



## Born empty

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### Abstract

Chinese seems to allow argument ellipsis in object but not subject positions according to interpretive contrasts between null subjects and objects. It has been claimed that this contrast can be captured by allowing only a null subject to be a *pro*, which is licensed by agreement. The presence of agreement means the absence of argument ellipsis. This line of analysis would require Chinese to have subject agreement. However, it will be shown that this language does not have agreement. Moreover, there are constructions disallowing missing objects, challenging the available analyses. It will be argued that these complex facts, including the noted subject/object asymmetry and the impossibility of missing objects in various constructions, can be accommodated if a base-generated true empty category is possible when a *pro* is not available. Interestingly, the arguments supporting this proposal would lead us to claim that VP-ellipsis should be the result of a deletion operation; i.e., not all ellipsis constructions are derived via the same mechanisms.  
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### 1. Introduction

The study of inaudible/invisible but meaningful elements in natural languages – loosely referred to as missing, empty, null or “deleted” elements in this work<sup>1</sup> – has helped uncover many significant empirical generalizations cross-linguistically and contributed substantially to the understanding of the properties of grammar. In the process, many issues have been raised. For instance, what are the syntactic properties of missing arguments? What is the nature of “deletion”? Are missing elements base-generated as empty? Are they the result of deletion in Syntax, or are they simply non-spell out of elements in certain structures at PF? There have been many works addressing the issue of the “timing” of deletion (for a recent work, see [Baltin, 2012](#), and the papers in this issue). Focusing on the empty elements in argument positions that are not derived by movement (variables and NP-traces), this work argues that such missing arguments should be distinguished into two types – an empty pronoun (*pro*) and an emptier empty element (true empty category), which is base-generated, rather than resulting from deletion in Syntax or PF. The distinction will capture many interesting facts regarding interpretive possibilities and distribution of missing arguments. The empirical support will be based on the constructions with missing arguments in Chinese. It will be demonstrated that Chinese does allow arguments to be missing (section 2). Importantly, the interpretive possibilities for empty subjects and empty objects differ systematically. The former is much more restricted than the latter (section 3). Such a difference will be shown to be due to the types of

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<sup>1</sup> The terms “deleted”, “deletion” are used very loosely as cover terms for the phenomenon of elements missing. They do not mean a deletion operation is actually involved.

empty elements allowed in subject and object positions. An empty subject must be a *pro* and an empty object is like what “argument ellipsis” is as discussed in the relevant literature, taking the term “argument ellipsis” to refer to any arguments missing that are not *pro*/variables/NP traces. That is, argument ellipsis is possible with objects but not subjects in Chinese. The (un)availability of argument ellipsis has been claimed to be related to the presence or absence of agreement (Saito, 2004, 2007, Şener and Takahashi, 2010, among others). Miyagawa (2010) suggests that the existence of *pro* is correlated with the presence of agreement. I will show that Chinese has a subject *pro* but cannot have agreement, which poses challenges to the agreement-based analyses (sections 4–5). Moreover, there are constructions disallowing missing objects (section 6), not expected by the proposed analyses. It will be shown that these complex facts, including the noted subject/object asymmetry and the impossibility of missing objects in various constructions, can be accommodated by distinguishing different types of empty arguments, the nature of which will be spelled out and compared with alternatives in section 7. The concluding remarks in section 8 will address some issues regarding the nature of the true empty category. The concluding section will also briefly describe an important implication of this work – that VP-ellipsis should be different from argument-ellipsis. The former, not the latter, should have full representations syntactically, due to some important properties distinguishing these two constructions. That is, not all ellipsis constructions are derived by the same mechanisms.

## 2. Missing arguments

Arguments in subject and object positions can generally appear in the null form in Chinese. This section discusses what such missing arguments are and are not. We begin with what they are not. First, consider the following sentences<sup>2</sup>:

- (1) (ta) zou-le ma?  
 he leave-LE Q  
 ‘Has (he) left?’
- (2) ta kandao-le yi-ge nanhai; wo ye kandao-le (yi-ge nanhai).  
 he see-LE one-CL boy I also see-LE one-CL boy  
 ‘He saw a boy; I also saw (a boy).’

In (1), the subject of the sentence can be missing and in (2) the object of the second clause can be empty. What are such null arguments? According to the relevant literature, there are at least these analytic options to consider:

- (3) a. Missing arguments are variables bound by empty topics.  
 b. Missing arguments are the counterpart of overt pronouns or nouns.  
 c. Missing arguments are due to “argument ellipsis” (to be elaborated).  
 d. The missing object in (2) is the result of deleting some projection of V - some version of VP-deletion.  
 The missing subject in (1) is (3a, b or c).

The analysis stated in (3a) was proposed in Huang (1982, 1984a, 1984b) for some empty arguments in Chinese – a language that productively topicalizes arguments and the topic phrase can be null. For instance, a sentence like (4) is possible when the intended object of the verb is clear from the discourse. The object is expressed as a variable bound by a topic, which can be empty:

- (4) (tamen), wo hen xihuan \_\_\_\_.  
 they I very like  
 ‘(Them), I like \_\_\_\_.’

<sup>2</sup> Some morphemes are not glossed and a few abbreviations are used in the examples:

Q – question particle

ASP – aspect marker

BA – a preverbal marker generally preceding an (affected) object (see Li, 2006, Huang et al., 2009, chapter 5, among many others)

CL – classifier, following a numeral or a demonstrative within noun phrases in Chinese

DE – a marker between a modifier and a modified phrase within a noun phrase or after a possessor.

LE – perfective aspect marker or sentence-final particle. The former occurs right after a verb and the latter at the end of a sentence. However, the two are not easily distinguished when a sentence ends with a verb.

However, the variable option cannot apply to all the missing arguments in Chinese because an object that cannot be topicalized can still appear in the null form. The cases not topicalizable are (i) when the relevant nominal is indefinite, because a topic must be definite (e.g., [Chao, 1968](#), [Li and Thompson, 1981](#), among many others) and (ii) when islands are involved, because topicalization is restricted by island conditions ([Huang, 1982](#); [Li, 1990](#) for instance). Notably, missing arguments can be indefinite and they can occur within islands coindexed with their antecedents across island boundaries. These are illustrated below.

Indefinite topic unacceptable:

- (5) \**yi-ge nanhai, wo hen xihuan/kandao-le* \_\_\_\_.  
 one-CL boy I very like/see-LE  
 ‘\*A boy, I like/saw \_\_\_\_.’

Island constraints on empty categories as variables:

- (6) *na-ge ren<sub>i</sub>, wo [yinwei \*(ta)<sub>i</sub> renshi ni] hen gaoxing.* -adjunct island  
 that-CL person I because he know you very happy  
 ‘That person, I am happy because \*(he) knows you.’

Missing arguments interpreted as indefinite expressions:

- (7) a. *ta song yi-ge nanhai yi-ben shu; wo song yi-ge nuhai (yi-ben shu).*  
 he give one-CL boy one-CL book I give one-CL girl one-CL book  
 ‘He gave a boy a book; I gave a girl (a book).’  
 b. *ta song yi-ge nanhai yi-ben shu; wo song (yi-ge nanhai) yi-zhi bi.*  
 he give one-CL boy one-CL book I give one-CL boy one-CL pen  
 ‘He gave a boy a book; I gave (a boy) a pen.’

Missing arguments insensitive to island conditions:

- (8) a. *zhe-ge laoshi<sub>i</sub> hen hao, wo mei kandao-guo*  
 this-CL teacher very good I not see-ASP  
 [[*e<sub>j</sub> bu xihuan e<sub>i</sub> de*] *xuesheng<sub>j</sub>*]  
 not like DE student  
 ‘This teacher<sub>2</sub> is very good. I have not seen students<sub>1</sub> who *e<sub>1</sub>* do not like (him<sub>2</sub>).’  
 b. *zhe-zhi bi<sub>i</sub> hen gui, wo tebie [yinwei ta yuanyi mai e<sub>i</sub> gei wo]*  
 this-CL pen very expensive I especially because he willing buy to me  
*gandao gaoxing.*  
 feel happy  
 ‘This pen<sub>i</sub> is very expensive. I am especially happy because he was willing to buy it for me.’

These examples show that the missing arguments cannot be variables. The following discussions will disregard variables (and NP-traces) by focusing on (i) the cases with indefinite/sloppy interpretations or (ii) those involving islands.

The acceptability of the sentences in (7a-b) is important in another respect – it shows that either of the two objects in double object constructions can be missing. The following examples with islands illustrate the same point.

- (9) *wo [yinwei Zhangsan gei yi-ge xuesheng liang-ben shu] hen gaoxing;*  
 I because Zhangsan give one-CL student two-CL book very happy  
*keshi [yinwei Lisi zhi gei yi-ben shu] hen bu gaoxing.*  
 but because Lisi only give one-CL book very not happy  
 ‘I was happy because Zhangsan gave a student two books; but I was not happy because Lisi only gave (a student) a book.’
- (10) *wo [yinwei Zhangsan gei yi-ge nan xuesheng yi-ben shu] hen gaoxing;*  
 I because Zhangsan give one-CL male student one-CL book very happy  
*keshi [yinwei Lisi zhi gei yi-ge nu xuesheng] bu gaoxing.*  
 but because Lisi only give one-CL female student not happy

'I was happy because Zhangsan gave a male student a book, but I was not happy because Lisi only gave a female student (a book).'

The possibility of either of the two objects being empty in double object constructions suggests that such missing arguments cannot be the result of VP-ellipsis applying to some projection of V (option (3d)) – a verb is raised out of its base-generated position, creating a VP containing the trace of the raised verb and an argument. Deletion applies to this verb phrase, stranding the raised verb [ $V_i \dots [VP \text{---} \text{Object}]$ ] (see, among others, Huang, 1991; Otani and Whitman, 1991, and Goldberg, 2005 for stranded V constructions derived by VP-ellipsis). Consider the acceptability of (7b) or (10). As in many other languages, the first object in the double object construction [V Object1 Object2] asymmetrically c-commands the second object in Chinese (Barss and Lasnik, 1986, Larson, 1988, Aoun and Li, 1989, 1993, among others). The asymmetric c-commanding relation can be demonstrated by scope and binding properties:

- (11) The first object necessarily has scope over the second object
- a. wo gei mei-ge ta yao de ren yi-ben shu. ---  $\forall > \exists$   
 I give every-CL he want DE person one-CL book  
 'I gave everyone he wants a book.'
- b. wo gei yi-ge ren mei-ben ta mai de shu. ---  $\exists > \forall$   
 I give one-CL person every-CL he buy DE book  
 'I gave a person every book that he bought.'
- (12) The first object asymmetrically c-commands the second object regarding Binding
- a. ni yao song na-ge ren<sub>i</sub> taziji<sub>i</sub> de zhaopian?  
 you want give which-CL person himself DE picture  
 'Which person(x)<sub>i</sub> you want to give x<sub>i</sub> pictures of himself<sub>i</sub>?'  
 b. \*wo yao song ta<sub>i</sub> Lisi<sub>i</sub> de zhaopian.  
 I want give him Lisi DE picture  
 '\*I want to give him<sub>i</sub> Lisi<sub>i</sub>'s pictures.'

Accordingly, the first object must be in a higher position than the second object structurally: [V [object1 [..object2]]]. Then, it is impossible to have a constituent containing only the verb and the first object, to be deleted by some VP-ellipsis operation, leaving behind the verb and the second object.

The facts described so far show that the relevant missing arguments cannot be variables bound by empty topics or derived by VP-ellipsis.<sup>3</sup> That is, the options listed in (3a) and (3d) should be ruled out. In order to evaluate the options in (3b) and (3c), let us bring forth some very interesting contrasts between interpreting missing subjects and missing objects in Chinese.

### 3. Subject/object asymmetry

An important fact about missing arguments in Chinese is that they do not behave alike. There is a systematic difference between interpreting missing subjects and missing objects: the former is much more restricted than the latter (cf. Li, 2005, 2007; Aoun and Li, 2008). Take the sentences in (13) and (14) below for instance. They contain a symmetric verb 'like'. However, the empty object, not the empty subject, can be coindexed with a topic phrase across island boundaries and across the subject of the higher clause.<sup>4</sup>

- (13) zhe-ge laoshi hen hao, wo mei kandao-guo [[e bu xihuan e de] xuesheng]  
 this-CL teacher very good I not see-ASP not like DE student  
 a. 'This teacher<sub>2</sub> is very good. I have not seen students<sub>1</sub> who e<sub>1</sub> do not like (him<sub>2</sub>).'  
 b. \*'This teacher<sub>2</sub> is very good. I have not seen students<sub>1</sub> who (he<sub>2</sub>) does not like e<sub>1</sub>.'
- (14) Zhangsan hen heshan, wo zhao-bu-dao yi-ge [[e bu xihuan e de] ren].  
 Zhangsan very friendly I seek-not-find one-CL not like DE person

<sup>3</sup> Kim (1999) argues against VP-ellipsis for the stranded V construction based on the relevant patterns in Korean and Japanese. Generally, the same arguments apply in Chinese straightforwardly.

<sup>4</sup> The subject of the first clause can be the topic for the two clauses of this "topic chain", see Tsao, 1977, Shi, 1992, among many others.

- a. 'Zhangsan<sub>1</sub> is very friendly. I cannot find a person<sub>2</sub> that e<sub>2</sub> does not like (him<sub>1</sub>).'  
 b. \*'Zhangsan<sub>1</sub> is very friendly; I cannot find a person<sub>2</sub> that (he<sub>1</sub>) does not like e<sub>2</sub>.'

Indeed, missing objects are quite liberal in their choice of antecedents. The antecedent can be an A or A'-element and no locality condition is observed. To illustrate, (15)–(16) below show that the missing object inside an adjunct clause and a complex NP can be coindexed with a subject across the island boundary one or two clauses/islands up:

- (15) wo faxian xiaotou<sub>1</sub> [yinwei jingcha mei renchu e<sub>1/3</sub>] gaoxingdi zou le.  
 I discover thief because policemen not recognize happily leave LE  
 'I discovered that the thief<sub>1</sub> left happily because the policemen did not recognize (him<sub>1/3</sub>).'  
 (16) wo faxian xiaotou<sub>1</sub> [yinwei jingcha zhao-bu-dao [e<sub>2</sub> yuanyi kanguan e<sub>1/e3</sub>  
 I discover thief because policeman seek-not-find willing supervise  
 de ren<sub>2</sub>]] deyidi zou le.  
 DE person proudly leave LE  
 'I discovered that the thief<sub>1</sub> left proudly because the policemen were not able to find people who were willing to supervise (him<sub>1/3</sub>).'

The missing object can also be interpreted as referring to a topic in the discourse, represented by the possibility of a different index e<sub>3</sub>.

Such a wide range of interpretive possibilities is not found with empty subjects. The indexing in the following examples shows that the empty subject of the adjunct clause must be interpreted as coindexed with the subject of the immediately higher clause and cannot be interpreted with a topic in the discourse or a subject beyond the next higher clause.

- (17) ta<sub>1</sub> shuo wo<sub>2</sub> yinwei [e<sub>2/\*1,3</sub> bu xihuan Zhangsan] you diar bu-hao-yisi.  
 he say I because not like Zhangsan have slight embarrassment  
 'He said I was somewhat embarrassed because e did not like Zhangsan.'  
 (18) ta<sub>1</sub> shuo Zhangsan<sub>2</sub> dui [e<sub>2/\*1,3</sub> mei kanjian wo] meiyou zeren.  
 he say Zhangsan to not see me not.have responsibility  
 'He said Zhangsan did not have responsibilities for (the fact that) e didn't see me.'

The generalization is that an empty subject must be coindexed with the closest c-commanding nominal. This holds true even when the context strongly favors a different interpretation. Thus, despite the fact that the empty subject should clearly refer to Miss Li in (19b) and to Lisi in (20b) according to the discourse context, the readings are not allowed when the subject is deleted.

- (19) a. Li xiaojie<sub>1</sub> hen xihuan Zhangsan ba? ni yinggai hen gaoxing!  
 Li Miss very like Zhangsan BA you should very happy  
 'Miss Li really likes Zhangsan, right? You should be very happy!'  
 b. shishishang, wo yinwei [(Li xiaojie)<sub>1</sub> bu xihuan Zhangsan] you diar  
 actually I because Li Miss not like Zhangsan have slight  
 shiwang.  
 disappointment  
 'In fact, I am somewhat disappointed because \*(Miss Li) does not like Zhangsan.'  
 (20) a. shi Zhangsan fuze suoyou de anpai. ta yinggai rang Lisi<sub>1</sub>  
 be Zhangsan take.charge all DE arrangement he should let Lisi  
 neng cong zher kanjian ni.  
 able from here see you  
 'It was Zhangsan that was responsible for all arrangements. He should be able to let Lisi see you from here.'  
 b. bu dui. Zhangsan dui [(Lisi<sub>1</sub>) mei kanjian wo<sub>3</sub>] meiyou zeren  
 not right Zhangsan to not see me not-have responsibility  
 'No. Zhangsan did not have responsibilities on (the fact that) \*(Lisi) didn't see me.'

Finally, there exists a contrast in the availability of indefinite and sloppy readings between missing subjects and objects. Empty subjects are not acceptable as deleted indefinite nominals; but empty objects are fine. The following sentence is not acceptable if the indefinite subject is deleted, in contrast to the acceptability of indefinite objects deleted in (7).

- (21) ta kandao yi-ge keren dian-le longxia;  
 he see one-CL guest order-LE lobster  
 wo kandao \*(yi-ge keren) dian-le yu.  
 I see one-CL guest order-LE fish  
 'He saw a guest ordered lobster; I saw (a guest) ordered fish.'

Similarly, the pair in (22a-b) below shows that a sloppy interpretation is available to a missing object, not a missing subject. The empty subject in (22a) can only be interpreted as coindexed with the matrix subject. That is, it has the reading of 'Zhangsan<sub>i</sub> is happy because self's<sub>i</sub>/his<sub>i</sub> son has taught math; Lisi<sub>j</sub> is proud because Lisi<sub>j</sub> has taught linguistics', not 'Zhangsan<sub>i</sub> is happy because self's<sub>i</sub>/his<sub>i</sub> son has taught math; Lisi<sub>j</sub> is proud because self's<sub>j</sub>/his<sub>j</sub> son has taught linguistics'.<sup>5</sup>

- (22) a. Zhangsan<sub>i</sub> [yinwei ziji<sub>i</sub> de/ta<sub>i</sub> de erzi jiao-guo shuxue] hen gaoxing;  
 Zhangsan because self's/his son teach-ASP math very happy  
 Lisi<sub>j</sub> [yinwei [e<sub>j</sub>] jiao-guo yuyanxue] hen deyi.  
 Lisi because teach-ASP linguistics very proud  
 'Zhangsan<sub>i</sub> is happy because self's<sub>i</sub>/his<sub>i</sub> son has taught math; Lisi<sub>j</sub> is proud because e<sub>j</sub> has taught linguistics.'
- b. Zhangsan<sub>i</sub> [yinwei wo jiao-guo ta<sub>i</sub> de erzi] hen gaoxing;  
 Zhangsan because I teach-ASP his son very happy  
 Lisi<sub>j</sub> [yinwei wo mei jiao-guo (ta<sub>j</sub> de erzi)] hen bu gaoxing  
 Lisi because I not teach-ASP his son very not happy  
 'Zhangsan<sub>i</sub> is happy because I have taught his<sub>i</sub> son; Lisi<sub>j</sub> is not happy because I have not taught [his<sub>j</sub> son].'

The sloppy reading again is available to the missing object in (23b) below, containing a reflexive or bound pronoun in the antecedent clause, in contrast to (23a), whose subject is missing.

- (23) a. Zhangsan<sub>i</sub> xihuan [ziji<sub>i</sub>/ta<sub>i</sub> erzi renshi de ren];  
 Zhangsan like self/he son know DE people  
 Lisi<sub>j</sub> xihuan [\* (ziji<sub>j</sub>/ta<sub>j</sub> erzi) bu renshi de ren]  
 Lisi like self/he son not know DE people  
 'Zhangsan<sub>i</sub> likes the people that self's<sub>i</sub>/his<sub>i</sub> son knows; Lisi<sub>j</sub> likes the people that \*(self's<sub>j</sub>/his<sub>j</sub> son) does not know.'
- b. Zhangsan<sub>i</sub> xihuan [renshi ziji<sub>i</sub>/ta<sub>i</sub> erzi de ren];  
 Zhangsan like know self/he son DE people  
 Lisi<sub>j</sub> xihuan [bu renshi (ziji<sub>j</sub>/ta<sub>j</sub> erzi) de ren]  
 Lisi not like not know self/he son DE people  
 'Zhangsan<sub>i</sub> likes the people that know self's<sub>i</sub>/his<sub>i</sub> son; Lisi<sub>j</sub> likes the people that do not know (self's<sub>j</sub>/his<sub>j</sub> son).'

The examples so far show a clear asymmetry in interpreting empty subjects and empty objects. Only missing objects allow indefinite or sloppy interpretations. Missing objects can be interpreted with antecedents across island-boundaries in A or A'-positions or an empty discourse topic; whereas missing subjects are quite restricted in interpretive possibilities. Why is there such a subject/object asymmetry? Aoun and Li (2008) argue that the asymmetry follows from the conflicting requirements on the identification procedure for empty pronouns (*pro*/PRO) and the general disjointness requirement on pronouns. According to Huang (1982), empty pronouns must be identified by the first c-commanding nominal – Generalized Control Rule (GCR). At the same time, empty pronouns should obey Binding Principle B because they are pronouns. An empty pronoun is acceptable in the subject position: according to the GCR, it is identified by the subject of a higher clause because the higher subject is the first possible antecedent for the missing subject. At the same time, it is free in the lower clause containing it because the clause contains a subject (Binding Principle B). However, an empty pronoun in the object position has to be bound by the subject of the same clause according to the GCR and be free from it due to Binding Principle B. The conflicting requirements make an empty pronoun (PRO/*pro*) impossible in the object position. Accordingly, Huang (1982) suggests that an empty object should be a variable bound by an empty topic. However, we saw earlier that empty objects could not be subsumed under a variable analysis. They can be within islands bound by an A or A'-antecedent across island boundaries, unlike topicalization cases, which are subject to island constraints and only

<sup>5</sup> Li (2002) shows that Chinese null objects do allow true sloppy interpretations, demonstrated by patterns including the so-called mixed reading patterns in Fiengo and May (1994).

involve A'-antecedents. In addition, empty objects can be interpreted as indefinite, impossible in topic structures. Aoun and Li (2008) suggest that such empty objects are truly empty elements, because none of the familiar empty categories fit the position (variables, NP-traces, *pro*/PRO). The true empty element is simply a position in the tree structure, not containing features such as [+pronominal], [+anaphoric] or person, number, gender.<sup>6</sup> The empty position can be filled via LF-copying of the materials from the context (cf. LF-copying approach to “argument ellipsis”; see the discussion on “argument ellipsis” in section 5).

One caveat is that, even though the empty position is devoid of [+pronominal], [+anaphoric] and all phi-features, it may contain categorial features if every node in phrase markers must have categorial specifications. It should also contain Case features so that the uninterpretable Case features of the related head can be checked off. Having categorial features would also make the position visible throughout the derivation till LF. That is, the said empty element contains no features other than Case and categorial ones (thanks to a reviewer). I will show below that this proposal has empirical advantage over other available alternatives and that a true empty element (conveniently referred to as true empty category, TEC) is nothing strange if “argument ellipsis” should be captured by an LF-copying approach. The following sections will first discuss the proposals in the literature that address the issue of the noted subject/object asymmetry, such as the agreement-based account in Saito (2007), Miyagawa (2010), Şener and Takahashi (2010). It will be shown that this line of research cannot be carried over to Chinese, because Chinese cannot be an agreement language. Moreover, a PF-deletion approach to missing arguments faces empirical and theoretical challenges. An LF-copying approach is more adequate but it raises the question of what exactly the syntactic properties of such missing arguments are – to which our TEC will provide an answer.

Let us first discuss the agreement-based approach in the next section.

#### 4. Agreement or not

The subject/object asymmetry discussed in the previous section is not expected if missing arguments are uniformly the counterpart of overt pronouns or nouns (the option in (3b))<sup>7</sup> or uniformly the result of “argument ellipsis” (the option in (3c)). Making a distinction between an empty subject and an empty object is necessary. In this regard, Saito (2007), Miyagawa (2010) and Şener and Takahashi (2010) propose to derive the observed subject/object asymmetry from the presence/absence of agreement, briefly described below.

Saito argues that the possibility of argument ellipsis is tied to the absence of agreement. According to his proposal, agreement features would not be properly checked off when LF-copying of the materials of the antecedent is required to interpret missing arguments. Because of the lack of space, the details of the analysis will not be repeated here. Instead, let us focus on the main points of this line of analysis that are relevant to our discussion: (i) the presence of agreement means the impossibility of “argument ellipsis”; (ii) then only an empty pronoun is available in this case; sloppy interpretations would be impossible, as with overt pronouns. Japanese is a language without agreement (Kuroda, 1988). Therefore, missing arguments in Japanese are due to argument ellipsis and sloppy readings are available. In contrast, Şener and Takahashi (2010) note that Turkish allows argument ellipsis in the object position but not in the subject

<sup>6</sup> There have been continuing attempts within the Minimalist Program on eliminating the need to specify features such as pronominal, anaphoric and offering substantially different alternatives to Binding in the tradition of Government and Binding (for instance, Heintz, 2008, Kayne, 2002, Safir, 2008, Hicks, 2009, Reuland, 2011, Rooryck and Wyngaert, 2011, also see earlier works as in Hornstein, 2001). In regard to PRO, it has to be either anaphoric or pronominal but not both at the same time. The operation Move is generally used to derive the relevant locality conditions. However, there have also been many works that argue for the need to recognize the existence of a distinct PRO (see a very recent example, Ndayiragije, 2012).

Nonetheless, the important question is what these pronominal, anaphoric features are fundamentally, which is closely related to learnability issues. Baltin's (2013) insightful minimalist conception of pronouns, anaphors (and ellipsis incorporated into the system) is very much worth exploring. He builds on Postal (1969), Déchaine and Wiltschko (2002), Reinhart and Reuland (1993) and proposes the following:

p. 4 (5) Pro-form: A functional category with a deleted complement.

(6) Anaphor (including reflexive): A category with unvalued  $\phi$ -features.

An important consequence of (i) is the adherence to the condition of Inclusiveness as in Chomsky (1995, 228), which prohibits the addition of new objects in the course of computation apart from rearrangements of lexical properties (in particular, no indices, bar levels in the sense of X-bar theory, etc.)

The task would be to derive the subject/object asymmetry noted in this work through some basic properties of empty categories (or copies with certain deletion operations). I leave this for further research.

<sup>7</sup> A good number of proposals have been made to account for the so-called “radical *pro* drop”, as, for instance, summarized and reviewed in Neeleman and Szendrői (2007). Neeleman and Szendrői propose that a language can drop pronouns if it has at least some agglutinating pronominal morphology. The subject/object asymmetry observed in Chinese shows that any approach that derives “(radical) *pro*-drop” from the morphological properties of the pronouns or noun phrases themselves without considering the positions where these nominals occur would fail to capture the said asymmetry.

position, as demonstrated by the availability of sloppy readings for missing objects, not missing subjects. This is because Turkish requires subject agreement but not object agreement.<sup>8</sup> In other words, the absence of agreement is correlated with the acceptability of argument ellipsis and the possibility of sloppy readings.

Such a correlation is extensively explored in Miyagawa (2010), who suggests a generalization to the effect that agreement signals the presence of a *pro*.<sup>9</sup> Null pronouns are like overt pronouns in not allowing sloppy interpretations.<sup>10</sup>

Does such a correlation exist in Chinese? Miyagawa argues that Chinese is a subject agreement language and that it is agreement of person features in the subject and in the Inflection/Tense projection that licenses *pro*-drop in this language, just like the widely recognized agreement languages such as Romance (Miyagawa, 2010:46). He adopts Huang's (1982, 1984a,b) analysis that an empty category can be a *pro* in the subject position but not in the object position. He further argues that "Chinese does in fact evidence  $\varphi$ -feature agreement associated with the subject" (p. 49). His evidence is built on the so-called "blocking effect" for the seemingly long-distance reflexive anaphor *ziji* in Chinese (Huang, 1984b; Tang, 1989; Battistella, 1989; Cole, Hermon and Sung 1990; Huang and Tang, 1991, among others). The arguments are briefly summarized in the following paragraphs (Miyagawa, 2010, 49–51).<sup>11</sup>

As the sentence in (24) illustrate, the monomorphemic reflexive anaphor *ziji* 'self' can be coindexed with an antecedent across a closer potential one: (the examples below are from Miyagawa, 2010, 49–50)

- (24) Zhangsan<sub>i</sub> zhidao [Lisi<sub>j</sub> dui **ziji**<sub>i/j</sub> mei xinxin].  
 Zhangsan know Lisi to self not confidence  
 'Zhangsan<sub>i</sub> knows that Lisi<sub>j</sub> has no confidence in self<sub>i/j</sub>.'

However, when there is a first or second person pronoun between *ziji* and a third person antecedent, the long-distance construal is not possible—the blocking effect:

- (25) Zhangsan<sub>i</sub> juede [wo/ni<sub>j</sub> dui **ziji**<sub>j/r1</sub> mei xinxin].  
 Zhangsan feel I/you to self not confidence  
 'Zhangsan<sub>i</sub> feels that I/you<sub>j</sub> have no confidence in self<sub>j/r1</sub>.'

Miyagawa follows the analysis of Battistella (1989), Cole and Sung, 1994, Huang and Tang (1991) etc. and adopts a *ziji*-raising analysis – *ziji* is raised to the local T(ense) and takes on the person value of the T, which has already been valued by the subject phrase. The raised *ziji* then moves to the T of the higher clause. If the person feature on that T matches the person feature already on *ziji*, long-distance construal is possible. Otherwise, the long-distance dependency relation is not acceptable.

Miyagawa claims that there are other similarities between Chinese and the Romance type *pro*-drop languages. For instance, a verb initial order with a postverbal "subject" is possible, as in (26a-b) below, where the argument 'rain' can occur before or after the verb 'fall'.<sup>12</sup>

- (26) a. yu xia-guo le.  
 rain fall-ASP LE  
 'It has rained.'  
 b. xia-guo le yu le.  
 fall-ASP LE rain LE  
 'It has rained.'

<sup>8</sup> Şener and Takahashi (2010) note that speakers disagree on whether a sloppy reading is possible for a missing subject in the case of subject honorification in Japanese. They suggest that those speakers that allow a sloppy reading might analyze subject honorification as agreement and those that disallow a sloppy reading do not view subject honorification as agreement.

<sup>9</sup> This is in contrast to the claim made in Huang (1984a,b) that *pro* is found in rich agreement and agreement-less languages, not languages with poor agreement.

<sup>10</sup> Tomioka (2003) argues that some pronouns allow sloppy readings – pronouns of laziness. The point made in these other works mentioned in the text is that replacement of the empty argument with an overt pronoun in the same sentence makes sloppy readings unacceptable. Pronouns are interpreted sloppily only in some contexts.

<sup>11</sup> Miyagawa's (2010) proposal that Chinese has subject agreement and therefore the subject is a *pro* can be understood through Kratzer's (2009) argument that binding is a local relation between the bound pronoun/reflexive and a local head. The binding relation is achieved via local feature transmission: The  $\varphi$ -feature set of a locally bound pronoun unifies with the  $\varphi$ -feature set of the head that hosts its binder. A pronoun that is bound by *v* is locally bound if and only if it is bound by the closest *v*; a pronoun that is bound by C is locally bound if and only if it is bound by the closest C; and so on (Kratzer, 2009:216).

<sup>12</sup> Miyagawa also suggests that the lack of ambiguity in scope interaction between a subject and object QP in Chinese might be due to the position of the subject – the subject actually is at an A'-position higher than TP. However, the rigidity of scope interaction in Chinese applies not only to the cases involving a subject and a non-subject but also those containing two non-subjects.



Miyagawa's agreement-based proposal to accommodate a wide range of data in a good number of languages is thought-provoking and very worthy of further investigation. With respect to Chinese, the facts are actually more complicated than presented. Take for instance the alleged possibility of a verb-initial pattern illustrated by the acceptability of a postverbal subject word order such as (26b). It should be pointed out that sentences like (26b) always involve unaccusative verbs. What follows the verb is the internal argument of the unaccusative verb. An unergative verb would not allow a postverbal subject. The possibility of an internal argument staying in the object position like (26a) is due to the ability of unaccusative verbs in Chinese still assigning Case to their objects (Li, 1985, 1990). A subject, including a temporal or a locative or other kinds of nominal phrases that are generally available in the subject position, can also appear overtly in such sentences. That is, unaccusative verbs allow arguments in both subject and object positions.

- (27) tian/zuotian/na-ge shamo xia-guo le yu le.  
 sky/yesterday/that-CLdesert fall-ASP LE rain LE  
 'The sky/Yesterday/That desert has fallen rain = it has rained yesterday/in the desert.'

(26b) can be interpreted as having an empty subject corresponding to the expressions listed in (27). In this sense, Chinese does not have true cases of V-initial constructions with postverbal subjects.

Turn to the blocking effect on the interpretive possibilities for the reflexive *ziji*. Huang and Liu (2001) have convincingly argued against the *ziji*-raising approach briefly described above. They note a number of problems with such an analysis. First of all, *ziji* does not exhibit movement properties. It can be coindexed with an antecedent across island boundaries, violating island conditions governing movement structures:

- (28) Zhangsan<sub>i</sub> bu xihuan [<sub>NP</sub> [<sub>CP</sub> neixie piping ziji<sub>i</sub> de ren]]  
 Zhangsan not like those criticize self DE person  
 'Zhangsan<sub>i</sub> does not like those people who criticize self<sub>i</sub>.'
- (29) Zhangsan<sub>i</sub> shuo [zhiyao Lisi bu zai piping ziji<sub>i</sub>, jiu rang ta canjia]  
 Zhangsan say if Lisi not again criticize self then let him join  
 'Zhangsan<sub>i</sub> said that if Lisi would stop criticizing self<sub>i</sub>, he would let him participate.'

Secondly, blocking effects may be triggered by non-subjects which are not potential antecedents of *ziji* and cannot participate in (person) agreement relation with the Tense/Inflection projection. The examples below show that a first person object can block the long-distance coindexation of a third person *ziji*, according to the local antecedent, with a higher antecedent that is also third person.

- (30) a. Zhangsan<sub>i</sub> gaosu wo<sub>j</sub> Lisi<sub>k</sub> hen ziji<sub>i/\*j/k</sub>.  
 Zhangsan tell me Lisi hate self  
 'Zhangsan<sub>i</sub> told me<sub>j</sub> that Lisi<sub>k</sub> hated self<sub>i/\*j/k</sub>.'
- b. Zhangsan<sub>i</sub> dui wo<sub>j</sub> shuo Lisi<sub>k</sub> chang piping ziji<sub>i/\*j/k</sub>.  
 Zhangsan to me say Lisi often criticize self  
 'Zhangsan<sub>i</sub> said to me<sub>j</sub> that Lisi<sub>k</sub> often criticized self<sub>i/\*j/k</sub>.'

There also exist a number and a person asymmetry in blocking effects, which is not expected under the proposed raising analysis.

*number asymmetry* – blocking due to an intervening singular subject, not a plural one

- (31) a. Lisi<sub>i</sub> zhidao tamen<sub>j</sub> chang piping ziji<sub>i/j</sub>.  
 Lisi know they often criticize self  
 'Lisi<sub>i</sub> knows that they<sub>j</sub> often criticize self<sub>i/j</sub>.'
- b. tamen<sub>i</sub> zhidao Lisi<sub>j</sub> chang piping ziji<sub>j/\*i</sub>.  
 they know Lisi often criticize self  
 'They<sub>i</sub> know that Lisi<sub>j</sub> often criticizes self<sub>j/\*i</sub>.'

*person asymmetry* – blocking due to an intervening 1st and 2nd person, but not 3rd person:

- (32) a. Zhangsan<sub>i</sub> danxin wo/ni<sub>j</sub> hui piping ziji<sub>j/\*i</sub>.  
 Zhangsan worry I/you will criticize self  
 'Zhangsan<sub>i</sub> is worried that I/you<sub>j</sub> might criticize self<sub>j/\*i</sub>.'

- b. wo<sub>i</sub> danxin Zhangsan<sub>j</sub> hui piping ziji<sub>2ij</sub>.  
I worry Zhangsan will criticize self  
'I<sub>i</sub> am worried that Zhangsan<sub>j</sub> will criticize self<sub>2ij</sub>.'
- c. ni<sub>i</sub> danxin Zhangsan<sub>j</sub> hui piping ziji<sub>2ij</sub> ma?  
you worry Zhangsan will criticize self Q  
'Are you<sub>i</sub> worried that Zhangsan<sub>j</sub> will criticize self<sub>2ij</sub>?'

Moreover, even a third-person nominal may induce blocking in some cases, such as when a third person pronoun is used deictically.

- (33) Zhangsan<sub>i</sub> shuo ta<sub>j</sub> qipian-le ziji<sub>j1</sub>.  
Zhangsan say he/she cheat-LE self  
'Zhangsan<sub>i</sub> said that he/she<sub>j</sub> cheated self<sub>j1</sub>.'

The examples above show that the blocking effect cannot be reduced to some agreement requirement in person features between *ziji* and its potential antecedent. Huang and Liu put forward many other facts that challenge a raising-agreement account of the long-distance *ziji*, such as the interpretive restrictions on multiple occurrences of *ziji*, the constraints on the types of predicates allowing the long-distance relation, the relevance of perspective-taking etc. These arguments will not be repeated here; suffice it to point out that Huang and Liu conclude that there is not a real long-distance reflexive in Chinese. The apparent long-distance binding is due to the logophoric use of *ziji*. The blocking effect is simply a conflict of perspective-taking in the cases involving logophors. In contrast, a syntactic anaphor is not a logophor and does not take perspectives. Therefore, a syntactic anaphor does not exhibit the blocking effect just mentioned. Huang and Liu use examples like the following ones to demonstrate the difference between the presence of blocking effects with logophors and the absence of blocking with syntactic anaphors:

- (34) a. Zhangsan<sub>i</sub> dui wo shuo ziji<sub>i</sub> piping-le Lisi.  
Zhangsan to me say self criticize-LE Lisi  
'Zhangsan<sub>i</sub> said to me that he<sub>i</sub> criticized Lisi.'
- b. ??Zhangsan<sub>i</sub> dui wo shuo Lisi piping-le ziji<sub>i</sub>.  
Zhangsan to me say Lisi criticize-LE self  
'Zhangsan<sub>i</sub> said to me that Lisi criticized him<sub>i</sub>.'
- c. \*Zhangsan<sub>i</sub> shuo wo piping-le ziji<sub>i</sub>.  
Zhangsan say I criticize-LE self  
'Zhangsan<sub>i</sub> said that I criticized self<sub>i</sub>.'

In (34a), *ziji* in the subject position of the embedded clause can be coindexed with the third person matrix subject despite the intervening first person pronoun. In (34b-c), *ziji* in the object position of the embedded clause cannot cross an intervening first person and be coindexed with the third person matrix subject. Huang and Liu argue that such a contrast follows straightforwardly from the distinction between logophors and syntactic anaphors. The dividing line between a syntactic anaphoric *ziji* and a logophoric *ziji* is the typical locality condition governing the application of Binding Principles—the governing category. An anaphor must be bound within its governing category. In Chinese, the governing category for an anaphor in the subject position of an embedded clause is the higher clause and, for an anaphor in the object position, the first clause containing this object. Accordingly, in order to be coindexed with the subject of the higher clause, *ziji* in (34b-c) must be a logophor; but it can be a syntactic anaphor in (34a) because the higher subject is within its governing category. The difference is supported by the fact that only (34b-c) exhibit the blocking effect.

Thus, a raising-agreement approach to *ziji* cannot capture the blocking effect, which takes away the support for the claim that Chinese is an agreement language. Not only is there no support for the existence of agreement in Chinese, there is evidence against it. Consider the syntactic anaphor in (34a). Were there agreement in this language, the governing category within which the syntactic anaphor must be bound would be the embedded clause. Because the antecedent in this case is in the higher clause, supposedly outside the governing category, one would be forced to claim that *ziji* should be analyzed as a logophor. Then, the contrast between (34a) and (34b-c) with respect to the relevance of blocking effects would be a mystery. Indeed, the fact that a syntactic anaphor is possible in the subject position of an embedded clause in Chinese directly contrasts with that of an agreement language, which generally has the local clause as the binding domain/governing category for the subject anaphor (agreement serving as accessible SUBJECT).

Further note that Miyagawa also uses Huang's (1982) generalized control rule (GCR) to capture the fact that empty subjects can be a *pro*, not empty objects. However, the application of Huang's GCR relies on the non-existence of

agreement in Chinese. Recall that, according to Huang, the antecedent for an empty subject is the higher subject in Chinese. This is so only if there is no agreement in Chinese in the calculation of the domain within which a *pro* needs to have an antecedent (Huang's (1984a,b) cool language). This contrasts with a *pro* in the Romance languages discussed by Miyagawa, which is always identified by the agreement of the same clause (Huang's hot language). The difference is due to the presence/absence of agreement, i.e., Chinese is not an agreement language.

In short, even though an agreement approach to the distribution of *pro*, complementary to argument ellipsis, seems very appealing, the problem with Chinese is that it cannot be an agreement language. Thus, the subject/object asymmetry in interpreting missing arguments noted in (13)–(22) remains a challenge.

## 5. “Argument ellipsis”

As shown in the previous sections, if Chinese only has argument ellipsis applying to the object position, not the subject position, the noted subject/object asymmetry can be captured—“argument ellipsis” understood as an argument missing, which is not a *pro* and does not mean that a “deletion” operation has applied. However, the question is why argument ellipsis is restricted in this manner. To better understand the issues, let us briefly discuss what argument ellipsis is, especially in regard to missing arguments in Japanese, which have been very well studied. Varieties of proposals have been made to account for their properties. In addition to (3a) and (3d), such as in Hasegawa (1984/85), Otani and Whitman, 1991, the options in (3b) and (3c) have been proposed, as in, for example, Saito (1985), Hoji (1998), Oku (1998), Kim (1999), Tomioka (1997, 1999, 2003), Saito (2004, 2007), Shinohara (2004, 2006), Takahashi (2006, 2008), Miyagawa (2010), Şener and Takahashi (2010) among many others. Essentially, these works can be divided into two camps: those that interpret missing arguments as allowing sloppy readings and those that do not accept true sloppy readings. Let us first focus on the former group and return to the latter in the last section.

Essentially a PF deletion account and an LF copying/late-insertion approach have been proposed to capture the syntactic and interpretive properties of missing arguments (argument ellipsis).

### 5.1. PF deletion

PF deletion is straightforward in capturing the syntactic and interpretive properties of missing elements – elements are simply not spelled out; full-fledged structures are present syntactically and available for interpretation (see, for instance, Tancredi, 1992, Chomsky and Lasnik, 1993, Klein, 1993, Chomsky, 1995, Merchant, 2001. Winkler and Schwabe, 2003 has a very good summary for the different approaches to ellipsis before 2003. For more recent collections, see Johnson, 2008, among others). The empty arguments in Japanese as discussed in the works mentioned above have been argued not to be the result of PF deletion. Kim (1999) argues against such an approach according to the behavior of null objects in Korean and Japanese. Shinohara (2006) specifically argues against a PF deletion analysis of argument ellipsis in Japanese. Instead, LF copying provides the interpretation of the missing arguments (see Kim, 1999 for interpreting NP ellipsis structures, Tomioka, 2008 for some LF copying mechanisms). Saito (2007) presents a modified version of Shinohara's arguments, which is briefly summarized below:

First, it is noted that a CP in Japanese can also undergo argument ellipsis:

- (35) Taroo-ga<sub>[CP</sub> Hanako-ga hon-o katta to] itta si, Ziroo-mo \_\_\_ itta.  
 -NOM -NOM book-ACC bought that said and -too said  
 ‘Taroo said that Hanako bought a book, and Ziroo also said (that she bought a book).’

This type of CP ellipsis becomes illicit when a phrase is scrambled out of the relevant CP:<sup>13</sup>

- (36) \*Sono hon-o<sub>i</sub> Taroo-wa [<sub>CP</sub> Hanako-ga *t<sub>i</sub>* katta to] itta si,  
 that book-ACC -TOP -NOM bought that said and  
 sono hon-o<sub>j</sub> Ziroo-mo --- itta.  
 that book-ACC -also said  
 ‘That book, Taroo said that Hanako bought, and that book, Ziroo also said [that she bought].’

According to Shinohara and Saito, if argument ellipsis is derived by PF deletion, it is not expected that (36) should be ungrammatical. The PF deletion operation would apply to a CP that is identical to its antecedent:

<sup>13</sup> Saito (2007), citing Shinohara (2006), also has examples involving different topics for the two clauses (‘books’ vs. ‘magazines’, for instance).

- (37) \*Sono hon-o<sub>i</sub> Taroo-wa [<sub>CP</sub> Hanako-ga t<sub>i</sub> katta to] itta si,  
 that book-ACC -TOP -NOM bought that said and  
 sono hon-o<sub>j</sub> Ziroo -mo [<sub>CP</sub> Hanako-ga t<sub>j</sub> katta to] itta  
 that book-ACC -also -NOM bought that said

On the other hand, LF copying can account for the unacceptability. Because a scrambled phrase is totally reconstructed to the unscrambled position at LF, LF copying of the antecedent in the first conjunct would result in the following structure for the second conjunct. This is unacceptable because it contains two instances of the embedded object:

- (38) \*Sono hon-o Ziroo-mo [**CP Hanako-ga sono hon-o katta to**] itta  
 that book-ACC -also -NOM that book-ACC bought that said  
 'Ziroo said that Hanako bought a magazine/a book'

To be noted is that the Chinese counterpart of (36) is also ungrammatical:

- (39) \*na-ben shu, Lisi shuo-guo Zhangsan mai-le; na-ben shu,  
 that-CL book Lisi say-ASP Zhangsan buy-LE that-CL book  
 Wangwu ye shuo-guo.  
 Wangwu also say-ASP

Takahashi (2006) also argues against a PF deletion and for an LF copying approach because of the lack of weak crossover violations in missing argument structures, unexpected under a PF deletion approach, which should have full representations syntactically (see his examples (ia-c) in his note 11, p. 31).

In addition, we may raise another concern over a PF deletion analysis from the perspective of missing arguments in Chinese – the condition on PF deletion. To be more concrete, let us take the PF deletion approach by Merchant (2001) for example. Deletion must be licensed by a head; i.e., a head licenses its sister phrase to be deleted. In such an approach to Chinese missing arguments, a most likely candidate as the licensing head for argument ellipsis is the lexical V, considering the noted subject/object asymmetry. Thus, the licensing condition might be stated as a lexical V licensing its sister phrase to be deleted. However, such a statement needs to be further restricted: not all sisters of lexical Vs can be empty. Some objects of verbs cannot be empty, such as those to be discussed in the next section. In addition, there is an unexpected argument-adjunct contrast in the possibility of being deleted, as briefly described below.

Chinese allows not only objects to occur right after verbs but also some adjunct-like complements – the so-called duration, frequency phrases, descriptive complements and resultative complements.<sup>14</sup> These expressions compete with the verbal object for the same position immediately after the verb (see Huang, 1982, Li, 1985, 1990, Tang, 1990 for the postverbal constraint in Chinese); i.e., they generally do not co-occur postverbally.<sup>15</sup> The lexical V can be reduplicated in order to allow both the object of the verb and the adjunct sister to V to co-occur postverbally:

- (40) ta nian shu nian san ci/tian le.  
 he read book read three time/day LE  
 'He read books three times/days.'
- (41) ta nian shu nian-de hen kuai.  
 he read book read-DE very fast  
 'He reads books fast.'
- (42) ta nian shu nian-de lei le.  
 he read book read-DE tired LE  
 'He read books and became tired.'

<sup>14</sup> These expressions have been argued to be within VPs from different perspectives, such as the postverbal constraint in Huang (1982), Li (1990), scope interaction between objects and duration/frequency phrases in Soh (1998), etc.

<sup>15</sup> There has been debate on whether duration and frequency phrases compete with verbal objects for the same postverbal object position, as they may co-occur postverbally in some cases. Nonetheless, the apparent co-occurrence might be due to the availability of different structures: duration/frequency phrases may be part of a noun phrase containing the verbal object or they may be predicates predicated of clausal subjects containing the relevant objects (see e.g., Li, 1987, 1990) or they may be modifiers to gerundive expressions (Huang, 1994, for instance). All of these may create the apparent co-occurrence of an object and an adjunct related to the same verb.

However, these postverbal adjuncts cannot be deleted, in contrast to the postverbal object:

(43) ta nian shu nian san ci/tian le; wo ye nian le \*(san ci/tian).  
 he read book read three time/day LE I also read LE (three time/day)  
 'He read books three times/days; I also read.'

(44) ta nian shu nian-de hen kuai; wo ye (hui) nian \*(de hen kuai).  
 he read book read-DE very fast I also will read (DE very fast)  
 'He reads books fast; I also (will) read.'

(45) ta nian shu nian-de hen lei; wo mei nian \*(de hen lei)  
 he read book read-DE very tired I not read (DE very fast)  
 'He read books and became tired; I did not read.'

cf. (46) ta nian (na/yi-ben) shu; wo mei/ye nian ((na/yi-ben) shu)  
 he read that/one-CL book; I not/also read (that/one-CLbook)  
 'He read (that/a) book(s); I did not read/also read.'

The object and the adjunct can both be sister to the lexical V (competing for the same position right after the lexical V); however, only the object can be deleted. Clearly, simply saying that a lexical V licenses the deletion of its sister phrase is not sufficient. It is possible to make further stipulations and revise the conditions on object deletion in order to accommodate the facts concerning the observed subject/object asymmetry and object/adjunct asymmetry. Nonetheless, one cannot help but wonder if such descriptions are simply re-statements of the facts and do not really help advance our understanding of the language much further.

In brief, a PF-deletion approach to deriving the empty arguments in the constructions discussed so far faces challenges regarding the noted subject/object and argument/adjunct asymmetry,<sup>16</sup> in addition to the issues raised by Shinohara, Saito and Takahashi on empty arguments in Japanese. Ruling out the option of PF deletion means that missing objects in Chinese or Japanese do not have the same syntactic representations as their overt counterparts. This is what is claimed by an LF-copying/late insertion approach.

## 5.2. LF-copying/late insertion

As noted, a substantial number of linguists investigating Japanese missing arguments allow sloppy readings for both missing subjects and missing objects. Oku (1998) also demonstrates the possibility of empty subjects and objects being interpreted as indefinite. In other words, missing subjects and objects behave alike in regard to their interpretive possibilities in Japanese.

Among the analyses by those that accept true sloppy interpretations for missing arguments in Japanese, there are two closely related ones: one is a late LF insertion approach as in Oku (1998) and the other is argument-ellipsis with LF copying, as in, for instance, Saito (2007), Shinohara (2006), Takahashi (2006) (and for Japanese and Turkish by Şener and Takahashi, 2010). What is common to these analyses is that missing arguments should not be generated as empty pronouns or empty nouns (identical to the corresponding overt pronouns or nouns, except for the absence of phonological features) so that the availability of sloppy and indefinite interpretations can be captured.

The late-insertion approach is proposed by Oku (1998), who, along with Bošković and Takahashi (1998), assumes that thematic features can be checked late at LF in Japanese.<sup>17</sup> The empirical support comes from scrambling structures. As noted by Saito, 1989 and Tada, 1993, scrambling in Japanese need not affect interpretation and a phrase

<sup>16</sup> Also see Xu (2003), Li (2005), Aoun and Li (2008) for arguments against a PF deletion approach to missing arguments in Chinese.

<sup>17</sup> As pointed out by Mark Baltin (personal communication), the notion of thematic feature checking is controversial (see, for instance, Chomsky, 1995, Hale and Keyser, 1993, among others). The essence of "thematic feature checking" in the works cited in the text and also in section 7 is that thematic roles are to capture the relation between the specification of a head and the interpretation of the related arguments (theta-role assigner and recipient in the traditional terms). It ensures that the subcategorization requirement of a verb is met. Of course, whether subcategorization requirements exist is also controversial, such as in Borer (2005a,b). Nonetheless, the facts discussed in section 6, particularly sections 6.1 and 6.2, indicate the need of recognizing a role played by subcategorization in grammar. Also see Hornstein (2001), among others, for analyzing thematic roles as features.

preposed by scrambling can behave as if it has not been scrambled, illustrated by the following pair of examples by Saito (1989):

- (47) a. [TP Taro-ga [CP [TP Hanako-ga dono hon -o yonda] ka] siritagatte iru] (koto)  
           -NOM                                   -NOM which book-ACC read Q know-want fact  
           ‘(the fact that) Taro wants to know which book Hanako read’  
       b. [TP Dono hon-o<sub>i</sub> [Taro-ga [CP [TP Hanako-ga t<sub>i</sub> yonda] ka] siritagatte iru]] (koto)  
           which book-ACC                       -NOM                                   -NOM read Q know-want fact

Crucially, the subcategorization requirement of a *wh*-complement by the verb ‘want-to-know’ is satisfied even though the *wh*-phrase has been scrambled out of the embedded clause as in (47b). According to Oku, Bošković and Takahashi, the acceptability of (47b) suggests that the subcategorization requirement or thematic feature-checking is only relevant at LF in Japanese, which allows a scrambled phrase to be placed back to the non-scrambled position. Because thematic feature-checking does not take place till LF, Oku proposes that missing arguments in Japanese are possible because arguments can be inserted late at LF. Similarly, the references cited above by Saito, Takahashi, Şener and Takahashi argue for an LF copying approach to interpreting missing arguments in Japanese (see section 5.2). These works specifically argue against generating missing arguments as empty pronouns or empty nouns.

Return to Chinese. Recall that a subject/object asymmetry exists in Chinese – the identification of an empty subject is restricted to the closest c-commanding nominal but empty objects have much greater interpretive possibilities. The difference has been attributed to characterizing an empty subject as a *pro*, obeying the GCR, and empty objects similar to the empty arguments in the so-called “argument ellipsis” constructions. What exactly is such “argument ellipsis” that is available to objects but not to subjects in Chinese? What are such missing arguments syntactically?

Let us consider what the syntactic structure might be under an LF-copying approach to argument ellipsis. Is there a syntactic position for the missing argument? If there is, what occupies such a position? In the relevant literature, either simply the vague notation *e* is used, or the term “proform”, or the symbol *pro* (see, for instance, the summary in Winkler and Schwabe, 2003 and the discussion on the properties of such a *pro* in Lobeck, 1995). An argument is a nominal phrase; therefore, the proform can be labeled as a pro-noun. However, if the term “null pronoun/proform” is used in this context, we must take it as contentless itself so that LF copying fills the position with the materials from the context (see Wasow, 1972; Williams, 1977). Importantly, a distinction must be made between such an empty argument and the *pro* in Chinese – only the latter has pronominal, anaphoric and phi-features, making the GCR and Binding Principle B relevant. The noted subject/object asymmetry discussed in section 3 requires such a distinction. How should the distinction be made? What would be a more precise syntactic representation for these missing arguments? What exactly is the *e* often used in the literature? These questions will be answered below through the discussion of more relevant constructions in Chinese.

## 6. Unacceptable missing objects

In contrast to the common belief that Chinese productively allows its objects to be missing, there are at least four constructions that systematically prohibit their objects to be deleted, as shown in the following subsections.

### 6.1. *Malefactive* I – affected outer objects

The first example involves an “affected” object that is assigned an affected theta-role by the verb and its regular object (see, Lu, 2002, Huang, 2007, and the references cited there, among others).<sup>18</sup>

<sup>18</sup> Lu (2002) argues that these indeed involve two objects, rather than two nominals forming a single phrase with a possession relation between them. An adverb like *yigong* ‘altogether’ can occur before the second object as in (i) below, which contrasts with the unacceptability of *yigong* within nominal phrases as illustrated in (ii)

- (i) wo chi-le ta yigong wu-ge pingguo.  
     I eat-le he altogether five-CL apple  
     ‘I ate altogether five apples of his (he was affected by the event of me eating five apples altogether).’  
 (ii) \*wo chi-le [ta de yigong wu-ge pingguo].  
       I eat-le he DE altogether five-CL apple

- (48) ta qu-le Wang jia yi-ge guinu.<sup>19</sup>  
 he marry-LE Wang family one-CL daughter  
 'He married a daughter from the Wang family (and the Wang family is affected).'
- (49) wo chi-le ta yi-ge pingguo.  
 I eat-LE he one-CL apple  
 'I ate an apple of his (and he was affected by the event).'

In these cases, the second object after the verb is the one normally subcategorized for by the verb – the “inner object”. The first object, the one right after the verb, is the “affected” or “outer object”. Huang (2007) notes that the additional outer argument is possible (receiving “affected” theta-role) when the verb and the inner object can combine and describe an action that is highly transitive.<sup>20</sup>

- (50) [ V outer object [ V inner object ] ] (V-raising deriving the right word order)
- 

Huang further notes that the inner object (the theme) cannot be missing in these cases. This is true, even in a parallel structure - the typical context most favorable to deletion:<sup>21</sup>

- (51) a. wo qu-le ta-jia yi-ge guinu; ta qu-le wo-jia \*(yi-ge guinu).  
 I marry-LE he-family one-CL daughter he marry-LE me-family one-CL daughter  
 'I married his family a daughter (I married a daughter from his family); he married my family \*(a daughter).'

<sup>19</sup> The event expressed by this construction generally involves possession of the second object transferred away from the first object. *Qu* in (48) is only used for a man taking away a woman from a family by marriage. A woman should be married into a family and the word is *jia* 'be married into'. After being married, she becomes part of the husband's family. Therefore, the following sentence is not acceptable (the Wang family being affected) because the transfer is to the Wang family:

- (i) \*ta jia-le Wang jia yi-ge haizi.  
 she marry-le Wang family one-CL son  
 'She was married to a son of the Wang family  
 (married into the family).'

<sup>20</sup> It is not easy to define what “highly transitive” is. Teng (1972) takes the *ba* construction as a high transitivity construction (also see Thompson, 1973). However, the *ba* construction is not always possible with the examples containing an outer object.

Also note that the type of double object verbs discussed here is not identical to the so-called *qiang* 'rob', *tou* 'steal' double object verbs (see the previous note and Huang, 2007 and the references cited there for the structures for the two different types of double object structures. Also see Tang (1978) for an extensive discussion on the possible types). Lu (2002), following Zhu (1982), observed that the type of direct object construction in question generally requires the second object to be a quantity expression (containing numbers). This contrasts with true double object verbs like *qiang* 'rob' or *tou* 'steal' not having such a requirement.

- (i) Zhangsan qiang/tou-le Lisi xianlian.  
 Zhangsan rob/steal-LE Lisi necklace  
 'Zhangsan robbed Lisi of (his) necklace/stole (Lisi's) necklace from him.'
- (ii) \*Zhangsan chi/na-le Lisi pingguo.  
 Zhangsan eat/take-LE Lisi apple

They also differ in the possibility of the direct object missing. In contrast to the unacceptability of missing the object in (51a) and (52a) in the text, the following sentence is possible, just like the double object verb *song* or *gei*, illustrated by (53a).

- (iii) Zhangsan qiang/tou-le Lisi yi-tiao xianglian; wo ye qiang/tou-le Lisi  
 Zhangsan rob/steal-LE Lisi one-CL necklace; I also rob/steal-LE Lisi  
 'Zhangsan robbed Lisi of (his) necklace/stole (Lisi's) necklace from him.'

These contrasts suggest that verbs like *qiang* 'rob' and *tou* 'steal' can be lexically specified as double object verbs but verbs like *chi* 'eat', *na* 'take' acquire their “outer object” only in the specific pattern syntactically.

<sup>21</sup> These and the following examples in this section do not allow the missing object to be interpreted as referring to an empty topic either because the relevant nominal is indefinite. They also have the same behavior when occurring within islands. Such examples are not given to save space.

- cf. b. wo qu-le ta-jia yi-ge guinu; ta qu-le (ta-jia) yi-ge lao-taipo  
 I marry-LE he-family one-CL daughter he marry-LE him-family one-CL old-woman  
 'I married his family a daughter (I married a daughter from his family); he married an old woman (from his family).'
- (52) a. wo chi-le ta yi-ge pingguo; ta ye chi-le wo \*(yi-ge pingguo)  
 I eat-LE him one-CL apple; he also eat-LE me one-CL apple  
 'I ate him an apple (I ate an apple from him); he also ate me \*(an apple).'
- cf. b. wo chi-le ta yi-ge pingguo; ta chi-le (ta) yi-ge juzi.  
 I eat-LE him one-CL apple; he eat-LE him one-CL orange  
 'I ate him an apple (I ate an apple from him); he ate (him) an orange.'

The impossibility of deleting the inner object (the second one) in such constructions contrasts with the possibility of deleting either of the two objects in the double object construction of the type in (7). The latter has two subcategorized objects. (53a-b) below further demonstrate the acceptability of deleting either of the subcategorized objects.

- (53) a. wo gei-le yi-ge nanhai yi-zhang piao;  
 I give-LE one-CL boy one-CL ticket;  
 ta gei-le yi-ge nuhai (yi-zhang piao).  
 he give-LE one-CL girl one-CL ticket  
 'I gave a boy a ticket; he gave a girl (a ticket).'
- b. wo gei-le yi-ge nanhai yi-zhang piao; ta gei-le (yi-ge nanhai) yi-zhi bi.  
 I give-LE one-CL boy one-CL ticket; he give-LE one-CL boy one-CL pen  
 'I gave a boy a ticket; he gave (a boy) (a pen).'

In this case, the verb *gei* 'give' is subcategorized for two objects and either of the two objects can be deleted, regardless of the relation between the two objects (see example (iii) in note 20).

The construction discussed in this section, which illustrates the unacceptability of deleting the inner object (the second object in the sentence), is similar to the malefactive construction discussed in [Pylkkänen \(2008\)](#). She distinguishes "benefactives" and "malefactives" – *for* vs. *from* phrases in English,<sup>22</sup> both of which involve applicative projections. Applicatives can occur outside or inside VPs (high vs. low applicatives. See [Pylkkänen \(2008, 18\)](#) for the relevant generalizations). Importantly, she notes a transitivity restriction on the constructions containing low applicatives. Benefactives and objects with secondary predicates in English are examples involving low applicatives according to her. An "implicit object" does not make a good low applicative structure because a thematic relation exists between the direct object and the secondary predicate in (54a) and between the direct object and the benefactive in (54b):<sup>23</sup>

- (54) a. \*I ate raw. (i.e., I ate something that was raw.)  
 b. Last night, I baked. vs. \*Last night, I baked him. (i.e. I baked him something)

Similarly, a malefactive can be a low applicative and observe the prohibition against an implicit object when it is a low applicative. Benefactives and malefactives only differ in the direction of object transfer.

<sup>22</sup> Sentences like (48) and (49) must be interpreted as involving malefactives, not benefactives. See the next note.

<sup>23</sup> In contrast to English, which has a productive benefactive low applicative pattern illustrated in (i), Chinese has a malefactive construction instead. Sentences like those in (ii) only have the interpretation according to which the first postverbal nominal denotes the one affected by the activity (often negatively): (iia) – they were affected by my baking a cake; (iib) – Mary was affected by my opening a bottle of beer.

- (i) a. I baked them a cake.  
 b. I opened Mary a beer.
- (ii) a. wo kaole tamen yi-ge dangao.  
 I baked them one-CL cake  
 b. wo kaile Mali yi-ping pijiu.  
 I opened Mary one-bottle beer



6.2. *Malefactive II – unaccusative verbs*

In addition to the construction involving inner and outer objects, Chinese also allows an unaccusative verb and its internal argument to combine and take an additional argument. The additional argument can surface as the subject of the sentence, interpreted as the experiencer of the event. That is, the construction has two arguments in subject and object positions respectively [Subject<sub>Experiencer</sub> + V<sub>Unaccusative</sub> + Object<sub>Theme</sub>]

- (55) Zhangsan si-le yi-zhi mao.  
Zhangsan die-LE one-CL cat  
'Lit: Zhangsan died a cat(=Zhangsan experienced the death of a cat (related to him)).'
- (56) kanshou pao-le yi-ge fanren le.  
guard run-LE one-CL prisoner LE  
'Lit: The guard escaped a prisoner (=The guard experienced the escaping event of a prisoner (related to him, such as under his watch)).'
- (57) tamen zuotian lai-le yixie keren  
they yesterday come-LE some guest  
'Lit: They came some guests yesterday (=they experienced the event of some guests visiting them yesterday).'

In these examples, the object cannot be deleted, even in parallel structures, which are most conducive to deletion:

- (58) Zhangsan si-le yi-zhi mao; Lisi ye si-le \*(yi-zhi mao).  
Zhangsan die-LE one-CL cat Lisi also die-LE one-CL cat
- (59) na-ge kanshou pao-le yi-ge fanren;  
that-CL guard escape-LE one-CL prisoner  
zhe-ge kanshou ye pao-le \*(yi-ge fanren).  
this-CL guard also escape-LE one-CL prisoner
- (60) tamen zuotian lai-le yixie keren; women ye lai-le \*(yixie keren)  
they yesterday come-LE some guest; we also come-LE some guest

Importantly, it is not because of the thematic structure [Subject<sub>Experiencer</sub> + V + Object<sub>Theme</sub>] that is responsible for the unacceptability of the object missing in the examples (58)–(60). If a verb is subcategorized for two arguments, experiencer and theme, then, the object can be deleted. Take the following sentences for instance. They involve verbs subcategorized for an experiencer and a theme and are quite acceptable with the objects missing:

Experiencer Subject – Theme Object

- (61) Zhangsan diao/wang-le yixie shu; Lisi ye diao/wang-le (yixie shu).  
Zhangsan lose/forget-LE some book Lisi also lose/forget-LE some book  
'Zhangsan lost/forgot some books; Lisi also lost/forgot (some books).'
- (62) wo hen pa yi-ge laoshi; tamen ye hen pa (yi-ge laoshi).  
I very fear one-CL teacher they also very fear one-CL teacher  
'I am afraid of a teacher; they also are afraid (of a teacher).'
- (63) wo danxin bingren; tamen ye danxin (bingren).  
I worry patient they also worry patient  
'I worry about patients; they also worry (about patients).'

The two sets of constructions, (55)–(60) on the one hand and (61)–(63) on the other, have the same thematic roles for their arguments—experiencer subjects and theme objects. They are only distinguished by how the arguments are

generated. In the latter set, the verbs are two-argument verbs while those in the former are one-argument verbs. The latter allows missing objects, not the former.<sup>24</sup>

This construction can be collapsed with the malefactive construction in the previous section. Both involve a verb and its direct object forming a new predicate to assign a thematic role to the maleficiary (the only difference being that the construction in the previous section involves 3 arguments in the sentence and the one here, two arguments). Alternatively, in the analysis of Pykkänen, the maleficiary bears a thematic relation with the direct object only. It is the direct object that assigns a thematic role to the maleficiary. The verb plays no role in the thematic licensing of the maleficiary argument. Regardless of which option is adopted, it is clear that the direct object is vital to the licensing of the maleficiary argument thematically. In the following discussions, the constructions in this section and the previous section will be referred to as “malefactive constructions,” and their respective affected outer object and the experiencer argument, as “maleficiary arguments”.

### 6.3. Direct objects followed by secondary predicates

A third construction that does not allow its object missing involves a secondary predicate predicated of the object (cf. (54a)). These are the various types of existential constructions discussed in Huang (1987). The presence of a secondary predicate generally requires the object to be specific (also see Tsai, 1994 for the specificity requirement on such an object).<sup>25</sup> The following examples illustrate the acceptability of specific objects, which generally take the form of [number + classifier + N] in Chinese, in contrast to the unacceptability of definite and bare nominal objects in such a structure.

- (64) a. ta jiao-guo yi-ge waiguo xuesheng hen congming  
 he teach-ASP one-CL foreign student very intelligent  
 ‘He has taught a foreign student, very intelligent.’  
 b. \*ta jiao-guo waiguo xuesheng hen congming  
 he teach-ASP foreign student very intelligent  
 ‘He has taught foreign students, very intelligent.’  
 c. \*ta jiao-guo na-ge waiguo xuesheng hen congming  
 he teach-ASP that-CL foreign student very intelligent  
 ‘He has taught that foreign student, very intelligent.’
- (65) a. ta kandao yi-ge haizi hen keai  
 he see one-CL child very lovely  
 ‘He saw a child, very lovely.’  
 b. \*ta kandao (na-ge) haizi hen keai  
 he see that-CL child very lovely  
 ‘He saw that child/children, very lovely.’

Importantly, the object in such cases cannot be missing. (64a) is to be contrasted with (66).

- (66) ta jiao-guo yi-ge waiguo xuesheng hen congming;  
 he teach-ASP one-CL foreign student very intelligent  
 wo jiao-guo \*(yi-ge waiguo xuesheng) hen youqian  
 I teach-ASP one-CL foreign student very rich  
 ‘He has taught a foreign student, very intelligent; I have taught \*(a foreign student), very rich.’

<sup>24</sup> This distinction suggests that thematic contributions by lexical items should be recognized, unless the two constructions with the same experiencer-theme arguments have different event structures. In an approach that takes event or aspectual structures as basic and lexical items are simply roots, not having subcategorization properties, lexical information is irrelevant in syntax (see Huang, 1997, Lin, 2001, Borer, 2005a,b, Ramchand, 2008, among many others. Also see the decomposition and hierarchical structures of lexical items in Hale and Keyser, 1993). The fact that lexical information affects deletion possibilities noted in this work indicates that the relevant lexical information should be at work in grammar. The constraint cannot be a matter of pragmatics or world knowledge.

<sup>25</sup> In addition to a specific noun phrase, it is possible that the object is a negative polarity item and the secondary predicate takes the form of a comparative:

- (i) wo mei jiao-guo renhe xuesheng bi ta congming.  
 I not teach any student compare him smart  
 ‘I have not taught any student smarter than him.’

The object can be missing only when the secondary predicate is not present:

- (67) ta jiao-guo yi-ge waiguo xuesheng; wo ye jiao-guo (yi-ge waiguo xuesheng)  
 he teach-ASP one-CL foreign student I also teach-ASP one-CL foreign student  
 'He has taught a foreign student; I have also taught (a foreign student).'
- (68) a. ta kandao yi-ge haizi hen keai; wo kandao \*(yi-ge haizi) hen huopo.  
 he see one-CL child very lovely I see one-CL child very active  
 'He saw a child, very lovely; I saw \*(a child), very active.'
- b. ta kandao yi-ge haizi; wo ye kandao-le (yige haizi).<sup>26</sup>  
 he see one-CL child I also see-LE one-CL child  
 'He saw a child; I also saw (a child).'

Other existential sentences demonstrate the same generalization:

- (69) a. you yi-ge haizi bing-zai jia-li; you \*(yi-ge haizi) bing-zai xuexiao.  
 have one-CL child sick-at home-in have one-CL child sick-at school  
 'There is a child sick at home; there is \*(a child) sick at school.'
- b. zhe-ge zhuozhi fangzhe yi-duo hua hen piaoliang;  
 this-CL table place one-CL flower very pretty  
 na-ge yizi ye fangzhe \*(yi-duo hua) hen haokan.  
 that-CL chair also place one-CL flower very pretty  
 'On this table is a flower, (which is) pretty; on that chair is \*(a flower), (which is) pretty.'

#### 6.4. Clausal objects

Another relevant construction involves a clausal object. Li (2005, 2007) observes the following generalization:<sup>27</sup>

- (70) a. If a verb is subcategorized for a clausal as well as a nominal object, the object can be empty.  
 b. If a verb is subcategorized only for a clausal object, the object cannot be empty.

(70a) is illustrated by (71) - verbs allowing nominal and clausal objects also accept null objects:

- (71) a. wo tingdao yi-ge yaoyan; ta ye tingdao-le.  
 I hear one-CL matter he also hear-LE  
 'I heard a rumor; he also heard.'
- 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.'

(70b) is illustrated by (72)-(74). When the clausal objects do not appear, the adverb *zhe/na-me/yang* 'so' occurs:

<sup>26</sup> Tingchi Wei (personal communication) added an interesting sentence:

(i) Wo chi wu-wan-fan tai duo, ta chi \_\_\_ ze tai shao.  
 I eat five-CL-rice too much he eat then too little

'That I eat five bowls of rice would be too much; that he eats \_\_\_ would be too little.' or 'If I eat five bowls of rice, it would be too much; if he eats \_\_\_, it would be too little.' A missing object is perfectly acceptable in this case because it does not involve a secondary predicate. The structure of the sentence is as suggested by the translation: it contains either a sentential subject or a conditional clause. The occurrence of the adverb *ze* 'then' is revealing: this word is not possible with the construction involving a secondary predicate.

<sup>27</sup> A missing object can have a clausal interpretation (Li, 2002). Anticipating the TEC account in section 7.2, this means that a position that is visible syntactically through categorial and Case features can be filled by the materials of the antecedent, regardless of whether the antecedent is nominal or clausal.

- (72) a. \*wo yiwei na-jian shi.  
I think that-CL matter  
'\*I thought that matter.'
- b. wo yiwei ta hen congming; tamen ye \*(zhe-me/yang) yiwei.  
I think he very smart they also so think  
'I thought that he was smart; they thought \*(so), too.'
- (73) a. \*wo cai na-jian shi.  
I guess that-CL matter  
'\*I guess that matter.'
- b. wo cai ta hen congming; tamen ye \*(zhe-me/yang) cai.  
I guess he very smart they also so guess  
'I guess that he is smart; they guess \*(so), too.'
- (74) a. \*wo dasuan na-jian shi.  
I plan that-CL matter  
'\*I planned that matter.'
- b. wo dasuan mingtian qu; tamen ye \*(zhe-me/yang) dasuan.  
I plan tomorrow go they also so plan  
'I planned to go tomorrow; they planned \*(so), too.'

The sections 6.1–6.4 show that, despite the fact that Chinese productively allows objects to be missing, some constructions disallow this option - those involving maleficiary objects, secondary predicates, and verbs only subcategorized for clausal complements.

## 7. Analyses

The following generalizations emerge from the discussion so far:

- (75) a. Chinese exhibits an asymmetry in interpreting empty subjects and empty objects. Empty subjects obey the GCR; empty objects do not. This contrasts with the lack of such an asymmetry in Japanese as discussed in [Oku \(1998\)](#), [Saito \(2004, 2007\)](#), [Takahashi \(2006, 2008\)](#), [Miyagawa \(2010\)](#) etc. - both empty subjects and empty objects behave like Chinese objects with respect to the range of interpretative possibilities.
- b. The asymmetry in Chinese reflects the obligatory identification of missing subjects as *pro*. Missing objects cannot be *pro*. It can have indefinite/sloppy readings, or be coindexed with an A or A'-antecedent across more than one island. It was referred to vaguely as "argument ellipsis".
- c. However, not all objects in Chinese can be missing. The constructions that do not allow their direct objects to be missing are those involving maleficiary objects, secondary predicates, and verbs only subcategorized for clausal objects.

In addition, it should be pointed out that an empty object does not need to have a linguistic antecedent, illustrated below:

- (76) One enters a room, sees and smells durian; he says:
- a. ni zhaodao dailai \_\_\_ de ren yihou, jiu gaosu wo.  
you find bring DE person after then tell me  
'Tell me after you find the one that brought (the durian) here.'
- b. wo yao mashang zhaochu dailai \_\_\_ de ren.  
I want immediately find bring DE person  
'I want to find the person that brought (the durian) immediately.'

We have discussed a number of proposals that aim to capture the generalizations in (75a-b). How can all the properties be accommodated and what would an adequate account tell us about the syntactic properties of missing objects?

### 7.1. Late-insertion<sup>28</sup>

One option to capture the generalizations in (75) is to continue pursuing the late LF insertion approach mentioned in section 5.2. That is, objects are not present at all syntactically. Late operation at LF inserts an object to the phrase structure. Under such an approach, how should the subject/object asymmetry (75a) be captured in a language without agreement (section 4)? A possibility is to adopt the spirit of the proposal by Miyagawa (2010) without following his specific agreement account. We may assume that, instead of agreement, there is some ad hoc EPP requirement forcing an element that can have an EPP feature to be merged in the subject position – a subject must be present to check off the EPP feature of a predicate (expressed by the head Tense (T) or Inflection (I)). Note that EPP features generally are the driving force for elements to be merged at the edge of a phase (Chomsky, 2001). That is, EPP features are checked off in the process of merger, before spell out and before LF.<sup>29</sup> Suppose a *pro* in Chinese, being a pronoun, can have an EPP feature to check off the EPP feature of T/I but the EPP feature would fail to be checked off if an element is inserted late at LF. This amounts to saying that a *pro* must appear in the empty subject position in Chinese so that the EPP feature is checked off by the *pro* in time; i.e., empty subjects cannot be derived by delaying insertion of arguments till LF. A *pro* must be present syntactically. In contrast, objects are not needed to check off EPP features. Accordingly, objects allow arguments to be inserted late at LF. In other words, missing subjects and missing objects are empty in different ways syntactically. Empty subjects cannot be truly empty during derivation because of the EPP requirement. A null pronoun, i.e., *pro*, must be merged. However, empty objects can be truly empty syntactically. Arguments are inserted late at LF. Further note that the object not only need not be a *pro* to meet EPP features, it also cannot be a *pro*, because of the conflict between GCR and Binding Principle B requirements as discussed earlier.

Then, the subject/object asymmetry in (75a) seems to be reducible to the properties of *pro* and the EPP requirement forcing the presence of a subject syntactically. Along this line, the lack of subject/object asymmetry in Japanese would mean that it is a language that does not have an EPP requirement. Interestingly, Haider, 2010; Haider (2010, chapter 2; 2012, chapter 4) notes that EPP features are characteristic of VO languages, not OV languages. Japanese is clearly an OV language. Chinese would have to be classified as a VO language (cf. the debate on whether Chinese is a VO or OV language, summarized in Li, 1990, for instance).

The facts noted in sections 6.1–6.3 also follow from such an account. Because an empty object is not present syntactically, it cannot license the merger of a maleficiary argument that is thematically dependent on the object. A mechanic way of executing this idea is to adopt an earliness principle like the one in (77) (see the earliness principle by Pesetsky, 1989) and assume that an argument has a feature [+ $\theta$ ] to check with the  $\theta$  feature of the “theta-role assigner” (see, for instance, Hornstein, 2001 for thematic features).

(77) When an element is merged in derivation, the features that can be checked should be checked.

Take for example the maleficiary object in sections 6.1 and 6.2. When the direct object is present syntactically, it either is the theta-assigner itself (Pylkkänen, 2008) or forms a new predicate with the verb it first combines with (Huang, 2007) to license a maleficiary object. Either way, the maleficiary argument is licensed upon merger. However, when the direct object is not merged syntactically, the maleficiary would not be licensed to merge because of the lack of a theta-assigner, assuming that the merger of arguments is generally licensed thematically.

The impossibility of a missing object in the construction containing a secondary predicate (section 6.3) can also be reduced to the checking of EPP features (the essence of the EPP – the presence of a subject required by a predicate). The need to check an EPP feature requires a *pro* to be in this position. However, a *pro* in this case is also an object, which should be ruled out because of the conflicting requirements from the GCR and Binding Principle B, as noted earlier.

<sup>28</sup> As noted by M. Baltin (personal communication), it would be a challenge to square a late-insertion approach with the condition of Inclusiveness (see footnote 6). This is an especially serious issue if there is not even a position in the tree structure before late insertion at LF. A tentative option to consider for potentially solving the problem might be to interpret the Inclusiveness condition in spirit - nothing can be added in the course of computation out of blue, without any clues already present in the lexical items selected for the Numeration (cf. Chomsky, 1995:228). Note that Oku (1998), Bošković and Takahashi (1998) resort to a mechanism that allows subcategorization features to be checked at LF. Late insertion satisfies the subcategorization requirement at LF. This means that subcategorization features should be present in the subcategorizing head and subcategorization features should be present in the subcategorizing head. That is, there are clues to the presence of such late-inserted elements from the beginning of the derivation. This is a generous interpretation of the Inclusiveness condition, which requires much more studies.

<sup>29</sup> Miyagawa (2010) assumes a more generous use of EPP and uses the term in a broad range of movement structures, not just relevant to Spec of TP. He tries to derive the EPP from Agree. What section 5 shows is that, if indeed the EPP account is to be adopted for Chinese, it cannot be reduced to person agreement as Miyagawa proposes.

What is left is the construction in section 6.4 – clausal objects cannot be deleted when the related verb is only subcategorized for a clausal object. It is not clear why late insertion in this case is not acceptable.

In brief, late-insertion such as in Oku (1998) can capture the generalizations in (75a-c). The challenge that remains is the impossibility of missing clausal objects in the construction discussed in section 6.4. It would be desirable to seek for another option that can accommodate all the relevant facts.

## 7.2. TEC

I would like to suggest that an option incorporating (78) works adequately (see section 2).

- (78) A true empty category (TEC) can be merged in phrase structure. A TEC is replaced at LF by what is available from the discourse context.

The LF replacement mechanism is similar in spirit to late insertion for missing arguments in Oku (late insertion in the sense of filling a TEC with contents) or the LF copying process assumed in an LF-copying approach to argument ellipsis, provided that the antecedent for the copying can be explicit or implicit in the discourse context (76). What is proposed in the TEC approach is the existence of an empty element that is different from a *pro* – an empty element that only has Case and categorial features.

This TEC alternative and the late insertion approach described in the previous section differ only in what the syntactic structure for a missing object is. Under the late insertion approach, a missing object is completely absent in the phrase structure syntactically. The position comes into existence only at LF. In contrast, the TEC approach keeps the structure constant: it has an object position in the phrase structure because an empty category with only categorial and Case features is merged in the phrase structure. This alternative does not create a new object (new structure) at LF. Empirically, it not only captures the facts in sections 6.1–6.3 in the same way as the late-insertion account does because of the TEC's lack of features other than categorial and Case features, it also accommodates the construction in section 6.4. Regarding the maleficiary constructions in sections 6.1 and 6.2, the relevant account by the late-insertion approach described in the previous section can be carried over straightforwardly, because a TEC does not have thematic roles to assign. Neither does a TEC have an EPP feature, which means that the late-insertion account for the impossibility of missing objects with secondary predicates (section 6.3) applies in exactly the same way. With respect to the construction in section 6.4, which disallows the deletion of a clausal object when the verb does not allow a nominal object, it is accommodated by the fact that a TEC has a Case feature that needs to be checked. When a verb is only subcategorized for a clause, it does not have a Case feature (Pesetsky, 1982). That is, such a verb does not have a Case feature to check with the Case feature of a TEC.

The above discussions show that the proposal incorporating (78) is empirically more adequate than the late-insertion approach. Nonetheless, important questions must be raised: what is the status of such a TEC and is there any instance like it in other languages? A short answer to these questions is that a TEC is nothing special. It is simply the syntactic representation of the “deleted” argument in an LF-copying approach to argument ellipsis. As long as a language allows missing arguments that have the range of interpretations noted, it has a TEC – the missing argument is simply a very empty element with categorial and Case feature requiring contents to fill in at LF.<sup>30</sup>

However, answers are not as straightforward for the question on the availability of a TEC. Intuitively, having a TEC is a last-resort strategy: when an empty argument cannot be a *pro* (or any other empty elements allowed by grammar), then, it is truly empty. Mechanically, it is possible to phrase this last-resort strategy in terms of the following economy consideration:

- (79) To interpret a missing argument, LF-copying should not apply unless it has to.

This can be regarded as essentially a comparison between two different derivations for missing arguments – one involving a *pro*, which just needs to get the index from the closest c-commanding antecedent, and the other, a TEC, which needs to find an explicit or implicit antecedent in the discourse context for the contents. (79) is to place the choice of a *pro* over a TEC whenever possible. In other words, a ranking requirement is added to the functional definition of empty categories (Chomsky, 1981, also see Huang, 1982 for empty categories in Chinese). If an empty argument can be a *pro* – subject positions, then it must be a *pro*. Only when an empty argument cannot be a *pro* (due to the conflicting requirements

<sup>30</sup> Kim (1999) argues that null NPs in East Asian languages are genuine empty phrase markers with no featural content at all. They are not gaps or derived from deletion at PF.

discussed) does a derivation with a TEC become possible. There is also a look-ahead nature of the comparison: if a *pro* is possible, not needing LF-copying, then it should be the derivation chosen. Otherwise, the derivation with a TEC is available. A TEC is a last-resort strategy, crucially and solely depending on the properties and availability of *pro*.

In short, two options have been entertained: one relies on EPP feature-checking and the other incorporates an economy/ranking notion as in (79), both of which have their assumptions. Regardless of which one is chosen, the role of TEC is important – there is an empty element that is distinct from *pro*. That is, not all missing arguments are alike. Empty subjects and empty objects in Chinese behave differently. This may also suggest that distinguishing different types of missing arguments through the investigation of a TEC and through exploring something like (79) can add to the study on understanding the types of languages that allow arguments to be deleted productively such as Huang's (1984a,b) rich agreement/no-agreement languages vs. poor agreement languages, Oku's (1998)/Bošković and Takahashi's (1998) strong and weak theta-feature, Tomioka's (2003) DP/NP languages, Jaeggli and Safir's (1989) and Neeleman and Szendrői's (2007) morphological shapes, etc.

## 8. Concluding remarks

What empty elements in natural languages are has been an issue intriguing linguists for a long time. This paper shows that some structures are generated with a true empty category in the phrase structure and the contents of the empty category are only available at LF. Support for this analysis is built on contrasts between empty subjects being restricted in interpretation and empty objects enjoying a much wider range of interpretive possibilities. It was shown that the contrast in interpreting missing arguments cannot be due to the presence of agreement with subjects and lack of agreement with objects. Other alternatives have also been considered. The eventual proposal made is that the subject/object asymmetry should follow from the properties of *pro*, which needs to be identified by the closest nominal (GCR) and is subject to Binding Principle B. The two requirements make a *pro* in object positions impossible, forcing the recognition of the existence of an empty category that is not a *pro* - a TEC. Importantly, such a TEC approach provides an understanding of why some constructions do not allow their objects missing, those in section 6.1–6.4.

It has also been shown that the interpretation of a TEC is quite free. It need not have an overt linguistic antecedent, illustrated in (76). A topic in the discourse not mentioned in the sentences containing the TEC can also be an antecedent (empty topic). It can also have a linguistic antecedent in the previous discourse by a different speaker or a preceding clause of a complex sentence by the same speaker. These possibilities are illustrated by (7–10), (13–20). The relevant examples also show that the antecedent can be in an A or A'-position. Both strict and sloppy interpretations are possible. The generalization that emerges is that a TEC can be filled by any materials available in the discourse context that can meet the subcategorization requirement of the related verb.<sup>31</sup> Ambiguity arises when more than one option is available in the context, such as (15–16). This is very much like late insertion of arguments as in Oku (1998) or the interpretation of empty arguments in an interpretive approach (e.g., Schwabe and Winkler, 2003). That is, unlike an empty subject (*pro*) required to be identified according to grammatical rules, an empty object (TEC) can be filled by (interpreted as) any element that can serve as the object of the verb according to contexts.

The possibility of a TEC is proposed to be tied to the presence of a *pro* that is subject to the GCR and Binding Principle B. In other words, in order to find a TEC in another language, that language should have the same kind of *pro* as the one in Chinese and the language has empty subjects as well as empty objects. Unfortunately, it is not a straightforward task to identify such a language. For instance, Japanese also allows empty subjects and empty objects productively, like Chinese. However, Japanese does not seem to exhibit an asymmetry in interpreting empty subjects and empty objects. For instance, Takahashi (2008), quoting Miyagawa and Jonah Lin (personal communication), notes that Chinese empty subjects do not allow sloppy readings whereas Japanese does (also see Miyagawa, 2010). Many other works either assume or claim the lack of subject/object asymmetry in Japanese, such as Hoji's (1998) empty concept noun, Oku's (1998) late insertion of arguments in Japanese, Tomioka's (2003) NP-ellipsis in languages without a determiner, Kim's (1999) NP-ellipsis, argument ellipsis by Saito (2004, 2007), Takahashi (2006, 2008), the morphological account by Neeleman and Szendrői's (2007), the agreement-based ellipsis account by Saito (2007), Miyagawa (2010), Şener and Takahashi (2010) etc.

The lack of subject/object asymmetry in Japanese suggests that it probably does not have the type of *pro* found in empty subject positions in Chinese. That is, it probably has an empty pronoun or noun that is not subject to the GCR (such as a null concept noun as in Hoji, 1998). Then, a TEC would not be needed and therefore does not exist. It is possible that the distinction between Chinese and Japanese can be attributed to structural differences in noun phrases between the two languages (such as DP vs. NP), which would require much further investigation (cf. Li, 2007).

<sup>31</sup> This is reminiscent of a free empty category in Xu (1986), although he claims that all empty arguments in Chinese are of the same type - free empty category.

Finally, although this work proposes to base-generate an empty argument for the cases of “argument ellipsis,” it does not claim that all ellipsis constructions should be derived in the same way - base-generating empty elements (i.e., the interpretive approaches in Schwabe and Winkler, 2003, for instance). In fact, the arguments for base-generating empty arguments would lead us to claim that VP-ellipsis in Chinese cannot be the result of base-generating an empty VP. Recall that a TEC is truly empty in syntax, inaccessible to syntactic processes and unable to assign thematic roles to other arguments. Sentences like (80a-b) below are not acceptable because the argument appearing in the subject position is not licensed: an object is not available to combine with the verb to assign a thematic role to the additional argument (the malefactive construction in section 6.2).

- (80) a. Zhangsan si-le yi-tiao yu; Lisi ye si-le \*(yi-tiao yu).  
 Zhangsan die-LE one-CL fish Lisi also die-LE one-CL fish  
 ‘Zhangsan had a fish died; Lisi also died.’
- b. tamen zuotian lai-le yi-ge keren; women ye lai-le \*(yi-ge keren)  
 they yesterday come-LE one-CL guest; we also come-LE one-CL guest  
 ‘They had a guest coming yesterday; we also had (a guest) coming.’

Interestingly, the corresponding VP-ellipsis construction is well-formed (see Li and Wei, in press):

- (81) a. Zhangsan hui si yi-tiao yu; Lisi ye hui (si yi-tiao yu).  
 Zhangsan will die one-CL fish Lisi also will die one-CL fish  
 ‘Zhangsan will have a fish died; Lisi also will (die a fish).’
- b. tamen mingtian hui lai yi-ge keren; women ye hui (lai yi-ge keren)  
 they tomorrow will come one-CL guest; we also will come one-CL guest  
 ‘They will have a guest coming tomorrow; we also will (come a guest).’

The contrast between these two sets of sentences indicates that the same arguments for a true empty object in syntax in (80a-b) should force us to acknowledge that the null object and the null verb should be contentful at least at some point in the VP-ellipsis structure so that the argument appearing in the subject position can be licensed before VP-ellipsis applies.

However, *wh*-movement of the object from a missing VP is not possible:<sup>32</sup>

- (82) tamen hui chi de juzi yiding hen tian;  
 they will eat DE orange certainly very sweet  
 bu hui \*(chi) de juzi yiding bu tian.  
 not will eat DEorange certainly not sweet  
 ‘The orange they will eat will certainly be sweet; the orange (they) will not \*(eat) certainly will not be sweet.’

This suggests that VP-ellipsis in Chinese is a very close counterpart of the British English *do* VP-construction discussed in Baltin (2012) – the object inside the missing VP can undergo some movement, such as raising to subject, but not other processes such as *wh*-movement. In other words, VP-ellipsis constructions in Chinese can be better accommodated by a deletion-in-Syntax approach, as proposed by Baltin.

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<sup>32</sup> Not all the tests used in Baltin (2012) are applicable to the VP-ellipsis construction in Chinese. For instance, a passive in Chinese is only distinguished from an active by the expression *bei*, immediately followed either by the logical subject or by the verb phrase. When *bei* appears, a V must also occur, making VP-ellipsis impossible independently.



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