtly marked. For example,

(20) a. ta *yinggai* qu **ba**.
   He should go BA.
   He probably will go.

   b. ta **keneng** bu hui huilia le, *yinggai* zhijie zai Shanghai zuo biye   sheji **le**.
   She may not will return LE should directly in Shanghai do graduation design LE
   She may not come back. She should do her graduation project in Shanghai right
   away.

   c. eluosi **guji**   kuai de hua, *yinggai* zai liang nian zhinei rushi.
   Russia estimate if soon   should   two year within join WTO
   It is estimated that Russia should join WTO in two years, if not sooner.

   d. **An jihua**, ta *yinggai* mingtian dao.
   According to schedule, he should tomorrow arrive
   According to the schedule, he should arrive tomorrow.

In (20a)-(20d), *yinggai* takes an eventive predicate, which expresses a future event, and obtains an epistemic reading. At the same time, *yinggai* in all four sentences of (20) appears in an epistemic context, which is either overtly marked with the sentence final marker *ba* (20a) or sentence final *le* (20b), both of which can express the uncertainty on the part of the speaker toward a state of affaire (Lü 1980, Zhu 1982, Tsang 1981, among others), or with the epistemic modal *keneng* 'may' (20b) or the epistemic verb *guji* 'to estimate' (20c). The epistemic context in (20d), which expresses a scheduled future event, is not marked by any explicit epistemic expressions. The availability of the epistemic reading of *yinggai* in (20a)-(20d) may due to that the future modal *hui* is assumed in the interpretation, although its presence is not required in an epistemic context. Since *hui* does not actually appear in the modal predicate, the deontic reading is not precluded from the above sentences. For example, (20a) with the particle *ba* can either express the speaker's uncertainty about whether the event of his going will happen in the future, or about whether the event of his going is necessary. *Yinggai* is epistemic on the first reading but deontic on the second reading.

So far, we have seen that the modality of *yinggai* varies with the types of situation it scopes over. It is either epistemic or deontic with a stative predicate, with the former

being primary; it is deontic with an eventive predicate. The default interpretation can be overridden by the presence of an aspect marker or a future modal auxiliary in the modal predicate, but not by a temporal adverbial. I will discuss why this is the case in the following sections.

3.2 Temporal adverbials and the modality of *yinggai*

As shown in (16) and (17) above, time phrases do not change the meaning of *yinggai*. In particular, past and present time phrases do not cancel the deontic reading of *yinggai* with stative predicates, as in (16a) and (16b); they do not add epistemic reading to *yinggai* with eventive predicates either, as in (17a) and (17b). At first sight, the facts seem to contradict the relationship between temporality and modality shown in (5) and copied below, but a closer look reveals that they are, in fact, in accordance with them.

(5)' a. Epistemic modals ← Past, Present (i.e., Non-future)
b. Deontic modals → Future

The reason why past and present adverbials cannot change the interpretation of *yinggai* is because the temporal adverbials appearing with *yinggai* can either modify the situation within the scope of *yinggai* or the modal time of *yinggai* itself, depending on the modality of *yinggai*, which is constrained by the situation types expressed by the modal predicates. The temporal adverbial restricts the time of the relevant situation when *yinggai* is epistemic; it restricts the time of *yinggai* when it is deontic. In other words, temporal adverbials scope under epistemic *yinggai*, but scope over deontic *yinggai*. Since *yinggai* can be epistemic or deontic with stative predicates, the past adverbial added to (16a) can either locate the state in the past, leading to the epistemic reading, or locate the modal time of *yinggai* in the past, leaving the deontic reading unchanged. The same is true of the past adverbial in (17a) where *yinggai* takes an eventive predicate. *Yinggai* with an eventive predicate is deontic, so the past time adverbial modifies *yinggai* rather than the eventive predicate. As a result, the relevant event is not in the past but in the future of the deontic *yinggai* that situates in the past with the past adverbial. The same account applies to the present and future adverbials in (16b-c) and (17b-c).

3.3. Perfective markers and settledness

We saw from (16)-(19) that a temporal adverbial is insufficient to change the reading of *yinggai*. A perfective marker or a future modal auxiliary, e.g., *hui* 'will', is needed to remove the deontic reading of *yinggai* with stative predicates or make *yinggai* with eventive predicate epistemic. While the imperfective markers *zai* and *zhe* in (19b) allow both readings of *yinggai* by rendering the relevant event into a state-like situation, the perfective markers *–le* and *–guo* in (18a) and (19a) and the future modal *hui* in (18b) and (19c) completely erase the deontic reading. In this study, I will limit the discussion to the function of *–le* and *–guo* in the interpretation of *yinggai*. I show that the perfective

markers in the modal predicate can lead to the presupposition that the situation expressed by the predicate is settled, and so the epistemic reading of *yinggai*.

As Condoravdi (2001) pointed out, whether a modal is epistemic depends on whether the relevant issue is presupposed to be settled or not, and a non-future situation is always presupposed to be settled. Given that *yinggai* can only be epistemic when the eventive predicate contains a perfective marker, we may say that an event marked by a perfective marker is always presupposed to be settled. Such a presupposition is reached via the "relative past" meaning of the perfective markers. Before we move to the function of *–le* and *–guo*, let us briefly review Condoravdi's (2001) analysis of the English perfect *have* occurring after a modal, since it behaves very much like *–le* and *–guo*.

(21) He may/should *have* won *tomorrow/now/yesterday.

In (21), the event of his wining is in the past when the modal is followed by the perfect *have*. Condoravdi (2001) argues that the backward shifting reading in (21) is ascribed to the semantics of the perfect *have*, which can shift the local time of the situation within its scope to a time interval preceding the interval denoted by the modals, which is [*now*, _) by default.

Chinese *–le* and *–guo* can express "past" relative to a reference time (Ross 1994, Lin 2006). Following Condoravdi's analysis, we can say that the perfective markers in the modal complement of (18a) and (19a), just like English perfect *have*, can locate the situation (or the change of situation) expressed by the complement in a time interval before the modal time "now". As a result, the relevant situation, which is located in the past by *-le / -guo*, is presupposed to be settled, so *yinggai* is epistemic. However, this account needs modification to handle *yinggai* in (22), in which it is epistemic even though the situation marked by *–le* is in the future of the modal time "now".

(22) ***Mingtian zhe ge shihou***, ta *yinggai* dao   *-le*.
    Tomorrow at this time   he should arrive PERF
    He should have arrived at this time tomorrow.

In (22), the event marked by *–le* is after the speech time and before the future time "this time tomorrow", yet *yinggai* only has the epistemic reading. This contradicts the claim that a modal can be epistemic or deontic when the relevant situation is in the future. We can save the account by claiming that a situation marked by *–le* or *–guo* is presupposed to be settled as long as the situation is located in the past relative to a reference time, which does not have to be the speech time. That a situation marked by *–le* or *–guo* is presupposed to be settled is also supported by the fact that *–le* and *–guo* do not appear with non-epistemic modals, as shown in (23).

(23) a. Ni   dei qu (*–*le*/*-*guo*) tang Beijing.
     You have to go (PERF)   CL Beijing.
     You have to make a trip to Beijing.

  b. wo xiang kan (*-*le*/*-*guo*) dianying.
    I want to watch (PERF)   movie
    I want to watch movie.

(23a) contains the deontic modal *dei* 'have to'; (23b) contains the dynamic modal *xiang* 'want to'. Both sentences are ill-formed when a perfective marker is suffixed to the verb after *dei* and *xiang*. This is because the non-epistemic modals require the situation within their scope to be unsettled, whereas –*le* and –*guo* make the same situation settled. However, (24) below seems against the proposal, where *yinggai* with stative predicates marked with the perfective –*le* can be deontic.

(24) a. tamen zhijian *yinggai* you –*le*   yixie liaojie.
    They between should have PERF some understanding
    a. They probably got to know each other (already).
    b. They are supposed to know about each other (now).

  b. Xiangshan de hong ye *yinggai* hong –*le*.
    Xiangshan DE red leave should red PERF
    a. Red leaves in Xiangshan probably turned red (already).
    b. Red leaves in Xiangshan are supposed to be red (now).

In (24a) and (24b), the stative verbs after *yinggai* take the perfective marker –*le*, and therefore obtain an inchoative reading, indicating a change of state. Given the above analysis of -*le*, we would expect that *yinggai* in both sentences cannot be deontic. However, this is not the case, as the translations illustrate. (24a) and (24b) are, in fact, not counterexamples. Take (24b) for example. -*Le* indicates that the change of state from "not red" to "red" is in the past and is settled, thus the epistemic reading (a). At the same time, the resulting state of the change is located at the present time, i.e., "leaves are red now". Focusing on the current state of leaves' being red rather than the state change itself makes the deontic reading (b) possible.

     One remaining question is why the imperfective markers *zai* and –*zhe*, in contrast with the perfective markers –*le* and –*guo*, cannot mark the settledness of a situation, even though they can locate a situation in a time interval overlapping a reference time. For example, in (19b) the complement of *yinggai* contains *zai* and -*zhe*, which can locate the situation expressed by the modal complement in the present time. Therefore, the relevant situation should also be presupposed to be settled, resulting in the epistemic reading only. However, *yinggai* can be epistemic or deontic in the sentence. This shows that

imperfective markers and perfective markers behave differently in the modal environment. I will leave this topic to future research.

4. Conclusion

The modality of *yinggai* is largely restricted by the aspectual features of the situation within its scope. *yinggai* is epistemic or deontic with stative situations; it is deontic with eventive situations. The deontic interpretation of *yinggai* can be canceled by the perfective markers *–le* and *–guo*, but not by temporal adverbials. This is because the perfective markers can lead to the presupposition in the addressee that the situation expressed by the modal predicate is settled by locating the situation in the past of a reference point, which is not necessarily the modal time, removing the deontic reading. In contrast, a time adverbial does not necessarily modify the situation within the scope of *yinggai*. It either modifies the situation or the modal time, depending on the situation type of the relevant situation.

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A Corpus-Based Study on the Chinese Near-Synonymous Verbs of Running

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Adopting a corpus-based approach, this paper aims to explore the different meaning and usages between the two Chinese near-synonymous verbs of running: *Ben* and *Pao* following the model: Module-Attribute Representation of Verbal Semantics (MARVS) proposed by Huang at all in 2000. This study proposes that *Pao* has the event focus of the endpoint of the event, but *Ben* does not. Besides, *Ben* always emphasize the destination or target of the action, i.e the goal, and the goal can be abstract. But *Pao* cannot be followed by the abstract goal.

1. Introduction

Near-synonymous verbs in Chinese are always difficult to differentiate. Even native speakers cannot give explicit explanations as to the differences between them. The definition given by the dictionary is often circular and far from enough to help distinguish near-synonymous verbs. The lack of explicit explanations for the differences between near-synonymous verbs makes it difficult for language learners to use them correctly and also for computer programmers to develop sufficiently accurate cross-language translation tools that render the most appropriate verbs in given contexts.

In recent years, with the realization of the importance of this problem, many researchers have conducted studies on the Chinese near-synonymous verbs. The findings of these studies helped in understanding the nature of Chinese verbs and choosing the near-synonymous verbs in different contexts. But so far no study has been found in studying the difference between the two Chinese near-synonymous verbs of running: *Ben* and *Pao*. Adopting a corpus-based approach, this paper aims to explore the different meaning and usages of the two verbs. The observed distinctions will then be incorporated into the representational model called the Module-Attribute Representation of Verbal Semantics (MARVS) proposed by Huang and Ahrens in 2000 for differentiating the Mandarin near-synonyms. This model can help describe the different information denoted by the two verbs in a more linguistically sound way.

The findings of the distinction between the two near-synonymous verbs can help the non-native speakers of Chinese to learn how to choose these two verbs in different contexts. The semantic patterns can provide them with guidelines to use the words appropriately and also help them judge what collocations are most likely to be compatible and acceptable with a certain verb.

2. Literature Review

In Chinese, the two verbs used to refer to the meaning of running are very commonly used (their usage frequency rank: *pao*-827th and *ben*-1202nd among the 9252 words in the corpus which is developed by the Beijing University. Although the two verbs are used frequently, there has been no study found to talk about the clear difference between them. So it is important to give a clear explanation of the distinctions between the two verbs. This study will explore the differences between them based on the data collected from the corpus. The model of MARVS will be used in the study to describe the differences between the two verbs. Previous studies in this field also provide some important insights in analyzing the two verbs of running.

2.1 The Model Used: Module-Attribute Representation of Verbal Semantics

In order to capture the semantic difference between the two verbs in a more linguistically sound way, the model: Module-Attribute Representation of Verbal Semantics (MARVS) is adopted in this study. This model was proposed by Huang and Ahrens in 2000. The reasons for using this model in the study include: it is proposed on the basis of studying Chinese data and it has been supported by previous researches.

Huang and Ahrens (2000) proposed this model on the basis of the studies done by the research group: Academia Sinica in Taiwan. In studying the near-synonyms, some scholars (e.g., Liu, 1997) in the research group tried a pure-alternation based approach (Levin, 1993) that had been used to study English but found it was not adequate for studying Chinese verbs. So they decided that the way to study Chinese verbs should be somewhat different since Chinese is not the same as English. They started to make some modification of different models based on the previous studies on near-synonymous verbs (Levis, 1993) and tried to come up with a model that is adequate to analyze the information encoded in the Chinese verbs.

Based on the previous studies, Huang and Ahrens (2000) proposed the model Module-Attribute Representation of Verbal Semantics (MARVS). According to this model, the most important semantic features of the verbs are included in the composition of the four characters: Event Modules, Event Internal Attributes, Role Module and Role-Internal Attribute.

The event module represents the main information about the event structure of the verbs. In this theory, five atomic event modules are distinguished:

boundary **.** punctuality / process /// state _____ stage ^^^^^^

The event module of some verbs can be represented simply by one of the five atomic modules. For example, the verb *da suan* (plan to) is a punctual verb, so its event module can be represented as **/.** Besides, some verbs can encode events that are bounded on either the event starting point or endpoint or both. For example, the inchoative process **./// ** refers to the process that is bounded at the event starting point. While the

bounded process *.///.* refers to the process that is bounded at both points of the event. So when we analyze the event module of a verb, we have to consider whether it has any boundary after the nuclear event of it being decided. Liu (2000) analyzed the set of Chinese near-synonymous verbs with the similar meaning of throwing and she found that only the verb *diu* can encode a bound process event while all the other three verbs do not have an event focus on the endpoint. Therefore, the bounded process event structure, illustrated in /// can be used to differentiate the verb *diu* from its near-synonymous counterparts.

The event attributes talks about "the semantics of the event itself, such as [control], [effect], etc." (Huang & Aherns, 2000, p.116). This is useful to discover more detailed differences between different verbs. Verbs that have the same event modules may differ in the internal attributes.

> E.g., *gao xing* 高兴
> *kuai le* 快乐 (to be happy)

Although the two verbs are both state verbs, they differ in the event attributes. After looking into the detailed information about the event, Tsai et al. 1998 found they differ in the attribute of [+Control], which means the event encoded by the first verb can be controlled but that of the second verb cannot be controlled.

The role modules refer to "the focused roles of the event" (Huang & Aherns, 2000, p.116), such as agent, theme, causer, manner, location, etc. Liu (2002) found that the two near-synonymous verbs of doubting in Chinese actually take different types of roles: the role module information for verb *cai* can be represented as <Experiencer, theme>; while for the second verb *huai yi*, the role module information can be represented as <Agent, Theme>.

The role-internal attribute refers to the internal semantics of a particularly focused role (of the event), such as sentience, volition, affectedness. For example, the two verbs: *fang* (put) and *bai* (set) in Chinese differ in the role internal attribute of Loc[design], which means the second verb can denote orientation while the first one can only denote location (Huang &Ahrens, 2000).

The model claims that since each verb has its unique composition of these characteristics, different verbs must differ from each other in at least one of these characteristics. So by studying these four characteristics of near-synonymous verbs, we can find the differences between them.

After the proposal of it, researchers started to analyze Chinese near-synonymous verbs following this model (Huang et al., 2000; Liu et al., 2000; Wang, 2004; Wu, 2003; Wu & Liu 2001). They mainly conducted corpus-based studies to find the different features of each set of verbs. Some important findings in differentiating the near-synonymous verbs have been discussed following this model. Certain semantic features, such as the [+control], [+location], have been proved to be effective in distinguishing

between the near-synonymous verbs. The event modules of the verbs have also been used a lot as the distinctive features. The previous findings in this field have indicated that this model is adequate in analyzing the Chinese near-synonymous verbs, which is the most important reason to choose this model in the present study.

2.2 The Two Verbs of Running in Chinese

There are two verbs in Chinese, which can be used to express the meaning of running:

A. *ben* 奔
Meanings: run; run quickly
B. *pao* 跑
Meanings: run, leave in hurry (definition by the Concise English-Chinese Chinese-English Dictionary, 2004).

As shown by the definitions, the two verbs share some common meaning, which indicates that they are near-synonymous verbs. But the English definition given by the dictionary helps little in differentiating the two verbs, especially to the learners who are not native speakers of Chinese. The Chinese definitions of the two verbs given by another prestigious dictionary: *xinhua* dictionary (10th edition), even use the two words to explain each other. Since the definitions given by the dictionaries cannot help much in distinguishing the two verbs in both meaning and usage, it is necessary to conduct a study dealing with this problem.

One thing needs to be mentioned here is that the verb *ben* has two different pronunciations according to the *Xinhua* dictionary: *ben* with the first tone-*ben*1 and *ben* with the fourth tone-*ben* 4. The meaning of *ben* 1 has been listed above. As to *ben* 4, it refers more specifically to heading for or approaching something and its usage is very different from that of *ben*1. So in this study, only the semantics and usages of *ben* 1 will be discussed. The *ben* mentioned in the following discussion without any special explanation will only refer to *ben* 1.

2.3 Insights from Previous Researches Done on the Two Verbs of Running

Although no systematic study has been found in the studying of the difference between the two verbs of running, previous studies can provide some implications in understanding them and also can provide some information in how to do the analysis following the MARVS model.

When they proposed the MARVS model in 2000, Huang and Ahrens talked about the verb *pao* as an example of verbs that have the event module of process: ///. They explained that *pao* has the event module of process because it can be used with duration of time, for example:

ta   pao le   sa ge xiaoshi
他   跑了   三个小时
He   run-le   three hours
He has been running for three hours. (Huang & Ahrens, 2000, p. 114)

The durational phrase works well for distinguishing the process events from the complete events, such as the event encoded in the verb *si* (to die). But Huang and Ahrens didn't explain whether this still work for differentiating the process event with other kinds of event. So although we can say *pao* does not encode a complete event, it is not convincingly enough to say it is a process verb. Some other proof of its usage is needed to imply whether the verb *pao* is process verb or not.

One way to do this is to look at the different aspectual markers that can be used together with the verb. In studying the differences between the four verbs of thinking in Chinese, Wu and Liu (2001) found that only the progress verb *xiang* can be used together with the progressive aspect but all the other state verbs cannot be used in this aspect. In Chinese, the aspect is not shown by the inflectional changes of verbs in the sentence, but by some aspectual markers. Wu and Liu used the progressive marker *zai* and durational marker *zhe* in their study and found that only *xiang* can be used together with them and other state verbs with the similar meaning cannot.

With *zai*:
*Zai xiang   *zai jue de   *zai yiwei*
在想   *在觉得   *在以为   in the process of thinking

With *zhe*:
*xiang zhe   *jue de zhe   *yi wei zhe*
 想着   * 觉得着   *以为着   thinking

Their study implies that the co-occurrence with progressive markers *zai* and *zhe* is the characteristic of progress event. The present study will combine the above studies and both the co-occurrence with the durational phrase and the progressive markers will be looked at to find out the event module of the two verbs.

Another point needs to consider is that the event encoded by a verb may be bounded at one event point. For example, the verb *xia yu* (to rain) can encode the inchoative process event which is bounded at the starting point of the event and the verb *gai* (to build) has the event bounded at both the starting and end point of the event (Huang & Ahrens, 2000). Some other studies also imply that the focus on one point of event can distinguish the near-synonymous verbs (Liu, 2000; Wu, 2001). In studying the two verbs of doubting in Chinese, Liu (2002) found that with the marking of an endpoint, "the verb *cai* can be followed by the adverbial *wan* 'finish', denoting the completion of an event, but *Huai yi* cannot" (p.49).

With *wan*:
Ni daodi   cai/*huaiyi   wan le   mei
你 到底   猜/*怀疑   完 了   没?
you to bottom   guess   finish *LE* no
Have you on earth finished guessing?

This shows that the adverbial *wan* can be used as the result compliment to distinguish between the events with event endpoint from those that don't have the endpoint. In Liu's study, she also mentioned the two inchoative-marking devices, preverbal *kai shi* 'start' and the post verbal *qi lai* 'up' which can be used to show whether a verb have an event starting point.

With *kaishi*:
Ta kaishi huaiyi/*cai guozhi daodi   shibushi chunde
她 开始 怀疑/*猜   果汁 到底   是不是 纯的.
she start   huaiyi / * cai juice to bottom be not be pure DE
She started wondering if the juice was pure   (Liu 2002, p.48)

In the present study, the boundary of the event will also be considered to find out whether one verb has a certain event focus while the other has a different event focus. In order to do this, the correlation of the verbs with different marking devices, which have been discussed before, will be analyzed.

As to the role modules and attributes, no study has been found in talking about the roles of the two verbs. But there are some studies that have discussed the different noun phrases used after the verb *p*ao. Xing (1997) in his study talked about the various meaning of the collocations of *pao* with different noun phrases. The objects related with the verb *pao* can have different relations with it and can be assigned different roles. If his finding is correct, it can indicate that the verb *pao* can take different types of roles. So in the present study special attention will be given to the different collocations of the verb *pao*.

Although no previous study has been found focusing on analyzing the difference between the two verbs, we can still find some useful information and method from the studies done in this field. In the present study, the event modules of the two verbs will be analyzed based on the approaches talked about above and the roles of each verb will also be discussed.

3. Research Questions

In order to find the differences of the two verbs and provide guidelines to use them appropriately in different contexts, the following questions were examined and discussed in the study:

(1) Can the two near-synonymous verbs of running in Chinese be used
    alternatively in all the contexts?

(2) If not, what are their distribution differences?
(3) How to account for these differences in terms for the four characters in MARVS?

4. Method
4.1 The Corpus

The corpus used in this study is developed by the Center for Chinese Linguistics of Beijing University. Both modern Chinese and classical Chinese data are included in this corpus. For the modern Chinese data, there are both spoken and written data. But the spoken data only accounts0 for about 0.04% (259800/632428846) of the corpus. Only 20 instances of *pao* are found in the spoken data and no instance of *ben* at all. Since the number is very limited, the findings of the study are based on the written data in the corpus.

4.2 Procedures

In this study, the differences between the two verbs of running will be determined through the following steps: First, all instances of each of the two verbs were searched for in the corpus. Second, these instances of each verb were classified into different type of syntactic pattern. Third, the aspectual type that is associated with each verb was examined. After that the collocation patterns of the two verbs with different roles were discussed. And then the MARVS framework was used to account for the differences between the verbs. At last, the 20 instances of *pao* in the spoken data will also be analyzed to find whether the semantic patterns based on the written data also apply to the use of the verb in spoken language.

5. Results and Discussion

In the corpus, there are altogether 43833 occurrences of *pao* and 13820 of *ben.* After looking through the data in the corpus, the study found that the two verbs couldn't be used interchangeably in all contexts. For the event module, their differences mainly rely on the event endpoint. For the role module, the two verbs have different collated structure with prepositional phrase and direct argument.

5.1 Similarities between the Two Verbs

First of all, the two verbs have some similar syntactic behaviors and can be used interchangeably in some contexts since they are near-synonymous verbs. At first glance, they share certain meaning components and can both occur in the following contexts with the similar meaning of running:

Both the two verbs can be used alone with the meaning of running:

(1) *Zai lu shang   fei ben/pao*
　　在 路上　　 飞　奔/跑
　　on road above   quickly   run
　　Running quickly on the road
　　They both can also be followed by a prepositional phrase indicating direction:

(2) *ben/pao xiang nali*
　　奔/跑 向 那里
　　run   to that place

Table 1. The distribution of the two verbs in the corpus

	Without any following argument	With a prepositional phrase
Ben 奔	75.1%	24.9%
Pao 跑	61.3%	19%

Since the two verbs can be used in these conditions to deliver similar meaning, they can be considered as the near-synonymous verbs.

5.2. Collocation with Aspectual Markers and the Difference in Event Modules:
　　Since Huang and Ahrens' (2000) study has indicated that the verb *pao* is a progress verb and argued that process encodes a time course, this study starts with looking at whether the two verbs can be used together with duration of time. The data in the corpus shows that the two verbs can co-occur with duration of time:

(3) *ben le ban ge duo shi chen*
　　奔了　　 半个　 多　　 时辰
　　Run-le half more two hours
　　run for more than an hour
(4) *pao le liang ge duo xiao shi*
　　跑了　　 两个　 多　 小时
　　Run-le two   more hours
　　run for more than two hours

In the above two examples, the durational phrase can be interpreted as a time course of a process. The process of running has lasted for a certain time.
　　As talked about in the literature review, the collocation with certain aspectual markers can also indicate the characteristic of process verbs. After looking up the corpus,

I find that both *ben* and *pao* can be used with the progressive marker *zai* and durational *zhe*:

(5) With *zai*
    ta   zai ben/pao xiang zhe li
    他　在　奔/跑　向　这里
    He *zai*   run   to   here
    He is running here

(6) With *zhe*
    Ta fei ben/ pao zhe
    他　飞　奔 / 跑　着
    He quickly run   *zhe*
    He is running quickly

      The examples shown above indicate that not only the verb *pao*, but also *ben* can be used in the progressive aspect and can be interpreted as the action lasting for a period of time. Since only progress verbs can be used in this context, the collocation with these markers can indicate that the two verbs are progress verbs. These two features together can have a strong indication that the events encoded by the two verbs are process.
      With the event starting-point marking devices, both the preverbal *kai shi* 'start' and the post verbal *qi lai* 'up' have been found used together with the two verbs:

  (7) *kaishi* 开始   start
    kaishi ben/pao xiang...
    开始　奔/跑　向...
    Kaishi run to/toward   start to run toward ...

  (8) *qilai* **起来**   up
    Fei   ben/pao qilai
    飞　奔/跑　起来
    Quickly run *qilai*   start to run quickly

      This distribution shows that both of the two verbs allow a starting point at the beginning of the event. The above discussion shows that the two verbs of running are both process verbs and can have a starting point of the event. However, with the event endpoint, difference was found between the two verbs: only the verb *pao* can denote the endpoint of the event.
      As discussed above, the adverbial *wan* 'finish' can be used to indicate the completion of an event. So verbs used together with it should have an event focus on the endpoint. The data in the corpus shows that *pao* can be used together with this adverbial

but *ben* cannot:

    (9) *pao wan* 跑完   (finish running)
      Liu Changsheng   pao wan/ *ben wan le.
      刘常胜   跑完 / *奔完 了
      Liu Changsheng   run *wan* (finish) *le*
      Liu Changsheng has finished running

The above example shows that the event structure of *pao* involves a process, which can be bounded by an "endpoint". When the endpoint is profiled, it predicates the result of "running". In other words, the verb *pao* has an event end-point, i.e. the event of *pao* can be bounded at the end point. But *ben* cannot be used in this way, which indicates that the verb *ben* cannot be bounded at the end point.

Below is the distributional frequency of the verbs with different marking devices in the corpus:

Table 2 The collocation frequency of the two verbs with different marking devices

	Zai 在 Progressive	*Zhe* 着 Durational	*kaishi* 开始 start	*qilai* 起来 start	*wan* 完 finish
Ben 奔	151 (1.1%)	132 (0.9%)	48 (0.35%)	37 (0.27%)	NA
Pao 跑	357 (0.8%)	846 (1.8%)	68 (0.1%)	420 (0.9%)	208 (0.4%)

From the above table and the previous examples about the distributional similarities and differences between the two verbs in the corpus, we can find their distinctions regarding aspectual composition: the verb *ben* may co-occur with the progressive markers and a durational phrase of time and it allows a predicative focus on the starting point of the process; but it cannot be used together with the adverbial *wan* which indicates that it cannot focus on the event endpoint. On the other hand, *pao* may be used with a progressive marker or a durative phrase. The event of *pao* is a potentially on-going process that may have both a starting and a final point.

    Based on the previous discussion, the difference between the two verbs in their event module can be represented as bellow:

    Event module of *ben* and *pao*:
     ben 奔 is inchoative process **.///**
     pao 跑 is bounded process   **.///.**

5.3 Different Roles taken by the Two Verbs

Another important distinction between the two verbs has to do with their role module information, which in this case refers to the types of prepositional phrases and direct arguments that can co-occur with them.

When followed by a location or other noun phrase, the verb *ben* normally requires a preposition between the verb and the other part. The combinations of the verb *ben* and the following prepositional phrases were looked up in the corpus and the top ten phrases used together with the verb *ben* are listed in the following table:

Table 3 The top ten collocated prepositional phrases with *ben*

	+ (followed by) Preposition *Xiang, dao, wang* 向，到，往 Toward/ to	+ 1. *zhong guo* 　　中国 China 2. *xiao kang mu biao* 　　小康目标 　the good life purpose 3. *na li* 　　那里　there 4. y*u zhou* 　　宇宙　the universe 5. *21 shi ji* 　　21 世纪　21 century 6. *ou zhou da lu* 　　欧洲大陆　Europe 7. *wo mian qian* 　　我面前 　　in front of me 8. *ma ke si zhu yi* 　　马克思主义　maxism 　9. *jie tou* 　　街头　on the street 　10. *wen wai* 　　门外　out of the door
Ben 奔		

As shown in table 3, the role after the verb *ben* is always a place, a person, a future time and one's dream or belief. Although all these items seem to vary a lot from each other, we can still find one common feature of all these different items: they all refer to the goal or the destination of the action. In order to get to the object, the agent has to "run/go a distance to reach the goal". Sometimes the goal of the action can be really far away from the starting point and not easy to reach it:

(10) *ben xiang youzhou*
　　奔　向　宇宙
　　Run　to　the universe

(11) *ben wang meiguo*
　　奔　往　美国
　　run toward the U.S.

What's more, the goal of the action can be abstract (e.g. the future, good life, one's dream or belief).

(12) *ben xiang　meihao de meilai*
　　奔　　向　　美好的未来
　　 Run　toward　the beautiful future

(13) *ben　xiang　makesizhuyi*
　　奔　向　马克思主义
　　Run　for　Marxism

So the verb *ben* can be used to express the meaning of running after or toward both abstract and not abstract goals.

Table 4　The distribution frequency of collocated goals with *ben*

	Abstract goals	None abstract goals
Ben 奔	18.7%	81.3%

When *ben* is followed directly by a noun phrase, the meaning of it will change to head for or approach a location/goal and the pronunciation will change to the forth tone and that will be a different verb. For the verb *pao*, it can also take a preposition and the goal as its role.

(14)　*pao xiang da men*
　　跑　向　大门
　　run　to　the door

The following are the top ten collocated prepositional phrases with the verb *pao*:

Table 5 The top ten collocated prepositional phrases with *pao*

pao 跑	+ Preposition *xiang, dao, wang* 向，到，往 toward /to	+ 1.qian 前 front 2.*ta* 他 him 3. *men kou* 门口 out the door 4. *he bian* 河边 besides the river 5. t*a men* 他们 them 6. *yi yuan* 医院 Hospital 7. *zhe er* 这儿 herer 8. *Bei jing* 北京 beijing 9. *ta shen bian* 她身边 besides her 10. *wo mian qian* 我面前 in front of me

When *pao* is used in this way to indicate running to a goal, the goal of the action is usually concrete and reachable and the goal always refers to a place or a person (as shown in Table 5). There is only one abstract goal used together with the verb *pao* in the corpus: *bao xiang 21 shiji*, 跑向 21 世纪 (run to the 21st century).

As Table 4 shows, 18.7% of the collocated prepositional phrases with the verb *ben* indicate an abstract goal. But with *pao*, only one abstract goal is found. Based on the data, this study proposes that when the abstract goal is to be expressed, the verb *ben* is much more likely to be chosen while *pao* tends to occur with more concrete and reachable goals.

What is more, *pao* can take some arguments directly, which is different from the use of *ben*. The following table shows the top ten collocated arguments with *pao* without any preposition in between:

Table 6 The top ten direct collocations with *pao*

Pao 跑	+ (Followed directly by)
	1. *beijing*
	北京 beijing
	2. *tu shu guan*
	图书馆 library
	3. *xiang gang*
	张家口 zhangjiakou
	4. *xiang gang*
	香港 Hongkong
	5. *quan guo*
	全国 China
	Move around for the sake of something
	6. *mai mai*
	买卖 business
	7. *lin shi gong*
	临时工 temporary job
	8. *guan*
	官 official position
	Leak
	9. *dian*
	电 electricity
	10 . *qi*
	气 gas

As shown by the data, the collocated arguments of *pao* include a place, a kind of business and a kind of facility (electricity, gas). But the meaning can be different with these different collocations. As shown in Table 6, the verb *pao* can mean to move around for the sake of or it can mean to leak. These two kinds of meaning are very different from running. Since the study is focusing on analyzing the difference between the two synonymous verbs *ben* and *pao*, only the similar meaning of the two verbs, i.e. the meaning of running will be discussed here.

      With the first five collocations shown in Table 6, all the arguments are noun phrases indicating a place. But the roles of them in the verbal phrase can be different. First of all, some of them can be the goal of an event, just like prepositional phrases do. For example:

(15) *Ta... xia guangzhou, pao beijing, qu shanghai.*
他... 下 广州， 跑 北京, 去 上海
They... down Guangzhou, run Beijing, go Baoding
They... run/go to Guangzhou, Beijing and Shanghai

In this example, the argument Beijing is the goal of the action *pao*, which can be substituted by *pao xiang* (run to) and the goal should not be abstract. But in other cases, the place name does not indicate the goal of the action; instead, it is the location where the action takes place. For example,

(16) *pao le da ban ge zhong guo*
跑了 大 半 个 中国
Run-*le* more half China
Run/move around in most part of China.

This can also explain why *pao* can be used with *bian* (over):
(17) *pao bian xianggang*
跑 遍 香港
Run/move all over Hongkong.
Since the verb *pao* can take location as its collocated argument, it is possible to say running over the place.

Table 7. The distribution frequency of direct arguments collocated with *pao*

	Location	Goal
Pao 跑	90.8%	9.2%

In summary, the differences discussed in this part can be put under the category of role modules:

ben 奔
  Role module: V+ preposition + < goal >
pao 跑
  Role module: V+ preposition +<goal, -abstract>,
          V+ <goal, -abstract>,
          V+<location>

5.4. MARVS Representation of *Ben* and *Pao*

   To sum up what has been discussed so far, the differences of the two verbs are put in the model MARVS as below:

Table 8 The MARVS representation of the two verbs: *ben* and *pao*

	Ben 奔	Pao 跑
Event module	Inchoative process **.///**	Bounded process **.///.**
Role module Role attributes	V+ preposition + < goal >, Can be a long distance to achieve and the goal can be abstract	V+ preposition + <goal, -abstract>, V+ <goal, -abstract>, V+ <location>

5.5. The Spoken Data of *Pao*

   The 20 instances of *pao* in the spoken data were also analyzed at the end of the study. The result shows that 9 (45%) of them are used without a role, 8 (40%) are used with prepositional phrases and 3 (15%) are used with direct arguments. All the prepositional phrases following the verb *pao* indicate concrete goals of the action. As to the 3 direct arguments, 2 of them are used as the location of the action and one indicates the goal of the action.

   Since no aspect markers were found used together with *pao* in the spoken data, the event module information based on the written data cannot be tested with the spoken data. But with the role modules, the result from the spoken data show a similar pattern with that based on the written data. Both the written data and the spoken data indicate that the verb *pao* tend to be followed by the prepositional phrase as the non- abstract goal and it can also take the direct arguments as either location or goal.

   As mentioned before, there was no instance of the verb *ben* found in the spoken data in the corpus. This fact indicates that in the spoken language, the verb *pao* is used more frequently and it is often chosen as the cover term in the situations where the two verbs can be used interchangeably.

6. Conclusion

The two verbs of running in Chinese share many aspects in common in both their meaning and their usage. They can be used in some contexts to deliver similar meanings. But after analyzing the data in the corpus, there are still some differences found between these two verbs, so they cannot be used interchangeably in all the contexts.

The different collocations with the aspectual markers and some other marking devices indicate the verb *pao* has an event end-point while *ben* does not focus on the endpoint. Moreover, the two verbs also take different roles and require different semantic information about the roles. Based on the data from the corpus, I find that the verb *ben* can take both abstract and not abstract goals and there must be a preposition between the verb and the goal. On the other hand, *pao* tends to only take not abstract goals. Besides, *pao* can also take goals and locations directly without any prepositions in between.

These differences of the two verbs in their semantic event structure can be used to explain their different syntactic behaviors and why they can be used interchangeably in some contexts but not in some other contexts. So these semantic patterns can provide some guideline for the language users to have a clear idea of the differences between the two verbs. This can be especially helpful to non-native Chinese speakers so that they won't get confused by in which contexts the two verbs can be used interchangeably.

One problem with this study is about the data: although the amount of data in the corpus is already very large, some usages actually used may also be left out in the corpus. Besides, as mentioned before, this study is based on the written data. Only the 20 instances of *pao* in the spoken data were looked at in the study. Although the analyses of the 20 instances show that the semantic patterns of *pao* based on both spoken and written data are similar, there might be some different findings if the whole study was based on spoken data since in spoken language people tend to use the language more flexibly. So the patterns found in this study actually show the general trend of the usage of each verb. They can tell us which verb is more frequently used in certain contexts and thus can be more appropriate to choose.

Another point worth mentioning here is that the pragmatic features of the two verbs were not discussed in this study. Not only the pure semantic features and the context of the sentence but also the discourse context and the style of the writing can affect the use of the verbs. The fact that no instances of the verb *ben* found in the spoken data can suggest it is not used in the spoken language very often. So study based on spoken data and with a more pragmatic viewpoint should be conducted in the future to complement the present one.

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现代汉语非宾格结构的内部句法差异

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本文认为汉语的非宾格动词与其他语言一样，不具有赋格能力；揭示了这类动词的内部类别，以及所导致的非宾格结构的内部句法差异。非宾格结构包括三种形式：NP+V/NP1+V+NP2/V+NP，这三种形式有各自的句法构造，同时都可以用"轻动词移位+基础生成"两种机制进行统一句法解释。本文还从历时角度对造成现代汉语非宾格结构句法差异的原因进行了初步探讨。

0. 引言

我们首先来看一组例子：

(1) a. The baby cried loudly.

    b. An accident happened.

    c. The door opened behind him.

以上三个例子从表层形式看主要成分构造完全相同，都是"NP+V"的句法形式，动词都是一元动词，NP 是该动词的唯一论元。但是仔细分析，三个句子具有不同的变换式：

(1)' a. The baby cried loudly. — *There cried the baby loudly.

    b. An accident happened. — There happened an accident.

      — *The heavy fog happened an accident.

    c. The door opened behind him. — Behind him opened the door.

      — John opened the door.

由上面的变换可知，（1）a 的 NP 无法出现在 V 后的宾语位置，而（1）b 和 c 的 NP 都可以，并且（1）c 还可以在句首引入一个新的致使者充当主语。

实际上这种差异在汉语以及其他语言中也存在：

（2）a. 宝宝哭了 —— *哭了宝宝
　　b. 客人来了 —— 来客人了——*优惠活动来客人了
　　c. 火灭了 —— 灭了火 —— 她灭了火（"她"是使火灭的致事）

　　可见一元动词内部的差异以及由此产生的句法结构的不同具有超越具体语言的普遍性。但是，我们同样发现，这种普遍性中也蕴含着特殊性，对比一下英汉的例子：

（3）a. 父亲死了——死了父亲——王冕死了父亲
　　b. His father died. —— *died his father.
　　　　 —— *He died his father

　　由上面的对比可知，汉语这类特殊动词的句法表现与英语也不一样，首先汉语的主语位置允许为空，并且在 V 的前面还可以出现除致事以外的名词性成分。
　　以上三组例子体现的有趣现象正是本文研究的内容：这类特殊不及物动词可以构成哪些结构？这些结构有什么特点？这些结构内部是否还存在差异？

1. 前人研究概述

　　上世纪八十年代以来，学者对以上提到的现象给予了很大关注，相关的研究也有很多。较为著名的是 Perlmutter 提出的"非宾格假说"（Unaccusative Hypothesis），他认为传统意义上的不及物动词应进一步区分为非宾格动词（unaccusative verbs）如"burn, freeze, happen, shine, stop"等和非作格动词（unergative verbs）如"work, play, speak, cough, sleep, cry"等。虽然它们都属于一元动词，而且唯一论元通常都出现在动词的前面位置充当句子表层结构的主语，但两类动词与其论元之间的深层逻辑语义关系有着本质区别：非宾格动词的表层主语为其深层逻辑宾语；非作格动词的表层结构主语也是深层结构中的主语。Burzio 继承了 Perlmutter 的思想并在生成语法的框架下加以发展。非作格动词在句中只带一个深层逻辑主语，属于深层无宾语结构，而非宾格动词在句中只带一个受论旨标记的深层逻辑宾语，属于深层无主语句，即：前者结构为[IP NP [VP V]]，后者结构为[IP [VP V NP]。
　　国内大部分研究并不区分"非宾格动词"和"作格动词"这两个概念。如顾阳（1996）里提到："一般认为动词大类的划分为（1）及物动词；（2）不及物动词或非作格动词；（3）非宾格动词或作格动词或起动动词"。影山太郎

（2001）《动词语义学》里第一次明确把非宾格动词和作格动词区分开，认为作格动词是"不改变形式直接转化为及物动词的不及物动词"，如 break, melt, drop, float 等。而非宾格动词指 appear, occur, happen, exist 等词。曾立英（2004）也专门提到了这两类动词的区别：非宾格动词只有一个论元，没有引发者；作格动词语义上有一个使役成分。

非宾格动词投射出的非宾格结构，同样具有句法语义上的特性，具体到现代汉语的非宾格结构，不仅体现出了非宾格结构本身的各种特性，而且显示了其特有的内部复杂性。关于现代汉语非宾格结构的构造和生成，以往的研究也很多，主要有以下一些观点：

"词汇派"认为非宾格结构内的动词发生了"作格化"，是及物动词衍生出了不及物用法，如顾阳（1996）就认为"水手沉了船"体现的是"沉"的基本用法，而"船沉了"是衍生用法。不同的句式里动词具有不同的属性，当动词后宾语位置出现名词性成分时，该动词为及物动词，与不及物用法的动词在词库里分属两个词。词汇派的观点是把表层结构的不同归结于动词本身的差异。

"句法派"占据主流，影响最大的是"Burzio 定律"：不能给主语名词赋予"施事"角色的动词也不能给宾语名词指派"宾格"。动词的深层宾语由于无法得到格必须移位以通过"格鉴别式"，因此"句法派"关于非宾格结构生成的核心观点是"移位"：深层宾语向上移位到[Spec IP]位置以获得主格。但是汉语非宾格结构的特殊性，让学者针对各种句式有了更多的解释。焦点主要集中在两个方面：1、对于"V+NP"格式中 NP 的解释。大部分学者认为这是NP 为深层宾语的直接反映，V 赋予了一个固有格（inherent case）[1]给 NP，使其合法出现在宾语位置，如黄正德（2007），徐杰（1999），韩景泉（2000）等。潘海华、韩景泉（2005）有另外看法："动词之后的论元名词组是将空主语位置上的主格继承过来，有动词前和动词后两个获取主格的位置。"2、对NP1+V+NP2 结构生成的解释（NP1 主要指非致事名词）。主要有"领有名词提升移位"如徐杰（1999）、温宾利（2001）、韩景泉（2000）[2]和"基础生成"如黄正德（2007）、朱行帆（2005）[3]两种观点。

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[1] "固有格"不同于结构格，如"部分格"、"所有格"等等。固有格与宾格不同，是在深层结构中由词汇项指派给名词性成分，跟表层结构无关。一些学者认为汉语的非宾格动词虽然不能指派宾格，但能指派固有格，以此解释 V 后 NP 的合法性。

[2] 各家对"领有名词的提升移位"的动机解释并不相同：徐杰认为移位是为了给宾语位置的 NP 赋部分格；温宾利认为移位是汉语句子功能中心语强[D]特征吸引的结果；韩景泉认为提升的领有名词是为了给宾语位置的 NP 整体传递主格。

[3] 朱行帆虽然认为 NP1 为基础生成，但整个格式的深层结构序列是 NP1+NP2+V，V 在轻动词作用下发生移位。

句法派的意见众多，但给人整体感觉是"按下葫芦起了瓢"，主要问题有以下几点：(1)无法合理解释 V 后 NP 的情况，引入"固有格"的概念实际上是否认了非宾格动词最本质的特征，表面上看这似乎是汉语独有的特点，但这种做法恰恰难以避免"逃避解释困境"之嫌。更大的问题在于，这样无法解释"NP+V"格式的合理性，既然 NP 在宾语位置能够存活，那么 NP 移位的动机是什么？(2)对于非宾格结构的解释缺乏整体性，往往只着眼于某一种句式。比如"领有名词移位"的解释对于那些 NP1 不是领属性成分的句子就无能为力了；(3)忽略了非宾格动词以及由此造成的非宾格结构内部的差异，为什么"车祸死了父亲"（"车祸"是"父亲死"的原因）就不成立呢？汉语非宾格结构内部有何句法差异？

句法派的这些不足之处也引起了其他学派的讨论，沈家煊（2006）对以往的句法派观点一一进行了评述，并从功能语法的角度提出了新的看法："王冕死了父亲"、"他来了两个客户"这类句子的生成方式是词语"糅合"（blending）的结果。"王冕死了父亲"这句话是"王冕的父亲死了"和"王冕丢了某物"两个小句糅合而成。但是这种解释也遇到了麻烦，翁姗姗（2008）就提出，同样有"丧失"义的"王冕消失了父亲"并不能成立，单纯从表层句式意义推演出句法结构的方法不可靠，容易产生意义上符合但句法上不成立的句子。石毓智从历史语言的材料里也提出了反驳意见，他指出"王冕死了父亲"句式 13 世纪已出现，而表示"丧失"意义的"丢"到 18 世纪才出现。

本文依然打算从生成语法的角度，跳出原有的解释框架，将非宾格结构的各种句式联系起来统一进行解释，揭示出现代汉语非宾格结构的句法构成及内部差异。

2. 现代汉语非宾格结构的界定

本文所说的"非宾格结构"指的是由非宾格动词为核心构造的句法结构。因此有必要首先对现代汉语的非宾格动词进行界定。界定有形式和意义两种标准，由于句法形式与语义结构并不是一一对应的，这就意味着如果我们仅以某种句式或句式变换式为判断标准，会无法避免地把一些不是非宾格动词的词包括进来。句法结构是词汇特性的直接投射，因此本文认为判断非宾格动词的本质标准是其语义结构：如果一个动词的论元结构里只有一个论元，并且该论元是客体或受事，而非施事，那么它就是非宾格动词。非宾格动词的唯一论元无法得到动词的赋格，这是该类动词具有普遍性的语法性质。它们在语义上有共同的语义特征：[+非自主，+非意愿]。

这种语义结构的特点在所形成的句子中是可以直接感知的。吕叔湘先生曾经举过一个很经典的例子：

（4）a．中国队胜了韩国队（及物动词）
　　　b．中国队胜（非作格动词）
（5）a．中国队败了韩国队（致使动词）
　　　b．中国队败（非宾格动词）

　　后一句去掉宾语后，语义发生了变化，原来指施事的主语成了客体，说明（5）b 不是由第一句直接省略宾语而来，其深层结构应该是个无主句，经过宾语提前而成为表面上的受事主语句。类似的例子还有：

（6）他老批评别人——他老批评
（7）他吓了我一跳——我吓了一跳

　　需要澄清的是，非宾格动词和作格动词是不同的概念，二者在内涵和外延上都存在差别，句法表现形式也有所不同。"非宾格动词"的概念着眼的是动词没有赋宾格的能力，即名词成分在该动词后的宾语位置没有"存活"条件，同时该动词无法指派施事角色。而"作格"是英文"ergative"的翻译，该词源自希腊语，原为动词，表示"cause, bring about, create"。"作格动词"的概念着眼的是动词语义结构中的致使性，这种致使性使得该类动词构造的句法结构具有自己的特点，下文会具体提到。正因为此，会有以下例子的对立：

（8）冰溶化了——高温溶化了冰（"高温"是"冰溶化"的致事）
（9）父亲死了——*车祸死了父亲（"车祸"是引起"父亲死"的原因）

　　从以上的区分可知，作格动词是包括在广义的非宾格动词内部的，例（8）（9）都是非宾格结构，但只有允许致事出现的例（8）的"高温溶化了冰"才是作格结构。
　　另外，应当把非宾格结构和存现句区分开，也不能把存现结构看作非宾格动词的判别式。以下是现代汉语里典型的存现句：

（10）饭店来客人了
（11）床上躺着病人
（12）台上唱着戏

　　它们拥有共同的表层形式 NP_L+V+NP，例（10）"来"和"死"这样典型的非宾格动词确实能进入存现句，但是我们不能据此从反向推出存现结构是非宾

格动词的判别式，更不能因为 NP 可以出现在 V 后面便认为 V 变成了非宾格动词。根据前文提出的语义标准，例（11）"病人"是"躺"的动作发出者，并不符合非宾格动词的特点。例（12）表示的是动态的存在，表示动作正在进行。说明"NP$_L$+V+NP"这类句式不具有改变动词特性使其成为非宾格动词的功能，我们不能以其作为是否是非宾格结构的诊断句式。表面上看存现结构可以容纳"来"、"死"等一大批非宾格动词，但是这类动词构成的非宾格结中的 NP$_L$ 在格式中突显的并不是地点义，而是"历事"语义角色，关于这点下文会详细论述。

无论英语还是汉语，非宾格动词都不是一个匀质的集合，本文认为现代汉语的非宾格动词主要包括三类，这三类动词具有不同的语义特点，构成非宾格结构时的句法表现也不同：

A、作格动词，如灭、沉、吓、绊、溶化、丰富、温暖、改善等；

B、表示存在、消失义的动词，如来、发生、消失、死等；

C、一些非自主的动词如掉、瞎、落、破、丢、裂、断、塌、坏、烂、犯等。

由此构成的非宾格结构主要有三种句法形式：V+NP；NP+V；NP1+V+NP2。特别要说明的是，学界目前对出现在"NP1（致事）+V+NP2"格式中的 V 都看作是及物的使役动词，把整个结构看作是一个及物结构，只有当其变换为"NP2+V"时才是非宾格用法。本文认为这类格式中的 V 依然是非宾格动词，以上三种形式都是"非宾格结构"，其中体现的差异只是句法构造的不同。同时，这种差异又是可以进行统一解释的。

3 现代汉语非宾格结构的内部句法差异
3.1．汉语非宾格结构的特殊性

虽然"非宾格"是语言中具有普遍性的现象，但是不同语言依然有参数的差异。与英语对比，汉语的非宾格结构至少有两大特别之处：

A、汉语的非宾格结构具有"V+NP"的主语空位形式。

根据扩充投射原则（Extended Projection Principle/EPP），英语的 EPP 特征是强特征，要求所有句子都必须有主语，因此"V+NP"的格式不合法：

（13）a. 来了客人

  b. *arrived the guests——There arrived the guests

（14）a. 出现月亮了

  b. *appeared the moon—— There appeared the moon

（15）a. 逃了一个犯人

  b. *escaped the prisoner—— There escaped the prisoner

（16） a. 存在问题

　　 b.*exists a problem——There exists a problem

　　以上句子的 NP 要在 V 后停留，必须通过虚主语 there，如例（13—16）b。汉语的这种特殊非宾格结构提出了新的问题：留在 V 后的 NP 的存在理由是什么？

　　B、汉语的非宾格结构具有"NP 历+V+NP"[1]的形式，如：

（17）a. 聚会来了很多客人

　　 b. *The party arrived many guests.

（18）a. 天空中出现了月亮

　　 b. *The sky appeared the moon

（19）a. 骚乱跑了犯人

　　 b. *The riot escaped the prisoner.

（20）a. 居民存在这种问题

　　 b. *The residents exist a problem.

　　由上可见，英语虽然也存在显性非宾格现象，但是主语位置不能出现任何除致事以外的实义成分。

　　以上通过与英语对比，我们看到了汉语非宾格结构的独特句法表现，下面从句法构造的角度分别对汉语非宾格结构包括的不同句式及它们之间的差异进行解释。

3.2. 汉语非宾格结构的句法构造

　　汉语非宾格结构具有三种形式，它们分别具有不同的句法生成过程。

（一）"NP+V"格式——"父亲死了"

　　该格式是各种语言中典型的非宾格用法，也是非宾格问题研究最开始的地方。正是这类格式的深层宾语出现在主语位置，而表层词类序列与"父亲哭了"完全一致,，才引起了我们对非宾格结构的兴趣。非宾格动词没有赋宾格能力，因此其深层宾语必须移位至大主语位置，以获取格位。"父亲死了"的句法结构为：

　　[IP 父亲 i [VP 死 ti]]

　　生成方式如图：

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[1] "历事"表示经验者，受事件影响者。本文的"历事"是广义的历事，处所名词也包括在内。
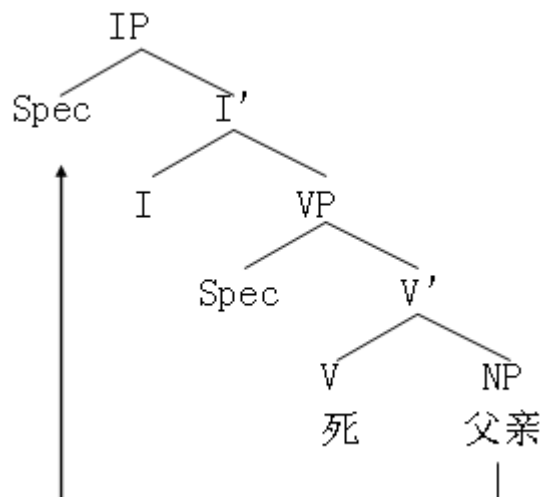
"父亲"由 V 的补足语位置上移至[Spec IP]位置。

（二）"NP1+V+NP2"格式

　　纵观以往学者的研究，对于这类格式大家的关注点主要有两个，其一是 NP 为致事的"使役句"，其二是 NP1 与 NP2 有领属关系的"领主属宾句"。对于 NP 为致事的情况，学界一般将其排除出非宾格结构的范畴，认为该格式是二元的使役句，动词是使役动词，但是这种排除并没有充足的理由。以"高温溶化了冰"为例，句子体现出的使动义，我们可以将其归于动词的语义结构，也可以将其归于整个句法结构的特殊构造。就"NP 致+V+NP"这种格式来说，两种处理方式都可以。但是注意到 NP1 还可以是历事成分，而"NP 历+V+NP"显然是不好分析成一个及物结构的，为了将"NP1+V+NP2"这一格式（不管 NP1 的具体语义角色是什么）进行统一处理，我们采用句法的观点。

　　对于领主属宾句的讨论直接关系到对 NP1 性质的看法。对于 V 前的 NP，一派意见认为它是领属性成分移位的结果，因为汉语的非宾格结构存在一系列下面这样的例子：

　　（21）王冕死了父亲
　　（22）那个工厂塌了墙
　　（23）那家公司沉过船
　　（24）张三烂了一筐梨
　　（25）行李房倒了墙
　　（26）这件褂子掉了扣子

表面看来，NP1 与 NP2 在语义上都有领属关系，徐杰（1999）用"领有名词的提升移位"来解释这类句子，但受到了韩景泉（2000）的质疑，他提出像"张三掉了他的钱包"这样的句子的 NP2 显然是有定的，不符合部分格的要求。韩景泉（2000）的"主格传递"分析同样存在问题：第一，凭什么领有名词与 t 的语链可以把主格传给整个 NP 结构？第二，既然"所有格"留在原位，再得到主格是否是重复赋格？不管具体的操作手段是什么，用"领有名词提升移位"解释这类格式的句法生成都对留在 V 后位置的 NP2 找不到一个留下的合理理由。并且无法全面涵盖汉语里 NP1 与 NP2 没有领属关系的非宾格结构，如：

（27）他家来了许多要饭的
（28）昨天他们发生了一件车祸
（29）厨房碎了很多盘子
（30）他起了一身鸡皮疙瘩

除了提升移位，NP1 只能解释成是基础生成的（basic generation）。黄正德（2007），朱行帆（2005），潘海华、韩景泉（2005）等都持"基础生成"的观点，他们的分析虽然避免了"领属移位"的片面性，但依然无法解释非宾格动词为什么允许其唯一论元待在 V 后的宾语位置上。本文同意 NP1+V+NP2 格式中 NP1 的基础生成性，但对这一结构提出了新的句法解释：该格式是一种包含了轻动词[1]的结构，在轻动词的触发下发生了二次移位。NP1 基础生成在 [Spec vP]位置，轻动词赋予它历事题元角色，再移位至大主语位置获得主格。V 后的 NP2 不再是 V 的宾语，只是表层出现在 V 之后造成了这种"假象"。首先深层宾语 NP2 由于无法获得格位而被迫移位至[Spec VP]位置，接受 v 赋宾格；第二步由于轻动词具有语义内容而无语音形式，因此触发了中心动词的向上移位，两次移位后，虽然表层序列依然是"V+NP"，但与单纯的"动词+宾语"结构已有了本质区别。

所有的汉语非宾格结构都可以包含一个 EXPERIENCE 轻动词层，即 NP1 位置都可以引入一个广义的历事，例（21）-（30）的 NP1 都看作是历事。有些 NP1 是地点短语，整个结构好像是存现句，但实际上这些 NP1 都可以看作是"历事"。句首 NP1 是地点名词，但说它是表示经历了"V+NP2"事件的经

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[1] "轻动词"的概念不同学者有不同内涵。Chomsky 最简方案中的"轻动词"并不是一个词汇语类，而是一个语缀(affix)，呈强语素特征，不表达语义内容。它作为动词词组的基础性底层结构应用于英语中几乎所有的动词类型。黄正德把轻动词定义为由纯动词表示的事件谓词，它没有语音形式，但有语义内容，起了塑造或改变事态结构的作用，在实现方式上也存在跨语言差异。本文采用的是黄正德的"轻动词"概念。

历者也完全可以。而且"医院死了个病人"和"张医生死了个病人"在语义上并没有本质区别，二者表达的是同样的意义。对于很多学者关注的领主属宾句，其实所有的"领有者"也是一种历事。在这个非宾格结构里凸显的不再是 NP1 与 NP2 之间的语义关系，而是强调 NP1 对事件的经历、受事件的影响，只是与 NP2 在语义上有直接关系的名词性成分比较容易充当这个历事而已。因此给我们造成了一种印象：这种格式的形成是由于 NP1 与 NP2 有语义上的领属关系。这一点从英汉对比中也可以进一步发现：汉语里的那些所谓领主属宾句英语中都没有对应的形式，如例（21）-（26）的英语对应形式。这个归根到底与英语没有历事这一层轻动词层是紧密相关的，而这也是我们前面提到的汉英非宾格结构里最大的一点不同。可以说，英语领主属宾句的缺乏的关键不在于领属关系，而在于英语的非宾格结构没有历事轻动词层，这也正是汉语非宾格结构在普遍语法规则下最重要的参数。

以"王冕死了父亲"这样的句子为例，其句法结构为：

[IP 王冕 k [vP t k 死了 j（Exp）[VP 父亲 i [tj t i]]]]
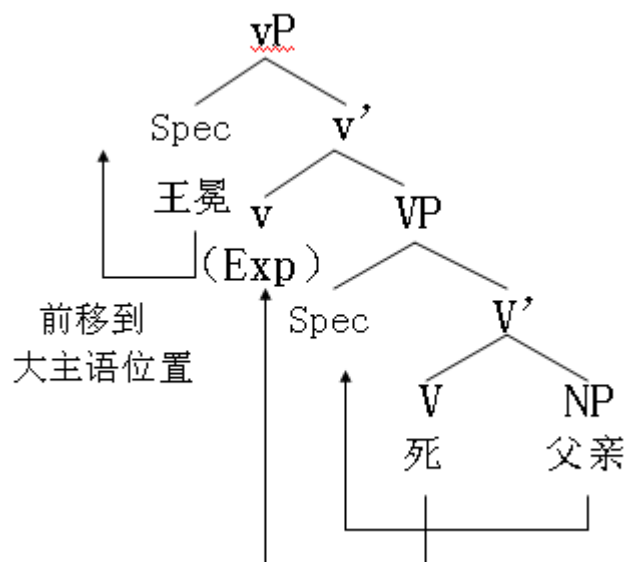
"王冕"作为"历事"基础生成在主语位置，深层宾语"父亲"首先移位到[Spec VP]位置，然后"死"上移到[v v']。

由于非宾格动词内部是不匀质的，构成的非宾格结构也存在内部句法差异：作格动词构成的"NP1+V+NP2"格式不仅可以包含 EXPERIENCE 轻动词，还可以包含 CAUSE 轻动词，即 NP1 既可以是动作的历事，也可以是施事。如：

（31）a. 那家大楼灭了火　　b. 消防员灭了火
（32）a. 小区改善了空气质量 b. 政府改善了空气质量
（33）a. 水手沉了船[1]　　　b. 台风沉了船

致事是该格式的默认语义配置（因此 a 句在实际生活中并不常见），即当作格动词进入 NP1+V+NP2 格式时，只要 NP1 是指人名词，我们都将对其进行致事的解读。

以"台风沉了三条船"为例，该句子的句法结构为：

[IP台风 k [vPt k 沉了 j（CAUSE）[VP三条船 i [t j t i]]]]

具体生成方式如下图：
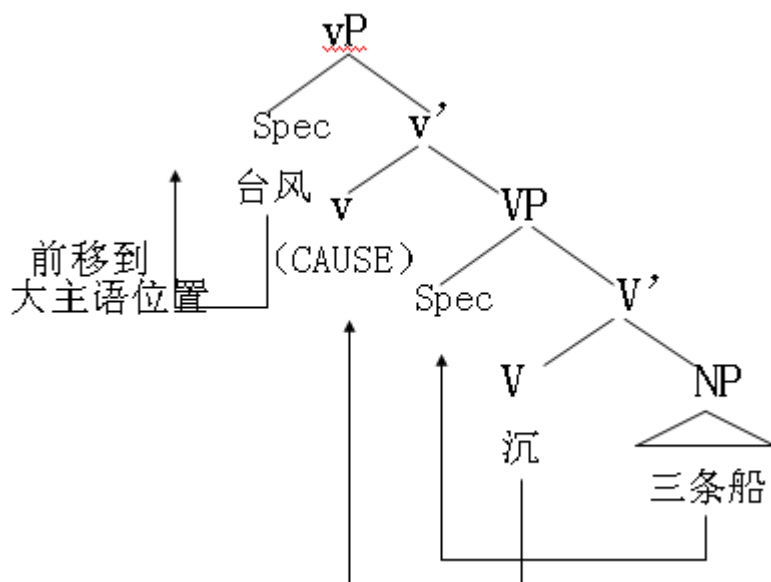
作格结构允许两类轻动词进入格式，但并不是任意的。由于在语义角色层级中致事高于历事，因此当作格动词构成的 NP1+V+NP2 格式中的 NP1 是指人名词时，我们语义理解时会将其作"致事"解读，作格动词构成的此格式中出现的历事多为处所名词等广义历事。如果一定要让"有生"历事进入该结构，则会出现两层 vP 的套叠，即致事和历事同时出现，例如：

"台风沉了公司三条船"，句法结构为：（树形图见下页）

[IP 台风 k [vP t k 沉 j（CAUSE）[vP 公司（Exp）[三条船 i [t j t i]]]]]

其他非宾格动词便无法同时引入致事和历事，如：

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[1] 这个句子实际上有歧义，"水手"既可以表示致事，也可以表示历事，这里作历事解读。

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（34）*张三死了王冕父亲（其中"张三"是让"王冕父亲死"的致使者）
（35）*小二来了我一碗面
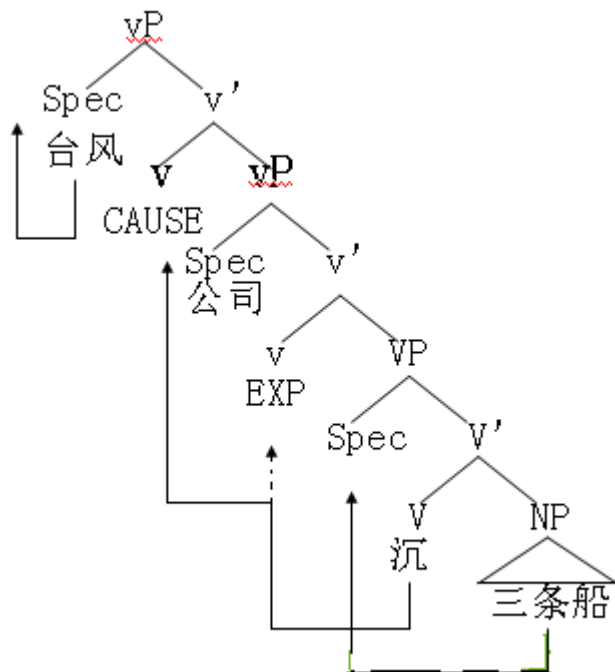
要引入致事，一种是构造述补结构，一种是构成"使"字句。如："破"

（36）*图钉破了袜子
（37）图钉挂破了袜子
（38）图钉使袜子破了

例（38）的句法结构为：[$_{vP}$ 图钉 使 [$_{vP}$ 袜子 i [破 t_i]]]，轻动词位置出现有形的"使"，因此"破"不用移位。这也从反面证明了非宾格结构通过二次移位进行句法构造的假设。

　　本文的处理方法实际上是将非宾格结构的不同结构义归于其包含的轻动词种类的不同，这样做一大好处是维护了非宾格动词"无法赋宾格"的本质属性，同时能够在同一理论下对这一类格式进行统一分析，并且更加符合我们的语感，实际上轻动词的作用就是揭示出表层结构未曾出现而在人们语感中又确实感受得到的内容。

(三)"V+NP"格式——"来客人了"
　　对于这类 NP 出现在 V 后的格式，语法学界称为"显性非宾格现象"

（apparent unaccusative）。这是一个"让人欢喜让人忧"的格式，"让人喜"的是我们对非宾格动词的识别很大程度上依靠的正是这种结构，因为深层宾语出现在了"表层宾语"的位置，而一元非作格动词是无法出现在这一位置的。"让人忧"的是也正是这一格式成为了"非宾格动词无法赋宾格"说法的反例。因为我们必须为 NP 待在 V 后找一个合理的理由[1]。

学界最热门的解释就是引入"部分格"的概念，前文已经提到黄正德（2007）、徐杰（1999）、含景泉（2000）等的观点。潘海华、韩景泉（2005）甚至认为动词之后的论元名词组是将空主语位置上的主格继承过来，汉语有动词前和动词后两个获取主格的位置。综合以上来看，只要我们承认 V 后的 NP 位置是非宾格结构的一种常态，即深层宾语的直接句法体现，就无法解释"NP+V"格式的形成原因，因为我们无法另外找到一个迫使在 V 后待得好好的 NP 移位的原因。

我们可以跳出以往研究的套路，不再局限于表层的句法形式，在前面分析的基础上，同样将"V+NP"看成包含了轻动词层的句法二次移位的结果，只是其中的 NP1 省略了。我们说的省略只限于"历事"NP。将其处理成历事省略并不是完全主观的一种技术处理手段：首先，调查实际语料发现，"V+NP"格式独立出现的情况非常少，它一定是在某个语境中存在，否则就是一个语义信息不完整的结构，当我们对"V+NP"格式进行语境反推（语义信息补全）时，语感上都倾向补全历事信息。该格式是一种语法合法，而语义和信息结构不合法的句子；其次，引文中提到"大雾发生了车祸"句子的不合法，恰是因为"发生了车祸"结构并不是初始的"V+NP"结构，因此它的前面并不是既可以基础生成历事也可以生成致事的，这个句子的句法结构是：[IP NP k [vp tk 发生了 j（EXPERIENCE）[vp 车祸 i [t j t i]]]]，其中[Spec IP]位置已经被表示历事的名词占据。

将"V+NP"格式处理成历事主语的省略而不处理成深层宾语的直接句法实现，与以往相比至少有两点优势：第一，通过二次移位的句法操作，合理地将"V+NP"、"NP+V"以及"NP1+V+NP2"三种格式联系在了一起，既解释了 V 后 NP 的合法性，又给出了其发生句法移位至 V 前的动因——如果结构原生为"V+NP"，那么我们根本无法找到一个"VP+N"格式出现的原因，而看作 NP1 的省略的话，问题便迎刃而解了。因为省略了的 NP1 表明该格式的原结构包含了轻动词，可以引发中心词的移位。第二，将汉语的非宾格动词以及非宾格结构更好地纳入了普遍语法的解释框架。前面提到与英语相比，汉语的非宾格结构有两大特点，其一是存在"V+NP"这种允许主语空位的格式，其二是 V 前无法引入历事。如果我们把"V+NP"格式看作历事主语的省略的

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[1] 英语的显性非宾格现象是在主语位置有虚主语 there，黄正德（2007）提到英语 V 后的 NP 可以通过 there "格传递"获得主格。

话，那么以上两点不同实际上就可以归结为一点：即汉语的非宾格动词同样没有赋宾格能力，但是可以投射出 EXPERIENCE 的轻动词层[1]。这样至少比倡导汉语非宾格动词能够赋格（不管什么性质的格）的手法要高明一些，也没有否定非宾格动词的本质属性。

3.3. 小结
现代汉语非宾格结构的句法差异首先表现在三种形式具有不同的句法构造："NP+V"格式，深层宾语移位至大主语位置；"NP1+V+NP2"格式，NP1 基础生成，NP2 移位至[Spec VP]位置，V 在轻动词吸引下上移到 v 位置；"V+NP"格式看作"NP1+V+NP2"省略句首 NP 而来。另一方面，这些句法构造内部还体现了非宾格动词本身的差异：作格动词和非作格动词投射轻动词的能力不同，历事层是所有非宾格结构的共性，作格动词还可投射致事层，以及两种轻动词层的套叠。

总的来看，本文对非宾格结构的不同句法格式以及结构义进行了统一的句法解释，并且将其内部的差异归于非宾格动词投射轻动词层的不同能力。同时也解释了英汉非宾格结构的句法差异。

4. 汉语非宾格结构内部句法差异的原因初探
句法结构是词汇语义结构的直接投射，造成汉语非宾格结构的内部句法差异可以从非宾格动词本身的特点入手考察。前面提到现代汉语的非宾格动词可以投射两类轻动词层，不同的非宾格动词的"非宾格性"并不完全相同，下面我们试图从非宾格动词的历时用法来进行考察。我们根据宋亚云（2005）对上古以及中古语料的考察，再结合其他学者的研究总结了现代汉语具有代表性的几类非宾格动词的历时用法演变：

A、"死"、"落"等
以"死"为例，它在上古和中古时期一直是个自动词，出现的格式为"NP+死"，偶尔会有"死+NP"的活用，但比例非常小。根据宋亚云（2005），《左传》中的"死"共 450 例，单用不带宾语的 217 例，带宾语 52 例，为动宾语、原因宾语、使动宾语、与动宾语和处所宾语等。但宾语都不是客体格，看成补语也未尝不可。而带使动宾语只有 2 例：

（39）祁懼其讨也，愬诸宣子曰："盈将为乱，以范氏为死恒主而专政矣……吾父死而益富。死吾父而专于国，有死而已，……"《襄21·5》

（40）"公坠，崔子之徒以戈斫公而<u>死之</u>，而立其弟景公"《韩非子·奸劫弑臣》

这种活用看作不及物动词的使动用法，更为重要的是这种活用后来逐渐消失了，并不是一种能产的途径，也根本没有固定下来形成作格动词。而"（NP 历）+死+NP"的格式在晚唐五代已出现，如：

（41）前皇后帝万千年，死了不知多与少。（《敦煌变文·维魔诘经讲经文》）
（42）万秀娘死了夫婿（话本《山亭儿》）
（43）我一个大姐姐死了丈夫，在家里累着父亲养活（《儒林外史》第四十八回）

这一格式产生以后在近代汉语里一直使用，其他如：

（44）石霜置枯木堂与人坐卧，只要死了你心（《五灯会元·道楷禅师》）
（45）诸师长，权且住，略听开解：不幸死了蒲州混元帅……（《西厢记诸宫调卷二》）
（46）你三年前死了娘子儿（第十九回）/老鸨子死了粉头——没指望了（第六十回）（《金瓶梅》）

总结一下，"死"在上古和中古一直是个自动词，构成"NP+死"格式，近代汉语中出现"（NP 历）+死+NP"的格式，期间虽然存在"NP 致+死+NP"的使动用法，但在"死"的用法里所占比例一直非常小，"死"从古至今都没有发展出稳定的使动用法过，也没有出现致事、历事同时出现的情况。

B、"破、败、断、裂"等
这类动词在上古的基本用法是外动词，出现基本格式为"NP1+V+NP2"，V表示动作义。以"破"为例，上古时期用得最多的是及物性的"破坏"义和引申义"攻破"，如：

（47）焚符<u>破玺</u>，而民樸鄙（《庄子·月去箧》）
（48）日者大王欲<u>破齐</u>，诸天下之士，其欲<u>破齐</u>者，大王尽养之。（《吕氏春秋·应言》）

不带宾语的视为被动句，如：

（49）燕攻齐，<u>齐破</u>（《战国策·齐策六》）

反宾为主句继续发展，便产生了动词的自动用法，如：

（50）风至苕折，<u>卵破</u>子死（《荀子·劝学》）

（51）诗曰：……谷已<u>破碎</u>，乃大其辐。事已败矣，乃重太息。（《又·法行》）

两汉以后，"破"不带宾语的用法逐渐增多，并且出现了在使字句中充当V2 的用法，如：

（52）有扣头而死者，未有<u>使头破首碎</u>者也（《论衡·儒增篇》）

魏晋南北朝时期，"V1+令+破"、"V1+NP+破"等形式的出现，进一步表明不及物用法当动词的这两种用法并用时，该动词便衍生成了作格动词。

衍生出作格动词以后，虽然语言中还存在"NP1+V+NP2"格式，但 NP1 已经不局限于施事名词了。与外动的事件结构相比，衍生出了作格用法的"NP1+V+NP2"已经是一个包含 CAUSE 轻动词层的非宾格结构。

从古到今，这类动词经历了及物用法从强势到弱势，不及物用法从弱势变强势的过程。现代汉语里，这类动词已经彻底变成了一元的不及物动词，单用频率也大大下降。因此很难在"NP$_{致}$+V+NP2"格式中出现了，但是述补结构的发展为这类非宾格动词进入作格结构提供新的途径，他们大多成为述补复合词的后字，表示结果状态，如"张三打败了李四"/"钉子刮破了皮包"等。

特别要说明的是，"灭"在上古应该也属于这类动词，但是我们今天依然可以说"消防员灭了火"，我们认为这类动词不及物用法的增长是一个不同步的过程，有些动词也许速度相对较慢，如"灭"这样的动词，因此还可以出现在作格结构中。

C、"沉"

根据宋亚云的考察，"沉"在上古的基本用法应该是不及物的，表示"沉没，没入水中"，基本格式是"NP+沉"，如：

（53）天下莫不<u>沉</u>浮，终身不故（《庄子·逍遥游》）

（54）千钧得船则浮，锱铢失船则<u>沉</u>（《韩非子·功名》）

与"死"一样，该类不及物动词也有及物的活用，表示"使没入水中"，如：

（55）"施氏逆诸河，<u>沉其二字</u>"（《左·成 11·3》）

（56）不如乘之以<u>沉之</u>（《韩非子·说林下》）

不同的是，这类动词的这一使动用法后来并没有消失，而是逐渐固定下来，衍生成了作格动词，这种作格用法至今还保留在现代汉语中，与"破"类动词类似。

无论是古汉语里的作格结构，还是现代汉语里的作格结构，动词的自动用法是作格用法产生的语义前提，即我们无法对"NP1+V+NP2"格式从外动用法直接重新分析为作格用法，而必须经历"NP2+V"这个阶段。

综合以上来看，虽然现代汉语里这三类动词都是非宾格动词，在句法表现上都有共同之处，但是它们的历时发展轨迹并不相同。三类动词的语义特点决定了它们在产生之初就是不同质的，"死"类从来都没有发展出可以投射 CAUSE 轻动词层的特点，因此现代汉语里它也无法直接引入致事成分。"破"类经历了"外动——自动——作格——自动"的过程，因此古代汉语里我们可以找到"NP$_{致}$+V+NP"的非宾格结构，而现代汉语里无法找到。"沉"类经历了"自动——作格"的过程，因此现代汉语里依然可以构成作格结构。另外，现代汉语里还有一系列表示"存现"的动词，如"发生、出现、消失"等，我们认为这是一类后产生的词，基本用法也是不及物的，类似于古代汉语中的"死"，因此在现代汉语里也无法投射 CAUSE 轻动词层。

以上从历时的角度考察了现代汉语几类典型的非宾格动词的句法语义发展过程，发现今天汉语里非宾格结构的内部句法差异有着深刻的历史原因，这些词在本质上从一开始就不是匀质的，而这种非匀质的原因可能与动词本身的词汇语义有关。

5. 余论

本文对现代汉语的非宾格动词和非宾格结构进行了重新界定，讨论了非宾格结构的句法特性和三种格式的句法生成。从中揭示出了汉语非宾格结构内部的句法差异，并从历时的角度对造成这种差异的原因进行了探讨。但是限于时间和精力，仍然遗留了一些值得探讨的问题：

（1）"NP$_{历}$+V+NP"的结构是如何产生的？

历事轻动词层的投射是汉语非宾格动词的最大特点，它具有对内普遍性和对外区别性，但是我们暂时还不能确定这种格式产生的具体动因。目前学界也只是对"王冕死了父亲"这一种格式关注得比较多，有人认为是由存现句的句首 NP 发生认知转喻而来，如刘晓林（2007）。也有学者认为是继承了"丧"的用法，如帅志嵩（2008）。要对这个问题有深入的研究，必须对以上提到的三类非宾格动词从上古到现代汉语的用法有一个较全面的梳理，也许从"NP$_{历}$+V+NP"格式出现的语言环境以及产生时间上能够找到一些蛛丝马迹。

（2）为什么可以投射"致事"层的非宾格动词还可以投射历事层，而反之不可以？

如前例所示，作格动词似乎比其它非宾格动词句法"包容性"更大。从句法上分析，我们可以假设 CAUSE 轻动词层处在更高、更外的位置，因此可以容纳一个历事层的嵌套[1]。

（3）有定和无定在非宾格结构的构造中起了什么作用？

我们注意到"车祸死了王冕父亲"不可以说，但是可以说"车祸死了十个人"，很多数量名结构能够使一些不太合格的非宾格结构存活，这种无定名词组在句法上的作用也值得进一步研究。

本文重在对已经确定的汉语非宾格结构进行句法解释，从句法构造着手，进而考察其动词本身的语义特点。因此本文对判断哪些词是非宾格动词以及一些非作格动词带宾语的现象没有讨论。当然以上的讨论还存在很多不足，一些假设还需要寻找更多的语言内部以及跨语言的证据来予以支持，这些留待以后继续研究。

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[1] 蔡维天（2007）Two types of Light verbs in Chinese. Paper presented in IACL-15/NACCL-19,曾经提到汉语里有两类轻动词，其中 CAUSE 占据 TP 之上的句法位置，并且举了一系列内外对立的语法证据。也许汉语非宾格结构的这种不对称性可以从中找到原因。

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Looking into Clauses

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There is a conflict between the claim that clauses in Chinese are always Case-marked when they are assigned thematic roles (Li 1985, 1990, Tsai 1995) and the contrasting claim that such clauses are not assigned Case (Li 2008). In this paper we argue that clauses in Chinese are not assigned Case (Pesetsky 1982). The Case filter applies only to NPs. The apparent instances of clauses in Case positions actually involve nominal phrases and Case is assigned to the dominating nominal phrase instead of the clause. This is supported by the fact that such clauses do not allow extraction from within (complex NP constraint). Further support for this analysis comes from a number of important facts not noted before, which distinguishes clauses in the positions alternating with nominal expressions (CANP) and those not alternating with nominal expressions (non-CANP). First, only CANP can be conjoined by the nominal conjunction word *he/gen* and the conjoined CANPs can co-occur with *dou,* whose appearance signals plurality. Secondly, only CANP can be followed by an overt noun (phrase), such as '(the) matter/question/saying" and only CANP can have nominal interpretations. Thirdly, non-CANP, such as the objects of verbs *renwei/cai* 'think/guess', cannot undergo topicalization, in contrast to CANP.
Among other theoretical implications, this work shows that the notion of s(emantic)-selection coupled with the Case requirement on NPs can derive the notion of c(ategorial)-selection (Pesetsky 1982, contra Tsai 1995).

Keywords: Case, clause, conjunction, Chinese

1. **Introduction: Case and Clauses**
      Case theory was a major tool in the government and binding theory to capture the generalizations regarding order and constituency in natural languages (Chomsky 1980, 1981, 1986). For instance, NPs[1] must be assigned Case --- the Case filter (Chomsky 1980).

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[1] As the distinction between NP and DP is not significant in this work, we adopt the traditional label of "NP" sensitive to the Case filter.

(1) The Case filter
*[$_{NP}$ e]
where NP has phonetic content but not Case

The function of (1) is to ensure that noun phrases appear in the appropriate positions structurally, such as the object position of verbs and prepositions and the subject position of tensed clauses in English (right next to the Case assigners, V, P and Tense).[2] The Case filter was further connected to the Theta theory: Case must be present when a theta-role is assigned - the Visibility Condition on theta-role assignment. Every theta-role must be assigned and every argument must be assigned a theta-role.[3] The requirement of Case is reduced to the need of theta-roles properly assigned to arguments and arguments properly receiving theta-roles. However, the NP Case filter and the Visibility condition have different empirical coverage. The former applies to NPs; whereas the latter is relevant to all the complements assigned thematic-roles, including clauses. To distinguish the two formulations, it is important to determine if clauses are subject to the Case filter.

Pesetsky (1982) distinguishes between NPs and clauses categorically and claims that only the former needs Case. [4] Accordingly, the subcategorization properties of heads can be determined by the s(emantic)-selection properties of a head, coupled with the Case assigning ability of the head; that is, the c-selection (categorial) properties of a head can be derived from its semantic properties (s-selection) and the Case assignment properties of the head (cf. Stowell 1981 for a different account.)

Pesetsky's claim predicts the empirical contrast: clauses occur only in non-Case positions; NPs must appear in Case positions.

(2) a. I am afraid *(of) it
    b. I am afraid (*of) that the weather won't be good.

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[2] Not all Case markers are overt. For instance, Larson (1985) suggests that bare NP adverbs of time, location such as *tomorrow, now, here, someplace warm and sunny* and a limited set of bare-NP adverbs of manner are inherently Case marked.

[3] A common assumption is that only subcategorized complements are assigned thematic roles. However, a more inclusive view has also been proposed, such as the following condition on adverbial theta-role assignment (Larson 1985: 606):

(i) *Adverbial θ-Role Assignment*
    Assign an adverbial θ-Role to α, where α is any phrase.

If this is adopted, the Visibility condition does not exempt adverbial NPs from the Case filter,

[4] Following a widely adopted convention, we use the capitalized "Case" to refer to the notion of abstract Case in Case theory.

However, Li (1985, 1990) and Tsai (1995) observe that clauses in Chinese seem to appear in Case positions and therefore claim that clauses in Chinese are always Case-marked (henceforth referred to as CCC) when they are assigned thematic roles (appearing as objects of V, P or as subjects). Tsai 1995 claims that both the notions of c-selection and s-selection are needed in grammar according to the behavior of clauses in Chinese.

Li (2008) makes the contrasting claim that clauses do occur in non-Case marked positions in Chinese (henceforth referred to as Not-CCC), such as the complement positions of verbs like *think*.

This study will help resolve the conflict between CCC and Not-CCC. We will show that clauses in Case positions behave like they are nominal expressions.[5] This follows if Case is assigned to NPs, rather than clauses, as in Pesetsky (1982). Chinese is not different from English in regard to the Case requirement on clauses and NPs. The conclusion has significant consequences on how Case should be characterized in the grammar and whether the notion of c-selection is needed in the grammar.

Empirically, this work will focus on the clauses in the object positions of verbs and prepositions, leaving other possibilities to a separate work because of the limited space. We will first review the data and claims leading to CCC in section 2. In Section 3 we review Li (2008) that casts doubt on CCC. Section 4 brings a different perspective, namely conjunction, to the issues regarding whether the Case filter applies to clauses or not. In Section 5 we propose an NP structure for clauses in clearly Case-marked positions and arrive at the claim that NPs and clauses are, after all, not identical in their roles in Case theory. We make concluding remarks in Section 6.

2. Li (1985, 1990) and Tsai (1995): Clauses in Chinese are case-marked (CCC)

In her works on the role of Case in the grammar of Chinese, Li (1985, 1990) notes that clauses in Chinese behave like nominal phrases and occur in Case-marked positions, in contrast to English clauses. Tsai (1995) further explored the similarity between clauses and nominal phrases with respect to their sensitivity to the Case requirement. The following examples are from Tsai (1995, 282-285),[6] illustrating the relevance of Case to clauses as well as to NPs.

(3) wo [*(dui) [Akiu weishenme bu lai]]   hen guanxin.
    I   about   Akiu why   not come very care
    'I care about why Akiu will not come.'

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[5] Nominal expressions in argument positions will be labeled as NPs in this work, because of the reference to the classic term Complex NP constraint, the Case filter applying to NPs, and the irrelevance of the distinction between NPs and DPs in this work.

[6] Tsai's translation includes the intensifier *do*: *I do care about…* The *hen* here need not be interpreted as a real intensifier, as the deletion of *hen* makes the sentence unacceptable (see, for instance, Li and Thompson 1981 for *hen* without its intensifier interpretation).

(4) wo [*(dui) [Akiu bu lai]] hen zaiyi.
    I   about Akiu not come very mind
   'I do mind Akiu will not come.'

(5) wo [*(dui) zhe-jian shi] hen guanxin.
    I   about this-CL matter very care
   'I care about this matter.'

(6) wo [*(dui)   zhe-jian shi]   hen zaiyi.
    I   about this-CL matter very mind
    'I do mind this matter.'

  These examples show that a complement clause and a complement NP in the preverbal position equally require a Case-marker *dui*.[7]

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[7] Chinese allows SOV word order without a Case marker preceding the O, especially when the preposed object has a special discourse function (such as contrast, focus):

(i) wo ji   bu chi .
  I   chicken not eat
  'I don't eat chicken.'

(ii) ta zhe-jian shi   zhidao le
   he this-cl   matter know LE
   'He knows about this matter.'

Unexpectedly, a clause generally is not quite natural in such an object position:

(iii) ??ta ni bu neng lai zhidao le.
      he you not can come know LE
     'He know s that you cannot come.'

Dui is not possible when the verb is *zhidao*:

(iv) *ta dui ni bu neng lai   zhidao le.
     he to you not can   come know LE

There are also patterns disallowing the use of *dui* to Case-mark a preverbal nominal object:

(v) ta ba/*dui haizi da le ji   ci.
   he   child hit LE several times

Postverbally, a clause and an NP complement are assigned Case by the verb; therefore, the Case-marker *dui* does not appear:

(7) wo hen guanxin. [(*dui)   [Akiu weishenme bu lai]/zhe-jian shi]
   I   very care   about Akiu why   not come/this-CL matter
   'I care about why Akiu will not come/this matter.'

(8) wo hen zaiyi [(*dui)   [Akiu bu lai]/zhe-jian shi].
   I   very mind   about Akiu not come/this-CL matter
   'I do mind Akiu will not come/this matter.'

Other prepositions behave like *dui*:

(9) a. cong [Akiu jinlai zheli] dao [ta likai], Lisi yi-ju   hua dou mei   shuo.
      from Akiu enter here to   he leave Lisi one-CL word all have-not speak
      'From the moment Akiu entered here to the moment he left, Lisi did not say
      a word.'

   b. cong [Akiu shenmeshihou qichuang] dao [ta zai nali   chifan], Lisi dou
      from Akiu when   get-up   to   he at where eat   Lisi all
      dating-de   yiqingerchu.
      investigate thorough
     'From the question of when Akiu wakes up to the question of where he eats,
     Lisi made a thorough investigation.'

The following examples, with sentential subjects in relative clauses, illustrate the possibility of a clause staying in subject positions.

(10) a. [henduo [[Akiu neng huo-zhe hui-lai]   shi   tamen$_i$ jingya]   de ren$_i$]
      many   Akiu can   live-Dur back-home make them   surprised DE people
     dou mei   lai.
     all   have-not come
     '[Many people to whom it is surprising [that Akiu can come back alive]] did not
     come.'

These facts suggest that *dui* is not simply a Case marker for a preverbal object.
Therefore, the instances in (7) and (8) do not convincingly argue for the need of Case for clausal complements. The need of *dui* in these sentences might be due to factors other than Case.

b. [henduo [[Akiu neng-bu-neng huo-zhe hui-lai]   gen tamen$_i$ wuguan] de
      many   Akiu can-not-can   live-Dur back-home to them   irrelevant DE
      ren$_i$]   dou mei lai.
      people all   have-not come
       '[Many people to whom it is irrelevant [whether Akiu can come back
      alive or not]] did not come.'

The identity in the possible positions for clauses and NPs suggests that clauses are assigned Case and the Case filter can be appropriately reduced to a Visibility condition on theta-assignment.

      The data, however, are more complicated. The parallel distribution between NPs and clauses fails in the following instances, where only a clausal complement is allowed postverbally, not an NP complement (Tsai 1995, 301-302, ex.51-52)

(11) *wo hen haoqi   [zhe-jian shi   de qiyin]
     I   very curious this-CL   matter DE cause
     'I am curious about the cause of this matter.'

(12) wo hen haoqi   [Akiu weishenme bu   lai]
     I   very curious Akiu why   not come
     'I am curious why Akiu will not come.'

      Tsai suggests that the Visibility condition is obeyed consistently, i.e., both clausal and NP complements should be assigned Case in order to receive theta-roles. The difference in the above examples is simply that *haoqi* selects a clause, not an NP.[8] In other words, *haoqi* specifies a categorical selection requirement (c-selection): the complement following *haoqi* must be a clause (or a PP, see note8). C-selection is arbitrary: the c-selection requirement for each lexical item must be listed.[9]

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[8] Tsai (1995) notes that the preverbal PP is selected by *haoqi*, although he did not discuss further why the selected PPs appear preverbally, not postverbally, which is the normal case for selected items (see Li 1985, 1990 for the split between the Case directionality requirement and the head parameter, which would need to be recast in different terms in the current framework):

(i) wo [*(dui) [Akiu weishenme bu lai]/ na-jian shi   hen haoqi.
   I   about Akiu why   not come that-CL matter very curious
   'I am curious why Akiu will not come.'

[9] This contrasts with Pesetsky's (1982) proposal that c-selection should follow from the semantic selection (s-selection) properties and the abilities of the heads to assign Case. According to Pesetsky, the following contrasts show that the verb *ask* in English assigns

However, such an analysis misses some generalizations on categorical distribution and raises the question of why clauses in English and Chinese should behave differently.[10] First, there is clear evidence in English that clauses are not assigned Case. The English counterparts of (11-12) show that the clausal complement in the English sentence corresponding to (12) is not assigned Case. In discussing the Case requirement of clauses in English, Stowell noticed that some heads license their clausal complements without Case assignment, as illustrated by the following examples:

(13) a. Mary is happy that Charles is leaving home.
　　 b. Kevin is certain that the tent is in the car.
　　 c. Neil is afraid that the computer will break down.
cf.
(14) a. Kevin is [certain of Ray's genius]
　　 b. Neil is [afraid of Constable O'Malley]

(15) a. *Kevin is certain Ray's genius
　　 b. *Neil is afraid Constable O'Malley

　　 Stowell (1981:204) suggests that "these psychological-state-denoting adjectives have a special property that excludes them from the general requirement that theta-roles can only be assigned to A'-chains headed by PRO or Case….the adjective phrases [in these cases] instantiate a special case of theta-role assignment, which is limited to relations of awareness or recognition of the propositional content of a complement clause."　That is, theta-roles can be assigned to clauses when the head has a lexical feature [+R].

Case to its complement, not *wonder*, even though they both require a question complement:

(i)　 a. John asked the question.
　　　 b. John asked what the time was.

(ii)　 a. *John wondered the question.
　　　 b. John wondered what the time was.

These pairs of sentences demonstrate that not all verbs in English assign Case and accept NPs as their complements.　Clauses do not need Case; therefore, they can be complements of the verbs unable to assign Case.

[10] Li 1985, 1990 and Tsai 1995 did propose some rationale, which needs re-evaluation in the current approach.

As a corollary of the clauses in the above instances not assigned Case, Stowell notes that such clauses cannot undergo topicalization, which requires the trace left by topicalization be a variable, to be assigned Case.

(16) a. *[That Charles is leaving], I believe that Mary is [happy ___]
     b. *[That the computer will break down], I know that Neil is [afraid ___]
cf.
(17) [That the water is bad] $_i$ I believe Jenny forgot to mention [e$_i$]

Second and more importantly, there is theoretical advantage in recognizing non-CCC cases (clauses in non-Case-marked positions in Chinese). Li (2005, 2007) observes the following pattern:

(18) a. If a verb is subcategorized for a nominal object, such an object can be
        empty.
     b. If a verb is subcategorized for a clausal object, such an object
        cannot be empty.

(18a) is illustrated by (19), where verbs allowing nominal objects also accept null objects:

(19) a. wo tingdao-le na-jian shi.
        I   hear-LE   that-CL matter
        'I heard that matter.'

     b. wo tingdao ta de-le   da jiang le; ta ye   tingdao-le.
        I   heard   he get-LE big prize LE he also hear-LE
        'I heard that he got a big prize; he also heard.'

(18b) is illustrated by (20)-(22), which show that verbs allowing only clausal objects, not nominal objects, would disallow a null object. When the full clausal objects of such verbs do not appear, the pro-form *zheme(yang)* 'so' must appear:

(20) a. *wo renwei/yiwei na-jian shi.
         I   think/ think that-CL matter
         'I thought/thought that matter.'

     b. wo renwei/yiwei ta hen congming; tamen ye *(zheme(yang))
        I   think/ think he very smart   they   also so
        renwei/yiwei.
        think/ think
        'I thought that he was smart; they thought so, too.'

(21) a. *wo cai   na-jian shi.
        I   guess that-CL matter
        *'I guess that matter.'
    b. wo cai   ta hen congming; tamen ye *(zheme(yang)) cai.
        I   guess he very smart   they also so   guess
        'I guess that he is smart; they guess so, too.'

(22) a. *wo dasuan na-jian shi.
        I   plan   that-CL matter
        '*I planned that matter.'

     b. wo dasuan mingtian qu; tamen ye   *(zheme(yang)) dasuan.[11]
        I   plan   tomorrow go they also   so   plan
        'I planned to go tomorrow; they planned to do the same.'

        This discrepant behavior of NPs and clauses in the object position can be captured if we assume that only NPs are assigned case, not clauses. This correlation between case assignment and empty categories can be subsumed under the following condition.

(23) The Visibility Condition on Empty Categories
     Empty categories in argument positions should be assigned Case or in a chain containing Case.

        This means that a null object is possible only if Case is assigned to the object position. The condition also captures the different possibilities of a null object between English and Chinese. As is well-known, Chinese, not English, allows its object to be null:

(24) a. John saw him. *Mary saw, too.
     b. I like him. *She doesn't like.
cf.
(25) a. John kanjian-le ta; Mary ye   kanjian-le.
        John see-LE   him Mary also see-LE
        'John saw him; Mary saw him, too.'

     b. wo xihuan ta; ta bu xihuan.
        I   like   him he not like
        'I like him; he doesn't (like him).'

---

[11] If *dasuan* is only subcategorized for an infinitival clause, it would not affect the discussion on the Case status of clauses in this work, as infinitivals are not assigned Case, as shown by Stowell (1981).

This contrast can be captured by an adapted inverse Case filter in Bošković (1997:134-142).

(26) English, not Chinese, requires Case to be realized on a lexical item.

The obligatoriness of overtly realizing Case features and the requirement on null arguments to be Case marked conspire to rule out any null objects in English. In this language, if a Case feature is available, it must be realized on a lexical item; if such a feature is not available, a null argument is not licensed. These considerations also capture the fact that the object CPs in the following instances cannot be "deleted" (cf. Lobeck 1995, Merchant 2001 for the impossibility of CP deletion in English).

(27) a.*Mary was afraid that the idea wouldn't work and Bill was [AP [happy
[CP e]].

b.*I suppose that he will come and they suppose [CP e], too.

The facts presented so far reveal two conflicting generalizations: those in (3-10) seem to indicate that clauses are like NPs and are Case-marked in Chinese. In contrast, other facts, such as those related to the generalization about empty categories stated in (23), suggest that clauses in Chinese, as in English (13-17), are not like NPs and are not Case-marked. How can this conflict be resolved? Three logical options suggest themselves:

(28) a. Clauses must always be assigned Case in Chinese but not in English. (18) should not be accommodated by Case.

b. Different types of clauses must be recognized in Chinese. That is, we need to recognize finer peripheral structures for clauses (Cinque 1999, 2002; Rizzi 1997, 2004). A clause may have some or all of the following projections at the left periphery: Force Phrase, Topic Phrase, Operator Phrase, etc. Case is required with certain projections but not the others.

c. Clauses in Chinese are not in Case positions, just as in English. The occurrence of clauses in Case-marked positions is only apparent.

In the following discussions, we, taking biased terms, will refer to the complement positions of the verbs in (24-26) as Case marked positions and those in (23), together with the objects of prepositions and subjects as Case positions. We will claim the option in (28c) is more adequate than the other two, contra the observations and analyses in Li (1985, 1990) and Tsai (1995).

3. Li (2008): CCC is too strong. Could there be different types of clauses?
As noted, the lack of inflectional morphology in Chinese tends to make it difficult to identify clearly what types of entities are being studied. For instance, the tensed clausal complements in (29a-b) and (31a-c) can all be translated as clauses in Chinese as well ((30), (32) respectively), even though only the verbs in (29) and (30) can assign Case to the complements.

(29) a. I know [that he does his work]/this matter.
 b. I like his doing/him doing/him to do this work/this matter.

(30) a. wo zhidao [ta zuo zhe gongzuo]/zhe-jian shi.
  I know he do this work this-CL matter
  'I know that he does this work/this matter.'

 b. wo xihuan [ta zuo zhe gongzuo]/zhe-jian shi.
   I like he do this work this-CL matter
   'I like his/him doing this work/this matter.'

(31) a. He is happy that he is doing this work
 b. He prefers for him to do this work.

(32) a. ta hen gaoxing ta zuo zhe gongzuo.
   he very happy he do this work
   'He is happy that he is doing this work.'

 b. ta bijiao xihuan ta zuo zhe gongzuo
   he comparatively like he do this work
  ' He prefers for him to do this work.'

English distinguishes different types of clauses by overt morphological markings (the tense marker -*s,* the participial/gerundive marker –*ing,* infinitival *to,* etc). The question is whether Chinese also distinguishes different types of clauses in the relevant contexts, which might be responsible for the seemingly contradictory patterns: some clauses appear in Case-marked positions and some others do not. The data for the clauses in Case and non-Case positions seem to suggest that both allow the same types of clauses. They can be *wh*-questions, as demonstrated earlier. In addition, topic and focus elements are also allowed in both contexts.

(33) a. wo zhidao na-jian shi.
  I know that-CL matter
  'I know that matter.'

  b. wo dui na-jian shi   hen haoqi.
     I   to that-CL matter very curious
     'I am curious about that matter.'

  c.*wo yiwei   na-jian shi.
     I   thought that-CL matter

(34) a. wo zhidao **shi** ta na-le   na-ben shu.
     I   know   be he take-LE that-CL book
     'I know that HE took that book.'

  b. wo dui ta **daodi** bu yuanyi zuo **shenme** hai mei gao   qingchu.
     I   to he to-end not willing do what   still not make clear
     'I am still not clear what on earth he is not willing to do.'

  c. wo yiwei   **shi** ta na-le   na-ben shu.
     I thought be he take-LE that-CL book
     'I thought that HE took that book.'

(35) a. wo zhidao na-ben shu, ta na-le   .
     I   know that-CL book he take-LE
     'I know that book, he took.'

  b. wo dui na-jian shi   shei yuanyi zuo hen haoqi.
     I   to that-CL matter who willing do   very curious
     'I am curious about that matter who will do (it).'

  c. wo yiwei   na-ben shu   ta na-le   .
     I thought that-CL book he take-LE
     'I thought that book, he took.'

This suggests that the typical left-peripheral elements such as question operators, topic and focus elements are allowed in the complement positions of Ps and verbs assigning Case and those Vs not assigning Case. Another option to consider is tense: could it be that Chinese does distinguish tensed clauses from non-tensed ones: verbs like *renwei* 'think', *cai* 'guess' require tensed clausal complements but Case-marked positions take non-tensed clauses?

The answer to this question is dependent on whether the notion of tense plays a role in the grammar of Chinese. Tsang (1981), Huang (1982), Li (1985, 1990), among others, argue that Chinese distinguishes infinitival clauses from tensed clauses and modal-like words such as *hui* can serve as a tense marker. In contrast, Hu, Pan and Xu

(2001) argue that Chinese does not make such a distinction. Lately, Lin (2003a,b, 2006), Sybesma (2007) and Tsai (2008) revisited the issue of whether Chinese has a tense projection syntactically. In the following paragraphs, we show that even if we follow the claim by Sybesma and Tsai that Chinese does express tense syntactically, such tensed clauses still appear in the typical Case-marked positions.

Let us illustrate the point with the most recent work, Tsai (2008). According to Tsai, there is some "incompleteness" effect observed in Chinese for sentences like the following:[12]

(36) a. [%]Akiu pao-zhe.
     Akiu run-Dur

   b. [%]Akiu kan-zhe   dianshi.
     Akiu watch-Dur   TV

(37) [%]Akiu   na-le   shu.
    Akiu   take-Prf   book
    'Akiu took books.'

These cases sound incomplete because of their failure of anchoring tense, i.e., to guarantee a proper temporal reference of a given sentence through syntactic measures. Adopting a generalization in S.-Z. Huang (2005), Tsai analyzes tense anchoring as a process of spelling out an underlying event argument by a variety of morpho-syntactic means. This process may involve event coordination, event subordination, event modification, event quantification, or verb raising to *v*/T.

(38) a. Akiu   yizhi   pao-zhe.
    Akiu   continuously run-Dur
    'Akiu is running continuously.'

   b. Akiu yibian kan-zhe   dianshi, yibian xie-zhe   baogao.
    Akiu while watch-Dur TV   while write-Dur report
    'Akiu is watching TV and writing the report at the same time.'

   c. Akiu na-le   san-ben   shu.
    Akiu take-Prf   three-CL   book

---

[12] These examples are from Tsai 2008, in which Dur represents the aspect marker expressing duration, Prf, the perfective aspect marker. Prt stands for a sentence-final particle, which is simply represented as LE in the gloss of other examples in this work.

'Akiu took three books.'

    d. Akiu yinggai/mei   na   shu.
        Akiu should/have.not   take   book
        'Akiu should take/have not taken books.'

    e. Akiu na-le   shu   jiu   pao.
        Akiu take-Prf   book   then   run
        'Akiu ran away immediately after taking the book.'

    f. Akiu na-le   shu   le.
        Akiu take-Prf book   Prt
        '(As for now,) Akiu has taken the book.'

Regardless of which analysis should be adopted in order to encode the notion of tense properly, what is pertinent to our discussion is that even if we recognize Chinese expresses tense syntactically (tense anchoring), these "tensed clauses" comfortably appear in typical Case positions, including the object of Case-assigning verbs and the object of prepositions:

(39) a. wo zhidao [Akiu   yizhi   pao-zhe]
      I   know   Akiu   continuously run-Dur
       'I know that Akiu is running continuously.'

    b. wo zhidao [Akiu na-le   shu jiu pao].
       I know   Akiu take-Prf book then run
       'I know that Akiu ran away immediately after taking the book.'

    c. wo zhidao [Akiu hen kuai jiu na-le   shu le]]
       I   know   Akiu very fast then take-Prf book Prt
       'I know that Akiu has taken the book very quickly'

(40) a. wo [dui [Akiu yizhi   pao-zhe] hen bu gaoxing.
      I   to Akiu continuously   run-Dur very not happy
     'I am not happy that Akiu is running continuously.'

    b. wo [dui [Akiu yibian kan-zhe   dianshi, yibian xie-zhe baogao]]
       I   to Akiu while   watch-Dur TV   while   write-Dur report
      hen bu gaoxing.
      very not happy
      'I am not happy that Akiu is watching TV and writing the report at the same time.'

c. wo [dui [Akiu na-le   san-ben   shu]] hen bu gaoxing.
    I   to   Akiu take-Prf three-CL   book very not happy
    'I am not happy that Akiu took three books.'

d. wo [dui [Akiu yinggai/mei   na   shu]] hen bu gaoxing.
     I   to   Akiu should/have.not take book very not happy
    'I am not happy that Akiu should take/have not taken books.'

e. wo [dui [Akiu na-le   shu   jiu pao]] hen bu gaoxing.
     I   to   Akiu take-Prf book then run very not happy
    'I am not happy that Akiu ran away immediately after taking the book.'

f. wo [dui [Akiu name kuai jiu na-le   shu le]] hen bu gaoxing.
     I   to   Akiu that fast then take-Prf book Prt very not happy
    'I am not happy that Akiu has taken the book that fast.'

The range of possibilities shown above applies to the patterns with verbs **NOT** allowing NP complements, such as *renwei/yiwei/cai* 'think/guess'.

(41) a. wo yiwei [Akiu yizhi   pao-zhe].
        I   think Akiu continuously run-Dur
      'I thought that Akiu was running continuously.'

   b. wo yiwei [Akiu yibian kan-zhe   dianshi, yibian xie-zhe   baogao].
      I   think Akiu   while watch-Dur TV   while   write-Dur report
      'I thought that Akiu was watching TV and writing the report at the same time.'

   c. wo yiwei [Akiu na-le   san-ben   shu].
       I   think Akiu take-Prf three-CL   book
      'I thought that Akiu took three books.'

   d. wo yiwei [Akiu yinggai/mei   na   shu].
       I   think Akiu should/have.not take book
      'I thought that Akiu should take/had not taken books.'

   e. wo yiwei [Akiu na-le   shu   jiu   pao].
       I   think Akiu take-Prf book then run
      'I thought that Akiu ran away immediately after taking the book.'

   f. wo yiwei [Akiu hen   kuai jiu na-le   shu le].
       I   think Akiu very fast then take-Prf   book Prt

'I thought that Akiu had taken the book very fast.'

The lack of contrast in acceptability between (39-40) and (41) shows that, if indeed there is tense anchoring and it distinguishes tensed clauses from non-tensed ones, the types of clauses grouped under the tensed ones can appear in those positions allowing NPs (Case-marked positions), as well as the positions not allowing NPs.

A cautionary note should be made regarding (39), those with verbs allowing both a postverbal nominal and clausal complement. Although we recast this pattern in terms of Case marking – the verbs in this pattern can assign Case, it should be noted that the complement clause might not be always in Case positions, as such a clause might be extraposed (Stowell 1981). Therefore, we will focus on the patterns in (40) and (41).

Even though (40) and (41) show that the same types of clauses can appear in clearly Case marked positions (prepositional object) and non-Case marked positions (those disallowing NPs), the two patterns do not share the entire range of possibilities. For instance, the focus marker *shi* is quite natural in the clausal complements of the verbs disallowing NP complements (42); whereas the sentences in (43) show that *shi* is much less acceptable in clearly Case-marked positions:

(42) wo yiwei [Akiu shi yizhi   pao-zhe].
    I   think   Akiu be continuously run-Dur
    'I thought that Akiu indeed was running continuously.'

(43) a. wo [dui [Akiu (*shi) yizhi   pao-zhe]] hen bu gaoxing.
       I   to   Akiu   be continuously run-Dur   very not happy
       'I am not happy that Akiu indeed was running continuously.'

      b. wo [ba [Akiu (*shi) yizhi   pao-zhe]] dangzuo shi hen zhongyao de shi.
       I   ba Akiu   be continuously run-Dur regard   be very important de matter
       'I took it as important that Akiu indeed was running continuously.'

      c. wo [bei [Akiu (*shi) yizhi   pao-zhe]] fansi le.
       I   bei Akiu   be continuously run-Dur   annoyed
       'I was annoyed by Akiu's indeed running continuously.'

The unacceptability of (43) is interesting. Have we finally found a clue to distinguishing the type of clauses that does occur, and the type that does not occur, in Case marked positions? In the next section, we will show that the fact from conjunction argues for a nominal structure for the clauses in the object position of prepositions. Together with the fact regarding the overt co-occurrence of nouns (phrases) with clauses, we claim that clauses in clear Case positions, such as prepositional object positions, are actually nominal expressions. Accordingly, there is no compelling reason to state that clauses

appear in prepositional object positions; there are no grounds to claim that clauses themselves are assigned Case, governed by the Case filter.

4. Surprising conjunction facts

As mentioned, the relative paucity of inflectional morphology in Chinese makes it challenging to distinguish categories. Indirect mechanisms help with the task. An interesting tool emerging from the recent works by Aoun and Li (2003), Huang (2006), Li (2008), Zhang (2009), and Huang and Li (to appear) is the choice of conjunction words.[13] Pertinent to this work is the fact that the conjunction words *erqie* 'and' and *he/gen* 'and' are used to conjoin different phrases: *he* and *gen* conjoin nominal phrases and *erqie*, non-nominal constituents, such as clauses. The distinction is illustrated below.

(44) Zhangsan   he/gen/*erqie   Lisi dou hen congming.
      Zhangsan   and   Lisi all very smart
      'Zhangsan and Lisi are both smart.'

(45) Zhangsan hen congming   erqie/*he/*gen   Lisi ye hen congming.
      Zhangsan very smart   and   Lisi also very smart
      'Zhangsan is smart and Lisi is also smart.'

(46) wo renwei/yiwei/cai Zhangsan hen congming   erqie/*he/*gen   Lisi ye
       I   think/thought/guess   Zhangsan very smart and   Lisi also
      hen congmong.
      very smart
      'I think/thought/guess Zhangsan is/was smart and Lisi is/was also smart.'

Interestingly, not all clauses require *erqie* as the conjunction word. The "nominal" conjunction words, *hen* and *gen*, are possible in some contexts, such as the object of some verbs, the object of a P, and the subject of a sentence.

(47) wo xiang-zhidao Zhangsan zuole shenme he/gen Lisi zuole shenme
       I   want-know   Zhangsan did   what   and   Lisi did   what
      'I want to know what Zhangsan did and what Lisi did.'

(48) a. Zhangsan neng-bu-neng lai   he/gen Lisi neng-bu-neng lai   dou bu shi wenti.[14]

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[13] There is a long history of interests in and analysis of coordinate structure by Chinese grammarians. For a brief overview, the reader is referred to Guo 2005.
[14] If *erqie* conjoins clauses, *dou* is not possible. This is because *erqie* conjoins two CPs to make one CP.

(i) Zhangsan bu lai   erqie Lisi ye bu lai   (*dou) shi wenti.

    Zhangsan can-not-can   come and   Lisi can-not-come come all not be question
     'Whether Zhangsan can come and whether Lisi can come are not problems.'

    b. Zhangsan de jinpai   he/gen Lisi de yinpai   dou shi women
     Zhangsan get gold medal and   Lisi get silver medal all be we
     yuliaodangzhong de shi.
     expect   de matter
     'Both (the facts) that Zhangsan won gold medal and that Lisi won silver medal are
     what we expected.

(49) wo dui Zhangsan yao lai   he/gen Lisi ye yao   lai   dou mei yijian.
    I to Zhangsan want come and   Lisi also want come all not opinion
    'I have no objection to either of the facts that Zhangsan wants to come and Lisi also
    wants to come.'

(50) wo ba Zhangsan keyi lai   he/gen Lisi ye keyi lai   dou dangzuo shi hen
    I ba Zhangsan can come and   Lisi also can come all regard be very
    Zhongyao de shi.
    important de matter
    'I take both of the facts as important that Zhangsan can come and Lisi can
    Come too.'

(51) wo bei Zhangsan keyi lai   he/gen Lisi ye keyi lai   xiadao le.
    I ba Zhangsan can come and   Lisi also can come shocked

   Zhangsan not come and Lisi also not come all   be problem
    'That Zhangsan can come and Lisi can also come is a problem.'

The entire CP can still be a clause followed by a singular noun:

(ii) wo dui Zhangsan bu lai   erqie Lisi ye bu lai   zhe-ge wenti   hen danxin.
   I to Zhangsan not come and   Lisi also not come this-CL problem very worried
    'I am worried about the problem that Zhangsan cannot come and Lisi cannot come
    either.'

(iii) *wo dui Zhangsan bu lai   erqie Lisi ye bu lai   zhe-liang-ge wenti   hen
    I to Zhangsan not come and   Lisi also not come this-two- CL problem very
   danxin.
   worried
    'I am worried about the two problems that Zhangsan cannot come and Lisi cannot
    come either.'

'I was shocked by the fact that Zhangsan can come and that Lisi can come too.'

(52) [cong [[Zhangsan jinlai] he/gen [Lisi jinlai]] dao [xianzai], wo dou mei   shuo
    from   Zhangsan enter and   Lisi enter to   now   I   all have-not speak
    hua.
    word
    'From the time Zhangsan entered and the time Lisi entered till now, I did not say a
    word.'

       Why is it that the nominal conjunction is possible with (47)-(52) but not with
(44)-(46)? The translation of (52) provides a clue: it requires the use of nominal
expressions like *time, moment*. The obligatory use of time expressions in the translation
for (52) makes sense because the object for the preposition *cong* 'from' and *dao* 'to'
should not be a proposition. Rather, the relevant objects should express temporal points.
(52) is synonymous with the one below, which contains nominal temporal expressions
(even though the repetition of *na shihou* 'that time' sounds redundant):

(53) [cong [[Zhangsan jinlai] na   shihou he/gen [Lisi jinlai] na shihou] dao [xianzai],
    from   Zhangsan enter that time   and   Lisi enter that time to   now
  wo dou mei   shuo hua.
  I   all have-not speak word
  'From the time Zhangsan entered and the time Lisi entered till now, I did not say a
  word.'

Indeed, those accepting *hen/gen* as the conjunction word all allow the occurrence of a
nominal phrase with the clause:

(54) wo xiang-zhidao Zhangsan zuole shenme he/gen Lisi (ye) zuole shenme
    I   want-know   Zhangsan did   what   and   Lisi also did   what
  zhe liang-jian shi.
  this two-CL   matter
  'I want to know the two matters what Zhangsan did and what Lisi (also) did.'

(55) Zhangsan neng-bu-neng lai   he/gen Lisi neng-bu-neng lai   zhe liang-ge
    Zhangsan can-not-can   come and   Lisi can-not-come come this two-CL
  wenti   dou bu zhongyao[15]

---

[15] The two occurrences of *wenti* 'question' in the following example sound redundant:

(i) Zhangsan neng-bu-neng lai   he/gen Lisi neng-bu-neng lai   zhexie wenti
  Zhangsan can-not-can   come and   Lisi can-not-come come these   questions
  dou bu shi wenti

questions all   not important
'Neither of the questions is important whether Zhangsan can come and whether Lisi can come.'

(56) wo dui Zhangsan keyi lai   he/gen Lisi ye keyi lai   zhe liang-jian shi   dou mei
 I   to Zhangsan can   come and   Lisi also can come this two-CL   matter all not
yijian.
opinion
'I have no objection to either of the matters that Zhangsan can come and Lisi can also come.'

(57) wo ba Zhangsan keyi lai   he/gen Lisi ye   keyi lai   zhe liang-jian shi
 I   BA Zhangsan can   come and   Lisi also can come this two-CL   matter
dou dangzuo shi hen zhongyao de shi.
all regard   be very important de matter
'I take both matters as important that Zhangsan can come and Lisi can also come.'

(58) wo bei Zhangsan keyi lai   he/gen Lisi ye keyi lai   zhe liang-jian shi
 I   BEI Zhangsan can   come and   Lisi also can   come this two-CL   matter
 xiadao le.
 shocked
'I was shocked by the two matters that Zhangsan can come and Lisi can also come.'

In contrast, those clauses not allowing *he/gen* as conjunction words do not accept an accompanying noun phrase:

(59) a. wo renwei/yiwei/cai   Zhangsan keyi lai   erqie Lisi ye   keyi lai
 I   think/thought/guess Zhangsan can come and   Lisi also can come
(*zhe(liang-jian) shi).
 this two-CL matter
'I think/thought/guess (*the (two) matter(s)) that Zhangsan can come and Lisi can also come.'

cf.   b. wo zhidao Zhangsan keyi lai   he/gen Lisi ye   keyi lai (zhe liang-jian shi).
 I   know   Zhangsan can come and   Lisi also can come the two-CL matter
'I know (the two matters) that Zhangsan can come and Lisi can also come.'

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all   not be question
'The questions of whether Zhangsan can come and whether Lisi can come are not questions.'

These contrasts suggest that what appears as a clause in a Case position might actually be a more complex nominal structure containing a clause and a covert noun (phrase), equivalent of the overt expression '(the) question', '(the) matter', "the time', etc. The relation between the clause and the noun (phrase) might be an apposition or a noun complement structure. We will not pursue in this work the precise characterization of the relation between the clause and the covert noun (phrase) and the nature of the covert element but simply refer to the nominal clausal structure as the complex NP structure. What is important is that recognizing a clause in Case positions as having a more complex structure provides a better understanding of the facts discussed so far in this work and other related phenomena.

5. Complex NP structures

Adopting a complex NP structure for the clauses in Case positions accommodates the facts described so far. First, because what are conjoined are noun phrases, it is expected that the nominal conjunction word *he* or *gen* is used. Two entities are conjoined; therefore, *dou* is possible, as in (48a) and other example sentences where it is used. Note that the use of *erqie* indicates that the conjunction creates one CP, which can be accompanied by a noun phrase expressing single, not plural entities. The occurrence of *dou* is impossible (see footnote 13):

(60) Zhangsan bu-neng lai   erqie Lisi ye bu-neng lai (*dou) bu shi wenti.
     Zhangsan not-can come and   Lisi also not-come come all not be question
     'That Zhangsan cannot come and Lisi cannot come either is not a problem.'
cf.
(61) Zhangsan bu-neng lai   he/gen Lisi bu-neng lai   dou bu shi wenti.
     Zhangsan not-can come and   Lisi not-come come all not be question
     'That Zhangsan cannot come and that Lisi cannot come are not problems.'

   In addition, it is expected that the focus marker *shi* does not appear within a complex NP, illustrated below:

(62) a. [Akiu (*shi) yizhi   pao-zhe] zhe-jian shi]
        Akiu   be   continuously run-Dur this-CL   matter

   b. [Akiu (*shi) neng-bu-neng lai]   zhe wenti]
      Akiu   be can-not-can   come this question
      'the question whether Akiu indeed can come'

The distribution of the focus marker *shi* is sensitive to island conditions, which is expected if the *shi* focus needs to be raised to the matrix clause at LF, which cannot cross island boundaries (complex NP constraint in this case – no extraction crossing the

boundary of a complex NP, one of the island constraints as in Ross (1967), Chomsky (1981).

The island effects created by the complex NP structure are manifested not only in the interpretive procedure of the *shi* focus but also in the constructions involving overt extraction.[16] Consider the patterns containing a clause assigned Case by *dui* 'to', *ba* and *bei*. Extraction of the subject of such a clause is not possible as in (63), in contrast to (64), which allows the embedded subject to be topicalized:

(63) a. Lisi, wo [dui [*(ta) bu hui   lai]]   hen bu gaoxing.
         Lisi I   to   he not will come very not happy
         'Lisi, I am not happy that (he) will not come.'

     b. Lisi, wo [ba [*(ta) bu hui   lai]]   dangzuo shi hen zhongyao de shi.
        Lisi I   ba   he not will come regard   be very important de matter
        'Lisi, I took it as important that (he) was running continuously.'

     c. Lisi, wo [bei [*(ta) yizhi   ku-zhe]] fansi le.
        Lisi I   bei   he continuously cry-Dur annoyed
        'Lisi, I was annoyed by (his) crying continuously.'

(64) Lisi, wo renwei/yiwei/cai   (ta) bu hui lai.
       Lisi I   think/thought/guess   he not will come
       'Lisi, I think/thought/guess that (he) would not come.'

In addition, only argument question words can appear inside a clause in the relevant Case positions and be interpreted as having scope outside the clause.

(65) ta dui shei hui bei qing   lai   yanjiang hen gaoxing ne?
      he to who will by invite come speak   very happy   Q
      'Who is x such that he is happy that x will be invited to speak?'

(66) a.*ta dui ni   weishenme yao yanjiang hen gaoxing ne?
          he to you why   will speak   very happy Q
         'Why(x) is he happy you will speak (x)?'
cf. b. ta dui ni   weishenme yao yanjiang hen haoqi   ma?
          he to you why   will speak   very curious Q
         'Is he curious about why you will speak?'

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[16] It is not possible to extract from within an appositive clause, either, even though the term "complex NP constraint' generally is not used to accommodate apposition cases.

(67) a. *ta dui ni yao-bu-yao   yanjiang hen gaoxing ne?
         he to you will-not-will speak   very happy   Q

cf. b. ta dui ni yao-bu-yao   yanjiang hen haoqi   ma?
        he to you will-not-will speak   very curious Q
        'Is he curious about whether you will speak?'

(68) ta ba shei yao yanjiang kande hen   zhongyao ne?
     he to who will speak   regard very serious   Q
     'Who is x such that he takes it seriously that x will speak?'

(69) a.*ta ba ni   weishenme yao yanjiang kande hen zhongyao ne?
         he to you why   will speak   regard very serious   Q
         'Why(x) does he take seriously he will speak (x)?'

cf. b. ta dui ni   weishenme yao yanjiang kande hen zhongyao ma?
        he to you why   will speak   regard very serious   Q
        'Does he take seriously about why you will speak?'

(70) a. *ta ba ni yao-bu-yao   yanjiang kande hen zhongyao ne?
         he to you will-not-will speak   regard very serious   Q

cf. b. ta ba ni yao-bu-yao   yanjiang kande hen zhongyao ma?
        he to you will-not-will speak   regard very serious   Q
        'Does he take seriously whether you will speak?'

The fact that the clauses following *dui/ba/bei* behave like islands seems to support the proposal that these clauses are not what they appear to be. The structures are more complicated: there is a covert noun (phrase) – complex NP structures. Unfortunately, resorting to the complex NP constraint is not the only possibility. The unacceptable patterns discussed above involve extraction from a constituent on the left branch of the tree structures. Even though the nature of the left-branch condition is not clear (e.g., see Kennedy and Merchant 2000 for the claim that the left-branch condition is a PF phenomenon and see the variations regarding the relevance of left-branch condition in different types of languages such as Bošković 2005, Corver 1990, 1992, among many others), it is still a possible factor. Therefore, we can only claim that the facts regarding extraction are compatible with a complex NP structure but do not exclusively argue for it.[17]

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[17] Nonetheless, it is relevant to point out that the constituents following *dui, ba* and *bei*
are all arguments (thematically-marked). Tsai (1995) notes that the *dui* phrase is selected
by the verb or adjective. The object of *ba/bei* are both arguments among the layers of
structures constituting the predicates of sentences (for the details of possible analyses on

Still, there is some evidence from the postverbal clausal complement that supports the more complex structure. Recall that some verbs can assign Case to their clausal complements and the nominal conjunction word *he* or *gen* can conjoin such clausal complements, as in (59b), repeated below:[18]

(59) b. wo zhidao Zhangsan keyi lai   he/gen Lisi ye keyi lai (zhe liang-jian shi).
     I know Zhangsan can come and   Lisi also can come the two-CL matter
     'I know (the two matters) that Zhangsan can come and Lisi can also come.'

As expected, the *shi* focus is not possible in this pattern, neither an adjunct *wh*-question with scope outside the clausal complement:

(71) *wo zhidao Zhangsan shi keyi lai   he/gen Lisi ye   shi keyi lai
     I know Zhangsan be can come and   Lisi also be can come
     (zhe liang-jian shi).
     the two-CL matter
     'I know (the two matters) that Zhangsan indeed can come and Lisi indeed can also come.'

(72)*ni xiangxin Zhangsan weishemne keyi lai he/gen Lisi ye weishenme keyi lai
     you believe Zhangsan why   can come and Lisi also why   can come
     (zhe liang-jian shi) ne?
     the two-CLmatter Q
     'Why(x) you believe Zhangsan can come(x) and Lisi can also come(x)?'

6. Conclusion

It is clear that Case-marked positions all allow NPs and NPs are assigned Case. We argued that the occurrence of clauses in the same positions as Case-marked NPs actually is deceptive. The new tools available from the study of conjunction and null objects helped make the discovery. The relevant clauses have more complex structures. They are complex nominals and Case is assigned to the nominal. The clause itself is not assigned Case. This is why clauses are possible in the contexts where Case is not assigned and NPs are not possible—we are back to the proposal by Pesetsky that the Case

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ba/bei, see Li 2002 on *ba*, Huang, Li and Li 2009 on *ba* and *bei*). Chinese may be considered as a head-final language (Li 1985, 1990). It would be important to investigate the nature of the Left Branch Condition in head-final languages.

[18] The postverbal position can be ambiguous: Case marked or non-Case marked. A verb can optionally assign Case in Chinese, as argued for in Li (1985, 1990). An extraposition option might also be entertained.

filter applies to NPs, not to clauses[19] and that c-selection can still be derived from s-selection interacting with Case.

To complete the paradigm, we should point out that, just like their English counterparts, non-Case marked clauses cannot undergo A'-movement, leaving variables in need of Case. Recall that the complement clauses of *happy/afraid* in (73) are not assigned Case, as illustrated by the unacceptability of topicalization in (74), in contrast to the possibility of topicalizing the clausal complement when Case is available as in (75):

(73) a. I believe that Mary is happy that Charles is leaving.
      b. I know that Neil is afraid that he computer will break down.

(74) a. *[That Charles is leaving], I believe that Mary is happy __.
      b. *[That the computer will break down] I know that Neil is afraid ___.

(75) a. [That Charles is leaving], I believe that Mary knows __.
      b. [That he computer will break down] I know that Neil understands ___.

The same contrast is found in Chinese:

(76) a. ta shuo tamen renwei/cai Lisi hui lai.
       he say   they   think/guess Lisi will come
      'He said they thought/guessed that Lisi would come.'

     b. * Lisi hui lai,   ta shuo tamen renwei/cai.[20]
          Lisi will come he say   they   think/guess

(77) a. ta shuo tamen zhidao/bu xiangxin Lisi hui lai.
       he say   they   know/not believe Lisi will come
      'He said they knew/did not believe that Lisi would come.'

     b. ta shuo, Lisi hui lai,   tamen zhidao/bu xianxin.
        he said   Lisi will come they   know/not believe
      'He said, Lisi would come, they knew/did not believe.'

The correlation between Case and NPs (including variables) does not hold with clauses. This means that clauses in Chinese are not in Case positions, just as in English. The occurrence of clauses in Case-marked positions is only apparent. Therefore, we can

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[19] Li (1985, 1990) argues that non-argument NPs such as duration phrases also receive Case. Some languages overtly case mark such NPs, such as Korean.
[20] A more complex sentence is created here to avoid the possibility that 'they/think/guess' is used as an afterthought remark.

maintain the proposal that the notion of c-selection can be derived from s-selection and Case assignment.

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Logophoricity and ziji

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Huang and Liu (2001) argue that there are essentially two different uses of the bare reflexive: *ziji* as a syntactic anaphor subject to the Binding Condition A, and *ziji* as a pragmatic logophor. Drawing on Sells'(1987) notion of logophoricity, Huang and Liu further claim that the availability of the relevant *de se* scenario is necessary for the logophoric reading of *ziji*. I argue that Huang and Liu's account of logophoric *ziji* is problematic. First, sentence-free *ziji* is not linked with the speaker by default; second, *de se* attitude cannot be the necessary condition of logphoric *ziji*; third, the analysis of the blocking effect and the person asymmetry as a result of a pragmatic perspectual strategy is inconclusive. Their argument of direct-discourse paraphrases changes the truth-condition of the original sentence, and when the sentence is properly rewritten, the analysis does not apply because there is no conflict of perspective.

1. Introduction

The Chinese reflexive pronoun *ziji* has long been an interest to linguists for the reason that being a reflexive, it is theoretically subject to Binding Condition A, but in reality it often is not. The fact that *ziji* can be long-distance bound, i.e. not bound in its local governing category(GC) poses a threat to the Binding Theory. To account for the behavior of *ziji*, it is often argued that the notion of a governing category must be expanded and/or a series of movements are involved in its apparent violation of Condition A. Recent studies, however, begin to argue for a dissimilation of *ziji*.

One such an account is Huang and Liu (2001). They argue that what licenses the long-distance binding is the logophoric use of *ziji*. There are essentially two different uses of the bare reflexive. *ziji* is in some contexts a syntactic anaphor subject to the Binding Condition A, but in some other contexts, *ziji* is a pragmatic logophor. Furthermore, Huang and Liu claim that the dividing line between the two uses can be drawn syntactically.

I argue that the evidence Huang and Liu provide for the logophoric *ziji* and the defining logophoric feature they assign to it can both be countered. Moreover, their analysis of the blocking effect and the person asymmetry fail as an satisfying answer.

2. Source, Self, Pivot and consciousness

The notion of logophor is first introduced in association with African languages that have a special type of pronouns— pronouns that in indirect discourse refers exclusively back to the agent 'whose speech, thoughts, feeling, or general state of consciousness are reported' (Clements (1975)) It has been argued that Icelandic *sig* and Japanese *zibun* are also instances of logophors.

Sells (1987) proposes that there is no unified account of logophoricity, rather the antecedent of a logophor is associated with three primitive roles–

(1) a. Source: the one who is the intentional agent of the communication.
b. Self: the one whose mental state or attitude the proposition describes.
c. Piovt: the one with respect to whose(temporal-spatial) location the content of the proposition is evaluated.

A logophoric pronoun is linked with some NP in virtue of the fact that the NP plays any of the above roles. That is, a logophor is bound by the person whose (a) speech or thought, (b) attitude or state of consciousness, and/or (c) point of view, or perspective, is being reported.[1]

Drawing on the three primitive notions that Sells point out, Huang and Liu hold that there are enough evidence of ziji being a logophor. Furthermore, they extend Sells' idea and propose a hierarchy—'these three labels express a progressive degree of liberation in the linguistic expression of logohoricity, Source being the 'core', Self being the 'extended,' and Pivot yet further extended uses.'[2]

When one identifies herself as the internal agent, it is not difficult to see that the mental state she is reporting is also internal. When the state of mind is internal, the perspective taken will in turn be internal. That is, an internal Source necessitates an internal Self, and an internal Self obligates an internal Pivot. Moreover, Huang and Liu claim that a distinct feature of logophoric *ziji* is its connection with *de se* interpretation. Consider the following scenarios.

(2) S1: Zhangsan sees a pickpocket running away with someone's purse.
Zhangsan does not know that the stolen purse belongs to himself.
Zhangsan says, 'The thief stole that (guy's) purse!'

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[1] Not everyone agrees with Sells proposal though. For example, Reinhart and Reuland (1993) hold that 'deictic center' plays a crucial role in the interpretation of long distance bound reflexices; Kuno (1987) emphasizes the notion of empathy, which is similar to Pivot. Recently, Oshima (2007)argues that empathic binding and logophoric binding are closely related but should be distinguished. Moreover, Pan (2001) argues that the behavior of *ziji* is so different from any distinct property associated with logophoricity, therefore *ziji* cannot be a logophor.
[2] Huang and Liu (2001), p.18.

S2: Zhangsan sees a pickpocket running away with someone's purse; further, Zhangsan knows that it is his own purse that is stolen. Zhangsan says, 'The thief stole my purse!'

Both scenarios validate the use of *ta* as anaphoric to Zhangsan in (3). The speaker (the external Source) is able to use '*ta*(he)' as anaphoric to Zhangsan, so long as the purse in fact is Zhangsan's, with or without Zhangsan's awareness. By contrast, only S2 validates the use of *ziji* in (4). As (4) is a special case of (3), the *de se* scenario S2 is a special case of the *de re* scenario S1. Moreover, the use of the logophoric *ziji* obligates *de se* interpretation.

(3) Zhansan$_i$ shuo pashou$_j$ tou-le ta-de$_{i/\ j\ /k}$ pibao.
   Zhangsan say pickpocket steal-Perf his purse.
   Zhangsan$_i$ said that the pickpocket$_j$ stole his$_{i/*j/k}$ purse.

(4) Zhansan$_i$ shuo pashou$_j$ tou-le ziji-de$_{i/\ j\ */k}$ pibao.
   Zhangsan say pickpocket steal-Perf self's purse.
   Zhangsan$_i$ said that the pickpocket$_j$ stole his$_{i/*j/*k}$ purse.

Huang and Liu further argue that without the consciousness effect, it is very hard to obtain a long-distance binding of ziji in the following examples.

(5) a. Zhangsan$_i$ kuajian-le changchang piping ziji$_i$-de naxie ren$_j$.
     Zhangsan praise-Perf often criticize self-DE those persons
     'Zhangsan$_i$ praised those people who criticized him$_i$ a lot.'

   b. ??Zhangsan$_i$ kuajian-le houlai sha-si ziji$_i$-de naxie ren$_j$.
     Zhangsan praise-Perf later kill self-DE those persons
     'Zhangsan$_i$ praised those people who later killed him$_i$.'
     (Huang and Liu (43))

While Zhangsan may be aware of people's criticizing him in (5a), it is not very likely that in (5b) he can be conscious of the fact that he would be murdered later. Examples like (3), (4) and (5) lead Huang and Liu to conclude that the availability of a relevant de se interpretation is necessary for the logophoric *ziji*.

Besides the cases of long-distance *ziji*, sentence-free *ziji* also poses a problem for Binding condition A. When *ziji* occur in a sentence without any syntactic antecedent, it is hard to see how it can be an anaphor. On the logophoric account, nevertheless, such a the sentence can be seen as involving a logophoric *ziji* bound by the speaker (the external Source).

(6)   Zhe-ge mimi zhiyou ziji zhidao.
       This-CL secret only self know
       'Only myself knows this secret.'

3. Blocking effect
3.1. Blocking effect and person asymmetry

Intertwining Sells' primitive roles and the *de se* interpretation associated with *ziji*, Huang and Liu believe that the blocking effects—that the logophoric reading of *ziji* to its long-distance antecedent is sometimes blocked by other NP, can be explained. In addition, the intriguing person asymmetry of the blocking effect: a first/second-person pronoun may block a third-person long-distance antecedent, but not the other way round, can be accounted for.

ziji in (7) can be read as either bound by the long-distance antecedent Zhangsan or by the local antecedent Lisi. ziji can be interpreted either as a logophor or a locally bound anaphor. However, (8) has only one reading—'Zhangsan thinks that I am criticizing myself.' That is, *ziji* is only locally bound by the first-person pronoun '*wo* (I).' Similarly, (9) means 'Zhangsan thinks that you are criticizing yourself.' In both sentences, the long-distance binding of *ziji* is impeded by the presence of first and second-person pronouns *wo* and *ni*.

(7)   Zhangsan$_i$ juede Lisi$_j$ zai piping ziji$_{i/j}$.
       Zhangsan think Lisi at criticize self
       'Zhangsan$_i$ thinks that Lisi$_j$ is criticizing self$_{i/j}$.'

(8)   Zhangsan$_i$ juede wo$_j$ zai piping ziji$_{*i/j}$.
       Zhangsan think I at criticize self
       'Zhangsan$_i$ thinks that I$_j$ is criticizing self$_{*i/j}$.'

(9)   Zhangsan$_i$ juede ni$_j$ zai piping ziji$_{*i/j}$.
       Zhangsan think you at criticize self
       'Zhangsan$_i$ thinks that you$_j$ is criticizing self$_{*i/j}$.'

By contrast, the blocking effects do not occur in (10) and (11). *ziji* can be either long-distance bound by the first/second person pronoun or locally bound by the third person antecedent.

(10)   wo$_i$ juede Zhangsan$_j$ zai piping ziji$_{i/j}$.
       I think Zhangsan at criticize self
       'I$_i$ think that Zhangsan$_j$ is criticizing me$_i$ himself$_j$.'

(11) ni*i* juede Zhangsan*j* zai piping ziji*i/j*.
　　You think Zhangsan at criticize self
　　'You*i* think that Zhangsan*j* is criticizing you*i* himself*j*.'

3.2. Conflicts in perspectives

How are we to understand the blocking effect? A good answer must deal with the person asymmetry and explain both the occurrence of the blocking effect and the non-occurrence of it.

According to Huang and Liu, the blocking effect and the person asymmetry are best explained in terms of a perspective strategy. They propose that sentences with logophoric *ziji* can be paraphrased along the line with Kuno's direct discourse hypothesis. Thus, a logophoric ziji in the reported speech will turn into a first-person *wo* in the direct discourse as shown in (12).

(12) a. Zhangsan*i* juede Lisi*j* taoyan ziji*i/j*.
　　　Zhangsan think Lisi dislike self
　　　'Zhangsan*i* thinks that Lisi*j* dislikes him*i/j*.'

　　b. Zhangsan*i* juede, 'Lisi*j* taoyan wo*i/*j*.'
　　　Zhangsan think Lisi dislike me
　　　'Zhangsan*i* thinks, 'Lisi*j* dislikes me*i/*j*.'

As we learn from Sells, when *ziji* is used as a logophor, it is linked with the matrix subject whose thoughts are being reported. However, if *ziji* in (13) is a logophor bound by Zhangsan, the result is a chaotic perspective clash.

(13) a. Zhangsan*i* juede wo*j* tzai piping ziji**i/j*.
　　　Zhangsan think I at criticize self
　　　'Zhangsan*i* thinks that I*j* am criticizing him**i/j*.'

　　b. Zhangsan*i* juede, 'wo*j* tzai piping ziji**i/j*.'
　　　Zhangsan think I at criticize self
　　　'Zhangsan*i* thinks that "I*j* am criticizing him**i/j*." '

There are two occurrences of *wo* in the paraphrased direct discourse complement. Under the intended logophoric reading, the first *wo* refers to the external speaker of the entire sentence, i.e. the person reporting Zhangsan's thought, and the second *wo* refers to Zhangsan, the internal speaker of the direct discourse complement. Since the two occurrences of wo are anchored in different sources, such a reading is infelicitous. Note how the logic here goes indirectly: it is because of the perspective conflict it involves that (13) is unacceptable under the intended reading. Huang and Liu claim that this explains

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why a logohporic reading of *ziji* is blocked.

A similar case involves the second-person pronoun *ni*. Again, in the intended logophoric reading, *ni* refers to the addressee with respect to the external speaker, while wo refers to Zhangsan, the internal speaker. The different sources linked with *wo* and *ni* in the direct discourse complement are confusing. It is reasonable to assume that our perspective strategy should rule out such perplexing confusion. The logophoric reading is hence blocked and *ziji* cannot refer to Zhangsan.[3]

To summarize, Huang and Liu argue that when *ziji* is used as a logophor, certain perspective strategy is at work to make sure that clashes of perspectives are avoided. The rationale of their explanation is that presumably indirect discourse with logophoric pronouns/reflexives can be rewritten into direct discourse with reference to the first person pronoun. Yet sometimes the paraphrases result in a confusing state, so the long-distance binding of these 'logophors' had better not be available. In other words, when some such rewrites produce undesirable conflicts in perspectives, it is only reasonable to conclude that these sentences should not be paraphrased in the first place, i.e. the pronouns/reflexives in the indirect discourses are not to be read logophoricaly.

4. Counter-argumet I: sentence free ziji

Following Yu (1992)Yu (1996), Huang and Liu note that *ziji* can be completely unbound syntactically and in these cases must refer to the speaker. They hold that sentence free *ziji* should be interpreted logophorically and is, by default, long-distance bound by the speaker (the external Source) as shown in (6).[4]

But what does it mean that a logophoric *ziji* is bound 'by default by the external Source' ? Why is the external Source the default binder?

In (14), *ziji* is naturally read as referring to the addressee and/or the generic second person. An intuitive setting for this is when (14) is uttered by a teacher or parent. Similarly, *ziji* in (15) refers to the addressee and the addressee is asked (demanded) not to intervene. In (16) there are two occurrences of *ziji*, while the second *zjii* is anaphoric to the first one, it is not clear that the first occurrence of *ziji* is by any means associated with the external speaker 'by default.' It might be understood as speaking towards the

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[3] Huang and Liu further explain that third person NP is not obligatorily anchored to the external speaker and is free to be anchored to the internal speaker, so the third person NPs do not induce blocking. This is the case even when the matrix sub ject (internal speaker) is the first or second person.

[4] Of course, one may object that when there is no syntactic binder, the so-called binding is legitimate only in a very weak sense. Li (1991) thinks that sentence-free *ziji* is referential, and that is why it can be used alone. For the sake of Huang and Liu's argument, here I assume that sentence-free *ziji* is 'bound' in the discourse when it is correlated with some salient person, and I use 'bound by the speaker/addressee' and 'refer to the speaker/addressee' interchangeably with respect to sentence-free *ziji*. I discuss the issue of sentence-free *ziji* as 'bound' in the last section.

addressee that 'you should be responsible for the trouble you make,' or simply a universal claim that 'everyone should be responsible for the trouble they make.'[5]

(14) zuo ziji-de gongke.
     do self-DE homework
     'Do your own homework.'

(15) guan hao ziji-de shi (jiu hao).
     Manage well self-De matter (only good)
     'Mind your own business.'

(16) Ziji chuang-de huo ziji fuze.
      Self rush-DE trouble self responsible
      'Whoever causes the trouble should be responsible for it.'

Pan (2001) points out how a sentence-free *ziji* in questions is not necessarily bound by the external speaker.

(17) Ziji wei-she-me bu qu ne?
          self why   no go Q
          'Why don't self(you) go?'   (Pan (29))

Pan also notes that (17) can be used to talk about a third party salient in the discourse. However, I do not agree with his analysis that *ziji* refers to the addressee. Rather, I think *ziji* is ambiguous here; it might be referring to either the addressee or the speaker. In fact, there are two elements in (17) that complicate the interpretation of *ziji*—the first is that this sentence is in the form of a question; the second is the verb '*qu*(go).'
Consider the following scenarios.

(18) S1: The logic assignment is diffcult. After days of struggle, I finally finished the it the night before it is due. With a sigh of relief, I said, 'I have finally finish my homework.'
     S2: My friend, Alex, had been postponing working on his logic homework until the very night before the assignment is due. After hours of struggle (he did not sleep for the whole night), he finally got it done the next morning. I said to him, '(You) have finally finish your homework.'

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[5] When (16) is read as a universal claim, it actually implies that 'You should be responsible for the trouble you make' as well as 'I should be responsible for the trouble I make.'

(19) Zhongyu zuo wan ziji-de gongke le.
　　　Finally do finish self-DE homework Perf
　　　'Self(I/you) have finally finished the homework.'

The declarative sentence (19) is acceptable when uttered in both S1 and S2 described in (18); *ziji* can be interpreted as referring to either the speaker or the addressee. Meanwhile, the intuition of reading (19) along the lines with something like S1 is stronger. Specifically if *ziji* is placed at the beginning of the sentence, it is all more likely that *ziji* refers to the speaker.

(20) S1': The logic assignment is difficult. After days of struggle, I finally finished the logic homework the night before the assignment is due. With an awe of disbelief, I asked myself, 'Have I finally finish my homework?'

　　S2': My friend, Alex, had been postponing working on his logic homework until the very night before the assignment is due. He was working on it when I went to bed. Next morning I woke up and Alex did not seem to sleep for the whole night. I asked him, 'Have you finally finish your homework?'

(21) Zhongyu zuo wan ziji-de gongke le ma?
　　　Finally do finish self-DE homework Perf Q
　　　'Have self(I/you) finally finished the homework?'

Both scenarios depicted in (20) validate the utterance of (21), so again *ziji* can be bound by either the speaker or the addressee. However, without the relevant scenario such as S2', it is more likely that *ziji* in (20) is understood as referring to the addressee, since it is most common that a teacher and/or parent asks the student/child if she has finished her homework.

Two points of interest to be noted. First, in (19) and (21), when *ziji* is interpreted as referring to the speaker, the speaker is just the addressee. The utterances of (19) and (21) are mental monologues where the speaker is talking and asking a question to herself. So it may be more coherent to say that the 'default binder' of sentence-free *ziji* is the addressee, and in the appropriate scenarios, the addressee and the speaker are one and the same. Second, the fact that *ziji* is more prominently interpreted as bound by the speaker in the declarative sentence (19) but more so as bound by the addressee in the question form (21) is suggestive; questions, it seems, can initiate a change of focus or a shift of context.[6]

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[6] McCready (2007) argues that questions is an environment where context shift takes place. The

Verbs *lai* and *qu* usually indicate movements in the space.[7] *lai* is similar to English 'come' and suggests movements 'from point B to point A' ; *qu* is is comparable with 'go' and means that a person moves 'from point A to point B.' In both cases, point A is the current location of the speaker. Nevertheless, the behavior of *lai* and *qu* are not exactly parallell. With *qu*, the reference point A may not necessarily be the speaker's current location; when the speaker uses a *qu* sentence as an imperative and demands her addressee to move to some place, the addressee's current location is point A.[8] With this difference in reference points in mind, it is quite obvious that the sentence-free *ziji* in (22a) and (22b) have divergent orientation. *ziji* in (22a) can refer either to the speaker or the addressee, but in (22b) it is more likely to pick out the addressee as the referent. Note, however, (22b) have two other idiomatic interpretations. First, it can mean 'help yourself,' in which case *ziji* refers to the addressee. Second, the speaker may use (22b) to express that she does not need others' help, something like 'I can handle it myself ' and *ziji* refers to the speaker.

(22) a. Ziji qu.
     self go
     'Self go.'

    b. Ziji lai.
     self come
     'Self come.'

All these interpretations survive in questions. For (23a), *ziji* may refer either to the speaker or the addressee, since *qu* may have a different reference point other than the speaker's current location. For (23b), *ziji* refers to the addressee under the spatial movement interpretation, but under the relevant idiomatic interpretations as explained above, *ziji* may pick out either the addressee or the speaker.

(23) a. Keyi ziji qu ma?
     can self go   Q
     'Can self go?'

    b. Keyi ziji lai ma?
     can self come Q

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shit is analyzed in terms of monstrous operators.

[7] *lai* and *qu* can be put in rationale construction. For example, 'John na yizhi lai/qu da huiren. (John took a chair to hit the bad guy)'

[8] In the following interpretation, I ignore the readings where *ziji* is bound by a salient third party in the discourse.

'Can self come?'

What is shown from the above examples is that directionals *lai* and *qu* do have corresponding deictic centers and they help to make salience of an agent, but the problem is that this salience is very easily overwritten. Going back to Pan's example (29), Pan disagree with Huang and Liu that sentence-free *ziji* is by default bound by the speaker and argues that in this case *ziji* is bound by the addressee or the salient third party in the discourse. But his interpretation does not fully match the array of *ziji* interacted with *lai* and *qu*.

On the other hand, Huang and Liu do not explain why the default binder is the external speaker, nor do they discuss what the default rule really is and what happens in the non-default cases.[9] Moreover, given that Huang and Liu adopt the direct discourse hypothesis, how does the direct discourse rewrite mechanism work on sentence-free *ziji*? How would it help us to understand why ziji may sometimes refer to the speaker and sometimes the addressee? To sum up, treating sentence-free *ziji* as bound by the speaker by default is an over-simplification, and it does not seem to square with what Huang and Liu say about logophoric *ziji* in general.

5. Counter-argument II: source, self, consciousness and de se
5.1. Where the source is

Huang and Liu claim that there is a hierarchy among the three primitive notions associated with logophoricity: Source is the most fundamental, then Self, while Pivot is the least. In (24), when *ziji* is read logophorically, the long-distance antecedent Zhangsan is the internal Source of the reported speech. Further, by taking Kuno's direct discourse hypothesis literally, (24) can be taken as Zhangsan saying, 'Lisi said that that book hurt me!'

> (24) Zhangsan$_i$ shuo Lisi$_j$ tingshuo naben shu hai-le ziji$_{i/j}$.
> Zhangsan say Lisi hear that-CL book hurt-Perf self
> 'Zhangsan$_i$ said that Lisi$_j$ said that that book hurt himself$_{i/j}$ '

By contrast, *ziji* is obligatory long-distance bound by Zhangsan in (25a), but Zhangsan is obviously not the internal Source in this case. Moreover, (25b), a rewrite of the indirect discourse into direct discourse with *ziji* turning into *wo* does not work. What

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[9] Aside from the sentence-free *ziji*, Pan argues that *ziji* can be interpreted as either Zhangsan, Lisi, or even the speaker (external Source, indicated by index k) in the following sentence: 'Zhangsan$_i$ zhidao Lisi$_j$ xihuan ziji$_{i/j/k}$ ma? (Does Zhangsn$_i$ know that Lisi$_j$ like self$_{i/j/k}$?)' Pan (2001) example (30). The interesting question here is how, when there are already two possible binders, the external Source can still be a binder of *ziji*. Is there a hierarchy of processing? What might be the default binder and why?

is infelicitous about (25b) is that the real internal Source is Lisi and Zhangsan is the 'intermediate' Source; it is not all clear who the speaker of the direct discourse element really is.

(25)　a. Zhangsan$_i$ cong Lisi$_j$ nar tingshuo naben shu hai-le ziji$_{i/*j}$.
　　　　Zhangsan from Lisi there hear that-CL book hurt-Perf self
　　　　'Zhangsan$_i$ heard from Lisi$_j$ that that book hurt himself$_{i/*j}$.'

　　b. ?? Zhangsan$_i$ cong Lisi$_j$ nar tingshuo, 'naben shu hai-le wo$_{i/*j}$.'
　　　　Zhangsan from Lisi there hear that-CL book hurt-Perf I
　　　　'Zhangsan$_i$ heard from Lisi$_j$, "That book hurt me$_{i/*j}$." '

5.2. De se attitude

　　Huang and Liu claim that for *ziji* to qualify as a logophor, its long-distance antecedent must be able to ascribe to herself a corresponding belief regarding the speech, thought or attitude reported. As shown in (3), (4) and (5), a relevant *de se* scenario is crucial.

　　Nevertheless, evidence presents itself against the idea that *de se* self-ascription is necessary for the long-distance binding of *ziji*. The verb *mingbai* (to know, to understand) is a presupposition trigger[10]; like its English counterpart, *mingbai* is factive and what follows after it must be true for the sentence to be felicitous. So the scenario that validates (26) is one where Lisi is badmouthing Zhangsan and Zhangsan is fully aware of this criticism.

(26)　Zhangsan$_i$ mingbai Lisi$_j$ zai piping ziji$_{i/j}$.
　　　Zhangsan understand Lisi at criticize self
　　　'Zhangsan$_i$ understands that Lisi$_j$ is criticizing self$_{i/j}$.'

　　While (26) itself seems unproblematic, its negations are worth investigation. When the negation takes the narrow scope, the result is (27), true when Zhangsan knows that he is not the target of Lisi's verbal attack. The wide scope negation yields (28), true when Zhangsan is criticized by Lisi yet lacks the relevant understanding.

(27)　Zhangsan$_i$ mingbai Lisi$_j$ mei zai piping ziji$_i$.
　　　Zhangsan understand Lisi not at criticize self
　　　'Zhangsan$_i$ understands that Lisi$_j$ is not criticizing self$_i$.'

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[10] Other such attitude verbs include '*xiaode* (to know, to be aware of)' and '*qingchu* (to be clear about).'

(28) Zhangsan$_i$ bu mingbai Lisi$_j$ zai piping ziji$_i$.
       Zhangsan not understand Lisi at criticize self
       'Zhangsan$_i$ does not understand that Lisi$_j$ is criticizing self$_i$.'

There is no doubt that *ziji* is long-distance bound by Zhangsan in both (27) and (28), but a *de se* belief can be ascribed to Zhangsan in (27) only. The problem with (28) is that even though Zhangsan can play the roles of Source, Self and Pivot, there is no relevant *de se* belief that he has regarding whether Lisi is criticizing him.

What is shown from these examples is that the availability of a *de se* belief is not necessarily required for *ziji* to be long-distance bound. There is no *de se* belief, true or false, that can be ascribed to Zhangsan The truth of (28) relies on the failed presupposition—that Zhangsan does not understand he is belittled. Besides, it is not even that an external speaker can make a false report regarding whether Zhangsan has such a belief.

Two more examples further the argument that *de se* attitude is not a necessity. In (29), the verb '*wang*-le (forget)' indicates that Zhangsan does not possess the relevant belief at the time of speech; in (30), Zhangsan simply 'huaiyi (suspect)' that Lisi lied to him, but is not fully convinced so.

(29) Zhangsan$_i$ wang-le Lisi$_j$ pian-guo ziji$_i$.
       Zhangsan forget-Perf Lisi lie-Perf self
       'Zhangsan$_i$ forgets that Lisi$_j$ lied to self$_i$.'

(30) Zhangsan$_i$ huaiyi Lisi$_j$ pian-le ziji$_i$.
       Zhangsan suspect Lisi lie-Perf self
       'Zhangsan$_i$ suspects that Lisi$_j$ lied to self$_i$.'

6. Counter-arugment III: from Zhangsan's point of view

Suppose we grant the properties associated to logophoricity and set asides the problem regrading sentence-free *ziji* and the issue of whether the so-called logophoric *ziji* mandates de se interpretation. Let us further assume that when *ziji* is used logophorically, the indirect discourse complement can be rewritten into a direct discourse complement. Crucial to their analysis is the way Huang and Liu delineate the content of the direct discourse complement. To validate their explanation of the blocking effect as a result of perspective conflicts, we must take a closer look of how the internal speaker's thought is/should be presented.

6.1. Direct discourse

Suppose Bill is the speaker and he reports, 'John says that I am smart.' The reported speech (or proposition) is 'Bill is smart.' How would John put it?

When John says it, he can simply utter, 'Bill is smart,' or 'You are smart,' when

Bill is the addressee. Or, perhaps what John actually says is, 'He is smart,' with a finger pointing to Bill. All of the above scenarios have the same truth conditions. (32) is the Chinese counterpart of (31).

(31) a. John says that I am smart.
       b. John says, 'Bill is smart.'
       c. John says, 'You(addressee=Bill) are smart.'
       d. John says, 'He(deictically referring to Bill) is smart.'

(32) a. John shuo wo he congming.
         John say I very smart
         'John says that I am smart.'

      b. John shuo, 'Bill he congming.'
         John say Bill very smart
         'John says, "Bill is smart." '

      c. John shuo, 'ni he congming.'
         John say you very smart
         'John says, "You(addressee=Bill) are smart." '

      d. John shuo, 'ta he congming.'
         John say he very smart
         'John says, "He(deictically referring to Bill) is smart." '

By contrast, *ziji* in the reported speech will turn into '*wo*' in the direct quotation as shown in (33), (34) an (35). This is so when there is no intervening NPs between *ziji* and its antecedent, regardless of the person feature of the antecedent.[11] Note that in all these reconstructions from indirect discourse into direct discourse, the paraphrases preserve the truth conditions of the original sentences.[12]

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[11] I consider the reconstructions with pronouns only. Of course, with 'John shuo ziji he congmin (John said he is smart)', what John literally said can be 'John is smart,' or 'Mary's husband is smart' (suppose John and Mary are married).

[12] Since there is no intervening NPs, *ziji* in these sentences are locally bound. Notice that according to Huang and Liu, sentence-free *ziji* is logphoric, and long-distance bound *ziji* must be logophoric, the question now is whether locally bound *ziji* can be logophoric as well. If we can successfully reconstruct the indirect discourse into a corresponding de se direct discourse, may we also say that the locally bound *ziji* is a logophor?

(33) a. Wo shuo ziji he congming.
      I say self very smart
      'I say that I am smart.'

    b. Wo shuo, 'wo he congming.'
      I say I very smart
      'I say, "I am smart." '

(34) a. Ni shuo ziji he congming.
      you say self very smart
      'You say that you are smart.'

    b. Ni shuo, 'wo he congming.'
      you say I very smart
      'You say, "I am smart." '

(35) a. Ta shuo ziji he congming.
      he say self very smart
      'He says that he is smart.'

    b. He shuo, 'wo he congming.'
      he say I very smart
      'He says, "I am smart." '

6.2. Direct discourse and blocking

    Back to sentences with *ziji* and intervening NPs. Suppose Lisi is the speaker (external Source), in (36) it is Zhangsan's thought that is being reported. (36b) is how Huang and Liu paraphrase the indirect discourse complement to the direct discourse complement. (36c) and (36d) are, however, what I argue the reconstructions ought to be.

(36) a. Zhangsan juede wo zai piping ziji.
      Zhangsan think I at criticize self
      'Zhangsan thinks that I am criticizing self.'

    b. ??Zhangsan$_i$ juede, 'wo$_j$ zai piping wo$_i$.'
      Zhangsan think I at criticize I
      'Zhangsan$_i$ thinks, "I$_j$ am criticizing me$_i$." '

    c. Zhangsan$_i$ juede, 'Lisi$_j$ zai piping wo$_i$.'
      Zhangsan think Lisi at criticize I
      'Zhangsan$_i$ thinks, "Lisi$_j$ is criticizing me$_i$." '

    d. Zhangsan*i* juede, 'ni*j* zai piping wo*i*.'
      Zhangsan think you at criticize I
      'Zhangsan*i* thinks, "You(addressee=Lisi)*j* is criticizing me*i*." '

    e. Zhangsan*i* juede, 'ta*j* zai piping wo*i*.'
      Zhangsan think he at criticize I
      'Zhangsan*i* thinks, "He(deictically referring toLisi)*j* is criticizing me*i*." '

As shown in (33), (34) and (35), *ziji* will be rewritten as *wo* in the direct discourse paraphrases, because the perspective has been shifted from that of the external to the internal speaker.[13] Likewise, *ziji* in (36a) turns into *wo* in the direct discourse. There are two occurrence of *wo* in (36b); while the second one is a rewrite from *ziji* and refers to Zhangsan, what the second *wo* refers to is curious.

Presumably, it is the Lisi-refering *wo* from (36a). Haung and Liu use (36b) to illustrate why blocking exists. It is because the first *wo* is anchored to the external speaker but the second *wo* to the internal speaker that the different sources make the sentence confusing, and our perspective strategy block such processing. In other words, *ziji* in (36a) cannot be logophorically bound by Zhangsan.

I agree that it is disastrous if a sentence contains two (or more) occurrences of *wo* anchored to divergent sources. I also agree that a rational perspective strategy would not be happy to see such a disaster. However, I have problem with how the indirect discourse is paraphrased; that is, I do not think the reconstruction of the direct discourse complement is properly done in Huang and Liu's analysis.

To begin with, the content of the direct discourse is supposed to be from Zhangsan's point of view. Second, in direct discourse, the first person *wo* can only refer to the internal speaker. This is why in (31) and (32) there is no 'I' or *wo* in the direct discourse paraphrases. Hence, there is no way Zhangsan can be think, 'I (referring to the external speaker=Lisi) am criticizing me(referring to Zhangsan).' Moreover, if in (36b) Zhangsan is thinking, 'I (Zhangsan) am criticizing me (Zhangsan),' its truth condition is very different from that of (36a).

The correct reconstruction of the direct discourse complement ought to be one in which *ziji* in (36a) turns into *wo* in the direct quote, and the original *wo* is changed accordingly at the same time. From Zhangsan's point of view, the external speaker is someone other than himself. (36c), (36d) and (36e) each show such a paraphrase.

In (36c), *wo* is replaced with Lisi, so it is clear that Zhangsan thinks that Lisi is criticizing Zhangsan. In (36d), *wo* turns into the second person *ni* in the direct quote, as the 'external speaker' is the 'internal addressee' with respect to Zhangsan. The resulting

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[13] In (33), the external speaker is also the internal speaker.

direct discourse complement is 'You are criticizing me.'

The external speaker *wo* can also be the third person *ta* salient in Zhangsan's mentalese. In this case, what Zhangsan thinks is, 'He is criticizing me.' In both (36d) and (36e), we can rewrite (36a) in such a way that *ziji* is interpreted as a logophor, and the references of the pronouns *wo*, *ni* and *ta* in the direct discourse complement are all relative to Zhangsan. Since they are all anchored to the internal Source, there will be no perspective conflicts.[14]

Contrary to what Huang and Liu argue, when Zhangsan's thought is properly represented, the intended logophoric reading of *ziji* is available . With due attention paid to the direct discourse complement, we see no perspective conflicts.

What follows from Huang and Liu's analysis is a dilemma. On the one hand, suppose the underlying strategy of their account is on the right track and the logophoric *ziji* can indeed be translated into sentences with direct discourse and reference to the first person, after a careful reexamination of the paraphrase mechanism, we see there is no blocking effect. That is, a long-distance bound *ziji* is still available even when the intervening NP is the first or second person. On the other hand, if we firmly believe that blocking does take place, then Huang and Liu's answer is wrong. We have to figure out a different explanation of why there is blocking.[15]

The following summarizes the general dialectic.

i.   We have a perspective strategy that aims to prevent confusion; if one reading of a sentence involves perspective conflicts, that reading is blocked.

ii.   Some sentences with presumably logophoric *ziji*, when rewritten with direct quotation, invoke conflicting perspectives.

iii.   Hence, a logophoric reading of *ziji* in such sentences are blocked.

iv.   But the above-mentioned sentences can be paraphrased into sentences with direct quotation without invoking perspective conflicts.

i.   Therefore either the logophoric reading of these sentences must be explained by factors other than the perspective strategy or there is no blocking of the logophoric reading of these sentences.

7. Conclusion

To conclude, the evidence is ample to counter Huang and Liu's analysis of *ziji*.

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[14] Similar cases can be made to the second-person intervening NP *ni*.

[15] Anand (2006) argues that there are in fact two kinds of *ziji*– one of LOG-Mandarian and one of IND-Mandarian. Drawing on a systematic split of felicity judgments regarding *ziji* sentences, Anand argues that the two dialects of Mandarian with respect to *ziji* each has its own set of rules. Very roughly, in IND-Mandarian, a second-person intervener would not block a first-person long-distance antecedent, but it would in LOG-Mandarian

First, they argue that the logohphoric account is applicable to all non-Condition A-abiding cases, including both the long-distance bound *ziji* and sentence-free *ziji*. But sentence-free *ziji* is never linked to the speaker by default and may well be associated with the addressee or receives a 'whoever' reading. Besides, if long-distance bound *ziji* is logophoric, then *de se* attitude is not a necessary condition of logophoricity; *ziji* can be long-distance bound even when the binder lacks the relevant *de se* belief. Third, the analysis of the blocking effect and the person asymmetry as a result of pragmatic perspectual strategy is inconclusive. Paraphrases that respect the original truth-condition shows no conflicts of
perspectives.

In other words, if the defining characteristics and properties Huang and Liu lay out for the logophoric *ziji* are meant to be the necessary conditions, their account is incorrect; if, on the other hand, they are meant to be simply the sufficient conditions, the theory is utterly inconclusive.

Lastly, there are a few interesting questions raised but not answered by Huang and Liu's approach. To begin, in many of the sentences discussed in this paper, *ziji* can either be locally bound or long-distance bound and of course it is 'Condition A-violating' long-distance cases that has been put into focus. The availability of both readings seem to indicate a duality of *ziji*, but is one more primitive or prominent than the other? When a competent speaker processes a sentence involving *ziji*, does she thinks of it first as an anaphor or a logophor? Second, while adopting Sells' three primitive roles of Source, Self and Pivot, Huang and Liu maintain that there is a rank of importance among the three and the order being Source, Self and then Pivot. Whether this indeed is the case is not that clear. Perhaps different languages emphasize on a different order. Ironically, however, Kuno's direct discourse hypothesis, which Huang and Liu readily accept and apply in their analysis of the blocking effects is based on the notion of empathy, or Pivot. Yet regarding the similarity and difference between logophoric and empathic binding, Oshima's study of the Japanese data is certainly of interest; it will be worth exploring if related evidence can be found in Chinese and other languages.

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Right Node Raising: Some Perspectives from Mandarin Chinese

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Three dominant approaches have been proposed in the literature to account for the Right Node Raising (RNR) construction, in which a single constituent seems to be shared by two independent clauses. This paper looks at the relevant construction in Mandarin Chinese and proposes that the across-the-board movement analysis and the PF-deletion analysis might have difficulty in accounting for the facts, while the multi-dominance approach, with some assumptions, can properly capture the relevant linguistic data. The examples in Mandarin Chinese thus provide a window as to what an adequate theory of RNR might look like.

1. Introduction

The Right Node Raising (RNR, henceforth) construction has been the focus of investigation since early generative tradition (see Ross (1967), Maling (1972)). The basic pattern is illustrated in (1). The part that seems to be shared is in bold.

(1) a. Mary suspected, and John believed, **that Tom was a secret agent**.
　 b. I believed that John bought, and Mary believed that Sue sold, **a book yesterday**.

There is an intuition that the object is not missing in the first conjunct in (1a). Rather, the sequence in bold, *that Tom was a secret agent*, seems to be shared in both conjuncts. In other words, what (1a) expresses is two propositions: Mary suspected that Tom was a secret agent, and John believed that Tom was a secret agent. The question is how to formally characterize this intuition. (At least) Three dominant approaches have been proposed in the literature to account for the RNR constructions, namely the **across-the-board movement approach** (Ross (1967), Maling (1972), Postal (1974), Williams (1978), Sabbagh (2003), etc), the **PF-deletion (ellipsis) approach** (Wexler and Culicover (1980), Kayne (1994), Wilder (1997), Bošković (2004), Ha (2006), An (2007), Clapp (2008), etc), and the **multi-dominance approach** (McCawley (1982), Wilder (1999), Chung (2004), Citko (2005), etc). Under these three approaches, (1a) may be illustrated in (2a-c) below.

(2) a. Mary suspected t_1 , and John believed t_1 , [that Tom was a secret agent]$_1$.
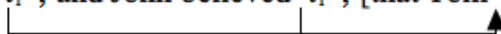
b. Mary suspected ~~that Tom was a secret agent~~, and John believed that Tom was a secret agent.

c.
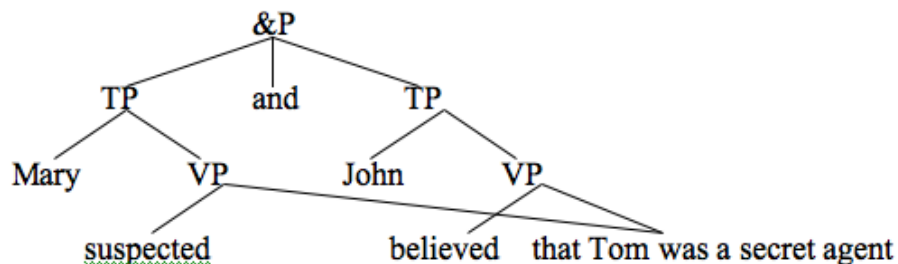
In (2a), the shared element *that Tom was a secret agent* originates in both conjuncts and undergoes across-the-board movement to the right edge of the clause. In (2b), similarly, the shared part appears in both conjuncts, but there is no movement operation. Rather, the shared part in the first conjunct stays in situ in syntax and is deleted in the PF component. In (2c), on the other hand, there is only one single instance of the shared element. The CP *that Tom was a secret agent* is dominated by two different VPs, one in the first conjunct, and the other in the second conjunct.

In this paper, I will provide some additional evidence from Mandarin Chinese to argue that the multi-dominance approach, but not the movement and the PF-deletion approaches, may best capture the facts. The organization of the paper is as follows. In section 2, I argue against the movement analysis of RNR. In section 3, I argue against the PF-deletion analysis of RNR. In section 4, I illustrate how the multi-dominance approach, with the assumption of "null &" and Parallel Merge, may capture the facts. Section 5 concludes the paper.

2. Against the Across-the-board Movement Analysis

Despite the seemingly fact that the relevant construction in (1) involves movements, it has long been observed in the literature (Wexler and Culicover (1980)) that RNR constructions do not have some properties of movements, such as island constraints, as in (3) and (4).

(3) a. John wonders when Bob Dylan wrote, and Mary wants to know when he recorded, **his great song about the death of Emmett Till**.
   b. *What does John wonder when Bob Dylan wrote?   (Abels (2003))

(4) a. I know a man who buys, and you know a woman who sells, **gold rings and raw diamonds from South Africa**.

b. *What do you know a man who buys?

As indicated in (3b), overt (leftward) movement across a wh-island will result in ungrammaticality (Subjacency violation), as expected. The grammaticality of (3a) thus casts doubt on the existence of movement operation in (3a). If (rightward) movement is involved in (3a), it should be as ungrammatical as (3b), contrary to facts. The same contrasts involving complex NP islands are given in (4a,b). In short, RNR construction does not seem to behave similarly to those constructions that clearly involve movements.

Using tests from its interplay with Antecedent Contained Deletion (ACD), I provide another piece of evidence from Mandarin Chinese to argue against the movement analysis. An English example involving ACD is illustrated in (5) below.

(5) John [$_{VP1}$ bought every book that Bill did [$_{VP2}$ e]]

In (5), VP2 is empty in content and is contained in VP1. Therefore, direct copying of VP1 to VP2 is not an option, since it will result in infinite regression. It has been proposed in May (1985) that the quantifier phrase *every book that Bill did* can undergo quantifier raising (QR) to resolve the infinite regression problem.

I propose that the example in (6) is also an instance of ACD construction, with the structure in (7).

(6) Zhangsan song ziji-de xiaohai Lisi song *e* de dongxi
    Zhangsan send self-gen child Lisi send   DE thing
    'Zhangsan sent his child the thing that Lisi sent.'   (√strict, *sloppy)

As indicated, (6) only has the strict reading, but not the sloppy reading, of *ziji-de xiaohai* 'self's child.' In other words, (6) only means 'Zhangsan sent Zhang's child the thing that Lisi sent Zhang's child,' but not 'Zhangsan sent Zhang's child the thing that Lisi sent Lisi's child.' This is expected, since VP2 is contained in VP1, a case of ACD. Therefore, directly copying of VP1 to VP2 is not available, and the *e* inside VP2 thus cannot be *ziji-de xiaohai* 'self's child.' This is why the sloppy reading of (6) is not available. On the other hand, it is possible to insert an empty pronoun to the position of *e* that is co-indexed with *ziji-de xiaohai* 'self's child' in VP1, which refers to *Zhangsan's child* under assignment. This will give us the strict reading.

(7)

```
                    TP1
              _____|_____
         Zhangsan        vP1
                      ____|____
                   send₁      VP1
                          _____|_____
                    self's child    V1'
                               _____|_____
                              t₁        NP
                                    _____|_____
                                   CP        thing
                                ____|____
                                      TP2
                                  _____|_____
                                 Lisi      vP2
                                       _____|_____
                                    send₂      VP2
                                           _____|_____
                                          e        V2'
                                                ____|____
                                               t₂
```
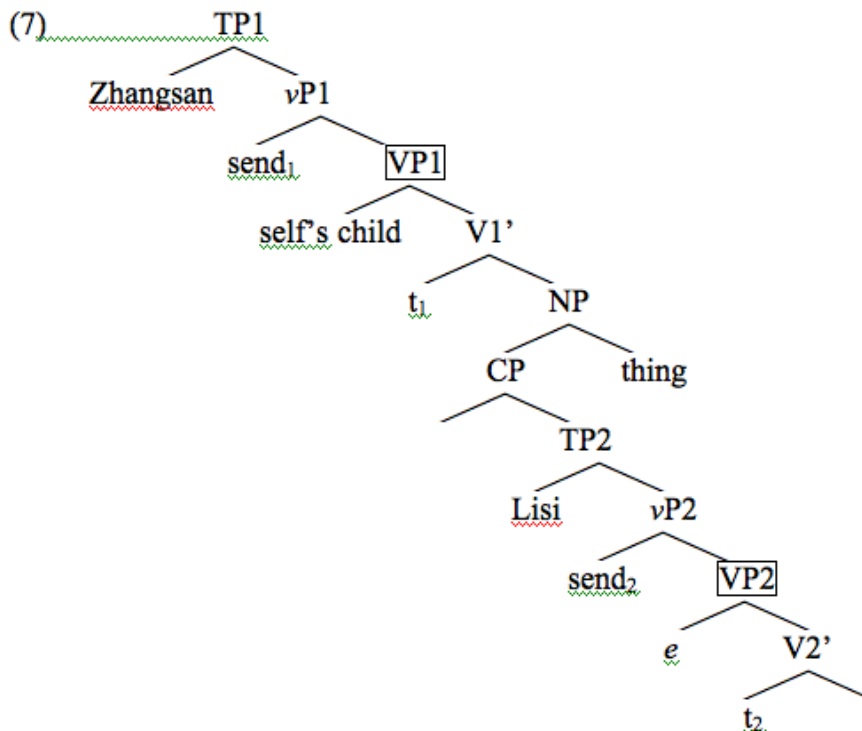
Interestingly, if the NP is pre-posed to a position where the containment relation is resolved (such as sentence initial position), then the sloppy reading (Zhangsan sent Zhangsan's child the thing that Lisi sent Lisi's child) is available, as indicated in the structure in (8) below. The sentence is given in (9).

(8)

```
                              TP1
                      _____|_____
                    NP₃                TP1
                 ____|____          ____|____
                CP     thing   Zhangsan    vP1
              ___|___                   ____|____
                  TP2                send₁      VP1
               ____|____                    _____|_____
              Lisi      vP2            self's child   V1'
                    _____|_____                   ____|____
                 send₂      VP2                  t₁        t₃
                        _____|_____
                       e        V2'
                              ____|____
                             t₂
```
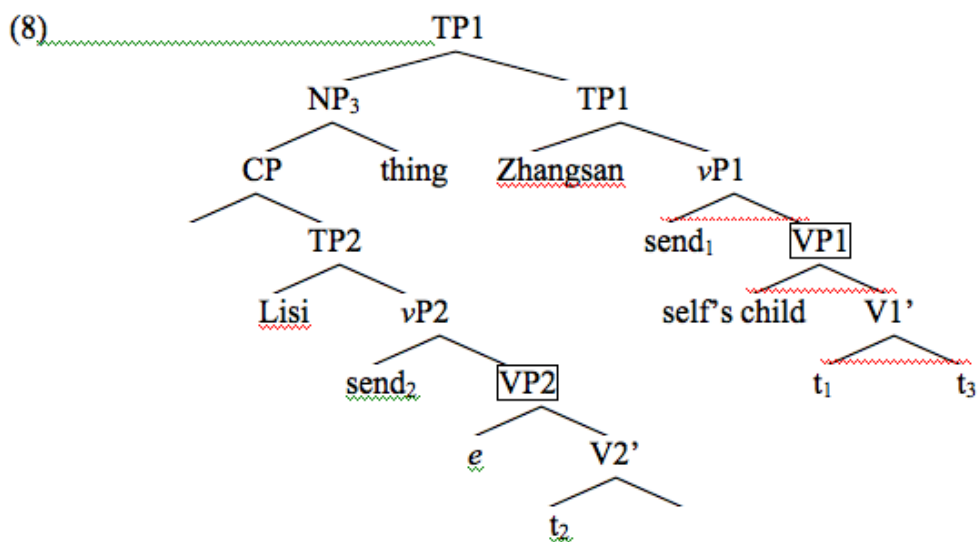
(9) Lisi   song *e* de dongxi, Zhangsan (ye) song ziji-de   xiaohai
    Lisi   send   DE thing, Zhangsan also send self-gen child
    'lit. The thing that Lisi sent, Zhangsan also sent self's child.'   (√strict, √sloppy)

This is expected since, with the structure in (8), VP2 is not contained inside VP1 anymore, and directly copying of VP1 to VP2 is an option. The *e* inside VP2 can be a copy of *ziji-de xiaohai* 'self's child.' This is why the sloppy reading is available. Of course, the use of an empty pronoun *pro* is still an option, and the strict reading is still available.

The paradigm in (6)-(9) lends supports to Huang's (1982) Isomorphism Principle, which states that the LF structure will resemble the structure in overt syntax. In other words, covert operation at LF is available in English, but not in Chinese. This is why while English may resort to covert operation to resolve infinite regression in ACD constructions, as in (5), such infinite regression must be resolved in overt syntax in Chinese, as shown in (8) and the availability of sloppy reading in (9).

Having examined the ACD examples, let us see how the RNR constructions interact with them. The relevant example is shown in (10).

(10) Zhangsan yuanyi   song ziji-de xiaohai, danshi Lisi bu yuanyi   song
     Zhangsan willing.to send self-gen child   but   Lisi not willing.to send
     ziji-de xiaohai [$_{NP}$ Wangwu song de   dongxi]
     self-gen child   Wangwu send DE thing
     'lit. Zhangsan is willing to send self's child, but Lisi is not willing to send self's
     child the thing that Wangwu sent.'   (√strict, *sloppy)

   = 'Zhangsan is willing to send Zhangsan's child the thing that Wangwu sent
     Zhangsan's child, but Lisi is not willing to send Lisi's child the thing Wangwu
     sent Lisi's child.'

   ≠ 'Zhangsan is willing to send Zhangsan's child the thing that Wangwu sent
     Wangwu's child, but Lisi is not willing to send Lisi's child the thing Wangwu
     sent Wangwu's kid.'

As indicated above, (10) only has the strict reading, but not the sloppy reading. From the comparison of (6) and (9), the lack of the sloppy reading in (10) indicates that the antecedent contained relation is not resolved yet, and the use of empty pronoun is the only option. This thus argues against the movement approach. If overt movement had taken place, then the antecedent contained relation would have been resolved, and sloppy reading should be available. This shows that overt movement has not occurred.

Having argued against the movement approach, in the next section I will provide evidence to argue against the PF-deletion analysis.

3. Against the PF-deletion analysis

The PF-deletion analysis assumes that no movement is involved in RNR constructions. Rather, there is a copy in each conjunct, and the copy in the first conjunct is deleted in PF. (2b) is repeated here as (11).

(11) a. Mary suspected, and John believed, that Tom was a secret agent.
   b. Mary suspected ~~that Tom was a secret agent~~, and John believed that Tom was a secret agent.

However, the following example in Chinese may pose a potential problem for the PF-deletion analysis, which assumes the shared element appears in each conjunct.

(12) a. Zhangsan yong shou er   Lisi yong qiubang da-le bici
     Zhangsan with hand while Lisi with bat   hit-asp each.other
     'Zhangsan hit Lisi with hand, while Lisi hit Zhangsan with a bat.'
  b. *Zhangsan yong shou da-le bici   er   Lisi yong qiubang da-le
     Zhangsan with hand hit-asp each.other while Lisi with bat   hit-asp
     bici
     each.other
     'Zhangsan hit Lisi with hand, while Lisi hit Zhangsan with a bat.'

In (12a), the VP *da-le bici* 'hit-asp each other' seems to be shared by both conjuncts. However, as shown in (12b), overt realization of the shared element in both conjuncts will result in ungrammaticality, since the reciprocal *bici* 'each other' cannot be bound by a plural antecedent in either conjunct. The PF-deletion analysis will wrongly predict (12a) to be ungrammatical because (12a) should look just like (13), with a reciprocal in each conjunct.

(13) Zhangsan yong shou ~~da-le bici~~, er Lisi yong qiubang da-le bici

Note that similar examples in Japanese can also be observed, as shown in (14).

(14) a. $Masa_1$-wa te-de,   (sosite) $Tomo_2$-wa batto-de $otagai_{1+2}$-o   nagut-ta
     Masa-top hand-with and   Tomo-top bat-with each.other-acc hit-past
     'Masa hit Tomo with hands, and Tomo hit Masa with a bat.'
  b. *$Masa_1$-wa te-de $otagai$-o   nagut-ta
    Masa-top   hand-with each.other-acc hit-past
    (sosite) $Tomo_2$-wa batto-de $otagai_{1+2}$-o   nagut-ta
    and   Tomo-top bat-with each.other-acc hit-past
    'Masa hit Tomo with hands, and Tomo hit Masa with a bat.' (Ohtaki (2008))

The PF-deletion analysis would thus have to account for the similar behavior of (12) and (14) in Chinese and Japanese. Chung (2004) provided another argument against the PF-deletion analysis, based on the availability of the dummy plural marker *–tul* in Korean, as shown in (15) below.

(15) a. John-un   nonmwun-ul yelsimhi(*-<u>tul</u>) ilk-ess-ta
       John-top article-acc   hard-DPM   read-past-de
       'John read articles hard.'
    b. Mary-nun chayk-ul   yelsimhi(*-<u>tul</u>) ilk-ess-ta
       Mary-top book-acc hard-DPM   read-past-de
       'Mary read books hard.'
    c. John-un   nonmwun-ul kuliko Mary-nun chayk-ul yelsimhi(-tul) ilk-ess-ta
       John-top article-acc   and   Mary-top book-acc hard-DPM   read-past-de
       'John read articles and Mary read books hard.'   (Chung (2004))

As shown in (15a,b), the dummy plural marker *–tul* cannot appear when there is no plural antecedent in the clause. However, (15c) is grammatical. The grammaticality of (15c) again poses a challenge to the PF-deletion analysis. If (15c) is really a combination of (15a) and (15b) plus PF-deletion, there should be no reason why *–tul* could be licensed.

In this section, I have presented some evidence from Chinese, Japanese, and Korean that seems to be problematic for the PF-deletion analysis. In the next section, I will argue that that these examples, with some extra assumptions, can in fact be accounted for under the multi-dominance approach.

4. Multi-dominance Approach and Internal/External Merge

The starting point of the multi-dominance approach is the abandonment of the Single Mother Condition, which states that if a node α is dominated, there can be at most one node β that immediately dominates α. In other words, α can only more than one mother. The multi-dominance approach abandons such assumption, giving rise to the result that a node α can have more than one mother. The sentence and the structure of (1a) and (2c) is repeated here.

(16) a. Mary suspected, and John believed, that Tom was a secret agent.

b.
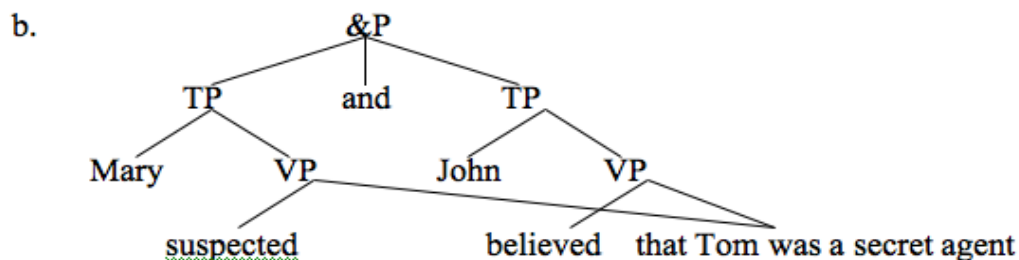
In fact, such abandonment of the Single Mother Condition does gain some support from the recent theoretical development. For example, Citko (2005) claims that the existence of External Merge and Internal Merge (Chomsky (2001)) predicts the existence of the third type, which she called Parallel Merge, as illustrated in (17).

(17) a. *External Merge*
(take two distinct rooted structures structure and merge them into one)
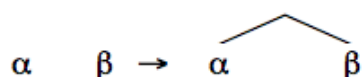
b. *Internal Merge*
(take a subpart of an existing as one of the two objects)
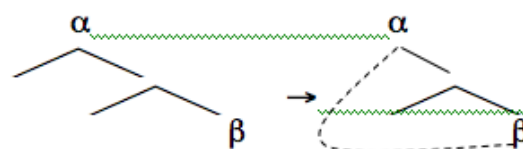
c. *Parallel Merge* (the combination of the two)
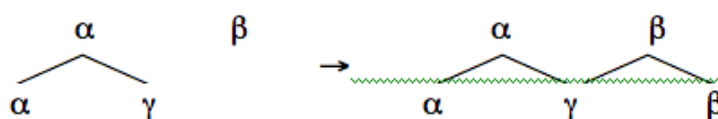
According to Citko (2005), "Parallel Merge is a theoretical possibility." It is a third logical possibility if the first two were possible. It thus provides theoretical motivation and support for the multi-dominance structures. With the theoretical assumptions motivated, let us examine how the above sentences can be accounted for.

Ohtaki (2008), following Grosz (2007), assumes the "null &" hypothesis to account for the licensing of reciprocals in Japanese. I will follow Ohtaki's (2008) analysis to account for the Chinese facts. The structure is given in (18) below. Crucially, it is assumed that *Zhangsan* and *Lisi* are forming a constituent under the 'Boolean Phrase' by the null head &. I will illustrate the details of each step below. First, the null head &

combines with *Lisi* and then with *Zhangsan* to form &P2, both steps being External Merge. This &P2 then undergoes External Merge with the VP to form *v*P3. Then *v*P3 undergoes External Merge with the PP *with hands* to form *v*P1. Another PP *with bats* undergoes Parallel Merge with *v*P3 to form *v*P2. *Zhangsan* then undergoes movement (Internal Merge) with *v*P1 to form TP1. The same happens with *Lisi*, which undergoes Internal Merge with *v*P2 to form TP2. TP2 first combines with &1 (*and*), then further combines with TP1 to form &P1. This will give us the structure and the desired word order. For ease of exposition, the steps are summarized in (19) below.

(18)
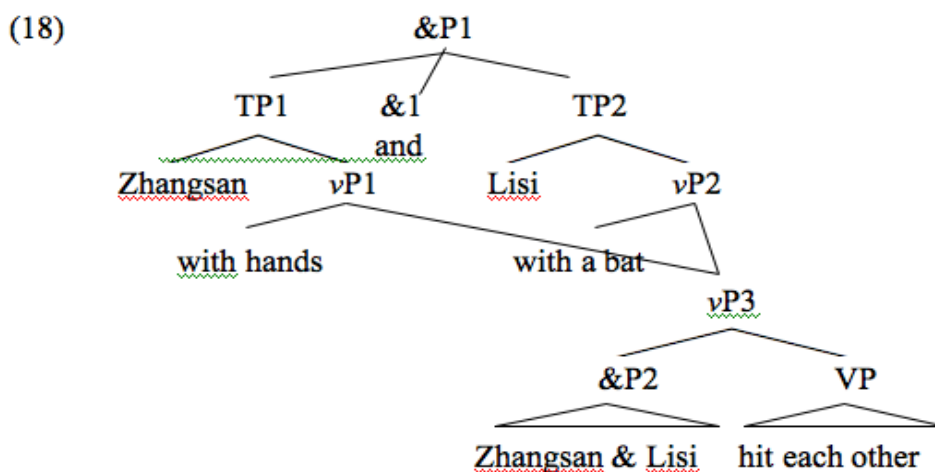
(19) a. &P2: "Zhangsan, &2, Lisi" → external merge
b. VP: "hit, each other" → external merge
c. *v*P3: "&P2, VP" → external merge
d. *v*P1: "with hands, *v*P3" → external merge
e. *v*P2: "with a bat, *v*P3" → parallel merge
f. TP1: "Zhangsan, *v*P1" → internal merge
g. TP2: "Lisi, *v*P2" → internal merge
h. &P1: "TP1, &1, TP2" → external merge

So, from the discussion above, it is shown that, with the assumption of "null &" and the mechanisms of External/Internal/Parallel Merge, the licensing of the reciprocals may be accounted for. Similarly, the licensing of the dummy plural marker *–tul* in Korean can be explained in the same fashion. (*John* and *Mary* in (15) will first form a constituent under the null &. This is why *–tul* can be licensed. *John* and *Mary* are later merged to their own clauses respectively.)

While the licensing of the reciprocals in Chinese/Japanese and the dummy plural marker *–tul* in Korean may be a problem for the PF-deletion approach, there is a way to

capture these facts under the multi-dominance approach. I take this as argument in favor of the latter, but not the former, approach.

 After arguing for the multi-dominance approach, I will briefly discuss some potential problems for the analysis here. First, under the structure in (18), *Zhangsan* and *Lisi* (and the null &) form a constituent &P. *Zhangsan* is later (intenrally) merged to form TP1, and *Lisi* to form TP2. If *Zhangsan* and *Lisi* are separate conjuncts of the coordinate structures, one might wonder how this fares with the Coordinate Structure Constraints (CSC), which prohibits movement of one conjunct out of the structure. There might be two potential solutions to this problem. One is to assume that *Zhangsan* and *Lisi* undergoes Internal Merge (movement) at the same time. In other words, it is like Across-the-board movement, which has been known to be acceptable in coordinate structures, as shown in (20) below.

(20) I wonder which books$_1$ [John likes t_1] and [Bill hates t_1]

 Another potential solution is to claim that CSC is actually a PF phenomenon. In other words, the reason why movement out of coordinated structures is prohibited is due to the presence of a dangling conjunction (such as *and*). However, if the conjunction is null (at least in PF), as is the case in (18) with a null &, then such violation at PF may be ameliorated. Of course, these are just some very tentative guesses, and a detailed look into the behavior of coordinated structures is needed.

 The second potential problem is related to the nature of RNR in Mandarin Chinese. As discussed above, RNR in English does not have some prototypical properties of movement operations. For one thing, it is not sensitive to island constraints, as shown in (3) and (4), repeated here as (21).

(21) a. John wonders when Bob Dylan wrote, and Mary wants to know when he
        recorded, his great song about the death of Emmett Till.
    b. I know a man who buys, and you know a woman who sells, gold rings and raw
        diamonds from South Africa.

 However, RNR in Mandarin Chinese does show island effects, as shown in (22).

(22) a. Zhangsan xihuan danshi Lisi bu xihuan [zhe-ben shu]
        Zhangsan like   but   Lisi not like   this-cl   book
        'Zhangsan likes, but Lisi doesn't like this book.'
    b. *Zhangsan renshi [yi-ge [t_1 mai-le t_2] de nuhai$_1$] er   Lisi renshi [san-ge
        Zhangsan know   one-cl   buy-asp DE girl   and Lisi know   three-cl
        [t_3 du-le t_2] de nanhai$_3$] [zhe-ben shu]$_2$
            read-asp   DE boy   this-cl   book
        'Zhangsan knows a girl who bought, and Lisi knows three boys who read

this book'

As shown in (22b), (rightward) movement of an element out of the coordinate structure will result in ungrammaticality. This shows that RNR in Mandarin Chinese might be different from those in English. More work still needs to be done to find out the real nature of RNR in Chinese and the proper analysis of such paradigm. I will leave these as the direction for future goals.

5. Conclusion

In this paper, I have provided some RNR constructions from Mandarin Chinese and claimed they might help distinguish the theories of RNR. First, in addition to those reported in the literature, I give evidence that RNR construction sin Chinese does not have the prototypical behavior of regular movement operations, thus casting doubts on the Across-the-board movement approach. Second, I show that the licensing of reciprocals in Chinese/Japanese and the licensing of dummy plural marker *–tul* in Korean might be problematic for the PF-deletion approach. I further claimed that, with the assumption of "null &" and the mechanisms of Parallel Merge, these facts may be accounted for and captured under the multi-dominance approach. It is hoped that the data provided here can help shed light on the theories of RNR.

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Even-Focus and VP-Fronting in Mandarin Chinese

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Examining VP-fronting in Mandarin *even*-focus constructions, I propose an analysis for the variants of VP-focus in this construction based Copy Theory (Chomsky (1995), a.o.). In addition, I show that the optionality that arises in the case of VP-focus can be captured by the mechanism at the interface mapping proposed by Bobaljik and Wurmbrand (2008).

1. The Puzzles

The goal of this paper is to account for the semantics-syntax mismatch and the optionality on the LF-PF mapping in Mandarin *lian...dou* VP-focus constructions. Specifically, I propose that the observed puzzle in this paper can be explained with the Copy Theory (Chomsky (1995), Bobaljik (2002), and others) and the theory in Bobaljik and Wurmbrand (2008) on LF-PF mapping.

In Mandarin Chinese, the *even*-focus construction, in addition to the focus, contains two morphemes: *lian* and *dou*. The morpheme *lian* is attached to the focus, while the morpheme *dou* occurs in the preverbal position. Moreover, the sequence of the focalized element and *lian* must move to the position that precedes *dou*[1]. In the vanilla case of this construction, the semantic focus corresponds to the fronted constituent at the surface representation: in (1b) the nominal object *sherou* 'snake meat' is focalized and moves to the pre-*dou* position with *lian*; in (2b), the sentential complement of the verb *zhidao* 'know' is focalized and fronted with *lian* 'even'. As shown in (1) and (2), there is a unique correspondence between the semantic focus and the fronted constituent at surface.

(1) a. Zhangsan gan   chi sherou
        Zhangsan dare eat snake-meat
        'Zhangsan dares to eat snake meat.'
    b. Zhangsan [lian   sherou]   dou gan chi
        Zhangsan EVEN snake-meat ALL dare eat
        'Zhangsan even dares to eat [snake meat]F.

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[1] The morpheme *lian* literally means 'even', and the morpheme *dou* literally means 'all'. In the examples, I will gloss *lian* as 'even' and *dou* as 'all' respectively. Moreover, the semantic focus is indicated with [   ]F in the paraphrase.

(2) a. Zhangsan zhidao Lisi mei qu   Taipei
       Zhangsan knows Lsis NEG go-to Taipei
       'Zhangsan knows Lisi went to Taipei.'
   b. Zhangsan [lian Lisi mei qu   Taipei] dou zhidao
       Zhangsan EVEN Lisi neg go-to Taipei ALL   know
       'Zhangsan even knows that [Lisi went to Taipei]$_F$.'

Exceptions arise in cases of VP-focus.   (3b) is ambiguous: in addition to the expected NP-focus meaning (Reading A), this sentence carries the VP-focus meaning (Reading B) as well, though, at the surface, only the nominal object *jirou* 'chicken' is fronted with the morpheme *lian*, as we just saw in (1b).   Under the VP-focus interpretation, there is a mismatch between syntax and semantics: the fronted constituent at the surface is an NP (or DP), while the semantic focus falls on VP[2].   The VP-focus interpretation in (3b) is further evidenced in (4).   As (4) shows, (3b) can be followed in a discourse sequence by another scalar focus-sensitive particle *genghekuang* 'let alone' associated with a VP.   Note that, as we just saw above, (3b) is not the only way to express the VP-focus meaning; (3c) carries the VP-focus reading as well (and only carries the VP-focus reading).   In (3c), the fronted constituent at the surface is a full-fledged VP, and an expletive verb *zuo* 'do' must be inserted in the canonical verb position.

(3) a. Zhangsan mei peng jirou
       Zhangsan NEG touch chicken
       'Zhangsan did not touch the chicken.'

   b. Zhangsan [*lian* jirou]   dou mei peng
       Zhangsan even chicken ALL   NEG touch
       Reading A: 'Zhangsan did not even touch [the chicken]$_F$.'
       Reading B: 'Zhangsan did not even [touch the chicken]$_F$.'

   c. Zhangsan [*lian* peng jirou]   dou mei zuo/*peng
       Zhangsan even touch chicken all   NEG do/touch
       'Zhangsan did not even [touch the chicken]$_F$'.
       *'Zhangsan did not even touch [the chicken]$_F$.'

(4) Zhe dun fan,   Zhangsan [lian   jirou]   dou mei peng, genghekuang shi   [he   tang]$_F$
     This CL meal Zhansan   EVEN chicken ALL NEG touch let-alone   FOC drink soup
     'During this meal, Zhangsan did not even [touch the chicken]$_F$, let alone [eat the
      soup]$_F$.'

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[2] The semantics-syntax mismatch, as far as I know, is observed first in Constant and Gu (2008).

In the following, I propose that the two variants of VP-focus (namely (3b) and (3c)), in fact, have the same derivation. The difference between these two variants is due to the selection of the copies of the verb to pronounce at PF. In the next section, I will lay out the assumptions my proposal is based on.

2. Theoretical Assumptions

As mentioned in section 1, I assume the Copy Theory for the syntactic operation 'movement' (see Chomsky (1995), Bobaljik (2002), Nunes (2004) and others): 'movement' is the combination of copy and merge[3]: an element moves to the target and leaves a copy at its base-generated position. At the interfaces (especially at PF), a general constraint forces the deletion of all the copies of a single element at PF except for one[4,5].

The second assumption concerns the position of the verb in Mandarin Chinese. Following Huang, Li and Li (2009), Tang (1999) and others, I assume that, in Mandarin Chinese, the verb undergoes V^0-to-v^0 movement. Evidence for this assumption is given in (5). According to Huang, Li and Li (2008), in (5), the frequency adverbial phrase *liangci* 'twice' modifies the event of beating and adjoins to VP. Since the verb moves from V^0 to v^0, it precedes the frequency phrase at the surface. Based on this assumption, I further assume that the raising of the verb from V^0 to v^0 is due to the language-particular requirement in Mandarin Chinese that v^0 be lexicalized at PF.

(5) Ta da-guo   liangci na-xie   huaidan
    He beat-ASP twice   those-CL bad-guy
    'He beat those bad guys twice.'

Thirdly, I assume the schema in (6) for the *lian…dou* construction, examples of which we have seen above. As (6) shows, in this construction, the morpheme *dou* heads the

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[3] Here I assume a more traditional version of Copy Theory (eg. Nunes (2004), and others), which takes the syntactic operation 'copy' as 'xeroxing-copy'. There have been different varieties of the Copy Theory proposed. Among the other alternatives, Chomsky (2001), Gärtner (1998, 1999) and others have recast the syntactic operation 'copy' in terms of multi-dominance. Along with this line, a moved lexical element is actually dominated by two or more terminal nodes in the syntactic structure. Given that the choice between these two alternatives will not affect the following discussion, I will simply refer the readers to the mentioned literatures.

[4] In the discussion of the case of VP-focus, the status of this general constraint does not play any role.

[5] This is where my proposal differs from Nunes (2004). Nunes (2004) proposes that copy deletion is motivated by the need of linearization. On the other hand, in my proposal, copy deletion is motivated by the general constraint of deleting all the copies except for one. For the advantage of my proposal and the problems of Nunes (2004), see Hsieh (2009) for a detailed discussion.

projection Foc(us)P (see Shyu (1995)). The morpheme *lian* adjoins to the smallest maximal projection that contains the semantics focus and moves with the adjoined constituent to Spec-FocP.

(6)
```
                      FocP
              ┌────────┴────────┐
            XP_i               Foc′
          ┌──┴──┐            ┌──┴──┐
        lian    XP         dou     YP
            [……F…]          [….t_i…..]
```
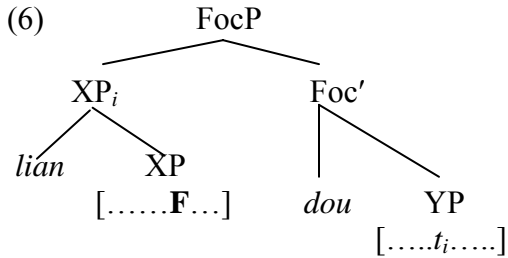
The fourth assumption concerns the size of the fronted constituent in the case of VP-focus. I assume that, in the case of VP-fronting in the *lian...dou* construction, the fronted constituent is a VP and cannot be larger than or equal to *v*P. This assumption is motivated by the contrast between (7a) and (7b). (7a) is a case of VP-topicalization and (7b) a case of VP-fronting in the *lian...dou* construction. In both of these examples, the fronted constituent is located in the initial position of the embedded clause[6]. In (7a), the anaphor *taziji* 'himself' in the verbal fronted predicate phrase can co-refer with the embedded subject but not with the matrix subject, as Huang (1993) reports. However, unlike in (7a), in (19b), the anaphor in the fronted predicate can co-refer with the matrix subject.

(7) a. Zhangsan$_i$ renwei zema taziji$_{*i/j}$-de xiahai Lisi$_j$ juedui   bu hui
       Zhangsan think   scold himself-POSS children Lisi absolutely NEG will
       'Zhangsan$_i$ thought that, punish his$_{*i/j}$ own children, Lisi$_j$ absolutely dare not.'
   a′. Zhangsan$_i$ …. [[$_{vP}$ t$_j$ [$_{v′}$chufa taziji$_{*i/j}$-de xiahai]]   Lisi$_j$ juedui bu hui

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[6] In (7b) the predicate fronted with *lian* first moves to the position between *dou* and the embedded subject and then further undergoes topicalization.

   b. Zhangsan$_i$ renwei, lian zema taziji$_{i/j}$-de   xiaohai, Lisi$_j$ dou juedui   bu   hui
      Zhangsan think   EVEN scold himself-POSS children Lisi ALL absolutely NEG will
      *(zuo), genghekuang shi [chufa   bieren-de   xuesheng]$_F$[7]
        do   let-alone   FOC   punish others-poss students
      'Zhangsan$_i$ thought that, even for [punishing his$_{i/j}$ own children]$_F$, Lisi$_j$ absolutely
        will not, let alone to punish other people's students '.

According to Huang (1993), the fronted predicate in (7a) is a vP. The anaphor *taziji* 'himself' is bound by the trace of the embedded subject at Spec-vP (see (7a′)). Hence, the co-reference between the anaphor and the matrix subject is blocked. Following this reasoning, the co-reference between the anaphor and the matrix subject in (7b) can be accounted for by assuming that the predicate fronted with *lian* is a VP instead of a vP: since there is no intervention by a potential binder (e.g., the trace of the embedded subject at Spec-vP), the co-reference between the anaphor and the matrix subject is possible.
      In the next section, the theoretical description of (3b) and (3c) based on the assumptions made above will be provided.

3. The Theoretical Description
      In both (3b) and (3c), syntactically the derivation proceeds by moving the verb from V^0 to v^0, and then the VP, along with the focus particle *lian*, to Spec-FocP. In this fashion, both (3b) and (3c)) have the syntactic structure in (8)[8]. The difference at the surface between these two variants arises only after Spell-out at PF.

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[7] In (7b), the occurrence of the expletive verb *zuo* is obligatory. This again confirms the observation shown in (3c).

[8] In (8) (and (9b) and (10b) as well), the intermediate copy of VP at the edge of vP is omitted for simplicity, given that the intermediate copy of VP at the edge of vP does not affect the discussion here.

(8) TP

ZS — T′

T⁰ — FocP

VP [lian, VP [V′ [V⁰ peng, NP jirou]]]

Foc′

Foc⁰

NegP

mei — Neg′

Neg⁰ — vP

ZS — v′

v⁰ [peng, v⁰]

VP [lian, VP [V′ [V⁰ peng, NP jirou]]]
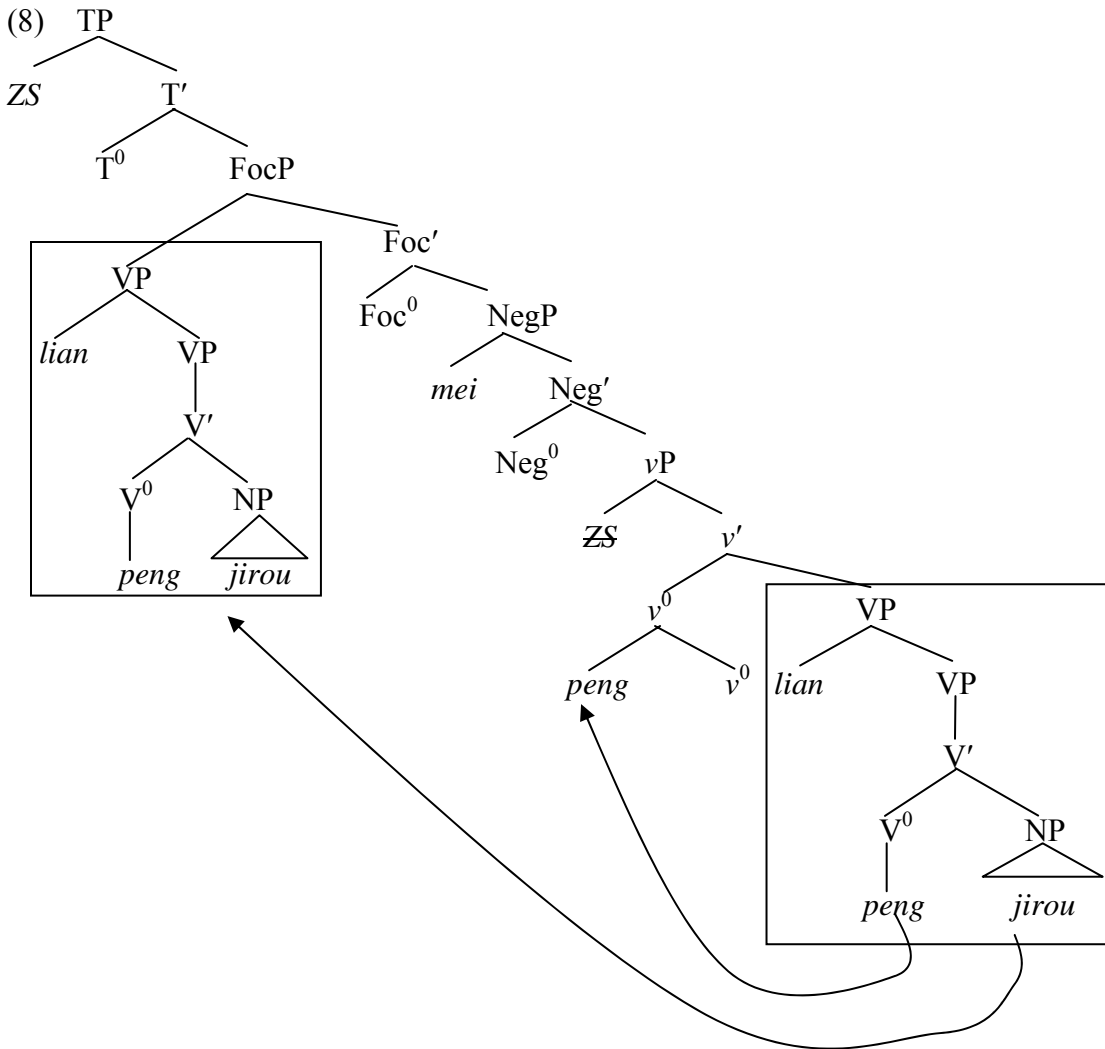
After Spell-out, there are two ways to transfer the structure in (8) to PF, and each one yields a different surface representation. Let's now go over each one. Consider (3b) with the VP-focus interpretation (reading B) (repeated as (9a)). As mentioned above (see also (9b)), the verb *peng* 'touch' first undergoes V^0-to-v^0 movement, and then the focalized VP further undergoes movement with *lian* to Spec-FocP. At this point we have two copies of VP (one in Spec-FocP, and one in the base-generated position) and three copies of the verb (one embedded in the fronted VP, one in v^0, and one at the base-generated position). At PF, after deleting the low copy of the VP (due to the general constraint on copy deletion), we are left with two copies of the verb. Again, due to the general constraint on copy deletion, one of the copies of the verb must be deleted. When choosing which copy to delete, the PF-constraint in Mandarin Chinese, which states that

v^0 must be phonetically supported, must be taken into consideration. In (9b), in order to fulfill the PF-requirement on v^0, the copy embedded in the fronted VP is chosen to be deleted and the one at v^0 gets interpreted at PF. Note that the choice of pronouncing the copy at v^0 at PF does not come without any trade-off. When choosing to pronounce the copy at v^0 and delete the one embedded in the fronted constituent, we sacrifice the intactness of the fronted VP, and this renders the situation in which it looks as if the verb is stranded behind at surface. Hence, the mismatch between the surface syntax and semantics arises[9].

(9) a. Zhangsan [*lian* jirou] dou mei peng
    Zhangsan even chicken ALL NEG touch
    'Zhangsan did not even [touch the chicken]_F.'

b.

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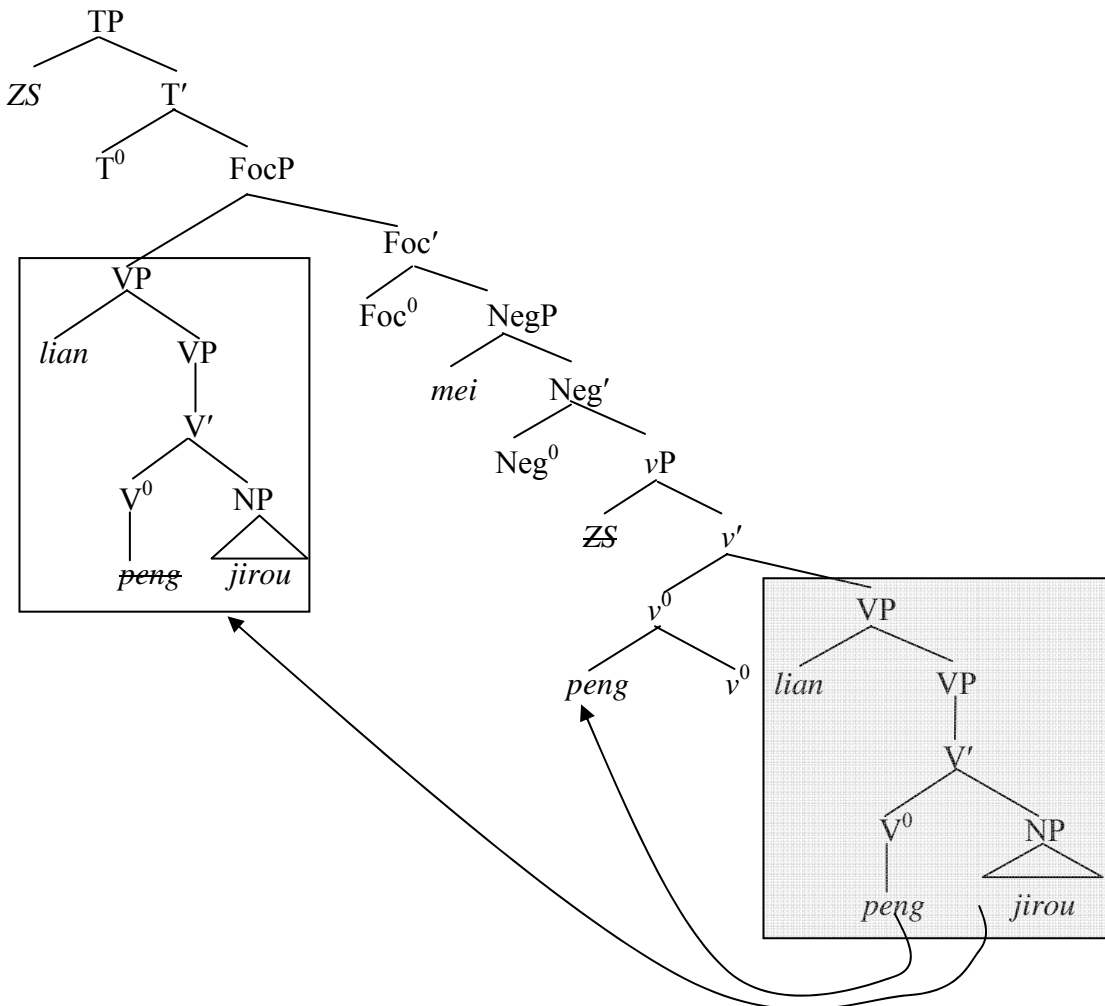
[9] Note that, as indicated in (4), (3a) indeed carries the VP-focus interpretation.

Is there a way to avoid this trade-off (namely, keep the intactness of the fronted VP) but, meanwhile, lexicalize v^0? The answer is positive; however, the success comes with another trade-off, and this is what happens in (3c) (repeated as (10a)), the other variant of VP-focus. In (10a), the fronted VP stays intact, while the expletive verb *zuo* 'do' occurs in the canonical verb position. The structure of (10a) is shown in (10b). In (10b), just like in (9b), the verb first undergoes V^0-to-v^0 movement and then the focalized VP moves to Spec-FocP with *lian*. Unlike in (9b), where the verb is interpreted at v^0, the verb in (9b) is interpreted at V^0 in the fronted VP. Note that there is a PF-requirement in Mandarin Chinese, which states that v^0 must be lexicalized at PF. To fulfill this requirement, the copy of the verb at v^0 can only undergo partial deletion and be interpreted as a resumptive pro-verb *zuo* at PF so that v^0 can be lexicalized at PF. (see Pesetsky (1998) and the references therein for a similar idea regarding resumptive pronouns).

(10) a. Zhangsan [*lian* peng jirou] dou mei zuo/*peng
Zhangsan even touch chicken all NEG do/touch
'Zhangsan did not even [touch the chicken]$_F$'.

b.

```
                    TP
                  /    \
                ZS      T'
                      /    \
                    T⁰      FocP
                          /      \
                        VP        Foc'
                      /   \      /     \
                  lian    VP  Foc⁰      NegP
                         |           /      \
                         V'        mei       Neg'
                        /  \              /       \
                      V⁰    NP         Neg⁰        vP
                      |    /_\                    /   \
                    peng  jirou                 ZS     v'
                                                      /   \
                                                    v⁰     VP
                                                   /  \   /   \
                                                peng  v⁰ lian  VP
                                                  ↑            |
                                                 zuo           V'
                                            (Resumptive)      /  \
                                                            V     NP
                                                            |    /_\
                                                          peng  jirou
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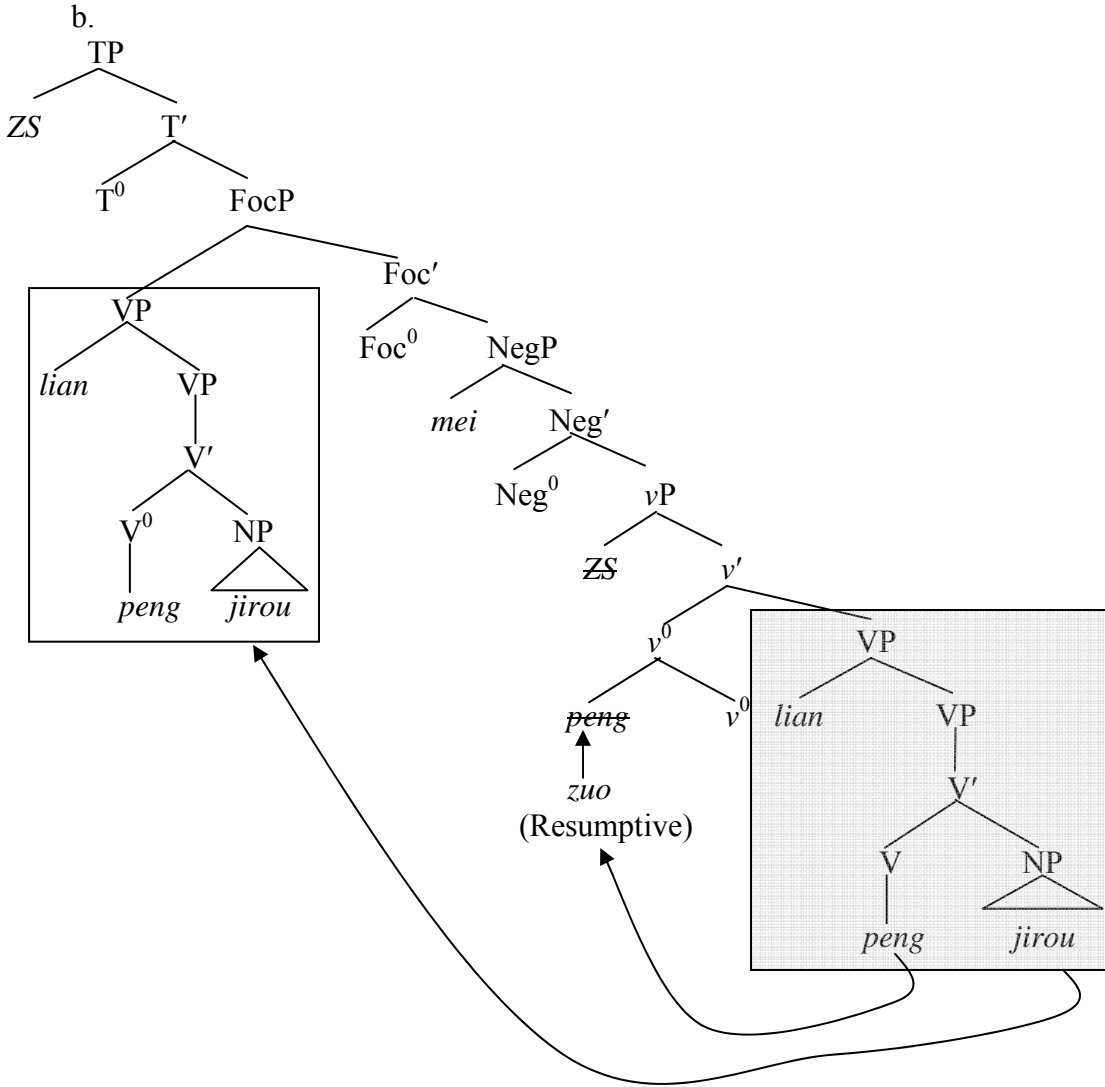
Summarizing the discussion above, to fulfill the requirements at PF, either V-stranding or the resumptive strategy (but not both) must apply: If we decide to avoid the usage of the resumptive strategy, then the intactness of the fronted VP must be sacrificed; on the other hand, if we decide to have the fronted VP stay intact, then the resumptive strategy becomes necessary to fulfill the PF requirement that v^0 must be lexicalized. Most important of all, there is no way to avoid the resumptive strategy while having the fronted VP stay intact at PF at the same time.

What would happen if we interpreted both of the copies at PF? This possibility has been excluded: the PF representation with both of the copies of the verb interpreted violates the general constraint of copy deletion. Hence, the PF representation with the realization of both of the copy of the verbs can never be a legitimate output.

In the analysis presented so far, the optionality arises out of a tension: on the one hand, the need to lexicalize v^0, and, on the other hand, the pressure to keep the VP in focus transparent. Hence, it predicts that neither V-standing nor the resumptive strategy is tolerated once there is independent means for lexicalizing v^0. This is evidenced in (11). As shown in (11), a deontic modal *gan* 'dare' is involved. When the VP is in focus and undergoes focus movement to the pre-*dou* position, neither V-stranding nor the resumptive is tolerated.

(11) a. Zhangsan [lian peng jirou]   dou bu gan
        Zhangsan EVEN touch chicken ALL NEG dare
        'Zhangsan dare not even [touch the chicken]F.'

   b. Zhangsan [lian jirou]   dou bu gan peng
        Zhangsan   EVEN chicken ALL NEG dare touch
        'Zhangsan dare not even touch [the chicken]F.'
        *'Zhangsan dare not even [touch the chocken]F.

   c. *Zhangsan [lian peng jirou]   dou bu   gan zuo
         Zhangsan EVEN touch chicken ALL NEG dare touch

In the literature, deontic modals in Mandarin Chinese are treated as verbs taking VP complements and selecting the subject (see Lin and Tang (1996)). Given that the deontic modal *gan* 'dare' and v^0 are overlapped with each other on the function of selecting subjects, following the proposal in Wurmbrand (2003), I assume that there is no vP projection between the deontic modal and its complement. Since there is no v^0 between the deontic modal and the fronted vP, the lexicalization of v^0 at PF is not an issue anymore and neither V-stranding nor the occurrence of the expletive verb is allowed. Hence, though (11) seemingly poses challenges to the analysis above, it in fact cannot be a counterexample[10].

4. Optionality

Based on the theoretical description above, I now proceed to the discussion about optionality: why does the optionality arise in the case of VP-focus? Before we start, I

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[10] Note that, in (7b), the modal *hui* is epistemic rather than deontic and does not have the function of selecting the subject. Hence, when the VP is in focus and undergoes movement, the repair strategies (V-stranding or resumptive elements) are needed.

would like to introduce the mechanism of the LF-PF mapping proposed by Bobaljik and Wurmbrand (2008).

4.1. LF-PF Mapping and the Constraint Evaluation at the Interfaces

Bobaljik and Wurmbrand (2008) propose that the mapping of a syntactic structure at the interfaces is uni-directional: from LF to PF, but not the other way round. When a syntactic structure is spelled-out, LF is calculated first, and then a PF representation is determined based on this particular LF representation. When an LF is mapped to a PF, this particular type of correspondence between the LF and PF representations will be evaluated by several constraints at the interfaces. There are two types of constraints involved in the evaluation of the correspondence between a LF and PF representation: one is hard constraints, and the other is soft constraints (economy conditions). Hard constraints are non-violable, while soft constraints can be overridden to meet the hard constraints. Optionality arises when a particular LF is associated with two different PF representations which violate the same number of soft constraints. In other words, we can characterize optionality as 'equally costly derivations' in the sense of Chomsky (1991). An example to illustrate this interface mechanism is shown in (12).

(12) a. Only one man from NYC seems to be at John's party.   *only>seem, seem>only*
     b. There seems to be only one man from NYC at John's party.
                                                    **only>seem, seem>only*

As (12a) shows, semantically, an *only-NP* can scope over the raising predicate *seem*, or it may reconstruct beneath *seem*. However, if raising fails to apply and expletive *there* occupies the matrix subject position (see (12b)), the scope relation becomes unambiguous: only the reading where *seem* scopes over the existentially quantified DP is possible in (12b).

Bobaljik and Wurmbrand (2008) propose that, with the assumption of the uni-directionally LF-PF mapping and the interface constraints in (13), the contrast in (12) can be captured in the way shown in (14) and (15). Constraint 1 *Scot* and constraint 2 *DEP* are soft constraints, which can be overridden in order to satisfy other non-violable requirements, whereas constraint 3 *EPP* is a hard constraint, the violation of which would lead to crash at the interfaces. As (14) shows, in the case of the LF representation in which *seem* scopes over *only NP*, either of the soft constraints would be violated in order to satisfy the EPP requirement: if raising applies to satisfy the EPP requirement (as in (12a)), then *Scot* will be violated; on the other hand, if expletive *there* is inserted to avoid the violation of Scot (as in (12b)), *DEP* will be violated. Since, with this particular LF representation, neither of the PF representations (12a) and (12b) fares better than the other, both of them are legitimate PF for the LF where *seem>only*.

(13) Constraint 1-Scope Transparency (Scot): If the order of two elements at LF is A»B,
the order at PF is A»B.
   Constraint 2- DEP (Economy Condition): Don't insert Expletive Pronoun.
   Constraint 3-EPP: the EPP requirement must be satisfied at PF.

(14)

LF	PF	Scot	DEP
seem>∃	(22a): ∃>*seem*	*	✓
seem>∃	(22b): *seem>∃*	✓	*

On the other hand, as shown in (15), when it comes to the LF of *∃>seem*, (15b), the case of *there*-insertion violates both of the soft constraints, while (12a), the case of raising, has both of them satisfied. Hence, only (12a) can be the legitimate PF for the LF of *∃>seem*. (12b), unlike (12a), is thus unambiguous.

(15)

LF	PF	Scot	DEP
∃>*seem*	(22a): ∃>*seem*	✓	✓
∃>*seem*	(22b): *seem>∃*	*	*

        In the following, I show how the mechanism in Bobaljik and Wurmbrand (2008) helps account for the optionality in the case of VP-focus in *lian…dou* constructions.

4.2. Optionality in VP-Focus
        The relevant constraints to capture the optionality in expressing VP-focus in the Mandarin *lian…dou* construction is shown in (16)[11]. Constraint A and B are hard constraints, which are not violable in any circumstances. Constraint A is language-particular and based on the assumption in section 2 that v^0 must be lexicalized in Mandarin Chinese. Constraint B is a general hard constraint across languages. It regards the visibility of the focalized elements at PF. These two hard constraints are satisfied in both the PF representations of (9a) and (10a): in both (9a) and (10a), v^0 is lexicalized as the full verb and the resumptive verb respectively; moreover, both representations have the semantic focus phonetically visible.
        Constraint C and D are soft constraints, which play an important role in determining the legitimate PF representations for VP-focus. Both of the constraints can be overridden to satisfy other PF-requirements and play a crucial role determining the optimal PF representation for a particular LF. Constraint C states that resumptive

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[11] As mentioned in footnote 4, the general constraint on copy deletion does not play any role in the discussion regarding the optionality in VP-focus. Hence, I put off the discussion of this constraint until I discuss the case of V-focus.

elements are dispreferred and can only be the last resort (see Pesetsky (1998)) ; constraint D states that, in the optimal circumstance, the fronted constituent contains all and only the phonetic content of the semantically focalized elements.

(16) a. Constraint A: v^0 must be interpreted at PF.   (**Hard** Constraint)
    b. Constraint B: Focus must have phonetic content.   (**Hard** Constraint)
    c. Constraint C: Avoid resumptive elements.   (**Soft** Constraint)
    d. Constraint D-Focus Transparency: The fronted constituent, in addition to the focus particle *lian*, reflects all and only the phonetic content of the F-marked elements.   (**Soft** Constraint)

       Now consider (9a) (repeated as (17a)) again, the case where the V-stranding occurs. In (17a), the copy of the verb in the fronted VP is deleted, and the one at v^0 is interpreted at PF to satisfy the requirement that v^0 be lexicalized. Given that the intactness of the fronted VP is sacrificed, constraint D, F-Transparency, is violated in (17a). On the other hand, in (17b), the other variant of VP-focus, the copy of the verb in the fronted VP is chosen to be interpreted, while the copy of the verb at v^0 is deleted. Note that, while deleting the copy at v^0, the hard constraint that v^0 be lexicalized must be satisfied. To meet this PF requirement, the copy of the verb at v^0 undergoes deletion, but only partially. This way, though we spare (17b) from violating Constraint D, we pay the price by sacrificing Constraint C.

(17) a. Zhangsan [*lian* jirou]   dou mei peng
      Zhangsan even chicken ALL   NEG touch
      'Zhangsan did not even [touch the chicken]$_F$.'

    b. Zhangsan [*lian* peng jirou]   dou mei zuo/*peng
      Zhangsan EVEN touch chicken ALL NEG do/touch
      'Zhangsan did not even [touch the chicken]$_F$'.

  c.

LF	PF	Constraint C Avoid Resumptive	Constraint D F-Transparency
VP-focus	(17a)	✓	*
	(17b)	*	✓

      As shown in (17c), each of the PFs for the VP-focus interpretation violates one of the soft constraints. Given that neither of them fares better than the other and there is no other alternative that satisfies both constraints, both of the examples are the legitimate PF representations for the VP-focus interpretation. Hence, optionality arises.

5. Conclusion

        In this paper, I examine the case of VP-focus in Mandarin *lian…dou* construction. I propose that the two variants of VP-focus in the *lian…dou* constructions have the same derivation, and the difference between these two variants at surface are attributed to the choice of the copies of the verb to pronounce. Moreover, I have shown that the optionality on these two variants can be captured by the constraint-based approach in Bobaljik and Wurmbrand (2008): given that neither of these two variants fares better than the other in the constraint evaluation at the interfaces, both of them are legitimate PF representations for VP-focus.

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Resolving a Subject-Object Asymmetry with Respect to Existential Polarity *Wh*-Phrases[*]

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This paper evaluates two syntactic approaches to resolving a subject-object asymmetry regarding existential polarity *wh*-phrases in Chinese A-not-A questions. It is argued that the asymmetry is better explained by an account seeking recourse to the c-command condition than an account based on (in)definiteness of the NP subject. In my analysis, a polarity *wh*-phrase in the subject position fails to be c-commanded by the A-not-A licensor in overt syntax, while that in the object position has no such problem. It is meanwhile demonstrated that the c-command relation can be dealt with in overt syntax and need not be at LF.

1. Introduction

This study compares two syntactic approaches to a subject-object asymmetry associated with existential polarity *wh*-phrases in Chinese A-not-A questions, as observed by Li (1992: 128).

(1)   a. *Shei/*Shenme ren   xi-bu-xihuan ta?
            who   what   person li-not-like   him/her
            'Does anyone like or not like him/her?'

---

b. Ta xi-bu-xihuan shenme?

　s/he li-not-like   what?

　'Does s/he like or not like anything?'

One approach is to appeal to (in)definiteness of the NP subject (Cheng 1991, 1994), whereas the other is to resort to the c-command condition (Li 1992). In this paper, I argue for the latter approach, while revising it to fit in with the more recent development of syntactic theory within generative grammar, i.e., Minimalist Program (since Chomsky 1995), in which representations such as DS and SS are non-existent.

This paper is organized as follows. Section 2 is a critical review of Cheng's analysis with reference to (in)definiteness of the NP subject. Section 3 discusses alternative c-command accounts and proposes a revised version of mine. Section 4 concludes the paper.

2. (In)definiteness of the NP Subject
2.1. Cheng's Analysis

In view of the ungrammatical sentences in (2), Cheng (1991, 1994) claims that subject *wh*-words in Chinese fail to obtain indefinite existential readings.[1]

(2)　　a. *Shei xiang chi pingguo ma?

　　　　who want eat apple Q_{YN}[2]

　　　　'Does anyone want to eat apples?'

　　　b. *Shei xiang-bu-xiang chi pingguo?

　　　　who want-not-want eat apple

　　　　'Does anyone want to eat apples or not?'

---

[1] The sentences in (2), as Cheng acknowledges, are cited from Huang (1982). Taking a careful look at his original work, one may find that Huang in fact intends the two sentences to be interpreted as multiple questions (yes-no question plus *wh*-question), contra Cheng's existential interpretation of subject *wh*-phrases.

[2] The abbreviations used in this paper are glossed as follows: ASP: aspect marker; BEI: passive marker; CL: classifier; Q_{YN}: yes-no question particle; REL: relativization marker; SUFX: suffix.

Assuming that a question particle like *ma* is merged in C⁰ (c.f., Lee 1986, Tang 1989, Lin 1992, and Cheng, Huang, and Tang 1996), and that the A-not-A operator undergoes LF movement to the CP domain (c.f., C.-T. Huang 1982, 1991, Huang, Li, and Li, 2008), Cheng concludes that the ungrammaticality of cases like (2) is not due to the licensing scope because the polarity licensor in both cases (i.e., Q-particle *ma* and A-not-A operator) is either merged or moved to CP where it should be able to c-command and thus license the lower subject *wh*-phrase.

  Rather, Cheng approaches the problem by virtue of a general observation that Chinese subjects cannot be indefinite, as shown below.

(3) a. Nei-ge ren lai le.
    that-CL person come ASP
    'That person came.'
  b. *Yi-ge ren lai le.
     one-CL person come ASP
     'A person came.'
  c. You yi-gen ren lai le.
    have one-CL person come ASP
    'A person came.'

Following Diesing (1990, 1992), Cheng assumes that ∃-closure, which serves to introduce an existential quantifier for quantifying indefinite NPs which are variables, only applies in the domain of VP. Accordingly, (3b) is ungrammatical just because the indefinite NP subject *yi-ge ren* 'a person' is outside VP and thus cannot be bound by ∃-closure. In order for the indefinite initial-NP to receive existential quantificational force, another strategy rather than ∃-closure should be sought. This can be seen in (3c), where the indefinite NP is now being quantified by *you* 'have', which is an existential quantifier.

  Given the prohibition against the existence of indefinite NP subjects in Mandarin Chinese, an indefinite existential *wh*-phrase is of course not allowed in the subject position. This is why sentences like (2) are ruled out, under Cheng's theory.

2.2. Against Cheng

Cheng's analysis leaves a mystery as to why the addition of the existential quantifier *you* 'have' to precede the indefinite NP subject may rescue ill-formed non-A-not-A sentences like (2a) and (3b), but may not rescue deviant A-not-A cases like (2b). The contrast is shown below.

(4) a. *Shei xiang chi pingguo ma?
        who want eat apple   Q$_{YN}$
        'Does anyone want to eat apples?'
     b. You shei xiang chi pingguo ma?
        have who want eat apple   Q$_{YN}$
        'Does anyone want to eat apples?'

(5) a. *Yi-ge ren   lai   le.
        one-CL person come ASP
        'A person came.'
     b. You yi-gen ren   lai   le.
        have one-CL person come ASP
        'A person came.'

(6) a. *Shei xiang-bu-xiang chi pingguo?
        who want-not-want eat apple
        'Does anyone want to eat apples or not?'
     b. *You shei xiang-bu-xiang chi pingguo?
        have who want-not-want eat apple
        'Does anyone want to eat apples or not?'

It is clear from (6b) that even if the subject of an A-not-A question is an existentially quantified NP, the sentence is still ungrammatical. This suggests that some factor other than (in)definiteness of the NP subject may come into play for the ungrammaticality of A-not-A cases like (6).

Furthermore, Cheng's analysis encounters a theoretical problem regarding the application domain of ∃-closure. As pointed out by Tsai (1994), for a polarity *wh*-phrase, the scope of its binder, namely ∃-closure, does not always stick to VP; instead, it is determined by the structural position of the polarity trigger/licensor. Compare the three configurations below, drawn by Tsai (1994: 62-63).

(7)   a. Akiu bu ∃$_x$ [$_{VP}$ yao shenme$_{(x)}$].
        Akiu not   want what
        'Akiu does not want anything.'
     b. Akiu dagai/keneng   ∃$_x$ [$_{VP}$ yao shenme$_{(x)}$].
        Akiu probably/possibly   want what
        'Akiu probably/possibly wants something.'
     c. Ruguo ∃$_x$ [$_{IP}$ shei$_{(x)}$ mai-le   chezi], …..
        if   who   buy-ASP car
        'If someone bought a car, …..'

Concerning (7c) for the present purpose, ∃-closure is over the IP node, introducing an unselective binder from CP which binds the subject *wh*-phrase *shei* 'who' as a variable within IP. This immediately casts doubt upon Cheng's assumption that ∃-closure is restricted to the VP domain.

2.3. A Note on Judgment
As seen above, Cheng's analysis of indefinite subject *wh*-phrases draws upon the traditional view that Chinese does not allow indefinite NP subjects. However, this issue has been controversial, given the following acceptable sentences with an indefinite *wh*-subject, either in the main/matrix clause or in the subordinate/embedded clause.

(8)   a. **Shei** xihuan ta   ma?   (Li 1992:128)
        who like   him/her Q$_{YN}$
        'Does anyone like him/her?'

b. **Shei** zai jiao wo ma?   (Lin 1998:233)
   who ASP call me Q_{YN}

   'Is somebody calling me?'

c. Yaoshi **shei** xihuan ta, …   (Li 1992:128)
   if   who like   him/her

   'If anyone likes him/her, …'

d. Ruguo **shei** mai-le   chezi, …   (Tsai 1994:63)
   if   who buy-ASP car

   'If someone buys a car, …'

e. Ruguo **shei** zhong-le caipiao, …   (Tsai 2001:159)
   if   who win-ASP lottery

   'If someone wins a lottery, …'

f. Haoxiang[3] **shei** chuan-cuo-le   xiezi   (Lin 2004:459)
   seem   who wear-wrong-ASP shoes

   'It seems that someone has put on wrong shoes.'

g. Shi-bu-shi **shei** diao-le   qian   le?   (Lin 2004:470)
    be-not-be who drop-ASP money ASP

   'Is it the case or not that someone lost his/her money?'

h. Ta   zong   juede **shenme** difang bu-duijin.   (from Internet)
   s/he always feel   what   place not-right

   'S/he just feels that something is wrong.'

 i. Mao chi de   dangao, **shei** xiang shi yi-xia ma?   (from Internet)
    cat eat REL cake   who want try one-bit Q_{YN}

   '(This is) the cake for cats. Does anyone want to try it?'

To highlight opposite judgments on non-A-not-A sentences with an indefinite subject *wh-*phrase, I reproduce (2a) and (8a) below as (9a) and (9b), respectively.

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[3] Unlike a verb/predicate, *haoxiang* 'seem' cannot be used to form an A-not-A question. For this reason, Lin (2004) treats *haoxiang* 'seem' as an adverbial.

(9)   a. ***Shei** xiang chi pingguo ma?   (Cheng 1991, 1994)
           who want eat apple   Q$_{YN}$
           'Does anyone want to eat apples?'
       b. **Shei** xihuan ta   ma?   (Li 1992)
           who like   him/her Q$_{YN}$
           'Does anyone like him/her?'

Here I do not intend to argue for or against either judgment as represented in (9). I would instead like to point out that what is uncontroversial is the judgment on A-not-A sentences with an indefinite subject *wh*-phrase like (1a) and (2b). Neither linguistic literature nor our informants can be found to accept such A-not-A cases. The reason why they appear uncontroversial in grammaticality judgment thus leads to our investigation in this study.

3. C-Command Condition
3.1. C-Command at SS

An alternative account for the ungrammaticality of A-not-A cases like (1a) and (2b) is proposed by Li (1992), who claims that an indefinite *wh*-phrase must be c-commanded by its licensor at S-Structure. Similarly, Lin (1998), following S. Huang (1981), C.-T. Huang (1982), and Lee (1986), also indicates that scope in Chinese is subject to c-command relations at SS. The account based on c-command at SS may straightforwardly explain ill-formed A-not-A sentences like (1a) and (2b), since the A-not-A licensor is not high enough to be able to c-command the polarity *wh*-subject at SS. A piece of supporting evidence is provided by Li (1992: 138), as shown below.

(10)   Shi-bu-shi shenme ren xihuan ta?
        be-not-be what   man like   him/her
        'Is it the case or not that someone likes him/her?'

In the above case, the indefinite *wh*-subject is now being c-commanded by the A-not-A licensor at SS, and the sentence is grammatical as expected.

3.2. C-Command at LF

Nevertheless, a puzzling aspect of Lin's theory arises when he meanwhile claims that "S-structure does not exist in the theory of grammar" and that "the c-command requirement should apply to LF rather than S-structure" (1998: 245-246).[4] Consider the following examples offered by Lin in support of his LF version of c-command.

(11) a. Yaoshi shei bu ting wode hua, wo jiu   bu gei ta   tang chi.
          if   who not listen my   word I   then not give him/her candy eat
          'If somebody does not listen to what I say, I will not give him/her candies to eat.'
      b. Shei yaoshi bu ting wode hua, wo jiu bu gei ta   tang   chi.
          who   if   not listen my   word I then not give him/her candy eat
          'If somebody does not listen to what I say, I will not give him/her candies to eat.'

Superficially, an example like (11b) cannot be accounted for in terms of c-command at SS because the polarity *wh*-phrase *shei* 'who' does not fall under the c-commanding domain of the polarity licensor *yaoshi* 'if' at SS. To solve this problem, Lin follows Lin (1996) in assuming that such a case may involve "some kind of reordering" or "the raised necessity operator" at LF. Through either mechanism, the polarity *wh*-phrase can be licensed and the licensing takes place at LF.

Another piece of evidence for c-command at LF comes from sentences with a particular type of compound verb, as in (12).

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[4] In Lin's view, the c-command requirement itself is not an independent condition. He takes it as being derived from a semantic condition called the NEEC (non-entailment-of-existence condition on existential polarity *wh*-phrases). Since it is generally assumed that language obtains its meaning at LF and that the c-command condition is a mechanism which may play a role in forming an interpretive link between a binder and its bindee, it follows that the c-command condition should apply at LF. This is why Lin attempts to argue for the LF application of c-command. As for what the NEEC is about and why the c-command condition is claimed to derive from the NEEC, see Lin's paper for details.

(12)   a. Zhe suan-bu-liao   shenme.
          this count-not-SUFX what
          'It is not a big deal. (This does not count for anything.)'
       b. Zhe-jian shi,   guai-bu-de   shei.
          this-CL   matter blame-not-SUFX who
          'As for this matter, you cannot blame anyone.'

According to Lin, the polarity licensor *bu* 'not' in the above cases behaves as an infix embedded in a compound verb so that it cannot c-command the polarity *wh*-phrase at SS. Instead of maintaining that the c-command relation applies at SS, Lin turns to propose that the compound verbs as in (12) are likely to undergo an LF "decomposing" process, resulting in a configuration with the negator *bu* taking a clausal complement. Under this proposal, the polarity licensor *bu* 'not' is hierarchically high enough at LF to c-command and thus license the polarity *wh*-phrase.

　　Appealing as it may appear, however, Lin's proposal of c-command at LF runs into several difficulties. First, it poses a problem of inconsistency under his theory. That is, he adopts the SS version in the analysis of A-not-A cases like (1a) and (2b), while the LF version in the analysis of cases like (11b) and (12). Second, the LF version of c-command fails to explain why A-not-A cases like (1a) and (2b) are ungrammatical, given that the A-not-A operator, in order to take the question scope, must raise to a left-peripheral position at LF where it should be able to license the polarity *wh*-phrase. Third, the resort to LF c-command is not a necessary solution for cases like (11b) and (12). In the next subsection, I propose that the c-command condition applies in overt syntax.

3.3. Revised C-Command: In Overt Syntax

　　In this subsection, I re-examine Lin's two pieces of evidence for LF c-command and argue that they can be accommodated in overt syntax. To begin with, a comparison of (11a) and (11b) with respect to word order may prompt us to treat the former as the underlying structure for the latter, assuming that overt movement has taken place. Consider the representation below.

(13)   Shei_i yaoshi *e*_i bu ting wode hua, wo jiu bu gei ta   tang chi.
        who if   not listen my   word I   then not give him/her candy eat
        'If somebody does not listen to what I say, I will not give him/her candies to eat.'

Here I point out two options for licensing the polarity *wh*-phrase in a case like (13). First, it can be said that the polarity *wh*-phrase is licensed at DS, that is, before it undergoes movement. Second, it is also possible that the polarity *wh*-phrase is licensed via chaining with its trace. Since the trace falls under the scope of the polarity licensor *yaoshi* 'if', it follows that the chaining member also lies within the province of *yaoshi* 'if'. In either way, it is clear that the polarity *wh*-phrase is licensed in overt syntax.

When it comes to the LF "decomposing" device proposed by Lin to explain data like (12), I suggest that it is not the only way out. An alternative analysis is that we may treat a V-not-suffix compound like *guai-bu-de* 'cannot blame' as a verbal negator. It is likely that such a compound verb has undergone some process of feature percolation (see also Nishigauchi 1986 and Tsai 1997 for utilizing this device in analyzing phrase-level patterns), so that the whole V-not-suffix compound now has the [+NEG] feature contributed by the infix *bu* 'not' and behaves on a par with a negator (see also Hsiao 2002 for treating a compound item like *wang-bu-liao* 'cannot forget' as a lexical negative verb). Being a negator, the compound verb can thus c-command and license the postverbal polarity *wh*-phrase.

Arguably, my verbal-negator analysis is not *ad hoc*. Another potential candidate qualified as a verbal negator is the verb *wushi* 'disregard' (lit., without-look-at). The contrast below in (14) demonstrates that all things being equal, the polarity phrase *renhe ren* 'anybody' can be licensed by the verb *wushi* 'disregard', as in (14a), but cannot be licensed by the verb *hushi* 'ignore', as in (14b).

(14)   a. Akiu wushi   renhe ren   de cunzai.
           Akiu disregard any   person of existence
           'Akiu disregards the existence of anybody.'

    b. *Akiu hushi renhe ren   de cunzai[5]

      Akiu ignore any   person of existence

      'Akiu ignores the existence of anybody.'

Interestingly, the verb *wushi* 'disregard' is (near-)synonymous with the verb *hushi* 'ignore', but only the former can license a polarity phrase, suggesting that it should be a polarity licensor. The same state of affairs can also be observed with polarity *wh*-phrases, as displayed below.

(15)   a. Akiu hen zida,   genben wushi   shei de cunzai.

      Akiu very arrogant at-all   disregard who of existence

      'Akiu is arrogant, disregarding the existence of anybody at all.'

     b. *Akiu hen zida,   genben hushi shei de cunzai.

       Akiu very arrogant at-all   ignore who of existence

       'Akiu is arrogant, ignoring the existence of anybody at all.'

---

[5] Shi-Zhe Huang pointed out to me that (14b) is an acceptable sentence to her. In fact, the sentence can be good, but the reading is free choice 'any' rather than polarity 'any'. According to Carlson (1980, 1981) and Ladusaw (1980), free choice 'any' is universal whereas polarity 'any' is existential. Consider the following empirical contrast in Mandarin Chinese (Lin 1998: 251).

(i)   a. Bu keneng   renhe ren   dou de jiang.   (universal, free choice 'any)

      not possible any   person all get prize

      'It is not possible that anybody will get a prize.'

    b. Bu keneg   you renhe ren   de jiang.   (existential, polarity 'any')

      not possible have any   person get prize

      'It is not possible that there will be anybody who gets a prize.'

As Lin indicates, only free choice 'any' must be accompanied by the universal quantifier *dou* 'all'. If we passivize (14a) and (14b), only the latter can co-occur with *dou* 'all', suggesting that a case like (14b) has no problem to express free choice 'any'.

(ii)   a. *Renhe ren   de cunzai   dou bei Akiu wushi.

      any   person of existence all BEI Akiu disregard

      'The existence of anybody is all disregarded by Akiu.'

    b. Renhe ren   de cunzai   dou bei Akiu hushi.

      any   person of existence all   BEI Akiu ignore

      'The existence of anybody is all ignored by Akiu.'

Thus, a case like (14b), when it is acceptable, does not count as a counterexample to my analysis, since the reading yielded is universal, which is not our current concern.

The acceptability of (15a) again verifies the working hypothesis that the verb *wushi* 'disregard' patterns with a negator, being able to license the polarity *wh*-phrase *shei* 'who'.

A question that remains under the verbal-negator hypothesis is how to prove that the verb *wushi* 'disregard' is a single-unit compound verb but not a sequence formed by a free negator plus a free verb. I show that this question can be tackled in terms of morphology. There is a considerable tendency that *wu*– 'without' and *–shi* 'see/look at' are both used as bound morphemes in modern Chinese. They seldom occur independently; rather, they usually appear with accompanying morphemes. Below I list two sets of examples for *wu*– 'without' and *–shi* 'see/look at', respectively.

Table 1. Morphology of *wu*– 'without'

	Word Formation	**Literal Meaning**	**Gloss**
a.	wu-qing	without-sentiment	merciless
b.	wu-guan	without-relevance	irrelevant
c.	wu-fang	without-hinder	just fine
d.	wu-ju	without-fear	fearless
e.	wu-di	without-enemy	invincible/unconquerable
f.	wu-li	without-reason	unreasonable
g.	wu-xian	without-limit	limitless/unlimited
h.	wu-xian	without-wire	wireless
i.	wu-ming	without-name	unknown
j.	wu-chi	without-shame	shameless
k.	wu-zhu	without-help	helpless
l.	wu-neng	without-competence	incompetent
m.	wu-jia-ke-gui	without-home-can-return	homeless
n.	wu-ren-bu-zhi	without-person-not-know	well-known
o.	wu-suo-shi-cong	without-place-fit-follow	be at a loss

Table 2. Morphology of *–shi* 'see/look at'

	Word Formation	**Literal Meaning**	**Gloss**
a.	jin-shi	near-see	myopia
b.	yuan-shi	far-see	hyperopia
c.	xie-shi	oblique-see	strabismus
d.	ruo-shi	weak-see	amblyopia
e.	fu-shi	bend-see	look down at

f.	ning-shi	concentrate-see	gaze/peer at
g.	zheng-shi	right-see	face up to
h.	bi-shi	scorn-see	despise
i.	miao-shi	small-see	look down upon
j.	zhong-shi	heavy-see	think highly of
k.	qing-shi	light-see	belittle
l.	jian-shi	watch-see	spy
m.	luo-shi	bare-see	eyesight without glasses
n.	dian-shi	tele-see	television
o.	duan-shi-jin-li	short-see-near-benefit	lack foresight

A conclusion can be drawn from the above tables that *wu–* 'without' and *–shi* 'see/look at' exhibit affixal properties. When combined together, *wu–* 'without' and *–shi* 'see/look at' attach to each other and form a single lexical item, namely, a compound verb.

Note in passing that a test which can be invoked for distinguishing between a negative bound morpheme like *wu–* 'without' and a negative free morpheme like *bu* 'not' is the A-not-A formation. That is, a verbal negative bound morpheme can sometimes undergo A-not-A reduplication, [6] whereas a clausal negation marker never can, as evidenced below.

(16)   a. Ta   hen wu-qing.

　　　 s/he very without-sentiment

　　　 'S/he is (very) merciless.'

　　 b. Ta [A-not-A wu-bu-wu]-qing?

　　　 s/he　　　without-not-without-sentiment

　　　 'Is s/he merciless or not?'

(17)   a. Ta   bu lai.

　　　 s/he not come

　　　 'S/he will not come.'

---

[6] I have noticed that the verbal items listed in Table (1) have varying degrees of ability to undergo A-not-A reduplication, for reasons yet to be determined. I leave this question open here.

b. *Ta [A-not-A bu-bu-bu]   lai
    s/he   not-not-not come
    'Will s/he come or not?'

The above contrast corroborates our analysis of *wu*– 'without' as being a bound morpheme and as being differentiated from a free negation marker.

The purpose of the above discussion on the verb *wushi* 'disregard' is to show that this compound verb incorporating a negative morpheme behaves in parallel with a negator as a polarity licensor. Analogously, we can also treat V-not-suffix compounds like *suan-bu-liao* 'not count' in (12a) and *guai-bu-de* 'cannot blame' in (12b) as negators. Under this analysis, it comes as no surprise that such negators may c-command and license a polarity *wh*-phrase in overt syntax. No appeal to LF is necessary.

Summarizing, I have proposed a unified c-command account of polarity *wh*-phrases. This account views c-command relations from overt syntax and provides a satisfactory explanation for the contrast between (1a) and (1b). Moreover, the conflict that emerges in Lin's theory between c-command at SS and c-command at LF is never a problem under my proposal here.

4. Conclusion

It is proposed in this study that the subject-object asymmetry with respect to existential polarity *wh*-phrases in A-not-A questions can be resolved in terms of c-command. A polarity *wh*-phrase in the subject position fails to be c-commanded by the A-not-A licensor in overt syntax, while that in the object position has no such problem. It is also argued that an account based on (in)definiteness of the NP subject is untenable and that an appeal to LF c-command is unnecessary.

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Multiple-Modal Constructions in Mandarin Chinese: A Cartographic Approach and an MP Perspective[∗]

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This paper aims to give a thorough account of the ordering restrictions on multiple-modal constructions in Mandarin Chinese. First, we give a brief introduction of modals. Then we examine a "modals as verbs" approach (Lin and Tang 1995, Lin 2006), which proposes that modals are clause-taking verbs and handles the sequencing constraints through the finiteness property of the causal complement that modals takes. Next, we address several arguments to advocate a cartographic approach (Rizzi 1997, Cinque 1999), which assumes that modals are directly merged in functional projections and there exists a rigid hierarchy of modals. Finally, we compare relative distributions among modals and establish a fine-gained modal hierarchy, thereby elucidating the ordering restrictions on multiple-modal constructions.

1. Introduction

Mandarin Chinese (henceforth MC) allows two or more modals to co-occur; however, some ordering restrictions seem to be at work. As exemplified in (1), if we reverse the relative order of the two modals, the sentence will turn ungrammatical:

(1) a. ta keneng hui   chuxi.
         he likely will present
         'It is likely that he will be present.'
     b. *ta hui   keneng chuxi.
          he will   likely   present

The papers then endeavors to find out the mechanism for arranging modals.

Since so far linguists have not reached a consensus on the classification of modality an on the exact membership of modals in MC, in this paper we will focus only on ten typical modals and classify them as bellow:

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Epistemic	Future	Root
Necessity: *yinggai*	*hui*	Obligation: *yinggai, bixu, dei, yao*
Possibility: *keneng*		Permission: *keyi, neng/nenggou*
		Volition: *ken, gan*
		Ability: *neng/nenggou, hui, keyi*

Furthermore, we will distinguish modal auxiliaries from modal adverbs. Tsai (2009) proposes that VP-fronting and VP-ellipsis can be licensed only by the former but not by the latter. Based on the criteria, we tentatively treat *yinggai*, *keneng*, and *bixu* as adverbs and *hui*, *dei, yao*, *keyi, neng/nenggou, ken*, and *gan* as auxiliary heads.[1]

      The organization of the paper goes as follows. In Section 2 we review the "modals as verbs" (MAV) approach. In Section 3 we provide seven arguments to advocate the cartographic approach. In Section 4 we exploit the cartographic approach to establish a fine-grained modal hierarchy in MC. Section 5 concludes the paper.

2. The MAV Approach
2.1. Lin and Tang (1995)

      Lin and Tang contend that modals in MC are verbs that take a CP complement. More specifically, epistemic modals, including *hui* in their system, obligation *yinggai*, and permission *keyi* are raising verbs; the rest of the root modals are control verbs. They also offer several arguments to support their analysis; in what follows, we will examine them carefully and raise some questions.

2.1.1. Sentence-final Modals

      Lin and Tang observe that modals can appear sentence-finally:

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[1] Take the VP-fronting test for example:

(i)   a.   [chuguo]$_i$, Zhangsan gan/ken/keyi/neng/hui   **t**$_i$.
           go-abroad Zhangsan dare/willing/can/can
           'Zhangsan dare/is willing/permitted/able to go abroad.'
   b. *[chuguo]$_i$, Zhangsan yinggai/keneng/bixu/dei/yao **t**$_i$.
           go-abroad Zhangsan should/likely/must/must/must

However, the above judgments are not accepted by every speaker. Besides, the test does not seem to apply to all modals. For instance, *dei* and *yao* fail to license VP-fronting, which implies that they are modal adverbs, though we will still regard them as modal auxiliaries.

(2) a. ni   zheyang zuo (bu) yinggai. (Lin and Tang 1995: 56)
         you this-way do   not should
         'For you to do it this way is (un)acceptable.'
     b. ni   zheyang fenxi   keyi.
         you this-way analyze can
         'For you to analyze (it) this way is acceptable.'

I agree with them that in these configurations modals serve as a main predicate and the elements before them constitute a sentential subject, but I disagree with them that modals are verbs. In MC, various types of phrases can role-play as predicates in addition to VPs. For instance, PPs and APs can generally function as main predicates:

(3) a. Zhangsan zai Taipei. (PP predicate)
         Zhangsan in   Taipei
         'Zhangsan is in Taipei'
     b. Zhangsan hen gao. (AP predicate)
         Zhangsan very tall
         'Zhangsan is very tall.'

More importantly, we find that the occurrence of sentence-final modals is in fact highly restrictive. Epistemic and future modals can never occur sentence-finally. In (2a) only the obligation reading of *yinggai* is obtainable, while its epistemic reading is unavailable.[2] Furthermore, either in a simple or negative form, laying *keneng* or *hui* in a sentence-final position will cause marginality or ungrammaticality:

(4)   ??ta zheyang zuo (bu) keneng.
           he this-way do   not likely/likely-not-likely
          Intended: 'That he did it this way is (not) possibly the case.'
(5)   *ta qu Taipei (bu) hui.
           he go Taipei   not will/will-not-will
          Intended: 'He will (not) go to Taipei.'

Lin and Tang do not notice all the constraints. They mention that *hui* cannot appear sentence-finally, but they simply ascribe the prohibition to an idiosyncratic property of *hui*. That is, whether the whole complement clause can raise to serve as a sentential subject depends on the choice of the matrix predicate, which constitutes a stipulation.

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[2] In fact, here we have a different judgment from Lin and Tang. If we omit *bu* 'not' in (2a), the acceptability will largely decrease. Even if we retain *bu*, the sentence still sounds odd.

Lin and Tang further contend that modals are verbs since modals can be negated by *bu* 'not' and form A-not-A questions. However, some of the PPs and APs can perform the same task as well. Take the AP *gao* 'tall' for example:

(6)   a. Zhangsan bu gao.
          Zhangsan not tall
          'Zhangsan is not tall.'
      b. Zhangsan gao-bu-gao?
          Zhangsan tall-not-tall
          'Is Zhangsan tall or not?'

All in all, no direct evidence shows that modals are verbs.

2.1.2. Sentence-initial Modals

Lin and Tang find that epistemic modals can occur sentence-initially:

(7)   yinggai/keneng Zhangsan yijing likai le.
           should/likely   Zhangsan already leave Prf
           'It should be the case/It is likely that Zhangsan has already left.'

They propose that for raising modals either the whole clausal complement or simply the embedded subject can be moved to the matrix subject position. Moreover, they assume the existence of empty expletives in MC. Therefore, the embedded subject or the entire complement clause can either raise or stay in-situ, depending on the occurrence of an empty expletive. In the case of (7), the latter option is adopted.

Nonetheless, as indicated by Lin and Tang themselves, *hui* 'will' as an epistemic modal cannot appear in the sentence-initial position:

(8)   *hui Zhangsan mingtian qu Taipei.
         will Zhangsan tomorrow go Taipei
        Intended: 'Zhangsan will go to Taipei tomorrow.'

It is then perplexing why an empty expletive cannot render (8) grammatical. Lin and Tang, however, have no explanation for why *hui* cannot occur sentence-initially. Additionally, obligation *yinggai* and permission *keyi* are also classified as raising verbs by Lin and Tang. If that were true, then why should they also resist sentence-initial occurrence, as in (9)?

(9)   *yinggai/keyi Zhangsan dai zai jiali.
          should   Zhangsan stay at   home
          Intended: 'Zhangsan is required/permitted to stay at home.'

More concretely, if obligation *yinggai* and permission *keyi* were raising verbs, they should also be able to follow an empty expletive and appear sentence-initially. Nevertheless, Lin and Tang miss the restrictions that rule out (9).

Most importantly, if raising modals took a CP complement, we would expect subject raising from the embedded clause to the matrix clause to be impossible. That is, subject raising would cause Empty Category Principle (ECP) violation. Lin and Tang suggest that in this case the CP layer becomes transparent so that the trace can be properly governed, i.e. a CP-transparency approach. However, as they also admit, this approach is simply a stipulation triggered by individual lexical entry.

In terms of current MP assumptions, Lin and Tang's proposal is also dubious. Chomsky (2000, 2001) argues that raising constructions lack a CP layer. Even if MC were particular in that raising verbs could take a CP complement, raising of the embedded subject would still violate the Phase Impenetrability Condition (PIC). More specifically, the case feature of the embedded subject must have already been valued by a Φ-complete T selected by C. Unless the subject bears some unvalued peripheral features, it must thereafter become inaccessible to the higher phases and no longer participate in subsequent syntactic computation.

2.1.3. Adjacent Modals

Lin and Tang argue that multiple-modal construals involve multi-clausal structures. This is evidenced by the fact that each of the adjacent modals may be negated by an independent negative *bu* 'not':

(10)   ta bu   yinggai bu hui bu lai. (Lin and Tang 1995: 68; (27))
          he not should not will not come
          'It ought not to be the case that it is not possible that he will not come.'

They assume that *bu* is generated in Infl. Consequently, if modals are clause-taking verbs, it follows directly that each modal in (10) can be independently negated by *bu*.

However, it is now widely accepted that negative elements reside in a dedicated NegP projection rather than in Infl. Cinque (1999) further contends that

NegP can be based-generated in several distinct positions within a clause. If so, it is natural for *bu* to arise repeatedly and again we do not have to treat modals as clause-taking verbs.

2.2. Lin (2006)

Lin further polishes Lin and Tang's (1995) analysis. Lin proposes that epistemic and obligation modals take a finite TP complement and can only appear in finite context. By contrast, future and other types of root modals take a nonfinite TP complement and can occur in finite and nonfinite clauses. As a result, modals that take a finite TP must precede modals that take a nonfinite TP, and Lin thereby sets up the following hierarchy of modals in MC, cited from Lin (2006: 8):

(11)   Necessity > Possibility/Obligation > Future > Ability/Permission/Volition

Lin also offers evidence to support his proposal. He argues that epistemic modals always scope over *le*2 since *le*2 can be licensed within their finite TP complements. Conversely, root modals always scope under *le*2 because *le*2 cannot be licensed within their nonfinite TP complements. If *le*2 is to appear, it must be generated in the matrix Asp^0 and takes the modal verb as its complement. To illustrate, see (12) below, cited from Lin (2006: 14).

(12) a. Zhangsan$_i$ T$_F$ [$_{AspP}$ [$_{VP}$ keneng [$_{TP}$ **t**$_i$ T$_F$ [$_{AspP}$ [$_{VP}$ qu Taipei] le]]] Ø]
          Zhangsan   likely   go Taipei Prf Stc
          'It is likely that Zhangsan has gone to Taipei.'
      b. Zhangsan$_i$ T$_F$ [$_{AspP}$ [$_{VP}$ nenggou [$_{TP}$ PRO T$_{NF}$ [$_{AspP}$ [$_{VP}$ qu Taipei] Ø]]] le]
          Zhangsan   able   go Taipei Stc   Prf
          'Zhangsan has (become) able to go to Taipei.'

Lin's analysis is elegant, but some minor problems exist. First, if *le*2 must get licensed in finite context, then why *le*2 cannot appear in the matrix clause of (12a), which is also finite, and hence scope over *keneng*?

In addition, Lin's analysis cannot predict the distribution of *yijing* 'already'. According to Tang (2001), *yijing* occurs only in finite clauses but not in nonfinite clauses. Nonetheless, *yijing* can occur in the matrix clause of *nenggou* but not that of *keneng*. This is unexpected by Lin since both matrix clauses are finite in his analysis:

(13) a. ta (yijing) neng (*yijing)   shuo yingwen. (Tang 2001: 232; (75c))
          he already can   already speak English
          'He (already) can speak English.'
      b. ta (*yijing)   keneng (yijing) lai   le. (Tang 2001: 232; (75d))
          he   already possible already come Prf
          'He probably has (already) come.'

Moreover, Chomsky (2000, 2001) argues that control and finite constructions are both headed by C. If Chomsky's argument holds universally, the finite and the control structure in (12a-b) should also have a CP layer and the same PIC violation problem will arise again. Even if control and finite clauses in MC indeed lack a CP layer, we will still require a proper explanation for why MC is so particular.

Lin (2007) attempts to solve the above problem and contends that MC has no grammatical features that need to be checked; accordingly, the subject of a finite clause is free to raise. Specifically, he argues that there are no Φ-features and/or case feature in either T or the embedded subject, and the agreement requirement is vacuously satisfied. As a consequence, the embedded subject is never rendered inactive and is free to move to satisfy just the EPP-feature of matrix T.

Lin's solution, nevertheless, involves some controversies. On the one hand, it remains debatable whether MC has grammatical features or not. On the other hand, the approach to some degree deviates from the current MP notions. According to Chomsky (2000, 2001), only an uninterpretable or unvalued feature will make a probe and a goal. If there were no grammatical features on T and NPs at all, no agreement relation could be established. Though movement is EPP-driven, without agreement, EPP alone could not locate a proper candidate for movement. In other words, movement applies on the basis of agreement; EPP cannot complete the task by itself. In view of this, subject raising constitutes a tough problem to the MAV approach.

3. The Cartographic Approach and its Explicative Advantages

Cinque (1999, 2006), Butler (2003), and Tsai (2009), among others, all claim that modal auxiliaries are not verbs, but they are in fact directly merged in distinct functional projections in syntactic structure. Furthermore, they argue that there exists a rigid hierarchy among modals in the syntax and/or at LF, thus accounting for the ordering restrictions on multiple-modal constructions. In what follows, we will address seven arguments to advocate the cartographic approach, showing that it achieves better explanatory adequacy than the MAV approach in both theoretical and

empirical respects.

3.1. Sentence-initial/final Modals and Normal Subject-modal Order

We have seen that there are restrictions on sentence-initial occurrence of modals. From the view of the cartographic approach, because epistemic modals like *yinggai* and *keneng* stand high in the CP periphery, it follows naturally that they can precede the subject. In this way, there is no need to resort to empty expletives, whose existence in MC remains controversial. Moreover, since the future modal *hui* has a bearing on tense, we may tentatively place it around I/T.[3] Suppose further that Chomsky's (2000: 109) proposal is on the right track that "the EPP-feature might be universal for T", then subjects in MC must raise at least to Spec-I/TP. Accordingly, it follows directly that *hui* can never appear in the sentence-initial position. In addition, since root modals stand between vP and I/TP, it follows straightforwardly that obligation *yinggai* and permission *keyi* resist sentence-initial occurrence.

On the other hand, we have seen that there are also constraints on sentence-final occurrence of modals. We have indicated that only root modals can behave as a main predicate, whereas epistemic and future modals can never do so. Tsai (p.c.) proposes that most modal auxiliaries are grammaticalized from verbs. Therefore, root modals interspersed between vP and I/TP could still retain their verbal characteristic to serve as a main predicate. In contrast, epistemic and future modals interspersed in the I/TP and the CP layer are too deeply grammaticalized; consequently, they may have lost the ability to function as a main predicate.[4]

In view of the above argumentation, the cartographic approach explains the sentence-initial/final occurrence of modals in a more precise and principled way than the MAV approach. Furthermore, only the former captures the distinction between modal adverbs and modal auxiliary heads and the fact that the so-called "modal verbs" have undergone grammaticalization and are no longer pure lexical verbs.

Concerning the normal subject-modal sequence, I attribute it to a common subject topicalization phenomenon in MC. Note what I am contending here is that subjects in MC often, but not generally or always, move to a topic position. According

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[3] It must be emphasized that we deny that *hui* is a syntactic realization of tense.
[4] Notice that adverbs cannot serve as main predicates. If *yinggai* and *keneng* are indeed modal adverbs, it is natural that they cannot behave as a main predicate. Then, the marginality or oddness induced by sentence-final *yinggai*, as we indicated in n.2, is accounted for.

to Rizzi (1997, 2004), TopP is recursive in the left periphery, as shown below:

(14)   Force Top* Int Top* Focus Mod* Top* Fin IP (Rizz 2004: 241)

As a result, for cases where the subject follows an epistemic modal, the subject probably stays in Spec-I/TP or moves to a lower topic position. On the contrary, for cases where the subject precedes an epistemic modal as in (15), the subject probably moves to a higher topic position:

(15)   Zhangsan yinggai/keneng yijing   likai le.
         Zhangsan should/likely   already leave Prf
         'Zhangsan should/is likely to have left already.'

3.2. Resistance to Passivization and Transparency Effects
         We observe that modals never undergo passivization. In MC, some of the state verbs taking a clausal complement, such as *renwei* 'consider', can be passivized, as in (16). However, none of the modals is found to be able to get passivized, as in (17):

(16)   Zhangsan$_i$ bei renwei t_i hen   xihuan yanxi.
         Zhangsan BEI consider very like   acting
         'Zhangsan is considered to like acting a lot.'
(17)   *Zhangsan$_i$ bei keneng/hui/yao/keyi/neng/ken t_i hen xihuan yanxi.
          Zhangsan BEI likely/will/must/can/can/willing   very like   acting

If modals belonged to the class of clause-taking state verbs, we would expect that at least some of the modals could undergo passivization. The MAV approach then has to stipulate that no modals can be passivized, which is an unwelcome result.
         The contrast is reminiscent of Cinque's (2006) analysis of "restructuring" verbs. He assumes that universally the "restructuring" verbs, including modal, aspectual, and motion verbs, are in fact directly merged in distinct functional heads corresponding to their semantic content. Besides, a monoclausal structure is involved instead, rather than a biclausal structure. Consequently, the transparency effect often induced by "restructuring" verbs is only apparent. To be more specific, the subject simply raises from Spec-vP to Spec-I/TP or to a topic position within the same clause; therefore, there will never be ECP or PIC violations.
         Regarding the contrast between (16) and (17), Cinque (2006) indicates that the

phenomenon that "restructuring" verbs resist passivization is universal. It follows directly from the fact that a passive form must raise to Voice to check the relevant feature and that no lowering is admitted. This implies that only a true lexical verb generated in VP will be able to get passivized. This also suggests that modals occupy functional heads higher than Voice rather than occupy the lexical verbal head.

3.3. Restriction against Modal-aspect Adjacency

We notice that there is a restriction preventing modals from adjoining aspect markers. In MC, some of the state verbs that take a clausal complement like *xiang* 'think', for example, can immediately precede aspect makers like perfective *le*₁, experiential *guo*, and durative *zhe*, as demonstrated in (18-20), respectively:

(18)   ta xiang le₁ xujiu ruhe jiejue zhe wenti.
         he think Prf long how solve the problem
         'He has thought how to solve the problem for long.'
(19)   ta xiang guo shifou   yao   jieshou zhe liwu.
         he think Exp whether going-to accept the gift
         'He thought whether to accept the gift before.'
(20)   ta zheng xiang zhe shifou   yao   jieshou zhe liwu.
         he right   think Dur whether going-to accept   the gift
         'He is right thinking whether to accept the gift.'

If modals were also state verbs taking clausal complements, we would expect that at least some of them could immediately precede aspect markers, contrary to the fact:

(21)   *ta yinggai/keneng/hui/dei/keyi/ken   le₁/guo/zhe   kai   saiche.
             he should/likely/will/must/can/willing   Prf/Exp/Dur drive race-car

The MAV approach then has to resort to semantic accounts or simply add another stipulation that no modals can be immediately adjacent to an aspect maker.

Alternatively, the cartographic approach alone can offer a plain and purely syntactic exposition. According to Liao (2004) and Tsai (2008), *le*₁, *zh*e, and *guo* are middle aspects situated between vP and VP. Besides, it is a common assumption that main verbs in MC normally move to v. Accordingly, (21) crashes simply because the genuine verb *kai* 'drive' fails to raise to v and precede the middle aspect. If we execute the V-to-v movement, the sentence will turn acceptable (the MAV approach would instead make an opposite prediction within the same framework):

(22)   ta keneng kai guo saiche.
         he likely drive Exp race-car
         'Possibly, he has driven a race car before.'

3.4. Scope Interaction between *le2* and Modals

We have shown in 2.2 that epistemic modals always scope over *le2* as in (23), while root modal always scope under *le2* as in (24):

(23)   ta keneng qu Taipei le.
         he likely   go Taipei Inc
      a. 'It is likely that he has gone to Taipei.'   (*keneng > le2*)
      b. *'It has become the case that possibly he will go to Taipei.' (*le2 > keneng*)
(24)   ta bixu qu Taipei le.
         he must go Taipei Inc
      a. *'He is required to have gone to Taipei.'   (*bixu > le2*)
      b. 'It has become the case that he is required to go to Taipei.'   (*le2 > bixu*)

However, the MAV approach cannot fully anticipate the scope interaction between *le2* and modals and has to resort to semantic factors.

On the contrary, the cartographic approach alone could provide a simple and straightforward account. Tsai (2008) treats *le2* as an inchoative marker in the left periphery. This being so, it follows naturally that epistemic modals like *yinggai* and *keneng*, which also stand in the CP layer, may scope over *le2*. Conversely, root modals sit below I/TP; therefore, it follows directly that they always scope under *le2*.

3.5. Scope Interaction between TP-layer Adverbs and Modals

Tang (2001) notices that the TP-layer adverb *yijing* can only appear in tensed (finite) clauses, but not in tenseless (nonfinite) clauses. Moreover, she observes that *yijing* precedes dynamic modals, but follows epistemic modals:

(25) a. ta (yijing) neng (*yijing) shuo yingwen. (Tang 2001: 232; (75c))
          he already can   already speak English
          'He (already) can speak English.'
      b. ta (*yijing) keneng (yijing) lai   le. (Tang 2001: 232; (75d))
          he already possible already come Prf
          'He probably has (already) come.'

The pattern is unexpected by the MAV approach since the matrix clauses of both sentences in (25) are finite. It then needs to appeal to semantics for solutions.

By contrast, the cartographic approach alone could correctly predict the pattern in an easy and direct way. Tang assumes that TP-layer adverbs are licensed by T. As a result, epistemic modals, which reside in the CP domain, must precede *yijing*. Conversely, dynamic modals, which reside in the vP domain, must follow *yijing*.

3.6. Scope Interaction between *yinggai* and Different Layers of Adverbs

We have shown in Section 1 that *yinggai* has two interpretations: epistemic necessity and obligation. Nevertheless, when *yinggai* precedes the adverb *zongshi* 'always', only the epistemic reading is available, as in (26). In contrast, when *yinggai* follows *zongshi*, only the obligation reading is obtainable, as in (27).

(26) ta yinggai zongshi beiheiguo, (zhenshi daomei).
    he should always   take-blame   really   unlucky
  a. 'It should be the case that he always takes the blame for others, (what a bad luck).'   (epistemic)
  b. *'He is required to always take the blame for others, (what a bad luck)'
                 (obligation)
(27) ?ta zongshi yinggai beiheiguo, (zhenshi daomei).
    he always should   take-blame really   unlucky
  a. *'It always should be the case that he takes the blame for others, (what a bad luck).'   (epistemic)
  b. 'He is always required to take the blame for others, (what a bad luck).'
                 (obligation)

In terms of the MAV approach, epistemic *yinggai* and obligation *yinggai* share the same structure (they are both raising verbs taking a finite clausal complement). It cannot explain why different placement of *zongshi* could function to rule out either of the construals of *yinggai*.

On the contrary, the cartographic approach can easily explicate the above phenomena. In the light of Cinque (1999), adverbs like *zongshi* might be hosted by Asp~perfect~. If *zongshi* stands higher than the obligation *yinggai* in the I/TP layer, it then follows straightforwardly that only the epistemic *yinggai* in the CP layer can precede *zongshi* and only the obligation *yinggai* can follow *zongshi*.

3.7. Scope Interaction between Symmetric Predicates and Modals

Brennan (1993) points out that if clauses with symmetric predicates also contain modals, the symmetric relations remain valid only under epistemic readings but not under root readings. According to her, epistemic modals are propositional operators, hence not affecting the way a predicate and its subject combine. By contrast, root modals are VP operators, thus changing the nature of a predicate (the subject will no longer combine with the original predicate). The same observation also applies to MC:

(28)   a.   Zhangsan kanqilai xiang Hushi.
          Zhangsan look   like Hushi
          'Zhangsan looks like Hushi.' → 'Hushi looks like Zhangsan.'
       b.   Zhangsan yinggai/keneng   kanqilai xiang Hushi.
          Zhangsan should/be-likely look   like Hushi
          'It should be the case/is likely that Zhangsan looks like Hushi.' → 'It should be the case/is likely that Hushi looks like Zhangsan.'
       c.   Zhangsan bixu/keyi kanqilai xiang Hushi.
          Zhangsan must/can look   like Hushi
          'Zhangsan is required/able to look like Hushi.' -/→ 'Hushi is required/able to look like Zhangsan.'

In (28c), we cannot infer that Hushi is required or able to look like Zhangsan. Nonetheless, the MAV approach cannot explicate why the symmetric relation is canceled by root modals.

On the other hand, the cartographic approach precisely captures these facts. Epistemic modals sit in CP, whereas the future modal and root modals lie in I/TP and between I/TP and vP, respectively. As a consequence, the former will not affect the relation between the subject and its predicate but the latter will.

4. Modal Hierarchy in MC--Topography of Modals

In this section, we exploit the cartographic approach to establish a rich and articulated modal hierarchy in MC. We will compare the relative distributions among modals and thereby set their positions in syntactic structure.

To begin with, we find that the epistemic necessity modal *yinggai* occurs before the epistemic possibility modal *keneng*, but not the other way round, as in (29)[5]:

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[5] In fact, whether *yinggai* and *keneng* are classified as adverbs or auxiliary heads does not hinder our cartographic task. Cinque (1999) argues that each adverb class enters into a special spec-head relation with one particular functional head, and vice versa. Furthermore, each

(29) a. ta yinggai keneng zai jia.
          he should likely   at   home
           'It should be the case that he is likely to be at home.'
      b. *ta keneng yinggai zai jia.
           he be-likely should   at   home
          Intended: 'It is likely that it should be the case that he is at home.'

Next, since epistemic modals stand in the CP periphery, they should be followed by the future modal and all root modals, which lie in the I/TP domain. As shown in (30), this is indeed the case:

(30) a. ta keneng hui/bixu/yao/dei/neng/keyi/ken   chuxi.
          he likely   will/must/must/must/can/can/willing present
           'It is likely that he will/ is required/permitted/able/willing to be present.'
      b. *ta hui/bixu/yao/dei/neng/keyi/ken   keneng chuxi.
           he will/must/must/must/can/can/willing likely   present

In addition, we notice that the future modal and the obligation modals both precede other types of root modals as in (31), but they are mutually exclusive in either order as in (32):

(31) a. ta hui/bixu   keyi/neng/ken chuxi.
          he will/must can/can/willing present.
           'He will/must be permitted/able/willing to be present.'
      b. *ta keyi/neng/ken   hui/bixu chuxi.
           he can/can/willing will/must present
(32) a. ??ta hui bixu/dei/yao/yinggai chuxi.
            he will must   present
      b. ??ta bixu/dei/yao/yinggai hui chuxi.
           he must   will present

In Rizzi's (1997, 2004) spirit, this indicates that the future modal *hui* and the obligation modals must compete for the same position, namely around I/T.

Furthermore, we observe that permission modals can to some extent precede

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functional head hosts only one adverb of the same class in its Spec. Consequently, if an adverb precedes a functional head of a different class, the covert head hosting the adverb also precedes the overt functional head. In other words, both modal adverbs and modal auxiliary heads can reflect their position in the functional hierarchy.

ability and volition modals, as demonstrated in (33-34):

(33) a. ?ta keyi   neng(gou) qu Taipei.   (permission > ability)
         he permitted able   go Taipei
         'He is permitted to be able to go to Taipei.'
     b. *ta keyi neng(gou) qu Taipei.   (ability > permission)
         he able permitted go Taipei
(34) a. ?ta keyi   ken   wei ni zuoshi.   (permission > volition)
         he permitted willing for you work
         'He is permitted to be willing to wrok for you.'
     b. *ta ken   keyi/neng(gou) wei ni   zuoshi.   (volition > permission)
         he willing permitted   for you work

Moreover, we note that the ability modal and the volition modal mutually exclude each other in either order as in (15):

(35) a. *ta keyi/neng(gou) ken/gan   wei ni   maoxian.
         he able   willing/dare for you risk
     b. *ta ken/gan   keyi/neng(gou) wei ni   maoxian.
         he willing/dare able   for you risk

Again, this signifies that ability modals and volitions modals compete for the same position, in the light of Rizzi (1997, 2004).

Finally, we reach a comprehensive modal hierarchy in MC as presented below[6]:

(36)   necessity > possibility > future/obligation > permission > ability/volition

We could then map the hierarchy onto a finer tree diagram, where the possible distributions of subjects are also included:

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[6] Ignoring different classification of modality, we notice that there is a significant difference between Cinque (2006)'s hierarchy and the one we derive. We have no clear expositions at present. Perhaps UG allows languages to have different functional hierarchies to some degree. Or perhaps modals in MC undergo some kinds of movement, thus disrupting their surface order, and the functional hierarchy still holds cross-linguistically as Cinque assumes.

(37) ...TopP

```
        TopP
   Subj      Top'
        Top      EpiP_nec
           Epi_nec      EpiP_pos
                 Epi_pos      TopP
                        Subj      Top'
                             Top      FinP
                                  Fin      I/TP
                                       Subj      I/T'
                                            Fut/Obl      ModP1
                                                    Per      ModP2
                                                         Abi/Vol      vP...
```
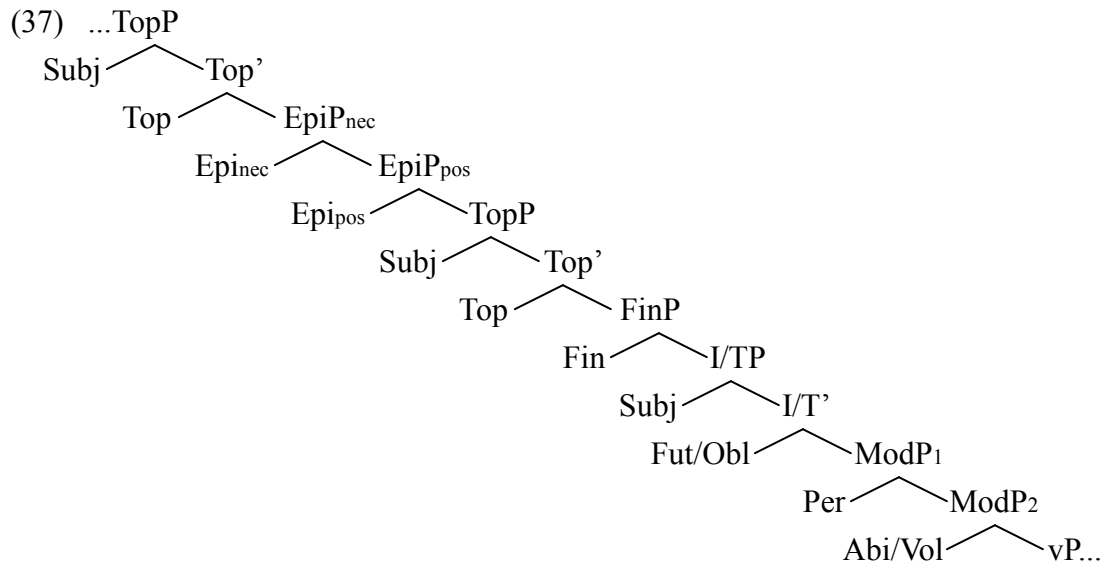
5. Conclusion

We have demonstrated that the cartographic approach achieves better explanatory adequacy than the MAV approach in both theoretical and empirical aspects. More concretely, if we assume that modals are directly merged in distinct functional projections and establish a rigid modal hierarchy, rather than treat modals as verbs, we could elucidate the ordering restrictions on multiple-modal constructions and the relevant phenomena in a simpler, more precise, and more principled way.

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Argument Realization: Particularities and Universals[1]

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The paper shows that although Chinese and English differ in the extent of
argument omission, there are universals that govern argument realization in both
languages. Such universals are of two types: universals that concern the cases of
full realization of arguments in active sentences and universals that are either not
contingent on whether arguments are fully or partially realized or about partial
realization of arguments alone.

1. Introduction

According to Levin & Rappaport Hovav (2005: 3), argument realization
"encompasses all facets of the syntactic expression of arguments of verbs, including the
entire range of options for the grammatical relation they may bear, their syntactic
category, and their surface morphosyntactic expression." Levin & Rappaport Hovav list
five major questions that need to be addressed by a complete theory of argument
realization and one of them concerns the extent to which "nonsemantic factors such as
information structure and heaviness govern argument realization" (ibid.).

The purposes of this paper are to discuss the effect of information structure and
information load on argument realization and to examine argument realization
particularities and universals in this regard. Specifically, the paper will discuss
particularities in argument realization that distinguish Chinese and English and propose
six universals related to argument realization, almost all of which have something to do
with the effect of information structure or information load on the syntactic realization of
arguments.

2. Extent of argument omission

Languages differ in argument realization along the dimension of the extent to
which arguments can be omitted. A case in point is the difference between Chinese and

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Abbreviations: CL=classifier; EXP=experiential aspect; MM=modifier marker; PERF=perfective
aspect; PROG=progressive; QUES=question particle; SFP=sentence-final particle.

English. Specifically, whereas subject-drop and object-drop are often seen in Chinese, they are not common in English. For example, (1a), (1b), and (1c) involve subject-drop, object-drop, and both subject-drop and object-drop, respectively, and all the three Chinese sentences are well-formed. However, as shown in (2), the English counterparts of the three examples are all ungrammatical.

(1) a. Chi-fan-le   ma?
         eat-meal-PERF   QUES
         'Have (you) eaten yet?'
     b. Wo zuotian   qu mai   [na-ben   shu]$_i$, keshi mei   zhaodao ϕ_i.
         I   yesterday   go   buy   that-CL   book   but   not   find
         'I went to buy that book yesterday but could not find (it).'
     c. Ji-le   ma?
         send-PERF   QUES
         Have (you) sent (it) yet?

(2) a. *Have eaten yet?
     b. *I went to buy that book yesterday but I could not find.
     c. *Have sent?

     As the omitted subjects and objects are typically topics, one may attribute the more freedom of allowing null subjects and null objects in Chinese to the fact that Chinese is a topic-prominent or discourse-oriented language while English is a subject-prominent or sentence-oriented language (Huang 1984; Li 2004; Li & Thompson 1976; Tsao 1979, 1990). However, the point I want to make is that discourse and syntax are so interrelated in Chinese that one cannot fully understand Chinese syntax and the full range of argument realization possibilities without taking discourse into consideration. In fact, as far as object omission is concerned, it is normally obligatory when the object NP is inanimate, is something under discussion and maximally "active" in the sense of Chafe (1994), and is not in contrast. As shown in (3-4), both *na-ben shu* 'that book' and *zhe-bu xiaoshuo* 'this novel' refer to something inanimate, with the former being something under discussion in (3) and the latter in (4). In addition, no contrast is involved in both examples. In this case, a zero form needs to be used to refer to the entity denoted by *na-ben shu* and *zhe-bu xiaoshuo* respectively, as demonstrated by the ungrammaticality of (3-4) when a pronoun is used.

(3) Wo   zuotian   qu mai [na-ben   shu]$_i$,   keshi   mei   zhaodao ($*^{/?}$ta$_i$). (cf. (1b))
     I   yesterday go   buy that-CL   book   but   not   find   it
     Intended: 'I went to buy that book yesterday but could not find it.'

(4) Wo   kan-guo   [zhe-bu xiaoshuo]$_i$,   ni   ye   kan-guo   (*ta$_i$)   ma?
    I   read-EXP   this-CL   novel   you   also   read-EXP   it   QUES
    'I read this novel before. Did you read it before, too?'

Similarly, as far as written Chinese is concerned, subject-drop is normally obligatory when the omitted subject is coreferential with the object NP introduced in an earlier clause of the **same sentence** and when the clause involving subject-drop is used to provide more information about the object NP of the earlier clause. For instance, as shown in (5-6) below, the subject of the second clause, which is coreferential with the object NP (*henduo pingguo* 'many apples' in (5) and *san-ben shu* 'three books' in (6)) of the first clause, needs to be omitted to make the sentences grammatical.

(5) Ta   zuotian   mai-le   [henduo pingguo]$_i$,   (*tamen$_i$)   dou   hen   haochi.
    he   yesterday   buy-PERF   many   apple   they   all   very   delicious
    'He bought many apples yesterday, and they were all delicious.'

(6) Ta   zuotian   jie-le   [san-ben   shu]$_i$,   (*tamen$_i$)   dou   shi
    he   yesterday   borrow-PERF   three-CL   book   they   all   be
    Zhongwen   de.
    Chinese   MM
    'He borrowed three books yesterday, and they were all Chinese books.'

As mentioned above, subject-drop and object-drop are not common in English. However, with respect to object-drop, particularly the omission of patient arguments, Goldberg (2001, 2004) observes that although omission of the patient argument is normally bad (as can be seen from (7)), the patient argument can sometimes be omitted. To account for this phenomenon, Goldberg proposes the "Principle of Omission under Low Discourse Prominence" in (8). To illustrate, the patient arguments in (9) can be omitted because (9a) involves repetition of the action, (9b) strong affective stance, and (9c) contrastive focus.

(7) Goldberg (2001: 512)
    A: What happened to that carrot?
    B: I chopped *(it).

(8) Principle of Omission under Low Discourse Prominence (Goldberg 2001: 514)
    Omission of the patient argument is possible when the patient argument is construed to be deemphasized in the discourse vis a vis the action. That is, omission is possible **when the patient argument is not topical** (or focal) in the discourse, and the action is particularly emphasized (via repetition, strong affective stance, discourse topicality, contrastive focus, etc.). (emphasis added)

(9) a. The chef-in-training chopped and diced all afternoon. (Goldberg 2001: 506)
     b. Why would they give this creep a light prison term!? He murdered! (Goldberg 2001: 513)
     c. She could steal but she could not rob. (from the Beatles' song "She Came in Through the Bathroom Window"; via Goldberg 2004: 436)

Note that in Goldberg's principle, being not topical or focal is a necessary condition for patient arguments to be omitted. As shown in (10), the omission of the patient argument (which is coreferential with *they* in the second sentence) in the first sentence and the omitted argument's serving as the topic of the second part of the example are incompatible with each other.

(10) The chef-in-training chopped and diced all day. *They were put into a large salad. (Goldberg 2001: 511)

However, crosslinguistically being not topical is not a necessary condition for patient arguments to get omitted. Goldberg (2001: 514) herself is aware of this, and she cites Japanese and Korean as examples of languages that allow omission of topical patient arguments. In this regard, we may add that Chinese is another good example of allowing the omission of topical patient arguments, as shown in (11).

(11) A: Ni-de   beizi   ne?
         you-MM   cup   QUES
         'Where is your cup?'
     B: Wo   bu   xiaoxin shuaisui-le.
         I   not   careful break-PERF
         'I carelessly broke it.'

In sum, Chinese and English differ in the extent of argument omission,[2] and crosslinguistically being not topical is not a necessary condition for patient arguments to get omitted. In addition, the particularities in argument realization in languages like Chinese clearly show that to give a full account of argument realization in such languages, it is necessary to take discourse factors into consideration.

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[2] As pointed out by Goldberg (2004: 435), "omissibility and non-omissibility of arguments is clearly conventional in that languages differ in whether or not recoverable arguments can be omitted." In addition to English, Goldberg cites the following languages to support her argument: (i) Hindi, which allows continuing topics and backgrounded information to be omitted; (ii) Hebrew, in which discourse topics, whether in subject or object position, can be omitted; (iii) Brazilian Portuguese, in which argument omission is subject to both discourse and lexical semantic factors.

3. Universals of argument realization

While Chinese and English are different in argument omission, there are principles or universals of argument realization that hold of both languages and others. I argue that such universals are of two types. First, there are universals that concern the cases of full realization of arguments in active sentences. Second, there are also universals that are not contingent on whether arguments are fully or partially realized, and universals that concern partial realization of arguments alone.

3.1. Type I universals

Type I universals concern full realization of arguments. Specifically, when arguments are fully realized, the agent argument is always expressed in subject position and the patient argument in object position as far as canonical active transitive sentences are concerned (cf. Grimshaw 1990: 33, Levin & Rappaport Hovav 2005: 21, Tenny & Pustejovsky 2000: 15). Full argument realization refers to the cases in which all arguments are realized as distinct NPs and none of them is incorporated or realized as a clitic or affix alone. A transitive sentence is canonical if it follows the basic or canonical order attested in a specific language. Sentences in (12) illustrate the first type of universals. In both (12a) and (12b), the kicker, i.e. the agent argument, is realized in the subject position, and the kickee, i.e. the patient argument, is expressed in the object position.

(12) a. He kicked me.
    b. Ta   ti   wo.
        he   kick   I
        'He kicked me.'

Moreover, when the causer and the causee are involved, the former is realized in subject position and the latter in object position (cf. Grimshaw 1990, Li 2008, Tenny & Pustejovsky 2000). The sentences in (13) all involve a simplex causative predicate that is not a psych-verb and the sentences in (14) all involve a simplex psych causative predicate. In both (13) and (14), the causer is realized in the subject position, and the causee is overtly expressed in the object position.

(13) a. He broke the window.
    b. Il   a   cassé   la   fenêtre. (French)
        he   has   broken   the   window
    c. Er   zerbrach   das   Fenster.   (German)
        he   broke   the   window
    d. Él   rompió   la   ventana.   (Spanish)
        he   broke   the   window

(14) a. Her words moved the old man.
    b. Ta-de   hua   gandong-le   na-wei   lao   ren.
       she-MM   words   move-PERF   that-CL   old   man
    c. Ses   mots   ont   ému   le   vieil homme. (French)
       her   words have moved the   old   man
    d. Ihre Worte   bewegten den   alten   Mann. (German)
       her   words moved   the   old   man
    e. Sus palabras emocionaron   al   viejo hombre. (Spanish)
       her   words   moved   the   old   man

In addition to simplex causative predicates, complex causative predicates also require the causer and cause arguments to be realized in the subject and object positions, respectively. This is shown by the resultatives in (15), which involve a complex predicate and have a causative and resultative interpretation.

(15) a. He wiped the table clean.
    b. Ta   ca-ganjing-le   zhuozi.
       he   wipe-clean-PERF   table
    c. Er wischte   den Tisch sauber. (German)
       he wiped   the   table   clean

3.2. Type II universals

      In addition to universals that concern the cases of full realization of arguments in active sentences, there are also universals that either are not contingent on whether arguments are fully or partially realized or concern partial realization of arguments alone. For such cases, five universals can be proposed.

      First, arguments in contrast need to be overtly realized unless (i) there is already a contrastive focus that bears heavy stress, (ii) the language in question allows object deletion or VP deletion, (iii) the contrastive arguments have the same linguistic form, AND (iv) no pointing is involved. Contrastive arguments need to be overtly realized due to the needs of expression of the speaker and to the speaker's need of drawing the hearer's attention. In (16-17), for example, the arguments in overt contrast are in bold and they are all overtly expressed. Note that the arguments in contrast are not necessarily the focus of the sentences under consideration. In fact, *Zhangsan* and *Lisi* in (16a), for instance, are arguably contrastive topics, although *pingguo* 'apple' and *putao* 'grape' are contrastive focal elements.

(16) a. **Zhangsan** xihuan **pingguo**, **Lisi** xihuan **putao**.
      Zhangsan like   apple   Lisi   like   grape
      'Zhangsan likes apples and Lisi likes grapes.'

b. **John** likes **apples** and **Mary** likes **grapes**.

c. **John** aime les **pommes** et **Mary** aime le **raisin**. (French)
John likes the apples and Mary likes the grape

d. **John** mag **Äpfel** und **Mary** mag **Trauben**. (German)
John likes apples and Mary likes grapes

e. A **Juan** le gustan las **manzanas**
to Juan to.him/to.her please the apples
y a **Mary** le gustan las **uvas**. (Spanish)
and to Mary to.him/to.her please the grapes
'John likes apples and Mary likes grapes.'

(17) a. **Zhangsan** shi xuesheng, **Lisi** bu shi.
Zhangsan be student Lisi notbe
'Zhangsan is a student and Lisi is not.'

b. **John** is a student and **Mary** is not.

c. **John** est étudiant, **Mary** ne l'est pas. (French)
John is student Mary not CLITIC.is not

d. **John** ist ein Student und **Mary** ist das nicht. (German)
John is a student and Mary is that not

e. **Juan** es un estudiante y **Mary** no lo es. (Spanish)
Juan is a student and Mary not it is

It should be pointed out that contrastive arguments can be omitted if they meet the four conditions listed above. For example, the argument *ziji-de mama* 'own mother' can be omitted in the second part of the sentence in (18) when Lisi's mother is not present when the sentence is uttered and when no pointing toward her is involved.

(18) Zhangsan xihuan ziji-de mama, keshi Lisi bu xihuan ϕ.
Zhangsan like own-MM mother but Lisi not like
'Zhangsan likes his own mother, but Lisi does not.'

Note that in (18) the omitted argument has the same linguistic form as the argument with which it forms a contrast, although it refers to Lisi's mother, not Zhangsan's. Moreover, (18) already involves a contrastive focus on the main or auxiliary verbs. That is, *xihuan* 'like' and *bu xihuan* 'not like' form a pair of contrastive foci.[3] Finally, as seen above,

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[3] The relevance of this pair of contrastive foci can be seen clearly from the fact that the object of the second part of (18), when having the same linguistic form as the object of the first clause but having a different referent, needs to be overtly expressed when no such contrastive foci have already existed, as shown in (i).

Mandarin allows object NP deletion. As a result of meeting all the four conditions, example (18) is grammatical in Mandarin.[4] Similarly, in (19) the object of the second part of the sentence together with the main verb can be omitted when pointing toward Mary's mother is not involved right after *does not* is uttered. The only relevant difference between (18) and (19) is that the former involves object deletion and the latter VP deletion.

(19) Emily likes her mother, but Mary does not.

Second, focal arguments without overt contrast also need to be expressed. As pointed out by Goldberg (2001: 514, 2004: 434), crosslinguistically and more generally focal elements cannot be omitted. Goldberg attributes this to focal elements' unpredictability from context. However, a more straightforward explanation is that the focal element carries the most important information and is what the speaker wants to express most. That is, the fact that focal elements cannot be omitted is also due to the speaker's need of expression. As shown in (20), the focal element, which bears heavy stress and is in bold face is overtly expressed. Note that unlike (16), none of the examples in (20) involves overt contrast, though they may convey some sort of implicit contrast.

(20) a. Zhangsan   xihuan **pingguo**.
          Zhangsan   like   apple
          'Zhangsan likes apples.'
      b. John likes **apples**.
      c. John   aime   les   **pommes**.   (French)
          John   likes the   apples
      d. John   mag   **Äpfel**.   (German)
          John   likes apples
      e. A Juan le   gustan las **manzanas.** (Spanish)
          to Juan to.him/to.her   please the apples

Third, as shown in (21-22), all languages allow for the possibility of omitting an object NP when it is indefinite and nonspecific AND when the statement is generic. In both sets of examples, the entity that gets bitten or kicked is omitted.

(i) Zhangsan xihuan ziji-de   mama,   Lisi ye   xihuan */?(ziji-de   mama).
     Zhangsan like   own-MM   mother Lisi also like   own-MM   mother
     'Zhangsan likes his mother and Lisi likes his mother, too.'

[4] Sentence (18) would be bad if Lisi's mother is present when the sentence is uttered and when there is pointing toward her right after *bu xihuan* is uttered. The reason for this is that the entity being pointed at, whether forming a contrast with another entity or not, forms a focus and thus needs to be expressed with a certain linguistic form.

(21) a. Dogs can bite when they are irritated.
    b. Gou   ji-le   hui   yao.
       dog   irritated-INCHOATIVE   will   bite
    c. Les chiens peuvent mordre quand ils   sont énervés.   (French)
       the dogs   can   bite   when they are   irritated
    d. Hunde können beissen, wenn sie   genervt sind.   (German)
       dogs can   bite   when they irritated are
    e. Los perros pueden morder cuando ellos están   irritados. (Spanish)
       the dogs can   bite   when   they   are   irritated

(22) a. Donkeys can kick.
    b. Lü   dou hui ti.
       donkey all   can   kick
    c. Les ânes   peuvent ruer.   (French)
       the donkeys   can   kick
    d. Esel   können   treten.   (German)
       donkeys   can   kick
    e. Los asnos   pueden cocear. (Spanish)
       the donkeys   can   kick

      With respect to (21-22), some words about the Mandarin examples are in order. It is true that in Mandarin the object is typically overtly expressed with *ren* 'person, people' or *dongxi* 'things, something' when it is indefinite human beings or indefinite inanimate entities respectively, as shown in (23).[5] However, the point I want to make is that Mandarin, like other languages, also allows omission of indefinite nonspecific objects in a generic statement as evidenced by (21-22), although this omission is not as common as in many other languages. Moreover, it should be pointed out that in (21-22) the omitted object does not have to refer to human beings alone, animate entities alone, or inanimate entities alone. Rather, what is bitten and kicked in this case may be animate or inanimate.

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[5] Note that in the formation of relative clauses, however, the head noun is typically omitted when it refers generically to inanimate entities alone or both animate and inanimate entities, as shown in (ia) and (ib) respectively. Thus, (23) and (i) show two opposite conventions attested in Mandarin Chinese.
(i) a. Gou chi-de   gen ren   chi-de   zenme   neng   yiyang?
      dog eat-MM with people eat-MM how.come can   same
      'How come the things that dogs eat are the same as those that people eat?'
   b. Ni   xihuan-de, wo   dou bu   xihuan.
      you like-MM   I   all   not   like
      'I like none of what you like.'

(23) a. Gou hui yao ren.
　　　dog can bite people
　　　'Dogs can bite people.'
　　b. Wo ji　　dianr dongxi.
　　　I　send　some　things
　　　'I'm sending something.'

　　　Fourth, as illustrated in (24-25), all languages allow for the possibility of omitting an object NP when the action involved is repetitive.[6] This is because the repetition of the action has the effect of emphasizing the action and deemphasizing the entity being acted upon, thus making it possible to leave out the object NP (cf. Goldberg 2001, 2004).

(24) a. He chopped all afternoon.
　　b. Ta zhengge xiawu　　dou zai　kan.
　　　he whole　afternoon all　PROG　chop
　　c. Il a　coupé　　tout l'après-midi.　　(French)
　　　he has chopped　all　the.afternoon
　　d. Er hackte　den ganzen Nachmittag.　(German)
　　　he chopped　the whole　afternoon
　　e. Él cortó　toda la　tarde.　　(Spanish)
　　　he chopped all　the afternoon

(25) a. The child scratched and bit until his mother arrived.
　　b. Na-ge xiaohair youshi　zhua,　youshi yao,
　　　that-CL child　　not.only　scratch but.also bite
　　　yizhi　　dao ta mama lai-le　　　cai　tingxialai.
　　　continuously until he mother come-INCHOATIVE EMPHASIS stop
　　c. L'enfant a　griffé　et　mordu jusqu'à ce que
　　　the.child has scratched and bit　until
　　　sa mère　arrive. (French)
　　　his mother arrived
　　d. Das Kind kratzte　und biss bis　die Mutter ankam.　(German)
　　　the child scratched and bit until the mother arrived
　　e. El niño arañó　y　mordió hasta que su madre llegó. (Spanish)
　　　the child scratched and bit　until　his mother arrived

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[6] For languages like English which normally do not allow object drop, examples like (24a) are not acceptable to some speakers. Even so, there is a clear contrast in acceptability between (24a) and (i), which even does not implicate that the action is repetitive.
(i) *He chopped.

Finally, with respect to argument realization, structure constrains override discourse influence. For example, although as shown earlier and in (26), object-drop in Chinese is possible when the canonical order "Subject + Verb + Object" is used, it cannot occur when the *ba*-construction is employed, as shown in (27). In the latter case, the NP introduced by *ba* cannot be omitted, although the *ba*-NP normally corresponds to the direct object NP of a sentence with the canonical order.

(26) A: Na-feng   xin   ne?
         that-CL   letter   QUES
         'Where's that letter?'
     B: Wo ji-zou-le.
         I   sent-away-PERF
         'I sent it out.'

(27) A: Na-feng   xin   ne?
         that-CL   letter   QUES
         'Where's that letter?'
     B: Wo ba   *(ta) ji-zou-le.
         I   BA   it   sent-away-PERF
         Intended: 'I sent it out.'

For another example, the object NP of the first or main verb of the pivotal construction cannot be omitted either, as shown in (28).

(28) a. Ta   qing   *(wo)   qu   kan   dianying.
         he   invite I   go   watch   movie
         'He invited me to watch a movie.'
     b. Ta   rang   *(wo) gaosu ni   ta bu   lai   le.
         he   ask   I   tell   you he not   come SFP
         'He asked me to tell you that he would not come.'

4. Conclusions

To conclude, while Chinese and English differ in the extent of argument omission, there are universals that govern argument realization in Chinese, English, and other languages. We have seen that such universals are of two types, with Type I universals being about full realization of arguments in active sentences and Type II universals being either not contingent on whether arguments are fully or partially realized or about partial realization of arguments alone. While more languages need to be investigated to confirm or disprove the universals proposed, we have seen initial evidence for the universals from Chinese, English, French, German, and Spanish.

In addition, the particularities in argument realization in languages like Chinese clearly show that to give a full account of argument realization in such languages, it is necessary to take discourse factors into consideration, the factors that also affect argument realization in languages like English, thought to a much lesser degree.

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Distributivity in Ellipsis in Chinese

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This paper explores the phenomenon of distributivity manifest in ellipsis in
Chinese. It will be proposed that in addition to standard syntactical distributivity
projection a distributive reading also results from a focus projection that involves
anaphoric relations from context. A distributive reading will occur if an elided
string is anaphorically associated with a previous discourse that shares the
predicate with what is omitted. This will extend the source of distributivity from
pure syntactic phenomenon to a discourse function and captures the distribution
of distributive markers like *ye* and *dou*.

1. Ellipsis and dummy *shi* (be)

In Chinese, one type of ellipses in a positive sentence contains three parts, namely
a contrastive subject, *ye* (also) and dummy *shi* (be).

(1) 老张买了房子。老李也是。
    Lao Zhang mai-le fangzi. Lao Li ye shi.
    Lao Zhang buy-PERF house Lao Li also be
    'Lao Zhang bought a house. Lao Li did too.'

Shi (be) in (1) differs from *shi* (be) in (2).

(2) a. 老张是北京人。老李也是。
      Lao Zhang shi Beijing ren. Lao Li ye shi.
      Lao Zhang be Beijing person Lao Li also be
      'Lao Zhang is from Beijing. Lao Li is too.'
   b. 老张是买了房子。
      Lao Zhang shi mai-le fangzi.
      Lao Zhang be buy-PERF house
      'Lao Zhang did buy a house.'

Shi in (2a) is a verb, while it is an emphatic auxiliary in (2b). Soh (2007) argues that the three *shi*s occupy different syntactic positions. The verb *shi* appears within the vP; the emphatic *shi*, as an auxiliary, may appear in T or Mod; dummy *shi*, similar to *do* in English in licensing verb phrase ellipsis, occurs only when it is not preceded by the negative *bu* (not). In this regard, dummy *shi* and *neng* (can) behave differently in ellipsis construction. Soh argues that *shi* and *neng* occupy different structural positions.

Specifically, that dummy *shi* and *neng* occupy different positions is supported by cases involving the negative marker *bu* (not). When *shi* is preceded by the negative *bu-*, ellipsis can no longer be licensed.

(3) a. *他喜欢张三。我不是。
      *Ta xihuan Zhangsan. Wo bu-shi.
       he like Zhangsan I not-be
    b. *他不喜欢张三。我也不是。
      *Ta bu-xihuan Zhangsan. Wo ye bu-shi.
       he not-like Zhangsan I also not-be

This does not apply to *neng*, though.

(4) a. 他能去。我不能。
       Ta neng qu, wo bu-neng.
       he can go I not-can
       'He can go, but I cannot.'
    b. 他不能去。我也不能。
       Ta bu-neng qu. Wo ye bu-neng.
       he not-can go I also not-can
       'He cannot go. I cannot either.'

Soh (2007) proposes the following structure in which *bu* (not) occupies the head of ΣP, originally proposed by Laka (1990).

(5) [$_{TP}$ T   [$_{ΣP}$ Σ   [$_{ModP}$ Mod   [$_{vP}$ v [$_{VP}$ V]]]]]
                    | | | |
         Dummy Aux *shi*   *bu-*/zero   Aux *neng*   Verb *shi*

The projection of ΣP separates TP and ModP. If *bu* alternates with a zero morpheme indicating affirmativeness, counterpart of negation, *shi* and *neng*, in T and Mod respectively, can only precede or follow *bu*, respectively. Therefore, dummy *shi* does not follow *bu* in ellipsis, as shown in (3).

2. *Ye*/*que* and dummy *shi* (be)

Soh's major concern is to derive the linear order of *shi* and *neng* with respect to *bu*, but offers no discussion of *ye* which is obligatory in ellipsis. Position-wise, *ye* does not seem to pose problems because it is always used before *shi*, therefore before *bu* and *neng*. However, *ye*'s counterpart *que* in positive/negative switches will be problematic for the word order discussed above. Wei (2008) points out that while Soh's analysis successfully accounts for sentences in (6), it would make wrong prediction on *shi* in (7).

(6) a. *他喜欢张三。我不是。
        *Ta xihuan Zhangsan. Wo bu-shi.
         he like   Zhangsan I   not-be
    b. 他是演员。我不是。
        Ta shi yanyuan. Wo bu-shi.
        he be actor   I   not-be
        'He is an actor. I am not.'

(7) *他能去。但是李四(却)是不能。
    *Ta neng qu. Danshi Lisi (que) shi bu-neng.
     he can go but   Lisi (but) be not-can

In (7) the word order among *shi*, *bu*, and *neng* is not allowed, contrary to what we have seen above.[1] It may be suspected that the problem lies in the use of *que*. Taking *que* into account, Wei also observes that Soh's account fails to distinguish polarity symmetry between the two conjuncts in (8) from polarity asymmetry in (9).

(8) 他不能去。李四*(也) 不能。
    Ta bu-neng qu. Lisi *(ye) [$_{\Sigma P}$ bu [$_{ModP}$ neng [[$_{vP}$ v [$_{VP}$]]]]] ([-], [-])
    he not-can go Lisi also   no   can
    'He cannot go. Lisi cannot either.'

(9) 他能去。李四(却)不能。
    Ta neng qu. Lisi (que) [$_{\Sigma P}$ bu [$_{ModP}$ neng [[$_{vP}$ v [$_{VP}$]]]]]   ([+], [-])

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[1] Note that in general the part after dummy *shi* is phonologically null. The ungrammaticality of (7) may be due to some reason(s) independent of purely structural positions among *shi*, *bu* and *neng*.

he can go Lisi but   not   can
'He can go, but Lisi cannot.'

Ye is used when both clauses are positive or negative. *Que* is used when one clause is positive while the other is negative. Connecting *que* with *ye*, Wei then suggests that *ye/que* occupies a head of FP higher than the dummy *shi*.

(10)   [_{FocP} *ye/que* [TP ... [_{Pol/ΣP} Pol/Σ (*shi/~*) [_{NegP} (Neg) [_{ModP} Mod [_{vP} v [_{vp} V]]]]]]]

(11)   [_{FocP} ZS [bu yao qu Meiguo]], danshi [_{FocP} Lisi (que) [_{Pol/ΣP} ~ [ModP yao [vP]]]]
        张三不要去美国, 但是李四(却)要。

        On Wei's analysis, dummy *shi* alternates with a zero morpheme ~ indicating the negative counterpart, similar to the contrast between *ye* and *que*. There is an agreement between *ye/que* and *shi/~*. *Ye* patterns with *shi*, showing that both clauses are positive or negative. On the other hand, *que* goes with ~, highlighting the positive/negative contrast. The difference exhibited in (7-9) receives an explanation on lexical requirements by *ye* and *que*. The sentence in (12) is bad due to the fact that *que* co-occurs with the dummy *shi*.

(12)   *张三没吃苹果。但是李四(却)是。
        *Zhangsan mei chi pingguo. Danshi Lisi (que) shi.
         Zhangsan not ate apple   but   Lisi but be

3. Distributivity in ellipsis
        In a parallel analysis, I (Li 1997, 2007, 2008) propose that *ye/dou* occupy the head of DistP to derive distributivity.

(13)   a. 老张和老李都买了房子。
           Lao Zhang he Lao Li dou mai-le fangzi.
           Lao Zhang and Lao Li all buy-ASP house
           'Both Lao Zhang and Lao Li bought a house.'
        b. 老张买了房子。老李也买了房子。
           Lao Zhang mai-le fangzi. Lao Li ye mai-le fangzi.
           Lao Zhang buy-ASP house Lao Li also buy-ASP house
           'Lao Zhang bought a house; Lao Li also bought a house.'

Siding with some recent syntactic/semantic theorists, I take distributivity to be a relation between predicate and subject. I argue that the projection DistP *dou/ye* heads sits between

IP and VP, thus distributing on the subject. In (13a), *dou* forms a distributive predicate, deriving distributivity on the subject *Lao Zhang and Lao Li*. Distributivity may not only manifest itself in the subject, but also may take context information as part of conjunct to be interpreted distributively. In (13b), *ye*, which also occupies the head of DistP, requires that a different, previously mentioned subject be taken into consideration for the sentence to be grammatical. The predicate *bought a house* manifest as DistP distributes over a variable that realizes in this particular sentence as *Lao Zhang* and *Lao Li*. The difference between (13a) and (13b) is that in the former both Lao Zhang and Lao Li appear overtly in the sentence, whereas in the latter they occur separately as subjects of different clauses.

(14)   a. λx.x bought a house
         b. Lao Zhang & Lao Li [$_{DistP}$ bought a house]

My theory derives the observation that there is a difference between English and Chinese with respect to distributivity via verb movement, a free-ride for an English sentence to have a distributive reading without an overt distributive marker. (see Li 1997, 2008) To the extent that *ye* is a distributive marker, the question to ask is how to account for its distributive nature in sentences like (1). If Soh is correct, then the distributive reading exhibited from *ye* in (1) is not obtainable from the projection DistP because ΣP is higher than DistP and consequently *ye* is too high to be the head of DistP. If Wei is correct, that is, *ye* is at the head of FocP higher than TP, then there must be more than one position for *ye* if in both cases *ye* plays the same function and should be regarded as the same element.

While *dou* and *ye* both occur in a pre-verbal position to achieve distributivity, there is a difference between them in other cases with respect to the position they occupy. *Dou* occurs before or after modals, negator, but *ye* occurs only before modal or negator.

(15)   a. 我们都能买房子。
            Women dou neng mai fangzi.
            we all can buy house
            'We can all buy a house.'
         b. 我们能都买房子。
            Women neng dou mai fangzi.
            we can all buy house
            'We can all buy a house.'

(16)   a. 我们也能买房子。
            Women ye neng mai fangzi.
            we also can buy house

      'We can also buy a house.'
   b. *我们能也买房子。
    *Women neng ye mai fangzi.
     we can also buy house

(17)   a. 我们都不买房子。
     Women all bu mai fangzi.
     we all not buy house
     'None of us buy a house.'
    b. 我们不都买房子。
     Women bu dou mai fangzi.
     we not all buy house
     'Not all of us buy a house.'

(18)   a. 我们也不买房子。
     Women ye bu mai fangzi.
     we also not buy house
     'We don't buy a house, either.'
    b. *我们不也买房子。
     *Women not ye mai fangzi.
      we not also buy house

The sentences in (15-18) collectively indicate that to the extent that *ye* induces distributivity, the source of a distributive reading with *ye* is bound to be from a distinct position than what is assumed by Li if Soh and Wei's lines of reasoning are on the right track. In other words, a distributive reading is not derived exclusively from a position designed for distributivity.

I follow Wei in assuming that *shi* is in the head of ΣP and *ye*/*que* occupies the head position of FP. Note that when *ye* occurs, *dou* can co-occur with it.

(19)   a. 老张买了房子。老王和老李也是。
     Lao Zhang mai-le fangzi. Lao Wang he Lao Li ye shi.
     Lao Zhang buy-ASP house Lao Wang and Lao Li also be
     'Lao Zhang bought a house. Lao Wang and Lao Li did, too.'
    b. 老张买了房子。老王和老李也都是。
     Lao Zhang mai-le fangzi. Lao Wang he Lao Li ye dou shi.
     Lao Zhang buy-ASP house Lao Wang and Lao Li also all be
     'Lao Zhang bought a house. Both Lao Wang and Lao Li did, too.'

We may assume that the head of FP may contain both *ye* and *ye dou* in ellipsis. *Dou*'s occurrence in this construction depends on *ye*, without which the sentence is ungrammatical.

(20) *老张买了房子。老李都是。

　　　*Lao Zhang mai-le fangzi. Lao Li dou shi.

　　　　Lao Zhang buy-ASP house Lao Li all be.

(20) is ungrammatical not because the subject of the second clause is singular, as (21) indicates.

(21) *老张买了房子。老王和老李都是。

　　　* Lao Zhang mai-le fangzi. Lao Wang he Lao Li dou shi.

　　　　Lao Zhang buy-ASP house Lao Wang and Lao Li all be.

In ellipsis construction, *ye* is crucial.

(22) *老张买了房子。老李是。

　　　*Lao Zhang mai-le fangzi. Lao Li shi.

　　　　Lao Zhang buy-ASP house Lao Li be.

　　　The question then boils down to whether distributivity could in principle result from ellipsis. From the data we have reviewed distributivity should have two sources: one is from DistP, the other from FocP. If distributivity may come from focus projection, then ellipsis may result in distributivity if ellipsis is a type of focus (see Wu 2002).

　　　That ellipsis is related to focus is supported by the fact that whether a given string is accented or deaccented will result in different meanings from context. The following quote is due to Johnson (2008). "That unpronounced strings derive their meanings from context, just as pronouns do, could be related to the fact that deaccented material is also sensitive to context (see Rooth 1985 and Schwarzschild 1999, for example) and, of course, unpronounced strings are necessarily deaccented. The anaphoric nature of deaccented material can be exemplified in connected discourses like those in (23, Johnson's 12).

(23)　　a. James ate the yellow banana.

　　　　　　No, he ate the BLACK banana.

　　　　b. James ate the yellow banana.

　　　　　　*No, he MASHED the black banana.

In (23a), everything in the second sentence is deaccented except *black* and this partition corresponds perfectly to what is new to this sentence and what has already been introduced in the first place. That is, everything that is deaccented in the second sentence of (23a) can be found in the first sentence of (23a). This isn't true for the second sentence of (23b), however, and this results in an ill-formed discourse. In general, deaccented material must convey information that has already been introduced in the discourse." If this line of reasoning is on the right track, both deaccented and unpronounced strings derive their meanings from context, thus putting the overt string as focus.

In Chinese "*lian …dou/ye*" construction is also assumed to be an instance of focus (see Shyu 1995).

(24)　a. 连老王都能买房子。
　　　　　Lian Lao Wang dou neng mai fangzi.
　　　　　even Lao Wang all can buy house
　　　　　'Even Lao Wang can buy a house.'
　　　　b. 连老王也能买房子。
　　　　　Lian Lao Wang ye neng mai fangzi.
　　　　　even Lao Wang also can buy house
　　　　　'Even Lao Wang can buy a house.'

Since the focus projection is higher than models (and distributivity phrase), *dou* and *ye* don't follow *neng*.

(25)　a. *连老王能都买房子。
　　　　　*Lian Lao Wang neng dou mai fangzi.
　　　　　even Lao Wang can all buy house
　　　　b. *连老王能也买房子。
　　　　　*Lian Lao Wang neng ye mai fangzi.
　　　　　even Lao Wang can also buy house

That *dou* cannot follow *neng* in focus construction would be a puzzle if "*lian …dou/ye*" construction were subsumed under distributivity projection (cf. 13).

4. Obligatory *ye* and optional *que*

Note the following contrast.

(26)　a. 老张买了房子。老李也买了房子。
　　　　　Lao Zhang mai-le fangzi. Lao Li ye mai-le fangzi.

Lao Zhang buy-ASP house Lao Li also buy-ASP house
'Lao Zhang bought a house. Lao Li also bought a house.'

b. 老张买了房子。老李买了房子。
Lao Zhang mai-le fangzi. Lao Li mai-le fangzi.
Lao Zhang buy-ASP house Lao Li buy-ASP house
'Lao Zhang bought a house. Lao Li bought a house.'

(27)   a. 老张买了房子。老李也是。
Lao Zhang mai-le fangzi. Lao Li ye shi.
Lao Zhang buy-PERF house Lao Li also be
'Lao Zhang bought a house. Lao Li did too.'
b. *老张买了房子。老李是。
*Lao Zhang mai-le fangzi. Lao Li shi.
Lao Zhang buy-PERF house Lao Li be

There is a difference in *ye* between non-elliptical and elliptical sentences. In the former, *ye* is optional as in (26). However, in ellipsis *ye* is obligatory. Notice that there is a similarity in the requirement of elements like *ye* between Chinese and English.

(28)   a. John bought a house; Mary also bought a house.
b. John bought a house; Mary bought a house.

(29)   a. John bought a house; May did too.
b. *John bought a house; May did.

Reasons that were offered in the literature for the obligatoriness of *ye* are primarily pragmatic. The following are some proposals.

Green (1968) proposes that the obligatoriness results from what *too* conventional implicates: what I say about the contrasting (or focused) constituent in the second clause, I also say about the contrasting constituent in the first clause. Kaplan (1984) argues that *too*'s obligatoriness stems from its discourse function, which is to emphasize the similarity between the members of a pair of contrasting items.[2]

Fiengo and May (1994, p 97) point out "We will also gloss over the function of such particles as *too*, *as well*, the negative, and *either*, which occur with lists of sentences,

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[2] This paragraph is taken from Wu (2002).

including those in which there is ellipsis. Briefly the generalization underlying their occurrence is that their presence indicates that the same thing is being said over again, their absence, that different things are being said. Thus, *too* signals that what is being said about Max in *Max loves Sally, and Oscar does, too* (or *Max loves Sally, and Oscar loves Sally, too* for that matter) is also what is being said about Oscar. Absence of this particle is decidedly odd: **Max loves Sally, and Oscar does*. Presumably this is because the clauses say the same thing about Max and Oscar, but this is not properly specified by the presence of *too*. Negating one of the clauses brings a return to well-formedness: *Max loves Sally, but Oscar doesn't*; *Max doesn't love Sally, but Oscar does*. *Too* is absent here because the clauses say opposite things about Max and Oscar, not the same thing. If, on the other hand, both clauses are negated, then a "same-saying" indicator, in the negative form *either*, must return; Compare **Max doesn't love Sally, and Oscar doesn't*. Notice that certain contexts prohibit the appearance of *too*: *John saw Max before Bill did* but **John saw Max before Bill did, too*. In the former, what is being said of Bill (that he saw Max) is not what is being said of John (that he saw Max before Bill saw Max)."

To claim that elements like *too*/*ye* are required for some exclusively pragmatic reason seems to be necessary but not sufficient. All of the statements above point to the correct descriptions for *too*/*ye* to appear but at the same time too powerful to allow cases where *too*/*ye* is not obligatory. For example, if two clauses say the same thing then *too*/*ye* need to be there, then when the second clause is not in the form of ellipsis, in other words in the form of being fully overt, *too*/*ye* is not required, as sentences in (26) and (28) show. To say that *too*/*ye* is required because of *too*/*ye*'s pragmatic usage has little to do with what is required when *too*/*ye* is absent. It is not simply the case that when a second clause says the same thing as the first clause, *too*/*ye* is required. Only when the second clause is in ellipsis does *too*/*ye* need to be there.

Wu argues "for a focus-based theory of ellipsis parallelism since, as Rooth (1992), Tomioka (1995) and Fox (1998) point out, the function of ellipsis is to bring the subject to focus or contrastivity." As we have seen above, Wei also argues for a focus-based analysis of ellipsis. To the extent that some focus involves distributivity, we may infer that some ellipses involve distributivity. Ellipsis triggers distributivity. Then there are two sources of distributivity. The similarity between the two types of distributivity arguably lies in the possibility of assuming that regular distributivity is a special type of focus without one element being more highlighted than others, whereas focus-related distributivity brings up contrast. Consequently there are two types of distributivity: contrastive vs. non-contrastive. Non-contrastive distributivity needs to be licensed within a sentence; contrastive distributivity always involves context.

It is interesting to note that for the obligatoriness of *ye*/*too* there is no difference between English and Chinese. Both require the element to appear. On the other hand, for *dou*/*all* or *each* the difference between English and Chinese is one of being obligatory vs. optional. In Chinese *dou* is obligatory because there are no other options available to achieve distributivity. Contrastively in English *all*/*each* being optional is necessitated by

the availability of verb movement which gives a free-ride for distributivity. From the viewpoint of sentences in the absence of *too/ye,* their presence is obligatory in ellipsis not because of pure semantic or pragmatic reasons, but because of the conjunction of the syntactic requirement on distributivity. When ellipsis occurs, focus ensues. The element to be focused forms a plural distributive conjunct with another element from context, hence resulting in distributivity. Accordingly the projection responsible for distributivity must be licensed so as to make distributivity obtainable.

If this line of reasoning is on the right track, then *too/ye* is required because the contextual information is forced to be incorporated into a distributive conjunct. The requirement is syntactic, rather than purely pragmatic.

As Fiengo and May point out, *too* cannot be used if the second clause does not say the same thing as the first clause. From the viewpoint of distributivity, a distributive conjunct forms when the subjects are different while the predicate remains the same. If the predicates are different, then no distributivity arises. Wei observes that in Chinese ellipsis, *ye* is required but *que* is optional.

(30)   a. 张三吃苹果。李四*(也)是。
            Zhangsan chi pingguo. Lisi *(ye) shi.
            Zhangsan eat apple   Lisi   also be
            'Zhangsan eats apple, Lisi does *(too).'
         b. 张三不吃苹果。李四*(也)是。
            Zhangsan bu chi pingguo. Lisi *(ye) shi.
            Zhangsan not eat apple   Lisi   also be
            'Zhangsan does not eat apple, Lisi does not *(either).'

(31)   a. 张三要去美国。但是李四(却)不要。
            Zhangsan yao qu Meiguo. Danshi Lisi (que) bu yao.
            Zhangsan will go America but Lisi but not will
            'Zhangsan will go to America, but Lisi will not.'
         b. 张三不要去美国。李四(却)要。
            Zhangsan bu yao qu Meiguo. Lisi (que) yao.
            Zhangsan not will go America Lisi but will
            'Zhangsan will not go to America, but Lisi will.'

In the sentences in (30-31) *ye* is obligatory, but *que* is optional. In cases of *ye*, the elided in the second clause is the same as the corresponding part in the first clause, thus forming a distributive conjunct.

(30′)   a. [TP Zhangsan [vp ate apple]i]
            [FocP Lisi *ye* [TP [Pol/ΣP *shi* [vp ~]i]]]

b. [TP Zhangsan [NegP not [vp ate apple]]i]
[FocP Lisi *ye* [TP ... [Pol/ΣP *shi* [NegP ~ [vp ~]]i]]]

However, in cases involving *que*, the elided in the second clause is always the negative/positive counterpart. Thus it fails to form a distributive conjunct. Therefore it is optional.

(31′) a. [TP Zhangsan [NegP - [ModP will [vp go to America]]]i]
[FocP Lisi (*que*) [NegP not [ModP will [vp ~]]]j]
  b. [TP Zhangsan [NegP not [ModP will [vp go to America]]]i]
[FocP Lisi (*que*) [NegP - [ModP will [vp ~]]]j]

A distributive conjunct is to be formed across sentences if what is elided is anaphorically associated with the predicate in the previous discourse.

(32) Lao Zhang [PRED bought a house]i
Lao Li did too [PRED ~]i

If the two predicates are not identical, then there is no distributive conjunct to be formed.

(33) Lao Zhang [PRED bought a house]i
Lao Li did [PRED not ~]j

5. Distributivity in a nutshell

In a sentence that involves a plural subject a distributive reading needs to be syntactically marked to eliminate an otherwise default collective reading. In principle there are two ways to mark the syntactic designation within a sentence: by way of V-to-I movement or over lexical insertion. While lexical insertion is always available, the option of V-to-I movement is independently motivated, resulting in a difference between English and Chinese. In general, to have a distributive reading is to make use of the predicate in a reiterate fashion. I assume that if nothing happens distributivity is not available. This applies to discourse. If two sentences (or more) are to form a plural conjunct as a result of focus in ellipsis, then a syntactic marking is necessary to mark distributivity. Since there is no mechanism like V-to-I movement available, the only option is to resort to lexical insertion. Thus both English and Chinese use a distributive marker in ellipsis.

Finally, this paper has dealt with problems surrounding *ye/also*, but left out issues on why dummy *shi* is required in Chinese. In English we may say *John bought a house and Mary too* in which *did* is not even used.

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An OT Analysis of Informational Focus in Mandarin Chinese

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This paper provides an OT account for the realization of informational focus in Mandarin Chinese. The analysis is based on the conclusion drawn in my dissertation (Li 2009) that informational focus in Mandarin is realized *in-situ* with prosodic prominence (sentential stress), but no part is in particular prosodically more prominent if the entire sentence is the focus or when the sentence-final element is the focus. I treat this as a case of 'do something except when…', more specifically, 'stress the focused element except in the sentence-final position' in my analysis. Enlightened by Samek-Lodovici (2005), I account for the patterns in Mandarin by proposing three types of constraints: syntactic constraints, *FinalStress and Stress-Focus and ranking SF lower than the other two. I also Compare Mandarin with Italian and English and show that Mandarin is just a specific case in the language typology of the realization of informational focus through the interaction of various grammar components.

1. Introduction

The purpose of this paper is to provide an Optimality Theoretic analysis of the realization of informational focus in Mandarin Chinese. According to Xu (2004) and Li (2009), informational focus of Mandarin is realized through the interaction between prosody and syntax. On one hand, the focused element receives sentential stress (via pitch and duration) and on the other hand, the sentence-final position also seems to play an important role in the mechanism. When the focus is in the sentence-final position, it does not consistently receive a stress. This is the reason why it is sometimes confusable with the case of the entire sentence being under focus (broad focus), in which case there is no part in the sentence that is prosodically more prominent than other parts. Obviously prosody and syntax both play important roles in marking informational focus in Mandarin. This can be well accounted for by the OT model through constraint ranking. This paper is an effort in this area. More specifically I follow the same line of analysis of languages such as Italian and English by Samek-Lodovici (2005) and adopt most the constraints in her work.

This paper is organized as below. Section 2 is a brief overview of definitions of some key concepts related to focus and the realization of informational focus in Mandarin

Chinese. Section 3 is the detailed OT analysis of the realization of informational focus in Mandarin including a comparison of Mandarin Chinese with Italian and English in Samek-Lodovici (2005). I conclude the paper with section 4.

2. Background
2.1. Key concepts
Focus is a concept in pragmatics or information structure (Lambrecht 1994). According to Lambrecht (1994), Focus is the difference between Assertion and its Presupposition. The definitions of the three concepts are cited below.

(1) Assertion: The proposition expressed by a sentence which the hearer is expected to know or take for granted as a result of hearing the sentence uttered. (p52)

(2) Presupposition: The set of propositions lexicogrammatically evoked in a sentence which the speaker assumes the hearer already knows or is ready to take for granted at the time the sentence is uttered. (p52)

(3) Focus: The semantic component of a pragmatically structured proposition whereby the assertion differs from the presupposition. (p213)

Focus can be further classified in two ways (Li 2009). First, it can be classified into Informational Focus and Contrastive Focus.

(4) A focus is an ***Informational Focus*** when it is a focus and does not explicitly contradict with a set of stated or predicted alternatives.

(5) A focus is a ***Contrastive Focus*** when it is a focus and explicitly contradicts with a set of stated or predicted alternatives.

Another way to classify focus is to classify it into Narrow Focus and Broad Focus depending on the scope of the focus.

(6) When only part of the sentence is under focus, we say that the focus is a ***Narrow Focus***.

(7) When the entire sentence is under focus, we say that the focus is a ***Broad Focus***.

All of the four logical combinations between the two pairs of concepts exist. In the following examples, *faguo* ('France') in (8b) is a narrow informational focus, *faguo* ('France') in (9b) is a narrow contrastive focus, the entire sentence in (10b) is a broad

informational focus and the entire sentence except *bu shi* ('no') in (11b) is a broad contrastive focus. The foci are underlined.

(8)   a. Q: Zhangsan   yao   qu   nar?
             Zhangsan   will   go-to   where
             'Where will Zhangsan go?'
        b. A: Zhangsan   yao   qu   <u>faguo</u>.
             Zhangsan   will   go-to   France.
             'Zhangsan will go to France.'

(9)   a. Q: Zhangsan   yao   qu   meiguo   ma?
             Zhangsan   will   go-to   US   Q. Part
           'Will Zhangsan go to the United States?'
        b. A: bu,   Zhangsan   yao   qu   <u>faguo</u>.
             no,   Zhangsan   will   go-to   France
             'No, Zhangsan will go to France.'

(10)   a. Q: zuijin   you   shenme   xinwen?
             recently   have   any   news
             'Has there been any news recently?'
        b. A: <u>Zhangsan   yao   qu   faguo.</u>
             Zhangsan   will   go-to   France
             'Zhangsan will go to France.'

(11)   a. Q: zuijin   you   shenme   xinwen? Zhangsan yao qu   faguo ma?
             recently   have   any   news   Zhangsan will go-to   France Q. Part
             'Has there been any news recently? Will Zhangsan go to France?'
        b. A: bu shi,   <u>Lisi   hui   meiguo   le.</u>
             No   Lisi   return-to   US   ASP
             'No, Lisi has returned to the United States.'

2.2. Phonetics, phonology and syntax of informational focus in Mandarin Chinese

According to Gärding (1987), Jin (1996) and Xu, Y. (1999), Mandarin, like many other languages, uses stress to indicate where the focus is in a sentence. Two main correlates of Mandarin sentential stress are duration and pitch. Loudness does not play an important role in indicating stress in Mandarin. As for pitch, pitch height is not so much an important cue as pitch range (the difference between the lowest point of pitch and the highest) in Mandarin. More specifically, the duration of a focused element is greatly lengthened and the pitch range of it is greatly expanded. What is also very important is that the pitch range of the immediate post-focus element is greatly compressed, although its duration is also slightly lengthened. It is the sharp contrast between the expanded pitch

range of the focused element and the compressed pitch range of the post-focus element that indicates the informational focus in Mandarin. In addition, when the entire sentence is under focus, namely, in the case of broad focus, no part in particular receives more stress in the sentence unlike languages like English where the sentence-final position is the default position for stress in the case of broad focus. Interestingly, stress on sentence-final focus is not as prominent as focus in other positions, which makes the overall pattern similar to that of broad focus. The following diagrams from Jin (1996) show pitch contours of the same sentence uttered under four different focus conditions. The focus falls on the sentence-initial subject (upper left), the sentence-middle time adverbial (upper right), the entire sentence (lower left) and the sentence-final verb (lower right) respectively.

(12)
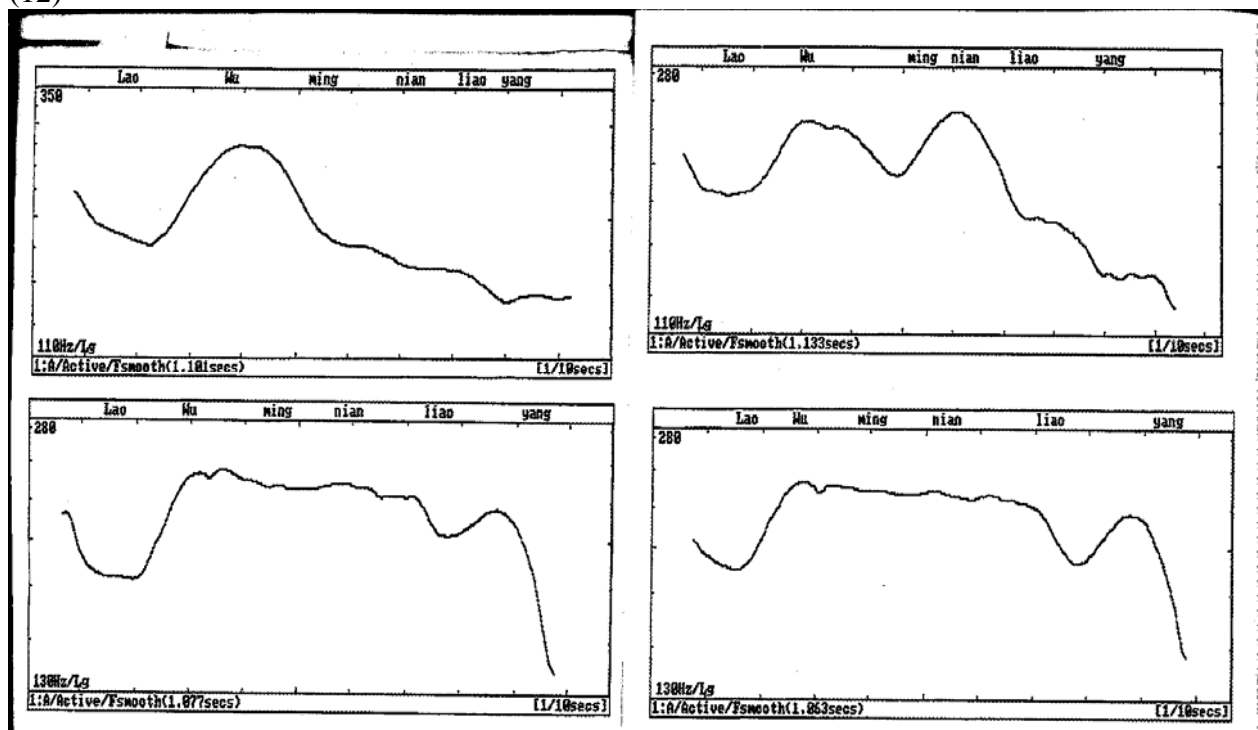
We can see that the pitch contour of the sentence under broad focus condition (lower left) and that of the sentence under sentence-final narrow focus condition (lower right) are almost identical except that in the case of broad focus, the pitch of the beginning of the sentence tilts up a little bit more than that of the sentence-final narrow focus. In the perception experiments, the two patterns were highly confusable and yielded the highest error rate. Yet informants still seemed to be able to distinguish them to a certain degree, but probably not just by the stress pattern on the sentence-final element per se.

Based on the phonetic facts outlined above, Xu, L. (2004) and I (Li 2009) draw similar conclusions on the realizations of informational focus in Mandarin Chinese. Both believe that stress is an important device to mark informational focus in Mandarin. In addition, both acknowledge the special status of the sentence-final position and conclude that stress is not necessary to mark sentence-final informational focus and is also not utilized to mark broad focus. Yet although both researchers think that both prosody and syntax are involved in the mechanism of focus realization in Mandarin, they differ in some significant ways too. Xu, L. (2004) claims that syntax is the primary device and prosody is the compensatory device in focus marking and the sentence-final position is the default position for informational focus in Mandarin. On the other hand, in my dissertation, I claim the opposite, namely, prosodic marking is primary and syntactic marking is compensatory; additionally there is no default position for focus in Mandarin as there is no focus-triggered movement whatsoever involved in Mandarin grammar. For details of the similarities and differences between the two studies, please refer to Xu's work (2004) and my dissertation (Li 2009). In this paper, I will keep holding my view which can be summarized as below:

(13) a. Informational focus is realized *in-situ* prosodically (by sentential stress) except when the focused element is at the end of the sentence, in which case no stress in that position is necessary.
    b. In the case of broad informational focus, no part in the sentence is prosodically more prominent than any other part.

In the next section, I will provide an OT account for the pattern of informational focus in Mandarin.

3. OT analysis of informational focus in Mandarin Chinese

Since its incidence (Prince & Smolensky 1993 & 2004), Optimality Theory has brought about abundant research in the area of phonology. Faithfulness constraints and markedness constraints are generalized to capture language specific rules and language universal principles. Unlike phonological principles or rules in the traditional derivational approach, these constraints can all be violated and the outputs are a result of compromising between these constraints. The constraints are ranked according to their degree of violability in a specific language and the final form the language takes is the optimal output by violating the constraints minimally. A big advantage of OT is that it provides a convenient tool to represent linguistic typology with great explanatory power. The fact that different languages display different properties is simply a result of different rankings of the same set of universally available constraints.

The application of the OT approach has soon expanded from the area of phonology to other areas in linguistics. It seems particularly fruitful in the interfaces between two areas in grammar such as phonology-morphology interface, or phonology-

syntax interface. In this section I will use the formal tool of OT to analyze the interaction between prosody and syntax in the manifestation of informational focus in Mandarin Chinese.

3.1. OT analysis of informational focus in Italian and English

Samek-Lodovici's work (2005) is particularly enlightening to my analysis. She makes detailed OT analyses to account for informational focus patterns in languages like English, Italian and more. In this paper, I extend the same kind of analysis to Mandarin. But in order for the readers to have a full understanding of my analysis, I need to briefly introduce Samek-Lodovici's approach using her examples of English and Italian first.

Samek-Lodovici uses four types of constraints to explain the interaction between prosody, syntax and focus. They are prosodic constraints, syntactic constraints and prosody-syntax interface constraints and another interface constraint that maps stress to focus. These constraints and their definitions as used by Lodovici are listed below.

(14)   Syntactic constraints:
Stay: No traces.
EPP: Clauses have subjects.

(15)   Prosodic constraints:
Head-P (H-P): Align (P, R, Head (P), R)
Align the right boundary of every phonological phrase with its head.
Head-I (H-I): Align (I, R, Head (I), R)
Align the right boundary of every intonational phrase with its head.
Head-U (H-U): Align (U, R, Head (U), R)
Align the right boundary of every utterance with its head.

(16)   Phonology-syntax interface constraints:
Wrap: Each lexically headed XP is contained inside a phonological phrase P.
StressXP: Each lexically headed XP must contain a phrasal stress (where 'phrasal stress' refers to the head of a phonological phrase P).

(17)   Phonology-pragmatic constraints:
Stress-Focus: for any XP_f and YP in the focus domain of XP_f, XP_f is prosodically more prominent than YP.

Stay and EPP were originally proposed as constraints by Grimshaw (1993, 1997) and then used in many studies, among which are Samek-Lodovici (1996a, 2001), Bakovic (1998) and Vikner (2001). The content of these constraints simply follows generally accepted principles in generative syntax. In OT, the two constraints mean that languages disfavor movement of constituents and subjectless clauses respectively.

Proposed by Truckenbrodt (1995), Head-P (H-P) and similar constraints in its group stipulate the directionality of the main stress within each phonological domain. Depending on the language under analysis, the R(ight) in these constraints may be changed to L(eft) as needed.

The two phonology-syntax interface constraints Wrap and StressXP are based on proposals in Truckenbrodt (1995) too. These two constraints combined guarantee that one lexically-headed syntactic phrase (such as DP or VP) corresponds to one phonological phrase and receives one prosodic prominence. The prosodic constraints with a Right parameter and the phonology-syntax interface constraints together favor the alignment of a P-phrase (or I-phrase or Utterance)'s right boundary with the syntactic right boundary of a lexical maximal projection.

The Stress-Focus constraint maps stress to focus. It simply reflects the traditional view that follows the classical observation by Jackendoff (1972) that focus phrases are more prominent than non-focused ones. Note that the 'focus domain' in the definition refers to the entire sentence (usually corresponding to an Intonational Phrase), not just the focus.

Using these constraints, Samek-Lodovici accounts for how syntax and prosody interact to manifest the informational focus in different languages. Usually in a specific language, either syntax or prosody plays a more important role in determining the positioning of the focused element. To explain the difference, the constraints are ranked differently in different languages. Let us first look at Lodovici's examples from Italian and English to illustrate how these constraints are at work in specific languages. Then I will apply the same type of analysis to Mandarin Chinese.

Zubizarreta (1998) proposes a *p*-movement, namely prosodically motivated movement to explain the relationship between prosody and focus in Italian, illustrated in the following examples, cited in Samek-Lodovici (2005) (his (21) and (22)). The capitalization indicates sentential stress.

(18)   a. What happened?
        b. [Gianni   ha   vinto   la   CORSA]$_f$.
          John   has   won   the   race
          'John won the race.'
        c. * [Ha vinto la   corsa   GIANNI]$_f$.
           has won   the   race   John
           '(intended) John won the race.'

(19)   a. Who won the race?
        b. L'ha   vinta   GIANNI$_f$
          It-has   won   John
          'John won it.'

c. *Gianni$_f$ l'ha   VINTA
    John   it-has   won
    '(intended) John won it.'

It is well-known that Romance languages such as Italian and Spanish allow post-verbal subjects. However, sentences with post-verbal subjects are not used freely. As an answer to questions like 'what happened?', i.e. in the case of broad focus, a sentence with a post-verbal subject is ruled out, as shown in (18c) above, because it would be interpreted as having *Gianni* as the only focus in the sentence. For precisely the same reason, (19b) is the perfect answer to the question in (19a) asking about the subject. And (19c) with a pre-verbal subject becomes pragmatically inappropriate in this context. Based on examples like these, Zubizarreta concludes that in Italian, as in many other languages, informational focus is realized with sentential stress, and more specifically for Italian, the position for sentential stress must be the final position in the sentence. As a consequence, the element that receives the interpretation of informational focus must occur sentence-finally. Therefore, she proposes that the rightward movement of pre-verbal subjects is motivated by prosodic requirement, hence the term *p*-movement. Another property of Italian is that broad focus also receives a sentence-final stress.

In accounting for these facts in Italian in OT, Samek-Lodovici ranks prosodic constraints higher than syntactic constraints as word order in Italian seems more flexible and always acts so as to meet the prosodic requirement of sentence-final stress. Higher than both is the Stress-Focus constraint. The tableau in (20) exemplifies the case of broad-focus (the format is slightly revised to be consistent with the conventions of OT tableaux). The prosodic constraints Wrap and StressXP are not included here or in the following tableaux because they are satisfied by all the candidates listed and are not directly relevant to the analysis. Remember the directionality parameter is set as Right in both H-I and H-P. The subscripted *f* indicates the focused element, *t* stands for trace. The traces are there corresponding to the moved subject and verb because I think Samek-Lodovici follows the VP-shell hypothesis and the VP-internal subject hypothesis. Capitalization in the examples indicates sentential stress.

(20)   Broad focus: Gianni ha RISO. 'John has laughed.'

	SF	H-I	H-P	EPP	Stay
☞a. Canonical structure with final stress (x) I (x) (x) P [S aux [V [t t]]]$_f$					**
b. Clause-final subject with final stress (x) I (x) P [aux [V [S t]]]$_f$				*!	*

(20) is a case of broad focus. Two candidates are evaluated with regard to the sentential stress pattern. Candidate a takes an ordinary SVO word order and has two trivial violations of the lowest ranked Stay because both S and V moved out of their base-generated positions. Candidate b not only violates Stay because V moved out of the lower VP domain, but also has a fatal violation of the higher-ranked EPP as the sentence lacks a subject. Therefore candidate a wins out and the final output is the canonical SVO structure with a sentence-final stress.

The next example shows how syntactic requirements give in to prosodic ones under a narrow-focus condition.

(21) Narrow focus on subject: Ha riso GIANNI. 'John has laughed.'

	SF	H-I	H-P	EPP	Stay
☞a. Clause-final subject with final stress (x) I (x) P [aux [V [S$_f$ t]]]				*	*
b. Canonical structure with final stress (x) I (x) (x) P [S$_f$ aux [V [t t]]]	*!				**
c. Canonical structure with initial stress (x) I (x) (x) P [S$_f$ aux [V [t t]]]		*!			**

When the subject is under narrow focus, i.e. when the sentence is used to answer a question such as 'who laughed?', candidate a with a post-verbal subject wins out despite the violations of EPP and Stay. What rules out candidate b, the canonical SV structure, is that the final sentential stress falls on the verb instead of the focused subject, violating the highly ranked SF. As for candidate c, although the subject receives stress, it does not occurs in the sentence-final position, violating H-I which is higher than EPP and Stay. This makes candidate c lost to candidate a as well.

Now let us look at some examples from English. English forms a contrast with Italian. In English, the word order is relatively rigid while the prosodic pattern is quite flexible. The main stress is assigned rightmost in focus-neutral, namely broad focus context; otherwise the main stress is assigned *in-situ* to the focused element. This pattern is illustrated in the following examples.

(22)   (Context: What happened?)
        John has given a book to MARY.

(23)   (Context: What has John given to Mary?)
        John has given a BOOK to Mary.

English shares with Italian the characteristic that under broad-focus condition the default sentential stress position is rightmost, but differs from Italian in that syntactic requirements play a more important role in restricting where the main stress is under narrow-focus condition. Lodovici captures this difference by ranking syntactic constraints higher than prosodic ones for English. Consider the following examples in English.

(24)   Broad focus: John has LAUGHED.

	SF	EPP	Stay	H-P	H-I
☞a. Canonical structure with final stress (x) I (x) (x) P [S aux [t V]]f			*		
b. Clause-final subject with final stress (x) I (x) P [aux [V [S t]]]f		*!	*		

Under the broad-focus condition, candidate b is ruled out for the same reason the same pattern is ruled out in Italian (see (20)). Here the higher ranking of syntactic constraints than prosodic constraints is not crucial yet. Look at tableau in (25) below.

(25)   Narrow Focus on subject: JOHN has laughed.

	SF	EPP	Stay	H-P	H-I
a. Canonical structure with final stress (x) I (x) (x) P [S$_f$ aux [t V]]	*!		*		
b. Clause-final subject with final stress (x) I (x) P [aux [V [S$_f$ t]]]		*!	*		
☞ c. Canonical structure with initial stress (x) I (x) (x) P [S$_f$ aux [t V]]			*		*

In (25), all three candidates tie in terms of violation of Stay. Candidate a loses because it violates the highest ranked SF due to the lack of sentential stress on the focused subject. Candidate b loses because it does not have a subject, violating EPP. Although candidate c also violates another constraint in addition to Stay, it is a trivial violation of a lower ranked H-I by contradicting the required Right directionality. Therefore candidate c with a normal SVO order and sentential stress on the subject wins out.

Above I briefly sketched Samek-Lodovici's analyses of the focus patterns in Italian and English. What is important in the analysis is that the same set of constraints is used and only the ranking of the syntactic constraints and the prosodic constraints is reversed, in reflection of the language-particular properties with respect to the interaction between syntax and prosody. The analysis is powerful and concise, and typologically convenient. In the next section, I will use the same approach to analyze the case of Mandarin Chinese.

3.2. OT analysis of informational focus in Mandarin Chinese
        Mandarin Chinese shares with Italian and English the general tendency of marking focus with sentential stress. It resembles English more than Italian in that it has a relatively rigid word order and no prosodic requirements or other structural requirements force the focused element to move to a certain position. But Mandarin also differs from both English and Italian in that in the case of broad focus, no sentential stress is present. Additionally, a sentence-final narrow focus does not bear sentential stress either. In a word, stress does not fall in the final position.

Below are sentences of Mandarin Chinese to which I will apply the OT analysis. Again, capitalized words indicate where stress is. (26) is a case of broad focus and (27) is a case of narrow focus on the predicate *bing le*. It is seen that formally (both syntactically and prosodically) they are identical. They keep the ordinary subject-verb word order and no part bears sentential stress. (28) is a case of narrow focus on the subject *Zhangsan* and *Zhangsan* bears and must bear the sentential stress. In this case, a post-verb subject is impossible.

(26)   (context: What happened?)
        Zhangsan   bing   le.
        Zhangsan   sick   ASP
        'Zhangsan got sick.'

(27)   (context: What happened to Zhangsan?)
        Zhangsan   bing   le.
        Zhangsan   sick   ASP
        'Zhangsan got sick.'

(28)   (context: Who got sick?)
        ZHANGSAN bing   le.
        Zhangsan   sick   ASP
        'Zhangsan got sick.'

In general, like other languages, focus needs to be marked prosodically in Mandarin. So the constraint SF is valid in Mandarin. In Italian, stress must occur at the end of the sentence, whether it is the case of narrow focus or broad focus; In English, stress must occur at the end of the sentence in the case of broad focus. In either language, the prosody REQUIRES the stress to occur sentence-finally. Mandarin Chinese, however, seems to be just the opposite of Italian: its prosody PROHIBITS the stress from occurring sentence-finally regardless of whether it is the case of narrow focus or broad focus. Other than that, stress occurs pretty much wherever the focused element needs to be per requirements of syntax.

Therefore, I treat the case of Mandarin Chinese as a case of 'do something except when…' in OT, namely 'stress the focused element except in the sentence-final position.' I would like to replace the prosodic constraints H-P, H-I and so on with a markedness constraint: *FinalStress.

(29)   *FinalStress: No stress should occur in the sentence-final position.

This markedness constraint should be ranked higher than SF. *FinalStress can be seen as a special case of a general principle that holds a group of phonological phenomena

together: Nonfinality, which applies to a wide range of phenomena including stress assignment and syllable weight. (See Prince & Smolensky 2004) I would also like to revise the constraint SF in two ways for Mandarin. First, if no part is informationally more prominent than other parts in the same sentence, then there should not be any part that is prosodically more prominently than other parts. A stressless broad focus sentence should not be considered a violation of SF. Second, I propose that SF be interpreted as a one-to-one correspondence between stress and focus. It is violated when a focused element is not assigned a sentential stress or when a non-focused element is assigned a sentential stress. When the stress falls on a wrong constituent, therefore, it counts as two violations. The modified definition of the constraint SF is as follows.

(30)   Stress-Focus: for any XP and YP in the same sentence, XP is prosodically more prominent than YP if XP is informationally more prominent than YP, and vice versa.

Here 'informationally more prominent' is understood as 'under focus' and the 'sentence' corresponds to the Intonational Phrase in prosodic hierarchy.
    With these considerations in mind, here are the relevant constraints and their ranking I temporarily follow in Mandarin:

(31)   *FinalStress >> SF>>EPP>> Stay

    Let us now look at the case of narrow focus on subject in Mandarin.

(32)   Narrow focus on subject. ZHANGSAN bing le. 'Zhangsan got sick.'

	*FinalStress	SF	EPP	Stay
a. Canonical structure with final stress x [S$_f$ aux [t V]]	*!	**		*
☞ b. Canonical structure with initial stress x [S$_f$ aux [t V]]				*
c. Canonical structure with no stress [S$_f$ aux [t V]]		*!		*
d. Clause-final subject with final stress x [aux [V [S$_f$ t]]]	*!		*	*

Four candidates are evaluated in (32). Candidate a is an ordinary SV sentence with stress on the predicate *BING le.* It not only violates Stay in that the subject moves from internal of the VP, but also violates SF twice in that the stress is assigned to a wrong constituent. Candidate d would correspond to the sentence *Bing le ZHANGSAN.* Although *Zhangsan* does receive the stress, the sentence violates EPP and Stay, and also *FinalStress. Candidate c, corresponding to a sentence that would be uttered under broad focus, violates Stay and SF once because the focused subject does not get any stress. Candidate b, *ZHANGSAN bing le*, which turns out to be the winner, only violates the low ranked Stay.

In fact, (32) does not differ from English in any significant way. Let us turn to the case of broad focus.

(33)   Broad focus: Zhangsan bing le. 'Zhangsan got sick.'

	*FinalStress	SF	EPP	Stay
a. Canonical structure with final stress x [S aux [t V]]ₓ	*!	*		*
b. Canonical structure with initial stress x [S aux [t V]]ₓ		*!		*
☞c. Canonical structure with no stress [S aux [t V]]ₓ			*	*
d. clause-final subject with no stress [aux [V [S t]]]ₓ			*!	*

All four candidates violate the lowest ranked constraint Stay. Candidates a assigns the stress on the predicate and violates the highly ranked *FinalStress. In addition, it violates SF. Although the entire sentence is under focus, there is no part within the sentence that is informationally more prominent than other parts, so the verb should not receive any stress. Candidate b assigns the stress on the subject and so also violates SF, as well as Stay. The winner candidate c lacks a main stress in the sentence but does not violate SF according to its definition. It only violates Stay. Candidate d is incorporated to show the effect of EPP. The result proves that EPP is either ranked higher than or the same as Stay.

From the above two examples, it looks like that the ranking of the four constraints *FinalStress>> SF >> EPP >> Stay is valid. But let us examine the case of sentence-final narrow focus to see if it needs any modification. In (34) the predicate is under focus.

(34)   Narrow focus on predicate: Zhangsan bing le. 'Zhangsan got sick.'

	*FinalStress	SF	EPP	Stay
a. Canonical structure with final stress x [S aux [t V_f]]	*!			*
b. Canonical structure with initial stress x [S aux [t V_f]]		*!*		*
c. Canonical structure with no stress [S aux [t V_f]]		*!		*
☞d. clause-final subject with initial stress x [aux [V_f [S t]]]			*	*

Candidate a is ruled out by violation of the highest-ranked *FinalStress. Candidate b and c both violate Stay and SF, but the former violates it twice as the stress falls on a non-focused element and the focused element does not receive stress. Candidate c is the best choice among the first three. However, candidate d, corresponding to 'BING le Zhangsan' with stress on the predicate, would become the winner because the two syntactic constraints it violates are ranked lower than SF violated by candidate c. Yet the sentence is absolutely unacceptable in Mandarin. This shows that EPP cannot be violable and must be ranked higher. I now move the two syntactic constraints altogether to a position higher than SF, which yields the desirable result.

(35)   (modified) Narrow focus on predicate: Zhangsan bing le. 'Zhangsan got sick.'

	*FinalStress	EPP	Stay	SF
a. Canonical structure with final stress x [S aux [t V_f]]	*!		*	
b. Canonical structure with initial stress x [S aux [t V_f]]			*	**!
☞c. Canonical structure with no stress [S aux [t V_f]]			*	*

580

d. Clause-final subject with initial stress x [aux [V$_f$ [S t]]]		*!	*	

Note that I put *FinalStress, EPP and Stay in the same slot due to their equal degree of inviolability. The three must outrank SF, otherwise candidates a, c and d would tie. Therefore, the final ranking of the constraints should be as follows.

(36)   *FinalStress, EPP, Stay >> SF

The previous two examples can be reanalyzed under the new ranking and it should yield the same results. Readers can work out the tableaux themselves.

4. Conclusions

In this paper, I provided a formal analysis of the realization of informational focus in Mandarin Chinese in the OT model. I first gave a brief overview of the important concepts related to focus, reviewed the facts regarding the realization of informational focus in Mandarin, and then gave an OT account for the patterns mainly by following the approach in Samek-Lodovici (2005). I also compared Mandarin with Italian and English. Essentially how informational focus is manifested in a language is a result of the competition or compromising between various sorts of grammatical constraints in phonology, syntax and other components of grammar. As a common property of Italian, English and Mandarin Chinese, focus is in general realized by prosodic prominence. So a basic constraint Stress-Focus plays an important role in all three languages. When prosodic constraints and syntactic constraints conflict with each other, syntactic requirements give in in Italian while prosodic requirements give in in English. These facts are accounted for by ranking prosodic constraints higher than syntactic ones in Italian and the opposite in English. In both languages, SF ranks the highest. In Mandarin Chinese, the prosodic constraint *FinalStress I proposed takes the form of a markedness constraint and is ranked equally high with syntactic constraints. What gives in in Mandarin is the constraint SF because it is relaxed in the sentence-final position or in broad focus. That is why it ranks lower than the other constraints in Mandarin. The OT analysis shows that Italian, English and Mandarin each represents a type in the language typology of how informational focus is realized through the interaction between syntax, prosody and pragmatics.

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Standard vs. sideward movement in verb copying[*]

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This paper examines three subtypes of the verb copying construction in Chinese.
We begin by looking at Cheng's (2007) analysis of the resultative verb copying
construction, according to which both standard movement and sideward
movement are required to account for the verb copying construction (VCC).
Cheng suggests that the same analysis can be applied to verb copying with non-
resultative phrases; this paper explores this claim by examining in greater detail
two other subtypes of the VCC (verb copying involving manner phrases and
duration/frequency phrases), looking at some differences between VCCs
containing indefinite NP objects and those containing definite NP objects. In the
context of the definite/indefinite object asymmetry, we discuss whether both
types of movement are in fact motivated; that is, we examine whether both
standard and sideward movement are required for a unified analysis of all
subtypes of the VCC in Chinese.

1. Introduction

In this paper, I will discuss three subtypes of the verb copying construction (VCC)
in Chinese, providing support for Cheng's (2007) analysis of the VCC, according to
which both standard movement and sideward movement are required to properly account
for the three subtypes. I will begin by presenting Cheng's (2007) analysis of the VCC,
and extend her account in greater detail to manner VCCs. Cheng proposes that verb
copying involving indefinite NPs requires sideward movement. I suggest that a unified
analysis should ideally capture the facts for all types of VCCs, and that looking at VCCs
involving frequency/duration phrases (which crucially include aspectual marking)
provides further evidence that both a standard and a sideward movement analysis are
required to account for the lot of VCCs in Chinese. The layout of the paper is as follows.
In section 1, I introduce the three subtypes of the VCC discussed in this paper. Section 2
presents Cheng's analysis of resultative VCCs. In section 3, I pursue Cheng's suggestion
that the same analysis can be applied to manner VCCs, and suggest that sideward
movement and standard movement cannot be distinguished by looking exclusively at

manner VCCs. In section 4, I present data bearing on the final subtype of VCCs, those involving frequency and duration phrases, and discuss how these might help us to distinguish standard and sideward movement. Finally, section 5 summarizes and concludes the discussion.

2. Three subtypes of the VCC

In Mandarin Chinese, non-referential, generic activity readings are often achieved transitively:

(1)   Lisi   zai   chang   ge
        Lisi   PROG   sing   song
        'Lisi is singing'

(2)   John   zai   du   shu
        John   PROG   read   book
        'John is reading'

The verbs that appear with generic objects are generally the Chinese equivalents of unergative or optionally transitive verbs in English, e.g., *eat, read, sing, speak, write, drive, run, walk*, etc. These verbs appear syntactically transitive in Chinese, but the bare noun complement is semantically an implicit argument.[1] There is no specific song that is being sung in (1), nor is there a particular book that is being referenced in (2).

Manner phrases, which are preceded by a *de* particle, also follow the verb:

(3)   ta   pao   de   hen   kuai
        he   run   DE   very   fast
        'He runs very fast'

(4)   ta   chang   de   hen   hao
        he   sing   DE   very   good
        'He sings very well'

It is impossible to pronounce both an object NP and a *de*-manner phrase after the verb:

(5)   *ta   pao   bu   de   hen   kuai
         he   run   step   DE   very   fast
        'He runs very fast'

---

[1] When the NP object is definite, it is possible to have both the NP and the duration/frequency phrase immediately following the verb. This will be further discussed in section 4.

(6)   *ta   chang ge   de   hen   hao
   he   sing   song   DE   very   good
        'He sings very well'

Yet another type of phrase that cannot immediately follow the verb in addition to an indefinite bare noun object is the duration phrase[2]:

(7)   ta   du-le   (*shu)   san-ge xiaoshi
        he   read-PERF   book   3-CL   hour
        'He read for three hours'

These restrictions are consistent with the general observation that in Chinese, only one constituent is pronounceable after the verb:

(8)   Phrase Structure Constraint (PSC) (Huang 1984)
        Within a given sentence in Chinese, the head (the verb or VP) may branch to the left only once, and only on the lowest level of expansion.

The PSC allows for the branching in (9a) but not in (9b) (Cheng, 2007:153):

(9) a.   VP   b.   *   VP

                    V'   V'

            V   XP   V   XP
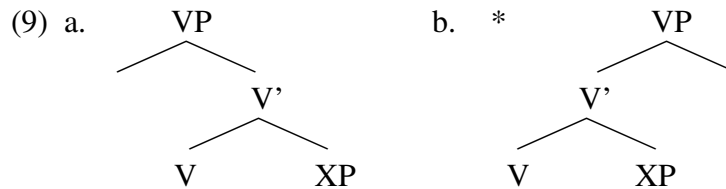
        Cheng (2007) points out that verb copying has often (though not necessarily correctly) been thought of as a strategy to avoid pronouncing two constituents after the verb. Verb copying generally arises when in addition to an object NP complement, the verb is also followed by a resultative phrase, manner phrase, duration phrase, or frequency phrase.

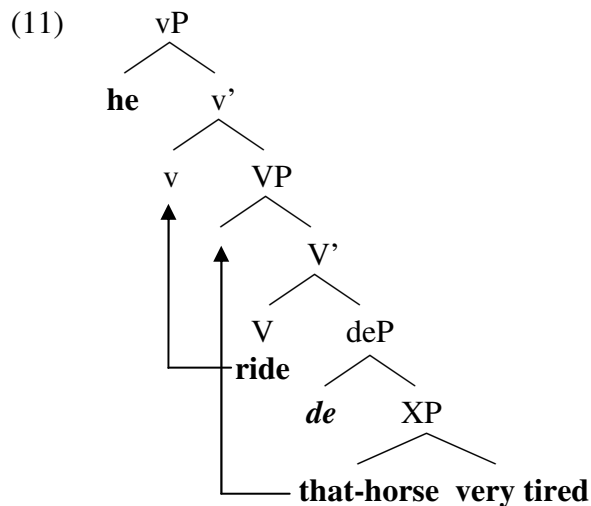## 3. Cheng (2007): Verb copying with resultative phrases
3.1. Resultative VCCs with definite NP objects
        Let us begin by looking at resultative VCCs involving definite NP objects. Cheng observes that (10) is ambiguous between an 'object-result' reading and a 'subject-result' reading. She associates the two readings with different derivations.

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[2] When the NP object is definite, it is possible to have both the NP and the duration/frequency phrase immediately following the verb. This will be further discussed in section 4.

(10) ta   qi   nei-pi ma   qi   de   hen   lei
      he   ride   that-CL horse ride   DE   very   tired
      (a) 'He rode the horse and the horse got very tired' (object-result)
   (b) 'He rode the horse and became tired as a result' (subject-result)

First, let us consider the 'object-result' reading of the sentence in (10), in which the object of *riding*, e.g., the horse, is the subject of the resultative small clause. The resulting reading is that it is the horse that was ridden that became tired as a result of the riding event. Cheng proposes the following derivation for (10a), represented in (11). The NP *that horse* starts off in the subject of the resultative small clause, and raises to the Specifier of VP.[3] The verb *ride* raises from V to small *v*. Ordinarily, copy deletion of one of the verb copies (Nunes' (2004) Chain Reduction) would have to occur in order to yield a linearizable structure; but in this case, fusion of V and the *de* particle results in two distinct copies of the verb. Both copies of the verb are thus able to be spelled out, yielding the surface form in (10).

(11)

```
                    vP
                   /  \
                 he    v'
                      /  \
                     v    VP
                     ↑   /  \
                    /   V'
                   /   /  \
                  /   V    deP
                 └─ ride   /  \
                      │  de    XP
                      │       /  \
                      └── that-horse  very tired
```

      Now let us consider the 'subject-result' reading of (10), according to which it is the agent of *riding* that is tired as a result of the riding event. Cheng suggests that the subject NP *he* is first merged in the resultative *de*-clause; this is what yields the interpretation that it is the rider of the horse that is tired. The pronoun *he* then raises to subject position, e.g., the Specifier of IP. As for what happens to the NP object *that horse*, Cheng follows Hoekstra and Mulder (1990) in their suggestion that there is an

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[3] Cheng assumes that *that horse* moves to Spec,VP as would occur in the *ba*-construction; in other words, (6a) is equivalent to the *ba*-construction: *ta ba nei-pi ma qi de hen lei* 'he *ba*-that-horse ride *de* very tired'.

ergativity shift in the case of resultatives; that is, a non-ergative verb can become ergative with the addition of a resultative clause.[4] Extending this unaccusativity shift to the case in (10), she suggests that because the verb *ride* becomes unaccusative with the addition of the resultative clause, there is no *v*P layer, nor is there a SpecVP to host any object-like argument, e.g., *that horse*[5]:

(12)   [$_{IP}$ __ [$_{VP}$ ride [$_{deP}$ *de* he tired]]]
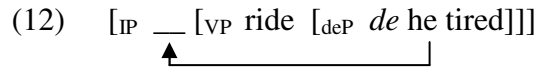
Since the object NP cannot be generated in the Specifier of VP, we must appeal to sideward movement (Nunes, 2004) to generate the Verb-Object sequence (Cheng, 2007:160)[6]:

(13)   [$_{VP}$ V [$_{DeP}$ …]]   V ⟵⟶ DP
                                             Merge
                    Copy
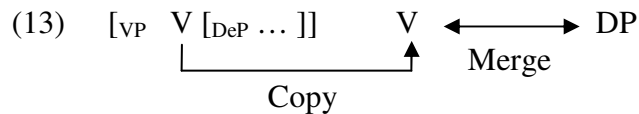
The verb *qi* 'ride' is morphologically fused with the *de* particle. This allows the spellout of the two non-identical copies of the verb, as in (14).[7]

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[4] In what follows, I will refer to this phenomenon as *unaccusativity shift*. According to Cheng, unaccusativity shift of the matrix verb is optional in the case of resultative *de*-clauses (Cheng 2007:163); when it does occur, a single noun phrase starts off as an internal argument, e.g., inside the resultative small clause, and ends up as the matrix subject (if there is no causer). For example, when the subject NP is base-generated in the resultative clause (as in (12)), unaccusativity shift may occur, in which case sideward movement is forced (in order to merge the object NP). For reasons of space, I leave aside a more detailed discussion of unaccusativity shift in Chinese; what is crucial here is that Cheng uses unaccusativity shift to force sideward movement in (14).

[5] Cheng notes however that it is possible to add a causative vP layer. Given this, unaccusativity shift can also occur in sentences that have an object-result reading, as seen below (Cheng's (28)):

    (i)   ta   qi   de   ma   hen   lei
            he   ride   DE   horse   very   tired
            'He rode the horse and as a result the horse is tired'

Cheng analyzes the verb in (i) as having undergone unaccusativity shift, with the single argument (*horse*) in the resultative clause; the matrix subject is interpreted as the causer argument.

[6] For Cheng, sideward movement is triggered by the need to check a theta-feature, which if treated as a formal feature, satisfies the Last Resort condition on Copy.

[7] Note that the following operations must be ordered: Copy > *de*-fusion > Spellout.

(14) ta$_i$ [[$_{VP1}$ qi   nei-pi ma]   [$_{VP2}$ qi de t$_i$ hen lei]]
      he   ride that-CL horse   ride DE   very tired
      'He rode the horse and became tired as a result'

To summarize, in accounting for the two readings in (10), Cheng appeals to standard movement of the verb to account for the object-result reading, and sideward movement of the verb to account for the subject-result reading. Crucially, both derivations yield the same surface form; fusion of one of the verb copies and the *de* particle results in two distinct verb copies in both cases. We thus get the surface VCC form in (10).

3.2. Resultative VCCs with indefinite NP objects

Now let us consider Cheng's analysis of resultative VCCs involving indefinite objects. Note that these constructions are not ambiguous in the way that resultative VCCs with definite objects are. That is, the sentence in (15) only has the 'subject-result' reading (Cheng, 2007:159):

(15) ta   qi   ma   qi   de   hen   lei
      he   ride horse ride DE   very   tired
      'He got tired riding (a horse)'

In contrast to (10), (15) involves a bare noun as the object of the first verb, and the V-Obj combination yields an activity reading (Cheng, 2007:159). Cheng crucially assumes that due to the unaccusativity shift induced by the addition of the resultative clause, there is no Specifier of VP available to host the bare noun. The bare noun thus cannot occupy Specifier of VP, and only the subject-result reading (derived via sideward movement) is possible:

(16) ta$_i$ [[$_{VP1}$ qi   ma] [$_{VP2}$ qi   de t$_i$ hen lei]]
      he   ride   horse   ride   DE   very tired
      'He got tired riding (a horse)'

Briefly summarizing then, Cheng appeals to two different derivations in accounting for the different readings associated with resultative VCCs. In the case of VCCs containing definite NP objects, the object-result reading is derived via standard movement, while the subject-result reading is derived via sideward movement. In the case of resultative VCCs involving indefinite NP objects, only the subject-result reading is possible, and this is likewise derived via sideward movement.

3.3. Verb copying with manner phrases

Cheng also suggests that the same analysis can be applied to verb copying with manner phrases. As we saw in section 1, when we have both an object NP and a manner adverb following the verb, verb copying is obligatory, whether the object NP involved is definite or indefinite:

(17)   ta   du   shu   *(du) de   hen   kuai
       he   read   book   read DE   very   fast
       'He reads very fast'

(18)   ta   du   nei-ben   shu   *(du) de   hen   kuai
       he   read   that-CL   book   read DE   very   fast
       'He read(s) that book very fast'

Cheng adopts Huang's (1988) argument that the manner adverbial *de*-clause should be treated as a type of secondary predication, e.g., *very fast* in (19) is predicated not of the subject or object NP, but rather of the main predicate (the event or activity of reading the novel):

(19)   [VP novel read [*de* very fast]] (Cheng, 2007:166)

Since the manner *de*-clause is not an inner argument of the verb, it cannot trigger unaccusativity shift (Cheng, 2007:166). Moreover, the object *novel* cannot start off in the manner *de*-clause since the adverbial *very fast* is not predicated of it. Note that in Cheng's analysis, there is a crucial assumption that indefinite noun phrases cannot be merged in the Specifier of VP because the SpecVP position is reserved for specific, affected objects (Diesing, 1997, Marantz, 1993, cited by Cheng, 2007).
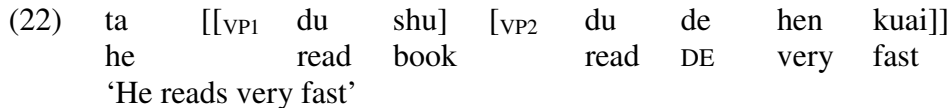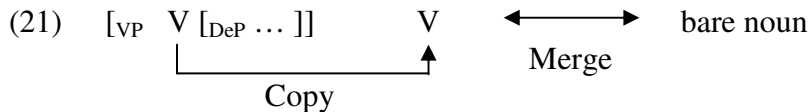Cheng does not discuss manner VCCs at length, but suggests that: (i) manner VCCs involving definite NP objects are derived via standard movement; (ii) manner VCCs with indefinite NP objects are derived via sideward movement. In the next section, we will turn to a more detailed examination of how Cheng's proposed analysis of manner VCCs can be carried out, and discuss whether both standard and sideward movement are necessary to account for manner VCCs.

4. Definites and indefinites in manner VCCs

First, consider manner VCCs with definite NP objects. These are analyzed as involving standard movement of the verb. As suggested by Cheng, fusion occurs between V and the *de* particle, and both copies of the verb are spelled out, giving us the surface string in (18).

(20)

```
                vP
              /    \
            he      v'
                  /    \
                 v      VP
                 ↑     /   \
            that-book   V'
                       /    \
                      V      deP
                     read   /   \
                          de     AP
                              very fast
```
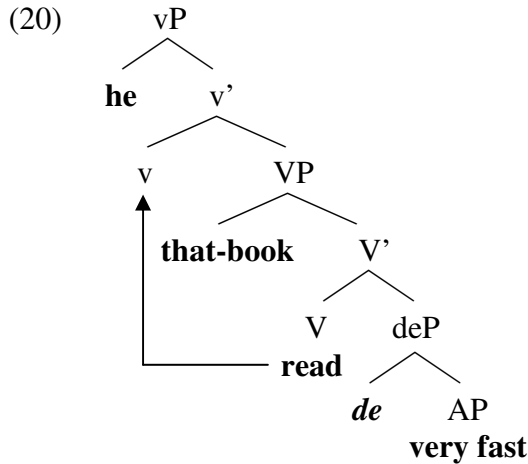
Now consider manner VCCs with indefinite NP objects. The verb first merges with the *de*-manner phrase; it then copies to check the θ-feature of *book*, as in (21), giving us the surface form in (22):

(21) [$_{VP}$ V [$_{DeP}$ …]]   V ←——————→ bare noun
                                              Merge
           └———————————————↑
                    Copy

(22) ta   [[$_{VP1}$ du   shu] [$_{VP2}$ du   de   hen   kuai]]
      he   read   book   read   DE   very   fast
      'He reads very fast'

Fusion occurs between the verb in VP2 and the *de* morpheme, resulting in the spellout of two distinct verb copies, giving us the surface string in (17).

A fair objection at this point in the discussion is to question whether sideward movement is actually necessary to analyze manner VCCs at all. Given that there is no unaccusativity shift involved in manner VCCs, it appears that the only thing stopping us from adopting a single unified analysis for manner VCCs with definites and those with indefinites is the assumption that the Spec,VP position cannot host non-specific, non-affected indefinite objects. Whether we adopt standard or sideward movement, there is fusion of one of the verb copies and the *de* particle, such that both verb copies are spelled out. This accounts for the apparent 'obligatoriness' of verb copying regardless of whether the NP object is definite or indefinite. In other words, a standard movement analysis can just as well take care of the sentence in (17).

To pursue this particular line of reasoning, it is crucial that we dispense with the assumption that indefinite objects cannot occupy SpecVP; once we are rid of this assumption, nothing stops us from adopting the exact same analysis for manner VCCs with definites and indefinites. First, the verb merges with the manner adverbial. The

bare noun is then merged into the SpecVP position. The verb then raises to little *v*. Fusion between V and the *de* particle results in two distinct copies of the verb, and both copies are spelled out, giving us the surface form for (17), repeated below as (23):

(23) ta   du   shu   du   de   hen   kuai
      he   read   book   read   DE   very   fast
      'He reads very fast'

(23')
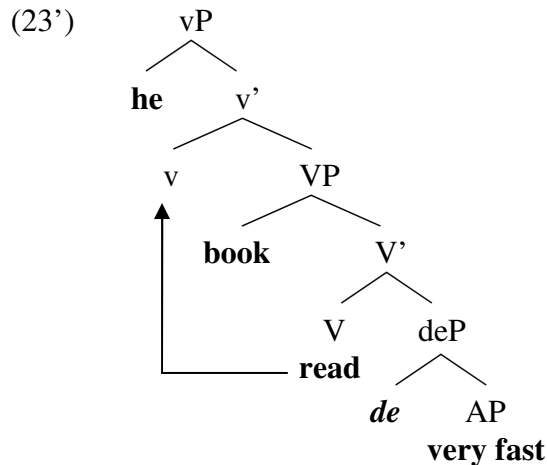
In other words, barring the assumption that indefinites cannot occupy SpecVP, we do not need two separate analyses to account for manner VCCs.

Before we abandon the sideward movement analysis however, we ought to consider the goal of our present study of VCCs in Chinese. An overarching consideration in our exploration of the VCC is that we ideally want a unified analysis for all three subtypes of the VCC. If we restrict ourselves to the analysis of manner VCCs, it is nearly impossible to distinguish between standard and sideward movement analyses; there is only one interpretation involved, and verb copying is obligatory whether the NP object is definite or indefinite. Crucially, morphological fusion between V and the *de* particle obliterates any insight into whether the indefinite manner VCCs are derived via standard or sideward movement. Given our desire to articulate a unified account of all three kinds of VCCs in Chinese, we cannot restrict ourselves by looking only at one subtype of the VCC, particularly given the confound caused by morphological fusion.

Before we abandon the hypothesis that both standard and sideward movement are necessary to account for VCCs (particularly manner VCCs), we ought to consider a third subtype of the VCC. Duration/frequency VCCs will be particularly insightful because like resultative VCCs, they *do* exhibit an asymmetry between definite and indefinite objects.

5. Copying with duration/frequency phrases

Verb copying with duration/frequency phrases is optional when the object NP is definite, but obligatory when the object NP is indefinite:

(24)a. ta   du-le   nei-ben   shu   san   ci
         he   read-PERF   that-CL   book   three times
         'He read that book three times'

     b. ta   du   nei-ben   shu   du-le   san   ci
         he   read   that-CL   book read-PERF   three times
         'He read that book three times'

(25)a. *ta   du-le   shu   san-ge   xiaoshi
          he   read-PERF   book three-CL   hours
         'He read for three hours'

     b. ta   du   shu   du-le   san-ge   xiaoshi
         he   read   book read-PERF   three-CL   hours
         'He read for three hours'

It is somewhat difficult to discuss duration/frequency VCCs without addressing the issue of aspect, since verbs in these constructions are typically marked for perfective aspect. This is likely because duration and frequency phrases tend to modify events that have taken place in the past. Duration phrases typically modify past atelic events that have already been terminated; frequency phrases typically modify past telic events that have already been terminated. In the next section, I briefly lay out my assumptions about perfective aspect and its interaction with duration/frequency phrases. Following this, we will look more closely at VCCs containing duration/frequency phrases.

5.1. Duration/frequency phrases and aspect

Let us first consider a regular sentence with a definite NP and perfective aspect marking.

(26)   ta   du-le   nei-ben   shu
         he   read-PERF   that-CL   book
         'He read that book'

We can represent the derivation for (26) as in (26'). *That book* can be considered a "bounded" argument, since it has an inherent endpoint. According to Ritter and Rosen (2001), a definite NP is associated with bounded event structure and carries an interpretable [QUANTIZATION] feature (essentially measuring out discrete, countable

events); it moves into the Specifier of AspP to check the Asp head's uninterpretable [QUANTIZATION] feature. Checking the [uQUANT] feature on Asp marks the event as bounded. I further assume that the Inner Aspect head in Chinese minimally bears a [TERMINATED] feature, e.g., when Aspect is projected, the verb must raise to Asp, and the event is marked as terminated before utterance time. The Asp head surfaces as the perfective marker *le*. The movement of the definite NP to Spec,AspP and of the verb to Asp thus gives us the surface form in (26), and the interpretation that the bounded reading event was terminated before utterance time.

(26')
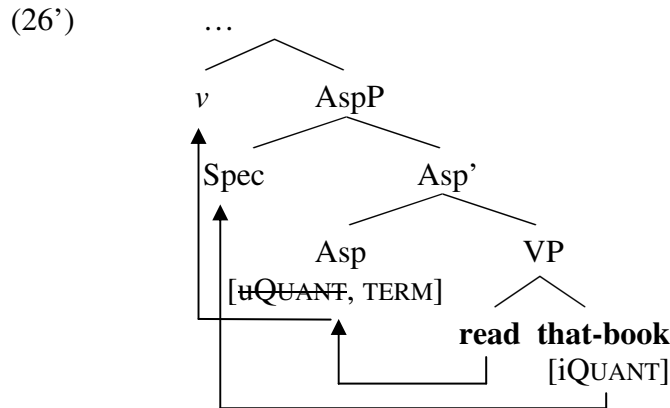
Next, let us consider what happens when the object NP is indefinite.

(27) ta   du-le   shu
      he   read-PERF   book
      'He read (books)'

We can represent the derivation for (27) as in (27'). Here, I follow Ritter and Rosen's assumption that indefinite objects (such as the bare noun in Chinese) do not have a [QUANT] feature and remain in VP. We therefore have two kinds of event structure that can be associated with the perfective marker *le*; on the one hand, unbounded events can be marked with the perfective marker *le*, in which case the event is interpreted as unbounded and terminated before utterance time; on the other hand, bounded events can be marked with the perfective marker *le*, and the event is interpreted as bounded and terminated before utterance time. Crucially, the direct object and the verb together contribute to the interpretation of the event structure.

The bare noun in (27) has no [QUANTIZATION] feature, e.g., is not inherently bounded, and thus does not participate in the interaction with aspect. The verb however raises to the Asp head to be marked as perfective, giving the interpretation that the reading event, though inherently unbounded and atelic, was terminated before utterance time.

(27')
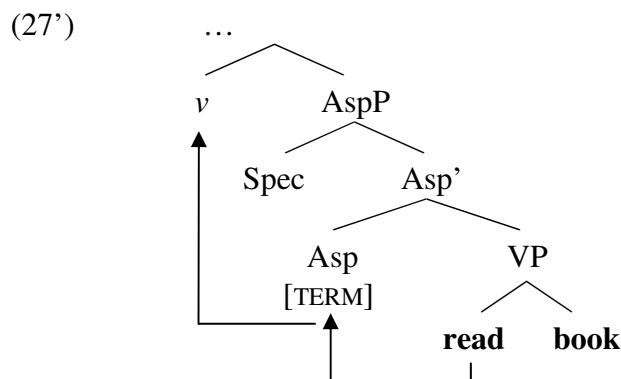
Now let's see what happens when we consider both perfective aspect and duration/frequency phrases. Consider a bounded and unbounded event, both terminated before utterance time:

(28)   *Bounded event, terminated before utterance time:*
   ta   du-le   san   ci
    he   read-PERF   three   times
    'He read (it) three times'

(29)   *Unbounded event, terminated before utterance time:*
    ta   du-le   san-ge   xiaoshi
    he   read-PERF   three-CL   hours
    'He read for three hours'

The boundedness of (28) is induced by the frequency phrase; that is, the event had an endpoint (which in fact occurred three times). The duration phrase in (29) does not induce such an endpoint; it only indicates that the reading event happened to last for three hours. In other words, frequency/duration phrases distinguish bounded and unbounded event readings just as definite/indefinite NPs do. Definite objects and frequency phrases measure out discrete, bounded events; in contrast, indefinite objects and duration phrases are associated with unbounded events. The frequency phrase carries an interpretable [iQUANT] feature, as its role is to count out discrete, bounded events; the duration phrase does not bear this feature. The corresponding structures for (28) and (29) are as follows[8]:

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[8] I have followed Huang (1991) in treating duration/frequency phrases as being merged within V', e.g., as sisters of V.

(28')

(29')
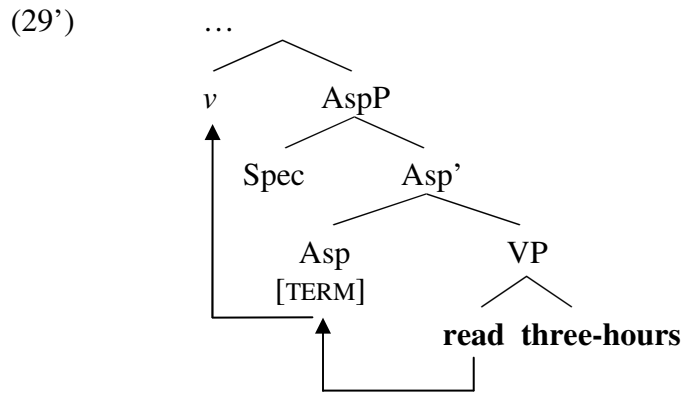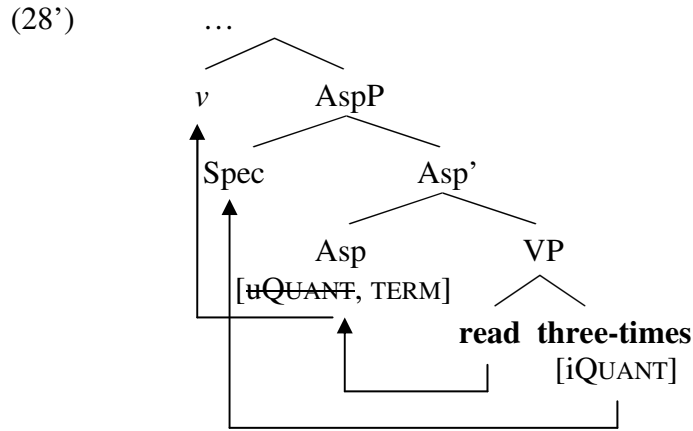
5.2. Frequency/duration VCCs

Now that we have laid out our assumptions about the interaction between aspect and NP objects on the one hand, and duration/frequency phrases on the other hand, let us turn to VCCs containing frequency phrases and definite object NPs. In the case of definite objects, copying is optional, as in (24), repeated below as (30):

(30)a.　ta　　　du-le　　　　nei-ben　　　shu　　san　　ci
　　　　　he　　　read-PERF　　that-CL　　　book　　three　　times
　　　　　'He read that book three times'

　　b.　ta　　　du　　nei-ben　　　shu　　du-le　　　san　　ci
　　　　　he　　　read　　that-CL　　　book　　read-PERF　　three　　times
　　　　　'He read that book three times'

The (non-VCC) sentence in (30a) is taken care of quite straightforwardly, given our assumptions. The Asp head in (30a) has both a [TERMINATED] feature and an uninterpretable [uQUANT] feature; both the definite object *nei-ben shu* 'that book' and the

frequency phrase *three times* carry an interpretable [iQUANT] feature. Either one can check the [uQUANT] feature of the Asp head; under normal circumstances, the Asp head will simply probe for the closest [iQUANT]-bearing element, which is the definite NP object. The NP object thus raises to the Specifier of AspP, checking the [uQUANT] feature of the Asp head; the verb raises to Asp and *v*, yielding the surface string in (30a).

(30a')
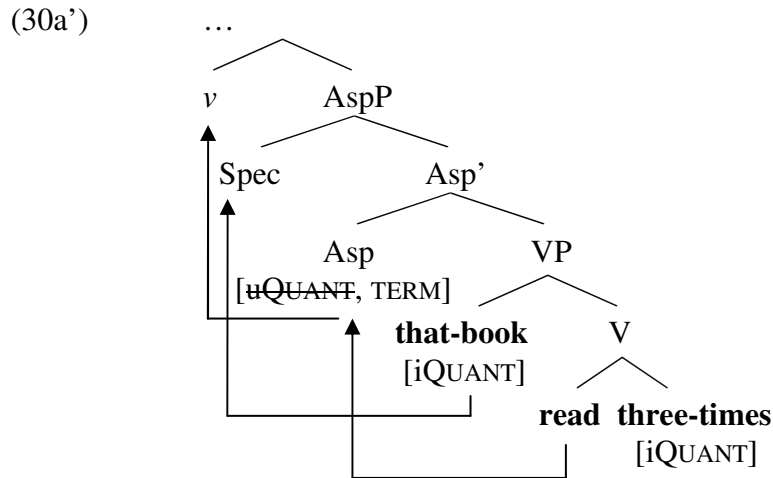
It is less obvious how to take care of (30b). Cheng suggests one possible solution by turning to another variant of D/F expressions, pointed out by Ernst (1987):

(31) ta   kan   nei-ben   shu   you   san   ci   le
      he   read   that-CL   book   have   three times PRT
      'He has read that book three times'

According to Cheng (2007), if fusion occurs between the lower copy and a covert *you* 'have', the two verb copies will be distinct and both copies can be spelled out (cf. (30b)). If fusion does not occur, the two copies are the same, and only the highest copy is pronounced (cf. (30a)).[9]

Consider now VCCs containing duration phrases and indefinite NP objects. With indefinite objects, copying is obligatory, as in (25), repeated below as (32):

(32)a. *ta   du-le   shu   san-ge   xiaoshi
        he   read-PERF   book   three-CL   hours
       'He read for three hours'

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[9] One has to wonder however why something that is *covert* (e.g., phonetically null) ought to affect the phonological output at all. I leave this issue aside for the time being.

b. ta   du   shu   du-le   san-ge   xiaoshi
   he   read   book   read-PERF   three-CL   hours
   'He read for three hours'

If we treat indefinite objects exactly as we do definite objects, we incorrectly predict that a sentence like (32a) is grammatical. The indefinite object would start off in Spec,VP; neither it nor *three hours* would bear a [iQUANT] feature. The verb would raise to check the [TERMINATED] feature, and the sentence ought to be fine. However, this is not the case. The asymmetry between definite and indefinite objects (in the interpretation of event structure and in the optionality/obligatoriness of verb copying) seems to suggest that they are not to be treated identically. VPs containing a verb and bare noun seem to behave like compounds in Chinese, appearing similar to unergative verbs in English; perhaps we can think of the bare noun as an implicit argument that incorporates into the verb so that the compound behaves as a unit (generating an activity reading). Sideward movement generates the VP configuration containing the verb and the bare noun as sisters, feeding noun incorporation. If indefinite bare nouns must indeed be sisters to V, we have an independent reason to adopt the sideward movement approach. If sideward movement is forced, there is no optionality with respect to verb copying; in a sideward movement configuration, neither copy c-commands the other and both copies must be pronounced.

The derivation for (32b) could thus be represented as follows:

(32b')   …
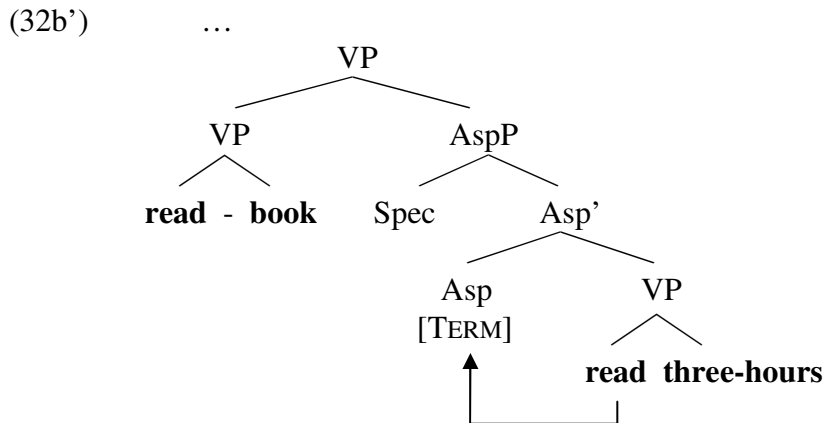
I have represented the VP containing the bare noun as disjoint from AspP and all the projections that AspP dominates. It is not a novel idea to have an aspectual projection intervening between two VP shells; for example, Travis (in press) distinguishes between Inner and Outer Aspect. The question is whether it makes sense for us to consider the VP with the bare noun as outside the scope of the aspect head. A discussion of this would take us beyond the scope of this paper; however, I suggest that such an idea is not inconceivable, in light of some evidence presented by Paul (2002) that it is the second VP

in a VCC that denotes an actual event structure.[10] For example, Paul points out that it is the second VP in a VCC that is modified by VP-level adverbs and negation; moreover, only the second occurrence of the verb can be marked for aspect. According to Paul, it is the second VP that is the 'real' verbal predicate; the first VP is outside the realm of Inner Aspect and only contributes an activity or generic event reading. I leave this issue aside for now, though it certainly merits further research.

6. Conclusion

In this paper, we have looked at three subtypes of the VCC in Chinese. First, we considered resultative VCCs, for which we saw the usefulness of postulating two kinds of movement. As shown by Cheng (2007), a standard movement analysis allowed us to account for resultative VCCs containing definite objects, while a sideward movement analysis allowed us to account for resultative VCCs containing indefinite objects. The need for two distinct types of movement was further motivated by the fact that two distinct interpretations are possible with resultative VCCs, e.g., the subject-result reading, derived via standard movement, and the object-result reading, derived via sideward movement. Next, we looked at manner VCCs, which did not appear to distinguish between standard and sideward movement. I suggested that this was due to the additional confound that fusion results in obligatory "copying" whether the NP object is definite or indefinite. Because of fusion between the second verb copy and the *de* particle, two copies of the verb are always spelled out (Cheng, 2007); it is thus impossible to distinguish between manner VCCs containing definite objects and manner VCCs containing indefinite objects. We then moved onto the final subtype of VCCs in Chinese – those involving duration/frequency phrases. Here, we came full circle, as the asymmetry between definite objects and indefinite objects surfaced once again. Assuming that it is the second VP in a VCC that is the main verbal predicate, we see that a standard movement analysis accounts for the apparent optionality of copying in the case of definite NP objects, while a sideward movement analysis accounts for the apparent obligatoriness of copying in the case of indefinite NP objects. In arguing for a unified account, we thus find that both standard and sideward movement are necessary to account for the three subtypes of the VCC.

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[10] Paul (2002) proposes a theory of proxy categories to account for the verb copying construction, according to which the first occurrence of the verb occupies a position above VP. For reasons of space, I do not discuss her analysis of the VCC; however, her evidence for the hypothesis that it is the second VP that denotes an actual event structure can be nicely extended to our present discussion.

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