

Ellipsis and Missing Objects

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Language is a system pairing sound and meaning. However, this pairing is not always perfect. Cross-linguistically, it is quite common to find instances that have sound without meaning or meaning without sound. The former include expletives. The latter can be illustrated by (i) empty categories (traces) that are derived by movement, (ii) empty pronouns and (iii) non-nominal empty elements such as those in the “ellipsis” or “deletion” structures: VP-deletion, Gapping, Sluicing, Stripping, among others. The questions that have been raised repeatedly in the literature are (i) how to represent and interpret silent but meaningful elements, and (ii) what is the status of empty elements in the organization of grammar?<sup>1</sup>

Since the 1960's and 70's, there have been continuous debates on how to interpret deletion/ellipsis structures<sup>2</sup> and how to represent them syntactically.<sup>3</sup> Regarding the syntactic representations, two possibilities exist to derive the empty part: (i) an empty element is empty throughout the derivation, or (ii) deletion applies to a fully represented structure under certain conditions. For the sake of convenience, we will refer to the latter option as the *deletion approach* and the former as the *interpretive approach*. There have been many works arguing for the deletion approach as well as the interpretive approach, A combination of both approaches has also been argued for.<sup>4</sup>

Our work attempts to provide further input in this perennial subject of interest. Mandarin Chinese will serve as the main empirical basis for our work, a language which has not been as prominent in the relevant literature. We will focus narrowly on the varieties of constructions in

this language that have been regarded as the counterpart of a typical VP-ellipsis construction in English --- the V-construction (construction with a stranded V) and the Aux construction (construction with a stranded auxiliary).<sup>5</sup> The relevant generalizations will demonstrate that the missing part is always a subcategorized element (see Oku 1998, Goldberg 2005).<sup>6</sup> A null category in “ellipsis” structures comes into existence only to satisfy the subcategorization properties of a head. That is, the syntactic notion of subcategorization must be relevant in “ellipsis” structures. In addition, we will illustrate with the interaction of object relativization and the structures containing a null VP to show that the object of the missing VP is not visible for syntactic processes, providing support for an approach that includes empty elements in syntactic representations --- an interpretive approach. To further explore the properties of empty elements, we will show that an empty element must be subject to some well-formedness condition (a Visibility condition). Such a condition captures the contrast between English, which does not allow the subcategorized phrase of a verb to be empty, and Chinese, which does.

## 1. “VP-ellipsis” in Mandarin Chinese

Let us begin with the main properties of the recognized VP-ellipsis structures, illustrated by the examples from English.

- (1) a. John likes the gift that you gave to him. Mary does, too.
- b. John will like the gift that you gave to him. Mary will, too.

VP-ellipsis in English is characterized by a clause containing *do* or an auxiliary without an overt verb phrase. The missing verb phrase must be interpreted. When a pronoun is present in the antecedent VP, both strict and sloppy interpretations are available. For instance, *Mary does, too* in (1a) can have the sloppy reading (2a) and the strict reading (2b).

- (2) a.  $\text{Mary}_i$  likes the gift that you gave to  $\text{her}_i$ . ---sloppy reading  
b.  $\text{Mary}$  likes the gift that you gave to him. ---strict reading

Hoji (1998) further argues that a more reliable test for VP-ellipsis constructions should be based on the (im)possibilities of various mixed readings. A true VP-ellipsis construction exhibits the following patterns (see Fiengo and May 1994, G. Li 2002):

- (3) Max said he saw his mother; Oscar did too.
- a.  $\text{Max}_i$  said  $\text{he}_i$  saw  $\text{his}_i$  mother; Oscar<sub>j</sub> said  $\text{he}_i$  saw  $\text{his}_i$  mother.
  - b.  $\text{Max}_i$  said  $\text{he}_i$  saw  $\text{his}_i$  mother; Oscar<sub>j</sub> said  $\text{he}_j$  saw  $\text{his}_j$  mother.
  - c.  $\text{Max}_i$  said  $\text{he}_i$  saw  $\text{his}_i$  mother; Oscar<sub>j</sub> said  $\text{he}_j$  saw  $\text{his}_i$  mother. (Mix 1)
  - d. \* $\text{Max}_i$  said  $\text{he}_i$  saw  $\text{his}_i$  mother; Oscar<sub>j</sub> said  $\text{he}_i$  saw  $\text{his}_2$  mother. (Mix 2)

- (4) Max said his mother saw him; Oscar did too.
- a.  $\text{Max}_i$  said  $\text{his}_i$  mother saw  $\text{him}_i$ ; Oscar<sub>j</sub> said  $\text{his}_i$  mother saw  $\text{him}_i$ .
  - b.  $\text{Max}_i$  said  $\text{his}_i$  mother saw  $\text{him}_i$ ; Oscar<sub>j</sub> said  $\text{his}_j$  mother saw  $\text{him}_j$ .
  - c.  $\text{Max}_i$  said  $\text{his}_i$  mother saw  $\text{him}_i$ ; Oscar<sub>j</sub> said  $\text{his}_j$  mother saw  $\text{him}_i$ . (Mix 1)
  - d.  $\text{Max}_i$  said  $\text{his}_i$  mother saw  $\text{him}_i$ ; Oscar<sub>j</sub> said  $\text{his}_i$  mother saw  $\text{him}_j$ . (Mix 2)

The patterns of mixed readings in (3) and (4) are the results of conditions applying copying/reconstruction at LF to create full-fledged representations at LF (see Fiengo and May 1994).

In many other languages, there is no counterpart of *do*; a pattern corresponding to the *do* VP-ellipsis structure in (1a) is not found. Mandarin Chinese is an example of such a language. \ As a possible counterpart to the VP-ellipsis construction (1a) in English, Chinese uses a lexical verb. For convenience, we refer to this construction as “the V construction”.

- (5) Ming hen xihuan ni gei ta de liwu. Han ye hen xihuan.  
Ming very like you give him De gift Han also very like  
'Ming likes the gift you gave to him; Han also likes (the gift you gave to Han/Ming).'

It has been proposed that the V is raised to I and that the V construction is a typical VP-ellipsis structure (VP being elided; see Huang 1988). In addition, the English pattern in (1b) has a direct counterpart in Chinese. An auxiliary appears and the VP that should have followed the Aux is missing. We refer to this pattern as “the Aux construction.”

- (6) Ming hui xihuan ni gei ta de liwu. Han ye hui.  
Ming will like you give him De gift Han also will  
'Ming will like the gift you gave to him; Han also will.'

The literature has mainly focused on whether the V construction in (5) is a VP-ellipsis structure, particularly with respect to the availability of a true sloppy reading and the relevance of a locality condition on sloppy readings (see, for instance, Hoji 1998, Huang 1988, 1991, Kim 1999, G. Li 1998, 2002, Otani and Whitman 1991, Pan 1998, Paul, 1996, 1999, Tomioka 1996, 1997, 1999, Xu 2003, Wu 2003a, 2003b). Recently, more attention has been paid to the significance of the interpretation of sentences like (7a-b) (see G. Li 1998, 2002, Xu 2003, also see Goldberg 2005 and the references cited there for the works on many other languages). These sentences contain an adjunct within the VP in the antecedent clause.

(7) a. wo jian-guo ta san-ci; tamen ye jian-guo\_\_\_\_ (tamen zhi jian-guo yi-ci).

I see-Asp him three times they also see-Asp (they only see-Asp one-time)

‘I have seen him three times, they have seen (him), too. (they only saw (him) once)’

b. wo renshi ta hen jiu le, wo baba ye renshi \_\_\_\_ . (zhishi meiyou renshi hen jiu)<sup>7</sup>

I know him very long Le I father also know only not-have know very long

‘I have known him for a long time; my father knew (him), too. (just not very long.)’

The missing element in the second clause (the elliptical clause) does not have an interpretation containing the frequency phrase ‘three times’ or the duration phrase ‘a long time’. That is,

(7a-b) cannot be interpreted as (8):

(8) a. wo jian-guo ta san-ci le; tamen ye jian-guo ta san-ci le.

I see-Asp him three times Le they also see-Asp him three times Le

‘I have seen him three times, they have seen him three times, too.’

b. wo renshi ta hen jiu le, wo baba ye renshi ta hen jiu le.

I know him very long Le I father also know him very long Le

‘I have known him for a long time; my father has known him for a long time too.’

Moreover, (7b) and (8b) should be contrasted with the following sentence, which has the interpretation indicated in the English translation.

(9) wo renshi ta hen jiu le, wo baba ye renshi le

I know him very long Le I father also know Le

‘I have known him for a long time; my father also has come to know (him), too.’

*Le* generally expresses an event ended, an action terminated (perfective), or a change of state taken place. It is possible with a stative verb like *renshi* ‘know’ to express a change of state (‘My father didn’t know him before; he has come to know him’). When the predicate contains a duration phrase, *le* is used in the perfective sense.

(10) a. wo baba renshi ta le.

my father know him Le

‘My father has come to know him (he did not know him before).’

b. wo baba renshi ta hen jiu le.

I father know him very long Le

‘My father has known him for a long time.’

The fact that the second clause in (9) *wo baba ye renshi le* only has the interpretation like the one in (10a), not (10b), indicates that the duration phrase is excluded from the missing part. Similar evidence can be found in the negative counterparts of (9)-(10). The negative marker *mei* is perfective and *bu*, imperfective, roughly speaking. A bare stative verb *renshi* only accepts *bu* and uses *mei* for negation when a duration phrase appears:

(11) wo bu/\*mei renshi ta.

I not know him

‘I don’t know him.’

(12) wo mei/\*bu renshi ta ji nian.

I not know him several year

‘I have not known him for several years.’

However, the use of *mei* is not possible in the corresponding V construction:

(13) a. tamen yijing renshi ta ji nian le. wo bu/\***mei** renshi.

they already know him several year Le I not know

‘They already knew him for several years. I don’t know.’

Were the duration phrase included in the missing part, the unacceptability of *mei* and the acceptability of *bu* in (13) would not be accounted for.

Other adjuncts behave alike: they are not included in the missing part of the V construction. The exclusion of adjuncts in the V construction is reminiscent of the null object construction in Japanese/Korean (see Oku 1998 for instance). On the other hand, the V construction allows a true sloppy interpretation, just like a VP-ellipsis structure:

(14) a. John shuo-guo ta xihuan tade laoshi

John say-Asp he like his teacher

‘John<sub>i</sub> said he<sub>i</sub> liked his<sub>i</sub> teacher.’

b. Bill ye shuo-guo [e]

Bill also say-Asp

‘Bill<sub>j</sub> said he<sub>i</sub> liked his<sub>i</sub> teacher.’

‘Bill<sub>j</sub> said he<sub>j</sub> liked his<sub>j</sub> teacher.’

‘Bill<sub>j</sub> said he<sub>j</sub> liked his<sub>i</sub> teacher.’ (Mix 1)

‘\*Bill<sub>j</sub> said he<sub>i</sub> liked his<sub>j</sub> teacher.’ (Mix 2)

(15) John shuo-guo tade laoshi xihuan ta, Bill ye shuo-guo [e]

John say-Asp his teacher like him Bill also say-Asp

‘John<sub>i</sub> said his<sub>i</sub> teacher liked him<sub>i</sub>; Bill<sub>j</sub> said his<sub>i</sub> teacher liked him<sub>i</sub>.’

‘John<sub>i</sub> said his<sub>i</sub> teacher liked him<sub>i</sub>; Bill<sub>j</sub> said his<sub>j</sub> teacher liked him<sub>j</sub>.’

‘John<sub>i</sub> said his<sub>i</sub> teacher liked him<sub>i</sub>; Bill<sub>j</sub> said his<sub>j</sub> teacher liked him<sub>i</sub>.’ (Mix 1)

‘John<sub>i</sub> said his<sub>i</sub> teacher liked him<sub>i</sub>; Bill<sub>j</sub> said his<sub>i</sub> teacher liked him<sub>j</sub>.’ (Mix 2)

The possibility of true sloppy interpretations for Chinese V constructions contrasts with the absence of such interpretations in Japanese null object constructions (Hoji 1998, G. Li 2002).

While leaving to a separate work the issue of why these two constructions differ, the presence of true sloppy interpretations in the V construction indicates that it has a full-fledged representation at LF, even though it cannot include adjuncts. Note that it is not the case that Chinese always excludes an adjunct from the missing phrase of the various types of “VP-ellipsis”-like constructions. The Aux construction behaves just like its counterpart in English.

(16) wo yao tanwang ta san-ci; tamen ye yao.

I will visit him three-times they also will

‘I will visit him three times, they will (visit him three times), too.’

### 3. Deriving the null elements

Then, what is missing in the V construction? It cannot include adjuncts. Only objects are possible. What are such empty objects? To answer these questions, we should first note an important subject/object asymmetry in the interpretation of empty elements in the patterns (17a-b), illustrated by (18)-(20).

(17) a. [ Subject ... [clause [subject e1] V [object e2 ] ] ...]

e2, not e1 can be interpreted with some prominent entity in the previous discourse

b. [ [clausal subject/topic [subject e1] V [object e2 ]] (subject) ....]]

both e1, e2 can be interpreted with some prominent entity in the previous discourse

(18) a. wo<sub>1</sub> yinwei [ Zhangsan<sub>2</sub> bu xihuan e<sub>3</sub> ] you diar shiwang.

I because Zhangsan not like have slight disappointment

‘I am somewhat disappointed because John does not like e’

b. \*wo<sub>1</sub> yinwei [ e<sub>2</sub> bu xihuan Zhangsan<sub>3</sub> ] you diar shiwang.

I because Zhangsan not like have slight disappointment

‘I am somewhat disappointed because e does not like Zhangsan.’

cf. c. wo<sub>1</sub> yinwei [ e<sub>1</sub> bu xihuan Zhangsan<sub>3</sub> ] you diar bu-hao-yisi.

I because not like Zhangsan have slight not embarrassment

‘I am somewhat embarrassed because (I) do not like Zhangsan’

(19) a. Zhangsan<sub>1</sub> dui [ wo<sub>2</sub> mei kanjian e<sub>3</sub> ] meiyou zeren

Zhangsan to I not see not-have responsibility

‘Zhangsan does not have responsibilities on (the fact that) I didn’t see e .’

b.\*Zhangsan<sub>1</sub> dui [ e<sub>2</sub> mei kanjian wo<sub>3</sub> ] meiyou zeren

Zhangsan to not see I not-have responsibility

‘Zhangsan does not have responsibilities on (the fact that) e didn’t see me .’

cf. c. Zhangsan<sub>1</sub> dui [ e<sub>1</sub> mei kanjian wo<sub>3</sub> ] meiyou zeren

Zhangsan to not see I not-have responsibility

‘Zhangsan<sub>1</sub> does not have responsibilities on (the fact that) (he<sub>1</sub>) didn’t see me.’

(20) ta<sub>1</sub> zhao-bu-dao yige [[ e<sub>2</sub> bu renshi e<sub>3</sub> ] de ren]

he look-not-find one not know De person

a. ‘He can’t find a person that does not know e.’

b. ‘\*He can’t find a person that e does not know.’

c. ‘He can’t find a person that he does not know.’

These sentences all illustrate an asymmetry in the possibility of an empty element referring to some entity in the discourse: a subject is much harder than an object to do so. Why is there such a contrast? Without elaborating much on details, we will briefly show that the contrast is due to the interaction of the general properties of movement and the morpho-syntactic properties empty pronouns in Chinese.

What is an empty category? In the framework of Government and Binding, an empty category can be an NP trace, a variable, or a *pro/PRO*. Because the structures in question do not involve NP movement, we will disregard the option of NP traces. What about variables? Variables are generally the result of topicalization or relativization. Huang 1982 and many subsequent works such as Li 1990, Ning 1993 argue that topicalization or relativization are movement operations and are subject to island conditions in Chinese. More generally, a variable cannot be separated

from its antecedent by island boundaries. However, apparent island violations are possible in some cases. Huang (1982) argues that such apparent island violations involve instances of *pro*, which is identified with the closest potential antecedent (Generalized Control Rule, GCR). For instance, the empty subject in the following sentences, when it is a *pro*, can be bound across an island by the closest potential antecedent, the topic in (21) and the matrix subject in (22).

(21) Lisi<sub>1</sub>, [[ e<sub>1</sub> chang ge de] shengyin] hen haoting.

Lisi sing song DE voice very good

‘Lisi<sub>1</sub>, the voice with which [he<sub>1</sub>] sings is very good.’

(22) Zhangsan<sub>1</sub> zhao-bu- dao [[ e<sub>1</sub> renshi e<sub>2</sub> de] ren<sub>2</sub>].

Zhangsan seek-not-arrive know De person

‘Zhangsan<sub>1</sub> cannot find [people<sub>2</sub> [that (he)<sub>1</sub> knows e<sub>2</sub>]].’

The GCR and the general characteristics of pronouns conspire to disallow an empty pronoun (*pro/PRO*) in the object position. According to the GCR, an empty pronoun must be identified with the first potential antecedent. At the same time, a pronoun is sensitive to a disjointness requirement: it must be free within a domain containing a subject (Binding Principle B). An empty pronoun in an object position must be identified by the subject of the clause according to the GCR. However, it must also be free from the subject because of the disjointness requirement on a pronoun. These conflicting requirements rule out an empty pronoun in the object position.

In other words, the object empty element in (18)-(20) cannot be a variable because of the islands. Nor can it be an empty pronoun because of the conflicting requirements. Moreover, recall that the V construction is not the result of VP-ellipsis, even though it has full representations that yield the patterns of true sloppy interpretations. Deletion is not an option, either. It is not clear what a deletion process should be in these cases such that the subject/object asymmetry is accommodated. Then, what is the missing element in the V construction?

We suggest that what is missing is an object and the object is truly empty in the sense that no item from the lexicon is present in the object position. It is interpreted after copying from the antecedent or the discourse context. More precisely, we claim that such a truly empty position exists only because of the subcategorization requirement of the head. This position contains categorial features to satisfy the subcategorization requirements and nothing else. The categorial features are present simply because of the subcategorization properties. **In other words, this is** the copying theory of ellipsis along the lines of Williams (1977), according to which ellipsis involves base generation of empty positions and subsequent copying/reconstruction of the antecedent to those empty positions at LF. For simplicity, let's refer to such a true null element with only categorial features as a TEC. A TEC exists because of the following requirement:

(23) Subcategorization requirement on null categories:

- a. If a head is subcategorized for a phrase E, E must be present in the syntactic structure.
- b. An E can be generated as null (without lexical materials) only in subcategorized positions.

According to (23), a transitive verb requires an object. When no lexical items appear overtly after a transitive verb, an empty object must be present. The subcategorization requirement is fulfilled. Nothing other than the subcategorized category is present. That is, the missing element in the V construction [ $V_{\text{transitive}}$  \_\_\_\_] can only be the object of a transitive verb.

The Aux construction follows from (23) as well. It has a head Aux. The property of an Aux is that it is subcategorized for a VP: [Aux + VP]. Accordingly, a VP must be present. A VP may consist of a verb and its subcategorized complements, as well as VP-modifiers. For instance, everything following the Aux *hui* ‘will’ and *neng* ‘can’ in (24a-b) is part of a VP subcategorized by an Aux.

(24) a. Ming hui hen bu gaoping. Han ye hui \_\_\_\_.

Ming will very not happy Han also will

‘Ming will be quite unhappy; Han will (be quite unhappy), too.’

b. Ming neng mashang zuo-wan; Han ye neng \_\_\_\_.

Ming can immediately do-finish Han also can

‘Ming can finish the work immediately; Han also can (finish the work immediately).’

The content of the missing VP, including the lexical materials and their structures, is recovered by copying the linguistic antecedent or from the discourse context. These two constructions are represented here:

(25) a. The Aux construction

Subject + Aux + [<sub>VP</sub> \_\_\_\_ ]                    ---Aux subcategorized for a VP

b. The V construction

Subject + V + [<sub>object</sub> \_\_\_\_]                    ---V subcategorized for an object

These two patterns differ in whether an adverbial modifier is included in the missing part. It is excluded in the V construction because the subcategorization frame of a transitive verb is [\_\_\_\_ object], not [\_\_\_\_ (object) Adjunct]. In contrast, an adjunct is included in (25a) because an Aux is subcategorized for a VP, which may contain an adverbial modifier.

In brief, the empty elements in (25a-b) exist only because of the subcategorization requirement of a head. The interpretation of the empty category is obtained at the interpretive level after copying from the antecedent or discourse context.<sup>8</sup>

### 3. Deletion

Our proposal is essentially an “interpretive approach.” This contrasts with many works arguing for a PF-deletion approach to ellipsis. The limited space precludes a substantial discussion on the relevant issues. We would like to just briefly mention two points that might provide support for the approach advocated here. The first one concerns a deletion alternative to the facts discussed in this work; the second, the interaction between the Aux construction and object-relativization.

### 3.1. A PF deletion alternative

In order to determine if a PF deletion approach can be extended to accommodate the Chinese patterns in (25a-b), we briefly describe what a deletion alternative might be.

What are the mechanisms of a deletion approach? Because of the limited space, we will simply consider the most advanced version: the one by Merchant (2001) based on a combination of semantic interpretation and PF deletion. In this analysis, a feature E is generated with a head. The semantics of E is to ensure “that the deleted constituent satisfies what is traditionally known as parallelism or identification of the elided material” (Merchant 2004, 671).

Details aside, what is pertinent to our discussion is that a head designated by an E feature is allowed not to pronounce its complement (the sister node to the head) at the post-PF phonological interpretative component. That is, a head licenses its sister node (complement) to be empty. To see how such an approach might apply to (25a-b), let us illustrate with an example containing a duration/frequency phrase. In the literature, various structures for those with duration/frequency phrases have been proposed (see, for instance, Huang 1982, Li 1990, Tang 1990, Soh 1998 and Ernst 2001). Nonetheless, it has been recognized by many that the duration or frequency phrase should be able to occupy a position lower than the object. Briefly put, Soh (1998, pp36-40) observes that when the order is [V + Object + Duration/Frequency phrase (DFP)], the object can have scope over the DFP. That is, in an example like (26), ‘all students’ can have wide scope with respect to ‘twice’.

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

I invited all De student two times

‘I invited all students twice.’

Soh argues that the object must occupy a position c-commanding the DFP and the node dominating both the object and the DFP, expressed as FP in (27), is sister to the verb that occupies the *v* position.

(27) [<sub>VP</sub> V [<sub>FP</sub> Object ... DFP]]

In order to accommodate the V construction in Chinese by a deletion approach sketched above, one would need to restrict deletion to the contexts where the complement contains merely the subcategorized element. Then, when the FP in (27) contains a DFP, it cannot be deleted.

However, such an added restriction on deletion at PF would face challenges in accounting for the fact that a non-subcategorized adjunct can be included in interpreting the missing part of the Aux construction, in addition to the necessity of relying on a syntactic notion (subcategorization) at PF.

### 3.2. The absence of an object

In addition, there is support for the emptiness of the missing part syntactically. Because a detailed discussion would involve more careful presentations of various types of relativization constructions in Chinese (Aoun and Li 2003, chapters 4-7), we will only mention a pair of structures indicative of the emptiness of the relevant structure, while deferring the details to a separate work.

As argued for in Aoun and Li (2003, chapters 5-6), at least two different types of relativization should be distinguished in Chinese: relativization of an argument by directly raising the phrase to be relativized (promotion analysis) or relativization of an adjunct by generating a relative operator at the periphery of the relative clause. The relative operator agrees in features with the NP modified by the relative clause, referred to as the Head of a relative construction (*place where, time when, person who, ...*). If a relative construction is to be derived by the promotion analysis, the Head of the relative construction should be originated from within the relative clause. Under an interpretive approach to the Aux construction, the Aux is followed by a null verb phrase, in contrast to a deletion approach, which allows a verb phrase fully-represented syntactically.<sup>9</sup> If the relative clause contains a null verb phrase, there would not be an object to be relativized. That is, object relativization should not be possible in a structure with a null VP syntactically. In contrast, the relativization process should not be affected by a null verb phrase when the relativized phrase is not originated from within the VP. This contrast seems to hold quite well. For instance, sentence (28) is an instance of ‘why’ relativization. The verb phrase expressing *qu xuexiao* ‘go to school’ can be empty. Similarly, the relativization of the subject argument also allows the verb phrase to be missing, as in (29). In contrast, (30) relativizes the object and a null VP is not possible, even though there is an antecedent verb phrase in the relative clause ‘that he will not attend’.

(28) [[ta bu hui qu xuexiao de] liyou] gen [[women bu hui (qu xuexiao) de] liyou] shi yiyang de.  
 he not will attend school De reason and we not will attend school De reason be same De

‘The reason why he will not attend school is the same as the reason we will not (attend school)’

(29) [[e hui qu xuexiao de] ren] gen [e bu hui (qu xuexiao) de] ren] shi yiyang de.  
will attend school De person and not will attend school De person be same De  
‘The people that will attend school are the same as the people that will not (attend school)’

(30) [[ta bu hui qu de] xuexiao] gen [[women bu hui \*(qu) de] xuexiao] shi yiyang de.  
he not will attend De school and we not will attend De school be same De  
‘The school that he will not attend is the same as the school we will not (attend)’

The contrast in the acceptability of a null VP between (28), (29) on the one hand and (30) on the other is suggestive of the emptiness of the null verb phrase syntactically.<sup>10</sup>

#### 4. The Case requirement on empty categories

The previous section demonstrated that a null element is empty syntactically, not the result of deletion at PF. The syntactic presence of a null element is not random. It exists only when it is subcategorized by a head; i.e., the existence of an empty category fulfills the Subcategorization requirement (23). This captures the interpretive possibilities of the various “VP-ellipsis” constructions in Chinese (25a-c). English seems to share only some of the properties. Consider, again, the Chinese patterns in (25a-b). We mentioned that English has the Aux pattern, as illustrated in (1b). As for the V construction, English does not allow it at all. The English sentences in (31a-b), for instance, are unacceptable, in contrast to the acceptable Chinese (32a-b):

(31) a. John saw him. \*Mary saw, too.

b. I like him. \*She doesn't like.

cf.

(32) a. John jian-le ta; Mary ye jian-le.

John see-Le him Mary also see-Le

'John saw him; Mary also saw.'

b. wo xihuan ta;; ta bu xihuan.

I like him he not like

'I like him; he doesn't like.'

Clearly, the Subcategorization requirement is a necessary but not sufficient condition to license an empty element. The contrast between (31) and (32) is an instance of a more general distinction between English and Chinese: Chinese, not English, allows an object to be empty generally.<sup>11</sup>

(33) wo kan-le.

I read-Le

(34) I read \*(it).

Note that an important property of (32) and (33) is that the accusative Case<sup>12</sup> is not overtly realized. There is no lexical item bearing the accusative Case. As argued for in Travis (1984), Koopman (1984) and Li (1985, 1990), nominal expressions in Chinese are assigned Case, just as in the languages with overt morphological case markings. This is so in spite of the fact that Chinese does not exhibit morphological cases. The assignment of Case is also in conformity with the Visibility Condition and the Theta-criterion in the theory of Government and Binding: an argument must be assigned a theta-role and theta-role assignment is possible only when the argument has Case (Chomsky 1981).<sup>13</sup>

In contrast, there are no instances in English where an abstract Case fails to be realized overtly. This distinction can be summarized below (see the inverse Case filter discussed in Bošković 1997, 134-142).

(35) English, not Chinese, requires Case to be realized on a lexical item.

Further note that the occurrence of an empty nominal element is restricted. It generally appears in an argument position (see Saito 1985, regarding a *pro* being a nominal category only). A nominal phrase in an argument position is always assigned Case. Lobeck (1995, 1999) argues that empty elements need to be licensed by some formal feature(s) of a specific head. Briefly, some of her examples are the licensing of an empty VP by the [tense] feature of I, an empty IP by some appropriate features in C. Along the same line, we propose (36) below.

(36) An empty nominal element must be Case-marked.<sup>14</sup>

The Case requirements in (35) and (36) capture the contrast in (31)-(34). An accusative Case is assigned to an object by a verb. In Chinese, Case need not be realized by an overt lexical item. However, English must realize the accusative Case; therefore, the object cannot be empty. (31) and (34) are unacceptable.

(36) prohibits an object not assigned Case from being empty. This is true in both English and Chinese. First, consider clausal complements. It has been claimed that a clause is not assigned Case in English (cf. Stowell 1981).

(37) a. Mary was afraid (\*of) that the idea wouldn't work. cf. Mary was afraid \*(of) it.

b. I suppose that he will come. cf. \*I suppose it. but I suppose so.

(37a-b) show that the subcategorized clause is not in a Case position. The lexical head *afraid*, *suppose* does not assign Case. According to (36), the object position of such a lexical head should not be empty. This is illustrated by the unacceptability of (38a-b):<sup>15</sup>

(38) a. \*Mary was afraid that the idea wouldn't work and Bill was [<sub>AP</sub> [happy [<sub>CP</sub> e]]].

b. \*I suppose that he will come and they suppose [<sub>CP</sub> e], too.

(35)-(36) conspire to disallow an empty object in English. If Case is assigned, it must be overtly realized by a lexical object. If Case is not assigned, an empty nominal element is not licensed.

Next, consider the corresponding cases in Chinese. A very common perception about this language is that an object can always be empty. However, if (35) and (36) are correct, we should predict that only those verbs assigning Case allow their object to be empty. When Case is assigned, the subcategorized object can be empty and (36) is satisfied. When Case is not available, the object should be just like its counterpart in English and cannot appear in the null form. This prediction is borne out. An empty object is unacceptable when the verb subcategorizes for a clausal object only. The following correlation exists:

(39) a. If a verb is subcategorized for a nominal object, the object can be empty.

b. If a verb is subcategorized for a clausal object only, the object cannot be empty.

When the clausal object is not overt in (38b), the verb must occur with *so* in English and *zheme*, *zhemeyang*, or *zheyang* in Chinese, words that may be regarded as the pro-form of a clause.<sup>16</sup>

The correlation is demonstrated below.

Verbs allowing a nominal object and a null object:

(40) 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.’

Verbs disallowing a nominal object and a null object. *Zheme(yang)* ‘so’ must appear

(41) 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)) renwei/yiwei.

I think/ think he very smart they also so think/ think

‘I thought that he was smart; they also thought.’

(42) a. \*wo cai na-jian shi.<sup>17</sup>

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 also guess.’

(43) 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.

I plan tomorrow go they also so plan

‘I planned to go tomorrow; they also planned.’

Moreover, the Case requirement (35) and the Subcategorization requirement (23) predict that an element should not be null when it is assigned Case by a verb but not subcategorized by it. This prediction is borne out. It has been argued that duration/frequency phrases in Chinese, being nominal expressions, are assigned Case by the verb (Li 1990).<sup>18</sup>

(44) wo zuo-le san-tian/san-ci le.

I do-Le three days/three times Le

‘I did (it) (for) three days/three times.’

The following V construction does not have an interpretation including a duration/frequency phrase:

(45) a. wo zuo-le san-tian le; ta ye zuo-le. (zuo yixia hou, jiu zou-le)

I do-Le three days Le he also do-Le (do a-bit after, then leave-Le)

‘I did (something) (for) three days; he did (something), too (did for a short while and left.’

b. wo zuo-le san-tian le; keshi ta mei zuo.

I do-Le three days Le but he not do

‘I did (it) (for) three days; but he did not do (it).’

(46) a. wo zuo-le san-ci le; ta ye zuo-le (erqie zuo-le henduo-ci.)

I do-Le three times Le he also do-Le (and do-Le many- times)

‘I did (it) (for) three times; he did (it), too (and he did (it) for many times).’

b. wo zuo-le san-tian le; keshi ta (genben) mei zuo.

I do-Le three days Le but he simply not do

‘I did (it) (for) three days; but he simply did not do (it).’

In brief, the difference in the possibility of an empty complement between English and Chinese is traced back to different requirements on the manifestation of Case.

Before concluding this section, we would like to clarify the issue of CP deletion in English. It has been claimed that English has the so-called null complement anaphora (Grimshaw 1979). Grimshaw noted that some predicates are acceptable with a null complement: (the following examples are Grimshaw’s (38) in p. 289)

(47) Statement: John is telling lies again.

Response: It’s too bad.

I agree.

I’m flabbergasted.

I'm surprised.

It can't be true.

However, according to Lobeck (1995) and Merchant (2001), CP deletion is not possible in English. Indeed, Lobeck (1995, 48-49) makes a more general statement “elliptical complements of the lexical heads V, P and A are ungrammatical in English” (p.48). Some of the examples are listed here: (Lobeck's (35), (37) in pp. 48-49):

- (48) a. \*Mary doesn't expect Bill to win, but she [<sub>VP</sub> wants [<sub>CP</sub> e]]  
b. \*Even though Mary [<sub>VP</sub> said [<sub>CP</sub> e]], John knows that Bill isn't going to be there.  
c. \*John is anxious to leave, and Mary is [<sub>AP</sub> eager [<sub>CP</sub> e]] too.

According to Lobeck's generalization, the “null complement” in (47) cannot truly be an empty complement represented syntactically. Then, why does it seem that the interpretation include a CP complement? We would like to suggest that this is due to the information provided by the discourse context. The CP is not present structurally. The absence would lead us to predict that the patterns regarding true sloppy interpretations (Mix 1 and Mix 2 readings) would not be exactly like (3)-(4), which were argued to be indicative of the presence of the relevant structures at LF. This seems to be true. The informants we consulted had difficulties agreeing with the relevant patterns listed below:

(49) John was surprised that he would see his father. Bill was surprised, too.

a. John<sub>i</sub> was surprised that he<sub>i</sub> would see his<sub>i</sub> father. Bill<sub>j</sub> was surprised that he<sub>j</sub> would see his<sub>i</sub> father, too. --- Mix 1

b.\*John<sub>i</sub> was surprised that he<sub>i</sub> would see his<sub>i</sub> father. Bill<sub>j</sub> was surprised that he<sub>i</sub> would see his<sub>j</sub> father, too. --- Mix 2

(50) John was surprised that his father would see him. Bill was surprised, too.

a. John<sub>i</sub> was surprised that his<sub>i</sub> father would see him<sub>i</sub>. Bill<sub>j</sub> was surprised that his<sub>j</sub> father would see him<sub>i</sub>, too. --- Mix 1

b. John<sub>i</sub> was surprised that his<sub>i</sub> father would see him<sub>i</sub>. Bill<sub>j</sub> was surprised that his<sub>i</sub> father would see him<sub>j</sub>, too. --- Mix 2

Some speakers do not like these readings at all. Some others have different judgments (such as accepting (49b) but rejecting (49a); or rejecting one of the two in (50a-b)). Such variations may be due to the vagueness of the expression ‘Bill was surprised, too.’ Syntactically, the sentence only expresses Bill was also surprised. However, the discourse context allows Bill to be surprised at something, whatever something that can be provided by the context, as long as the hearer deems it consistent with the state of affairs that Bill was surprised.<sup>19</sup>

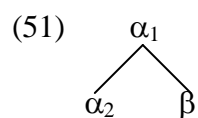
## 5. Deletion vs. base-generation

This work presented an interpretive approach to the V and Aux constructions in Chinese. Many issues need to be explored further, especially with respect to the status of the true empty category in the V construction, the properties of phrase structures when an element is null syntactically

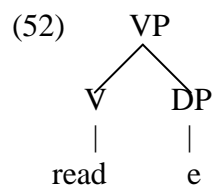
and the consequences of this approach. Because of the limited space, we will only touch upon the issue of phrase structures and the prediction on the categorial types of elided elements.

Recall that an empty element is required to meet the Subcategorization requirement. It only has categorial features as determined by the head. To illustrate, a transitive verb ‘see’ must have the subcategorization frame [ \_\_\_ DP]. Thus, a DP must be present. The DP object simply contains the feature [+D]. The contents will be recovered for interpretation at LF.

Such a conception of empty elements raises the question of how a set of phrase markers is established when empty categories are involved. This question is especially relevant if a “bare phrase structure” approach is adopted (Chomsky 1994). Under this approach, the computational system takes two objects (two lexical items from a Numeration) and merges them to form a new object. One of the two projects - the head of the phrase.



What happens when the tree structure contains an empty category, as in (52)?



An option that might conform to the spirit of the bare phrase structure approach is to allow Numeration to contain an item “e” with only formal features (such as the categorial feature). For instance, a Numeration may contain {read, e [+C]} ([+C] representing the appropriate categorial features). ‘Read’ is a lexical item and ‘e [+C]’, an item with a categorial feature [+C]. The two merge and the verb projects, creating a VP. When the V projects, the ‘e [+C]’ is labeled as a maximal category, a DP in this case (a nominal category in an argument position).<sup>20</sup>

Alternatively, one may assume that empty elements are truly empty; they are not in the Numeration. The computation system builds up phrase structures in the following manner: a transitive verb - e.g., *read* - has the subcategorization frame [\_\_\_\_DP]. Accordingly, a node DP must be merged with the verb. This DP does not dominate lexical materials (i.e., no lexical item is selected from the Numeration). An empty element is simply a node not containing any lexical material.

Regardless of which option is adopted, a head determines the existence of an empty element. That is, a subcategorized element, an XP, can be an empty.

Next, consider the possibility of an empty head. For instance, what is the status of an empty V in [<sub>VP</sub> [v \_\_\_\_] YP], where YP is a subcategorized element? Under an interpretive approach advocated here, an empty element is present syntactically to meet the Subcategorization requirement. It is a category without lexical materials. If this conception is correct, an empty element does not contain subcategorization features. An empty V would simply be [+V], without further specification on whether it is [+transitive] or [-transitive]. It does not have the subcategorization frame such as [\_\_\_\_ DP], [\_\_\_\_ CP]. Thus, we would not expect an empty V to

force the presence of a subcategorized complement. Following Chomsky (2000) and Collins (1997), we may assume that every merger takes place to fulfill some requirement, such as Spec-head agreement or Head-complement subcategorization requirement. When a head does not have a subcategorization feature, it does not merge with a subcategorized element. In other words, we should not expect the structure  $[_{XP} [_X \_ ] YP]$  to be generated. That is, X-ellipsis should not be possible. This derives the observation in Lobeck (1995), Merchant (2001) that it is an XP, not an X, that is elided.

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Notes

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<sup>1</sup> See, among many others, Hankamer and Sag (1976), Williams (1977), Winkler and Schwabe (2003) and the references cited there.

<sup>2</sup> We use the terms deletion and ellipsis interchangeably, which do not necessarily mean the process of deletion or ellipsis.

<sup>3</sup> The relevant literature has been extensive and illuminating (see an insightful and detailed review in Winkler and Schwabe 2003). Other than those reviewed in Winkler and Schwabe, more works have been produced, such as the series of dissertations from University of Connecticut (Matsuo 1998, Oku 1998, Stejpanovic 1999) and others from many more programs. Numerous works are included in journals, books and proceedings. Indeed, a subject search produced such long lists of works that we do not even attempt to mention a few here. We plead guilty for the inadequacy of the literature reviewed here.

<sup>4</sup> There have been many variations of the deletion and the interpretive approaches. For the approaches and the representative works, see Winkler and Schwabe 2003, p.5. There have also been proposals arguing for the need of both approaches. Hankamer and Sag's (1976) deep and

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surface anaphora and Williams (1977) discussion of syntax and discourse may be considered as the predecessors. More recently, Matsuo (1998) is an interesting example.

<sup>5</sup> A third construction has also been analyzed as the equivalent of the VP-ellipsis structure: the *shi* construction (see, for instance, Wu 2003a), as in (i).

(i) Zhangsan xihuan ta; Lisi ye shi.

Zhangsan like him Lisi also be

‘Zhangsan likes him; so is it with Lisi.’

*Shi* is a copula and can be used as a focus or emphatic marker or to confirm what has been said in the previous discourse. The function of *shi* put special syntactic constraints on the distribution. We discuss this structure in a separate work.

<sup>6</sup> Goldberg presents important tests to help determine if a certain construction with a stranded verb is a “null object” construction (construction with a null object only) or a “VP-ellipsis” construction. The latter includes a non-subcategorized adverbial interpretation in the missing part.

<sup>7</sup> *-Le* can be suffixed to a verb as an aspectual marker or function as a sentence-final particle denoting change of state. Because the distinction of the two *le*'s is not important in this work, we gloss all occurrences of *le* as *Le*.

<sup>8</sup> Oku (1998) notes that the Japanese counterpart of the Chinese V construction, the null object construction, excludes adverbials from the missing part. He proposes that a null object

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construction does not have an object in derivation. An object is merged with the object later at LF (late merger). In a work in progress, we argue late merger is not adequate to account for the behavior of the null object constructions and that the different behavior of null objects in Chinese and Japanese can be traced to their differences in the properties of empty pronouns.

<sup>9</sup> Goldberg (2005) discusses cases of verb-raising when a VP is empty. The contrast between the possibility of raising a verb and the impossibility of raising an object from within an empty VP may be due to the same Subcategorization requirement discussed in the text: an Aux determines the presence of a VP, which must be headed by a V. However, whether it has an object or not is not determined by the presence of the Aux.

<sup>10</sup> This raises the question of how sentences like the following one in English from Lasnik (2001, 318) should be analyzed.

(i) I know what I like and what I don't.

It can be related to the fact that English, not Chinese, allows pseudo-gapping constructions. We propose in a separate work that such differences may be traced to the presence/absence of agreement projections in these two languages.

<sup>11</sup> We focus on objects here. The subject can also be empty, when it is a variable bound by a topic or a *pro* identified by the subject of a higher clause.

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<sup>12</sup> The capitalized “Case” denotes the abstract Case in the Case module of the Government and Binding theory and the small “case” expresses the morphological case.

<sup>13</sup> The Visibility requirement raises the question of what the Case property of PRO is. Chomsky and Lasnik (1993) argue that PRO is assigned a null Case. See further works by Martin (1996, 2001). However, see Cecchetto and Oniga (2004) for a different view. We leave the issue of PRO for further research (see Hornstein 2001 for a movement approach to derive obligatory control PRO).

The requirement also raises questions concerning sluicing, VP-ellipsis etc., which have an empty IP sister to C and an empty VP/vP sister to I. In what sense are these empty categories “visible?” Note that there is a very close relation between V and I, and I and C. Speculatively, I is always related to a V (inflected verbs, abstractly or morphologically) and, C, I (see, for instance, Grimshaw 1997). The presence of a functional projection is an indication that the relevant lexical node exists. We may follow Lobeck’s (1995, 1999) suggestion regarding the appropriate features in I, and C licensing an empty VP/IP.

<sup>14</sup> (36) also raises questions regarding NP-traces, which are not Case-marked. Under a Copy and Merge approach to movement, a trace is simply the result of deletion at Spell out (Chomsky 1995, chapter 3). An NP-trace, then, does not involve an empty nominal element syntactically. Alternatively, one may claim that it is the notion of chains that is relevant. An NP-trace is always in a chain with a copy that is Case-marked.

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<sup>15</sup> If a verb assigns Case, the object can be empty in Chinese, regardless of whether the antecedent has a clausal or DP object, as illustrated in (40) in the text. However, this need not be regarded as an instance of CP deletion. What is missing can still be a DP, as in (i).

(i) wo zhidao zhejian shi/ta lai le; tamen ye zhidao (zhejian shi).

I know this matter/he come Le they also know this matter

‘I know this matter/that he came; they also know (this matter).’

<sup>16</sup> These words are not nominal and are not assigned Case.

<sup>17</sup> *Cai* is ambiguous. It may have a meaning like ‘think’ or a meaning close to ‘guess at/take a guess at’. In the latter case, it can be followed by a nominal object, which can be empty:

(i) ta cai-le nage miyu. wo mei cai.

he guessed that riddle I not guess

‘He guessed at that riddle. I didn’t guess.’

<sup>18</sup> Among other supporting evidence, Korean provides morphological indications: duration/frequency phrases are assigned an accusative Case.

<sup>19</sup> Takahashi (2006) shows that Japanese allows an AP predicate to be null. This deserves further studies.

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<sup>20</sup> If we follow Chomsky's (2000) claim that each instance of merge must be motivated by feature matching (also see Hornstein 2001, Collins 1997, among others), the merger of a V and an "e" with formal features (the categorial feature for instance) is necessary when V is a transitive verb subcategorizing a nominal object.