

# Nominal Ellipsis in Chinese

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## Summary

Chinese prominently allows its subjects and objects (arguments) or parts of arguments to be omitted (labeled as nominal ellipsis). This partially contributes to the widespread perception that Chinese is a discourse-oriented or topic-prominent language and that discourse/context or pragmatics are responsible for leaving elements unsaid and for interpreting them; what will be understood from context can be omitted. This article emphasizes the fact that, even though context can be a factor, the acceptability of nominal ellipsis and the different interpretive possibilities for null subjects and null objects must follow grammatical constraints. Such restrictions are not predicted or accommodated by approaches that analyze null subjects and null objects in the same way or by a deletion mechanism applying to the Phonological Form (PF-deletion). Available proposals that treat null subjects and null objects differently are evaluated and it will be shown that null subjects and null objects can be distinguished without stipulations. A null subject can be an empty pronoun but not a null object. A null object is a placeholder that is empty in content. Such an empty element is also responsible for the fact that noun phrases restrict their subparts that can be missing. Missing contents are filled via copying of lexical materials at the Logical Form (LF-copying).

**Keywords:** NP-ellipsis, N'-ellipsis, stranded-V VP-ellipsis, radical pro-drop, agreement, true empty category, PF-deletion vs. LF-copying, extraction from within ellipsis structures

**Subjects:** Syntax

Elliptical constructions in languages offer an amazing window to understanding language users' linguistic competence. Speakers can leave parts of their intended expressions unsaid; yet hearers have no problems interpreting what is inaudible or invisible. For instance, the parts in parentheses in the following English sentence need not be said, but the sentence must always be interpreted as if the parenthetical parts are present.

(1)

He will go to the store and she will (go to the store), too.

Chinese goes beyond the level of omission as illustrated by (1). It has been noted for “freely” allowing arguments (subjects and objects) or parts within arguments to be missing—nominal ellipsis.<sup>1</sup>

The pervasiveness of empty or non-overt subjects and objects in Chinese, in contrast to languages like English generally requiring their subjects and objects to be realized with overt lexical materials, partly contributed to the typological classification of Chinese being a topic-prominent language or discourse-oriented language vs. English being a subject-prominent or syntax-oriented language (Li & Thompson, 1976, 1981; Tsao, 1977, among others). Empty arguments can be of different types. In the framework of government and binding theory (Chomsky, 1981), four types of empty categories can be distinguished. Their status in Chinese has been explored in great depth, beginning with Huang (1982). The four types of empty categories are A-traces (NP-traces) left by movement to A(argument)-position, A'-traces (variables) left by movement to A'(non-argument)-position, *PRO*, and *pro*. The last two differ in where they occur (essentially, *PRO* as subject of an infinitival clause and *pro* in other positions). Huang's contributions include uniting *PRO* and *pro* in Chinese, a language with few morphological clues to clause types (e.g., clauses being finite/tensed or not). Both *PRO* and *pro* must be identified by the closest c-commanding antecedent—the generalized control rule (Huang, 1982, 1984, 1989). In addition, he suggests that Chinese allows null topics, which can bind variables in argument positions. The study has inspired much more extensive and detailed investigation of the issues up to the current time. Putting aside A and A'-traces, this section focuses on null arguments that have been the target of study in the literature on “(radical) *pro*-drop”.<sup>2</sup>

Null arguments can be illustrated by the following examples, with the missing parts in parentheses. The content of the missing argument is supplied by the corresponding subject or object in the preceding antecedent clause, which can be a noun phrase or a clause.

(2)

a. ta zuotian kandao-le na/yi-ge nanhai; (ta) jintian ye kandao-le  
he yesterday see-LE that/one-CL boy he today also see-LE

(na/yi-ge nanhai).<sup>3</sup>  
that/one-CL boy

‘He saw that/a boy yesterday; (he) also saw (that/a boy) today.’

b. Zhangsan xiangxin tade mama hen ai ta;  
Zhangsan believe his mother very love him

Lisi ye xiangxin (tade mama hen ai ta).  
Lisi also believe his mother very love him

‘Zhangsan believes his mother loves him; Lisi also believes (his mother loves him).’

Examples like these raise many questions, such as how an indefinite noun phrase like ‘a boy’ in (2a) and the pronoun *ta* in (2b) supposedly contained within the missing object should or can be interpreted. A related question is what if an indefinite noun phrase appears in the subject position, considering the fact that Chinese largely, but not always, avoids using an indefinite noun phrase in the subject position. The relevant literature is enormous and the issues raised are multipronged; see, for instance, a recent handbook on ellipsis by van Craenenbroeck & Temmerman (2019), or the edited volume by Güneş & Lipták (2022; especially the substantial literature overview in chapter 1 by the editors), among numerous others, as well as many other handbooks or encyclopedic collections containing ellipsis chapters such as Li & Wei (2014), Takahashi (2014), Saito (2017), and so on. Special issues of journals have also been devoted to the topic, such as *Lingua* 151 (2014), among others. To make this article manageable and comprehensible, we will focus on the following issues (references to appear in relevant parts in the following sections):

(3)

- a. Factually, are null arguments restricted in any way? If they are, what are the generalizations adequately describing when null arguments are possible and when impossible?
- b. Analytically, how can the generalizations on the distribution of null arguments be captured? What is the grammatical status of null arguments? Are they truly arguments that are null, or could they be part of a bigger deleted phrase, such as VP-ellipsis?
- c. What are the mechanisms deriving such null arguments? Are they simply the result of not spelling out or deleting the relevant words? Or are they base-generated as they are – null from the beginning, to be interpreted via copying/insertion of the relevant lexical materials later? When does copying take place? This is related to the question of whether a null element has fully-fledged representations and allows extraction from within the null argument.

We will present the main empirical generalizations that need to be captured by any account in section 1. Section 2 reviews the pros and cons of the main lines of analysis in the literature, followed by a summary and brief discussion of the remaining issues in section 3. Section 4 extends the empirical coverage to null elements within noun phrases. Section 5 concludes.

## 1. Possible and Impossible Null Arguments

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### 1.1 Possible Null Arguments

In principle, the subject and object of a sentence can be null, as in (2a–b) above. Null objects can be direct or indirect objects, illustrated below.

(4)

- a. women hui jiao ta Fawen, ye hui jiao (ta) Dewen.  
 we will teach him French, also will teach him German  
 'We will teach him French, and will also teach (him) German.'
- b. women hui jiao ta Fawen, ye hui jiao nimen (Fawen).  
 we will teach him French, also will teach you French  
 'We will teach him French, and will teach you (French).'

In such cases, the first object c-commands the second object according to scope and binding facts (see Aoun & Li, 1993; Soh, 1998, among others).<sup>4</sup> Moreover, an object can be followed by and c-command a duration or frequency phrase postverbally. However, only the postverbal object can be missing, not the c-commanded duration/frequency phrase.<sup>5</sup> That is, (5) cannot be interpreted as 'I scolded him for two hours' or 'I scolded him three times', if the duration/frequency phrase is not overtly present.

(5)

V + Object + Duration/Frequency  
 wo da-le ta yi-ge zhongtou/liangci, mei ma (ta) \*(yi-ge zhongtou/liangci).  
 I beat-LE him one-CL hour/twice not scold him one-CL hour/twice  
 'I beat him for an hour/twice, did not scold (him).'

The O of [V+O] idioms can be missing in some cases, as below.

(6)

ni bu yinggai kai dao; ta ye bu yinggai kai (dao).  
 you not should open knife he also not should open knife  
 'You should not open-knife (have the operation); he should not open (knife), either.'

Moreover, the verbs of the antecedent clause and the clause with missing objects can be different:

(7)

ta mei **kan**-guo yige zhang-bu-da de haizi, wo dao qinshen **pengdao**-guo.  
 he not see-EXP one-CL grow-not-big DE child I but personally run.into-EXP  
 ‘He has not seen a child that does not grow up; but I have personally run into (one).’

(8)

Zhangsan **ti**-le ziji haizi yi-jiao, Lisi que zhi **ma**-le yi-dun.  
 Zhangsan kick-LE self child one-foot Lisi but only scold-LE one-CL  
 ‘Zhangsan kicked his own child a kick (gave a kick to); but Lisi only scolded a scold (to his own child).’

## 1.2 Impossible Null Arguments

Nonetheless, not all arguments can be missing. For instance, in contrast to (6), the following case is not acceptable with the O of the V+O idioms missing (see more on idioms in section 2 and notes 9 and 13).

(9)

ni bu yinggai da tui tang gu; ta ye bu yinggai da \*(tui tang gu).  
 you not should hit exit hall drum he also not should hit exit hall drum  
 ‘You should not hit the hall-exit drum (give up); he should not hit (the hall-exit drum (give up)), either.’

Many other constructions disallow null objects. Y.-H. A. Li (2005, 2007, 2014) and Aoun & Li (2008) list the following restrictions.

### 1.2.1 Affected Outer Object

The construction in question contains an “outer” object that is assigned an affected theta role by the verb and its direct (inner) object (see Huang, 1982, 2007; Lu, 2002; Thompson, 1973, among many others).

(10)

ta qu-le Wang jia yi-ge guinu.  
 he marry-LE Wang family one-CL daughter  
 ‘He married a daughter (from the Wang family) and the Wang family is affected by the marriage.’

(11)

wo chi-le ta yi-ge pingguo.  
 I eat-LE he one-CL apple  
 ‘I ate an apple and he was affected by the apple-eating.’

In these instances, the second object 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 (1982, 1997, 2007) notes that the additional outer argument is possible (receiving “affected” theta role) when the verb and the inner object can combine to denote an action that affects another entity.

(12)

[ V<sub>i</sub> outer object [ V<sub>i</sub> inner object ] ] (V-raising deriving the right word order)

Huang further notes that the inner object (the theme) cannot be missing in these cases (cf. Pyllkkänen, 2008). This is true, even in parallel structures—the context that facilitates missing elements the most:

(13)

- 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).’
- b. 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).’

### 1.2.2 Affected Argument as Subject: Unaccusative verb

Chinese also allows an unaccusative verb and its internal argument to combine and take an additional argument. This additional argument can surface as the subject of the sentence, interpreted as the experiencer of the event. That is, the construction has two arguments, occupying the subject and object positions respectively [ $\text{Subject}_{\text{Experiencer}} + \text{V}_{\text{Unaccusative}} + \text{Object}_{\text{Theme}}$ ], with [ $\text{V}_{\text{Unaccusative}} + \text{Object}_{\text{Theme}}$ ] assigning a thematic role to [ $\text{Subject}_{\text{Experiencer}}$ ], like what we saw in (12). This construction does not allow the object to be missing.

(14)

- a. Zhangsan si-le \*(yi-zhi mao).  
 Zhangsan die-LE one-CL cat  
 ‘(Lit.) Zhangsan died a cat (=Zhangsan experienced the death of a cat and the death event affected him).’
- b. 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).’

Importantly, it is not the thematic structure [ $\text{Subject}_{\text{Experiencer}} + \text{V} + \text{Object}_{\text{Theme}}$ ] that means it is unacceptable for the object to be missing. If both experiencer and theme arguments are subcategorized for by a verb, the theme object can be deleted, as illustrated in Example (15).

Experiencer Subject—Theme Object (subcategorized for by the verb)



(15)

Zhangsan wang-le/ hen danxin yijian shi;  
 Zhangsan forget-LE/very worry one matter

Lisi ye wang-le/ hen danxin (yijian shi).  
 Lisi also forget-LE/very worry one matter

‘Zhangsan forgot/was worried about a matter; Lisi also forgot/was worried about (a matter).’

Examples (14) and (15) have the same thematic roles for their arguments—experiencer subjects and theme objects. They are only distinguished by the generation of the arguments. In the latter set, the verbs are two-argument verbs, whereas those in the former are one-argument verbs (cf. (12)). The latter allow missing objects, not the former.<sup>6</sup>

### 1.2.3 Result Argument of Cause-Result Verb

The construction illustrated below contains a subject that is a causer and an object that is the argument bearing the result of the causing effect. In this construction, the causer argument is available only when the result argument is present (e.g., Xu, 2003).

(16)

zhe-ping jiu he-zui le henduo ren; na-ping jiu ye he-zui le  
 this-CL wine drink-drunk LE many people that-CL wine also drink-drunk LE

\*(henduo ren).

many people

‘This bottle of wine made many people drunk; that bottle of wine also drank-drunk \*(many people).’

(17)

tade hua wennuan le womende xin; nide hua ye wennuan le \*(womende xin).  
 his word warm LE our heart your word also warm LE our heart  
 ‘His words warmed our hearts; your words also warmed \*(our hearts).’



### 1.2.4 Direct Object Followed by Secondary Predicate

An object followed by a secondary predicate cannot be missing (cf. Huang, 1987 on existential constructions). In the following examples (18a and b), the predicate following the object is predicated of the object (secondary predicate).

(18)

- a. ta jiao-guo yi-ge waiguo xuesheng hen congming;  
he teach-LE one-CL foreign student very intelligent

wo jiao-guo \*(yi-ge waiguo xuesheng) hen youqian.  
I teach-LE one-CL foreign student very rich  
'He has taught a foreign student, very intelligent; I have taught \*(a foreign student), very rich.'

- b. 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.'

### 1.2.5 Clausal Object

Y.-H. A. Li (2005, 2007) observes the following generalization:

(19)

- 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.

(19a) is illustrated by (20a–b)—verbs allowing nominal and clausal objects also accept null objects:

(20)

- a. wo tingdao yi-ge yaoyan; ta ye tingdao-le.  
 I hear one-CL rumor 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.’

(19b) is illustrated by (21a–b). The adverb *zhe/na-me/yang* ‘so’ appears in cases of missing clausal objects:<sup>7</sup>

(21)

- a. \*wo yiwei/cai na-jian shi.  
 I thought/guess that-CL matter  
 ‘\*I thought that matter.’
- b. wo yiwei ta hen congming; tamen ye \*(zhe-me/yang) yiwei/cai.  
 I thought he very smart they also so thought/guess  
 ‘I thought that he was smart; they thought \*(so), too.’

### 1.2.6 “Referential” Constraint on Null Objects

Additionally, Landau (2022) notes an interesting constraint on the type of objects that can be missing—only referential objects (those that can be replaced by pronouns) can be missing, and nonreferential ones cannot take the null form.<sup>8</sup> The latter include measure phrases, predicate nominals, names in the cases of naming verbs, and some quantificational expressions.<sup>9</sup> Similar constraints seem to hold in Chinese: measure phrase in (22), predicate nominal (23), and name of a naming verb (24).

(22)

- Zhangsan gao-le yi chi; Lisi ye gao-le \*(yi chi).  
 Zhangsan tall-LE one foot Lisi also tall-LE one foot  
 ‘Zhangsan is one foot taller; Lisi is also \*(one foot) taller.’

(23)

Zhangsan chengwei yingxiong, Lisi ye chengwei \*(yingxiong).  
 Zhangsan become hero, Lisi also become hero.  
 ‘Zhangsan became a hero; Lisi also became \*(a hero).’

(24)

wo jiao Binbin; ta ye jiao \*(Binbin).  
 I call Binbin he also call Binbin  
 ‘I am named Binbin; he is also named (Binbin).’

In brief, what we have seen so far is that objects in Chinese cannot be omitted at will.

### 1.3 Differences in Interpreting Null Subjects vs. Null Objects

It is generally accepted that the interpretation of missing objects can include the strict reading and the sloppy reading (e.g., Huang, 1991).<sup>10</sup>

(25)

Zhangsan kanjian-le tade mama, Lisi ye kanjian-le.  
 Zhangsan see-LE his mother, Lisi also see-LE  
 ‘Zhangsan<sub>1</sub> saw his<sub>1/3</sub> mother, and Lisi<sub>2</sub> also saw his<sub>1/3</sub> mother.’ - strict reading  
 ‘Zhangsan<sub>1</sub> saw his<sub>1</sub> mother, and Lisi<sub>2</sub> also saw his<sub>2</sub> mother.’ - sloppy reading

Importantly, null subjects and null objects have different interpretive possibilities (see Aoun & Li, 2008; Cheng, 2013; Huang, 1982; H.-J. G. Li, 2002; Y.-H. A. Li, 2005, 2007, 2014; Miyagawa, 2010; Sato, 2014, 2019; Tomioka, 2014; among many others). Null subjects are interpreted as *PRO/pro*, identified by the closest c-commanding antecedent, or variables bound by an overt or empty topic. When variables are derived by A'-movement, locality conditions on movement are relevant. Null objects are not interpreted as *PRO/pro*. We briefly present below differences between interpreting null subjects and null objects.

Consider the following sentences, containing the verb ‘like’ in the relative clause, which takes human subjects and objects equally well. However, the empty object in the relative clause, not the empty subject, can be coindexed with a topic phrase across island boundaries and across the subject of the higher clause.<sup>11</sup>

(26)

- a. zhe-ge laoshi hen hao, wo mei kandao-guo [[ e bu xihuan e de] xuesheng]  
 this-CL teacher very good I not see-EXP not like DE student  
 i. '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>).'  
 ii. \*'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>.'
- b. 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  
 i. '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>).'  
 ii. \*'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'-phrase and no locality conditions apply. To illustrate, (27)–(28) 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:

(27)

wo faxian xiaotou<sub>1</sub> [yinwei jingcha mei renchu e<sub>1</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</sub>).'

(28)

wo zhidao xiaotou<sub>1</sub> [yinweijingcha zhao-bu-dao [ e<sub>2</sub> yuanyi kanguan e<sub>1</sub>  
 I know thief because policeman seek-not-find willing supervise  
 de ren<sub>2</sub> ]] gaoxingdi zou le.  
 DE person happily leave LE

'I know that the thief<sub>1</sub> left happily because the policemen were not able to find people who were willing to supervise (him<sub>1</sub>).'

The availability of such a wide range of interpretive options does not hold with empty subjects. The indexing in the following examples (29–30) 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 prominent entity in the discourse or a subject beyond the immediately higher clause.

(29)

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.'

(30)

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 is the case even when the context strongly favors a different interpretation. Thus, despite the fact that the empty subject should clearly refer to Miss Li in (31b) according to the discourse context, the reading is not available when the subject is missing.

(31)

- a. Li xiaojie<sub>1</sub> hen xihuan Zhangsan ba? ni yinggai hen gaoxing!  
 Li Miss very like Zhangsan PAR 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.'

In addition, there exists a contrast between null subjects and null objects in terms of the possibility of omitting the indefinite noun phrase, illustrated by the following pair of sentences (31a–b) (see Y.-H. A. Li, 2007, 2014).

(32)

a. ta kandao yi-ge keren<sub>i</sub> dian-le longxia;  
he see one-CL guest order-LE lobster

wo (ye) kandao \*(yi-ge keren<sub>j</sub>) (ye) dian-le longxia.  
I also see one-CL guest also order-LE lobster

'He saw a guest<sub>i</sub> ordered lobster; I (also) saw (a guest<sub>j</sub>) (also) ordered lobster.'

b. ta kandao Zhangsan dailai-le yi-ge keren<sub>i</sub>;  
he see Zhangsan bring-LE one-CL guest

wo (ye) kandao Lisi (ye) dailai-le (yi-ge keren<sub>j</sub>).  
I also see Lisi also bring-LE one-CL guest

'He saw Zhangsan brought a guest<sub>i</sub>; I (also) saw Lisi (also) brought (a guest<sub>j</sub>).'

Similarly, the pair in (33a–b) below shows that the sloppy interpretation is available to a null object, not a null subject. In contrast to the availability of the sloppy reading to the null object in (32b) (the pronoun contained in the missing object coindexed with the matrix subject), the empty subject itself in (33a) is interpreted as coindexed with the matrix subject. That is, it is interpreted as 'Zhangsan<sub>1</sub> is happy because self's<sub>1</sub>/his<sub>1</sub> son has taught math; Lisi<sub>2</sub> is proud because Lisi<sub>2</sub> has taught linguistics', not 'Zhangsan<sub>1</sub> is happy because self's<sub>1</sub>/his<sub>1</sub> son has taught math; Lisi<sub>2</sub> is proud because self's<sub>2</sub>/his<sub>2</sub> son has taught linguistics'.

(33)

- a. Zhangsan<sub>1</sub> [yinwei ziji<sub>1</sub>de/ta<sub>1</sub>de erzi jiao-guo shuxue] hen gaoxing;  
 Zhangsan because self's/his son teach- EXP math very happy

Lisi<sub>2</sub> [yinwei [ e<sub>2</sub> ] jiao-guo yuyanxue] hen deyi.  
 Lisi because teach-EXP linguistics very proud

‘Zhangsan<sub>1</sub> is happy because self<sub>s1</sub>/his<sub>1</sub> son has taught math; Lisi<sub>2</sub> is proud because e<sub>2</sub> has taught linguistics.’

- b. Zhangsan<sub>1</sub> [yinwei wo jiao-guo [ta<sub>1</sub>de erzi]] hen gaoxing;  
 Zhangsan because I teach- EXP his son very happy

Lisi<sub>2</sub> [yinwei wo mei jiao-guo [ e ] ] hen bu gaoxing  
 Lisi because I not teach-EXP very not happy

‘Zhangsan<sub>1</sub> is happy because I have taught his<sub>1</sub> son; Lisi<sub>2</sub> is not happy because I have not taught [his<sub>2</sub> son].’

Tomioka (2014) uses cases with ‘every... but’ to demonstrate that even pragmatics cannot force the sloppy reading for null subjects in Chinese. He observes that in English, singular personal pronouns typically do not permit sloppy interpretations, but such an interpretation is rendered somewhat easier to obtain when it is preceded by an expression such as *everyone but X*. This point is illustrated by the following sentence (33), which allows the *she* in the second clause to refer to Johnny’s mother in the sloppy interpretation.

(34)

Every boy<sub>1</sub> but Johnny thinks his<sub>1</sub> mother is beautiful, but Johnny thinks she looks rather plain.

Importantly, the sloppy interpretation is not available in Chinese even in this context. The Chinese counterpart is given below, showing that the sloppy interpretation is achieved only when the relevant position is overtly filled by a lexical subject, *zijide laoshi* ‘self’s teacher’.<sup>12</sup>



(35)

Meige xuesheng chule Lisi dou renwei zijide laoshi hen congming,  
 Every student except Lisi all think self's teacher very smart

dan Lisi renwei zijide laoshi/\**e* hen ben.  
 but Lisi think self's teacher very stupid.

‘(Lit.) Every student except Lisi thinks that self’s teacher is very smart, but Lisi thinks (he) dumb.’ (Tomioka, 2014, p. 71)

In brief, empty subjects and empty objects are interpreted differently. The latter allow indefinite or sloppy interpretations, and their antecedents can be across island boundaries in A or A'-positions or prominent entities in the discourse. Missing subjects are more restricted in their interpretive possibilities.

## 2. Analyses

How have the facts briefly listed in the previous sections been accounted for? It seems that all the logical possibilities have been explored. Due to limited space, we will focus on the points raised in the more recent literature that have not been (adequately) responded to and discuss the most appropriate candidate to capture the relevant empirical generalizations. We will also put aside those analyses that treat null subjects and null objects as the same entity, due to the differences in interpreting null subjects and null objects described in section 1.3; such analyses include the proposal that all null arguments are the equivalent of empty pronouns, or empty concept nouns (e.g., Hoji, 1998; H.-J. G. Li, 1998; but see H.-J. G. Li, 2002 for arguments against this analysis), or NP-deletion stranding a null determiner (e.g., Tomioka, 2003; see Y.-H. A. Li, 2007 for arguments against such an analysis).

### 2.1 Subject–Object Asymmetry

Representative analyses considering differences between null subjects and null objects will be briefly listed here for reference. Readers are referred to the respective works for their mechanisms and elaboration on the relevant concepts. Cheng (2013) argues that the availability of argument ellipsis is tied to the lack of a Determiner Phrase (DP) in a given language. He proposes that deletion at the Phonological Form (PF) only allows complements of a phase head to be deleted. The lack of DP in languages such as Chinese and Japanese (NP languages) makes the VP a phase. Therefore, the direct object of a verb, being the complement of a phase head V, can be elided in the PF component – this is known as argument ellipsis resulting from PF deletion. However, argument ellipsis is not available to subjects, because a subject is not a complement of a phase head and fails to undergo PF-deletion. Null subjects in these languages are cases of deep anaphora. Nonetheless, Sato (2019) argues against Cheng’s analysis and claims that the deep

anaphora analysis for null subjects cannot stand, because a linguistic antecedent is required for a null subject in Japanese. Y.-H. A. Li (2007, 2018) argues that Chinese is a DP language. Moreover, Chinese, not Japanese, has the subject/object differences described in section 1.3.

Another line of research is to relate the absence of agreement to the possibility of argument ellipsis, as found in Saito (2007), Miyagawa (2010), Şener & Takahashi (2010), Takahashi (2014), Sato (2015), Sato & Karimi (2016), and so on. These works claim that agreement is relevant to subjects in Chinese, not objects. Therefore, only the latter allow objects to undergo deletion. Such an analysis has been challenged by Simpson et al. (2013) and Y.-H. A. Li (2014), among others.

A third approach to the observed subject/object differences is built on the assumption that subjects in Chinese must be definite (Sato, 2019; also see Takahashi, 2019). Unfortunately, this assumption does not reflect the fact that subjects can be indefinite (cf. (32a–b). Also see Lee (1986), Li & Wei (2014), and Paul & Whitman (2017), among others.

Finally, an approach that has been widely considered is to subsume null objects under VP-ellipsis (stranded-V VP-ellipsis, e.g., Goldberg, 2005; Huang, 1991; H.-J. G. Li, 2002; Otani & Whitman, 1991, and more recently, Liu, 2014; Simpson, in press; Wu, 2016; Ye, 2020, among others; cf. Pan, 2019 allowing both VP-ellipsis and argument ellipsis). The limited space in this article necessitates the omission of detailed arguments against such an analysis. We will just point out these major points: (a) some impossible null objects in section 1.2 demonstrate that the properties of the constituents within VPs such as objects need to be considered, which would be unexpected according to the VP-ellipsis approach; (b) the verbs in the antecedent clause and the clause containing a null object can be different, such as (6–7) in section 1.1; and (c) additional mechanisms such as those used in Ye (2020) to solve some of the problems facing the VP-ellipsis approach are not supported empirically; for example, the proposal that the Object2/Duration/Frequency c-commanded by Object1 in the construction [V + Object1 + Object2/Duration/Frequency] must be focused and raised, right-adjoined to a verbal projection containing [V + Object1]. However, there is no evidence for the raising of the Object2/Duration/Frequency phrase to the right of the verbal projection or for its being a focus (for instance, focus can be on another phrase in the sentence instead).

## 2.2 Constraining Null Subjects and Null Objects: True Empty Category

Focusing on the facts described in sections 1.2.1–1.2.5 (we will return to the constraint in section 1.2.6 shortly), Y.-H. A. Li (2005, 2007, 2014) and Aoun & Li (2008) distinguish between null subjects and null objects. They adopt Huang's (1982) claim that empty categories recognized in the government and binding framework are also available to Chinese—NP-traces, variables, PRO, or *pro*. The latter two are not differentiated in their need to be identified by the closest c-commanding antecedent: This is the generalized control rule (GCR). The GCR coupled with the disjointness requirement on pronouns (Binding Principle B) rules out a PRO/*pro* in the object position. According to the GCR, an object PRO/*pro* needs to be identified by the subject of the clause, being the closest c-commanding antecedent for an object in the same clause. On the other hand, Binding Principle B requires an object PRO/*pro* to be disjoint from the subject of the clause.

This amounts to saying that when a null object is not derived by movement (NP-trace/variable), it cannot be any one of the four recognized empty categories. It is a “true empty category” (TEC)—a placeholder in the null-argument position in the syntactic structure when PRO/*pro* is not available, acquiring its contents via copying at the Logical Form (LF-copying). Indeed, such a true null element is necessary for any approaches that adopt the mechanism of LF-copying to null arguments.<sup>13</sup> Li proposes that such a TEC has nothing but categorial features (D, due to subcategorization requirement of V) and noninterpretable Case features (Y.-H. A. Li, 2008, 2013; cf. Duguine, 2013). These features are necessary to check off the selection features of the verb in order for merger to succeed and be visible for lexical materials to be copied at LF.<sup>14</sup>

Such a TEC approach captures the subject/object difference in interpretive possibilities (section 1.3). A null subject, when not derived by movement (variable/NP-trace), is a PRO/*pro*, subject to the GCR. However, the PRO/*pro* option is not available to null objects, due to the conflicting requirements between the GCR and Binding Principle B mentioned above—and is a TEC as a result. A TEC obtains content through LF-copying. It is a last-resort placeholder, when none of the recognized empty categories (NP-trace, variable, PRO, *pro*) are possible for the position. It is devoid of content other than the formal categorial and Case features. It contains no lexical materials; that is, it has no thematic features (cf. “empty noun” in Panagiotidis, 2003). Therefore, it cannot assign or participate in the assignment of thematic roles to an additional argument (sections 1.2.1–1.2.3) and or the licensing of a secondary predicate (section 1.2.4). The Case requirement on TEC makes it impossible to have the null counterpart of an embedded clause not Case-marked by the selecting verb (section 1.2.5; see Y.-H. A. Li, 2011, 2013). The true emptiness of a TEC captures the restrictions on the distribution of null objects described in sections 1.2.1.–1.2.5. In addition, the verbs of the antecedent clause and the one containing null arguments need not be identical, as argument ellipsis is not VP-ellipsis (cf. Ye, 2020).

A TEC account captures almost all the generalizations in section 1 through contextual definition of empty categories in the government and binding framework. Crucially, the null-argument position only has a placeholder syntactically without lexical materials. LF-copying provides the contents (see Y.-H. A. Li, 2005, 2007, 2014; Oku, 1998; Saito, 2004, 2007, among others).<sup>15</sup> There is further evidence for the emptiness of the null object—extraction from within the null object is not possible because the object does not have full structures with lexical materials. The following example shows that Chinese does not allow extraction to originate from within a null argument.<sup>16</sup>

(36)

[[wo mai [yi-he \_\_\_\_]] de na-zhong juzi] gen [[ta mai \_\_\_\_] de na-zhong pingguo]  
I buy one-box DE that-CL orange and he buy DE that-CL apple

dou hen hao.  
all very good

‘the oranges<sub>1</sub> that I bought [a box (of *e*<sub>1</sub>)] and the apples<sub>2</sub> he bought [(\*)a box of] *e*<sub>2</sub>] are all very good.’

This example does not have the interpretation of ‘apples that he bought [a box of \_\_\_\_]’—the relativized ‘apple’ cannot be a subpart of a null object containing a missing *yi-he* ‘a box’.

Extraction from within a null clause is not possible either.<sup>17</sup>

(37)

ZS xihuan LS wangdiao ta(ziji) de quedian;  
ZS like LS forget he(self) DE shortcoming

ta(ziji) de youdian, ta bu xihuan \*(LS wangdiao).  
he(self) DE strength he not like LS forget

‘ZS likes Lisi to forget his own shortcomings; his (own) strengths, he does not like \*(LS to forget).’

To summarize briefly, the TEC account with the contents of the placeholder filled at LF captures the extraction fact above, as well as all the facts in sections 1.2.1–1.2.5. What is left is the referential restriction in section 1.2.6. This peculiar restriction is an important contribution in Landau’s work, and he captures the restriction by incorporating a “referential” feature in his account. The TEC approach does not predict this. Nonetheless, it can be amended by adding a referential requirement, similar to what Landau proposes. We can require that only referential antecedents can be copied to the TEC at LF, thereby accommodating the fact in section 1.2.6. That is, by adding a referential requirement to how the TEC can obtain its contents at LF, we can accommodate all the facts presented in this article.<sup>18</sup>

### 3. Summary on Null Arguments

Arguments cannot be missing in certain constructions (section 1.2.1–1.2.6). In addition, null subjects and null objects differ in interpretive possibilities (section 1.3). The TEC/LF-copying approach captures these empirical generalizations in sections 1.2.1–1.2.5. The observation noted in section 1.2.6 can be accommodated if a referential requirement is added to the type of elements that can serve as antecedents for the TEC.

There is one more construction that is closely related to the null-object construction discussed in this article and that is harder to define—null complement anaphora (see Hankamer & Sag, 1976 on deep anaphora, Partee, 1989 on implicit variables, etc.).<sup>19</sup> A position on null complement anaphora taken in many relevant works is not to postulate a silent object in syntax at all. For instance, English, despite being a language that does not delete its objects, allows some verbs, such as *know*, *understand*, and *find out*, to occur by themselves without an overt object. They are intransitive verbs grammatically. However, they are interpreted as if they have an object, whose

content is determined according to the context. It is “inferable” (Prince, 1981) or “accommodated” into the domain of discourse “(Condoravdi & Gawron, 1996)” (Williams, 2012, p. 127).

Chinese has verbs that require (clausal) objects such as *ta yiwei/cai \*(ta bu hui lai)* ‘He thought/guessed he would not come.’ Nonetheless, there are also verbs that do not require objects but interpreted as though they have objects (null complement anaphora), such as *ta zhidao/liaojie* ‘He knows/understands’. Verbs allowing null complement anaphora might not be the same in different languages (lexical idiosyncrasy; see Wei, 2022). Potential tests to distinguish the two sets of verbs—those with and without syntactic presence of a null object—might be those based on mixed readings for the (un)availability of true sloppy readings or locality conditions, as in H.-J. G. Li (2002). Unfortunately, judgments in such cases are generally subtle and difficult to make. Clearly distinguishing the two via large-scale experimental study on speakers’ judgments while teasing out all potential intervening factors can take the study of null objects much further (see, for instance, Hoji, 2015; Plesniak, 2021 for possible experimental designs on sorting out factors affecting speakers’ judgments).

Finally, a remaining question concerns crosslinguistic variation: When are null arguments possible and when are they impossible in specific languages? Landau (2020, pp. 360–361) listed some parametric options but commented that none of them captured the relevant facts. The parametric options he mentioned are (a) the “antiagreement parameter” (ellipsis of an argument is allowed if and only if no functional head agrees with that argument; Saito, 2007; Şener & Takahashi, 2010; Takahashi, 2008, 2014), (b) the presence/absence of scrambling (Oku, 1998), (c) the absence of a DP layer in the nominal projection (Cheng, 2013), (d) the agglutinative nature of the nominal-morphology (such as Simpson et al., 2013; Otaki, 2014), or (e) the property of radical pro-drop (Sakamoto, 2017). Importantly, Landau observed that none of these options capture the fact that languages like Hebrew, Russian, and Portuguese allow argument ellipsis. He concluded that no currently existing proposal can do justice to the typological diversity of AE languages. Unfortunately, we do not have answers to complete this complex picture either; so it just remains for us to end this section with more speculations. First of all, if we clearly identify the properties of individual languages, we might have better hopes of identifying a parameter. For instance, Chinese was categorized as an NP language like Japanese, and that created problems (section 2.1). Secondly, the types of empty element allowed might vary with the nominal structures in different languages, such as Tang’s (2011) comparison of Cantonese, Mandarin, and other languages. Other possible factors can include variation in formal features, such as Case (Duguine, 2013) or choices of lexicon/feature-based parameters (Roberts, 2019). We leave the issue to be explored in future research.

#### 4. Null Elements Within Noun Phrases

Before concluding this article, we would like to briefly present further empirical advantages of a TEC approach to nominal ellipsis; this approach not only captures the facts described so far but also accounts for why null elements within noun phrases are possible only in certain cases.

Chinese noun phrases can have the form [Dem + Num + Cl + N] or [XP + *de* + N(P)], with the XP being a possessor, a modifier, or a complement to the following N(P). Classifiers and the marker *de* license the following N(P) to be null. Nonetheless, such “nominal ellipsis” is constrained. As observed in Aoun & Li (2003, chapter 4, pp. 95–130), two types of N(P) cannot be missing. These are: (a) a noun phrase modified by a relative clause containing a null relative operator; and (b) a head noun assigning thematic roles. The first case can be illustrated by adjunct relativization in (37), and the second in (38).<sup>20</sup>

(38)

- a. women bu zhidao [[ta (weishenme) cizhi de] \*(liyou)]  
 we not know he why resign DE reason  
 ‘We don’t know the \*(reason) he resigned.’
- b. women bu zhidao [[ta (zenme) xiuhao women fangzi de] \*(fangfa)]  
 we not know he how fix our house DE method  
 ‘We don’t know the \*(method) with which he fixed our house.’

(39)

- a. zhe-ben shu de chuban hua-le henduo shijian;  
 this-CL book DE publication take-LE much time  
 na-ben shu de \*(chuban) ye hua-le henduo shijian.  
 that-CL book DE publication also take-LE much time  
 ‘The publication of this book took much time; the \*(publication) of that book also took much time.’
- b. diren zhe-ci dui zhe chengshi de pohuai jinxing-le hen jiu;  
 enemy this-time to this city DE destruction proceed-LE very long  
 shang-ci dui na chengshi de \*(pohuai) zhi chixu yi tian.  
 last-time to that city DE destruction only last one day  
 ‘The enemy’s destruction of this city this time went on for a long time, the \*(destruction) of that city last time lasted only one day.’

According to Aoun & Li (2003), an adjunct relative clause contains a null relative operator which needs to be licensed and interpreted by the NP modified by the adjunct relative clause. When the modified NP is null, it has no contents to license the null relative operator. This captures the unacceptability of cases like (37a–b). For (38a–b), a null head noun has no thematic features and fails to assign a thematic role to its complement, and as a result it is unacceptable for the head noun to be null. In other words, the null noun (phrase) in these cases is a TEC, empty in content. Patterson (2020) extends the null operator analysis to all the cases of so-called gapless relative clause illustrated below (cf. Aoun & Li, 2003, chapter 4; Huang, 2016, Pan, 2022, among others).<sup>21</sup>



(40)

- a. ta changge de \*(shengyin)  
 he sing DE voice  
 ‘the voice with which he sings’
- b. ta chuangzuo jiaoxiangqu de \*(jiama)  
 he create symphony DE price  
 ‘the price for him to create a symphony’

Patterson analyzes gapless relative clauses as adjunct relative clauses containing null relative operators. A null relative operator in this construction is ruled out for the same reason as in (37a–b): the null relative operator fails to be licensed by a contentless null noun modified by the gapless relative clause.

## 5. Conclusion

Chinese prominently allows ‘nominal ellipsis’, which has partially contributed to the widespread perception that Chinese is a discourse-oriented or topic-prominent language, and that discourse/context or pragmatics is responsible for leaving elements unsaid; that which can be understood from the discourse/context can generally be left out. This article emphasizes the fact that the acceptability of null arguments and their interpretive possibilities are subject to grammatical constraints (section 1), as is the possibility of leaving portions of noun phrases unsaid (section 4). We have argued that such constraints can be best understood if we recognize the existence of a true empty category (TEC), whose contents are filled via LF-copying. We hope our work has added more empirical coverage and provided further factors and options to consider in the pursuit of a greater understanding of the general properties of, and variation in, nominal ellipsis across languages.

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## Notes

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1. The term “ellipsis” or “deletion” in the literature often just refers to the unsaid/invisible part of an utterance and does not always mean the grammatical mechanism of deletion. To avoid confusion, in the rest of this article we will limit these terms to the formal mechanism of deleting lexical items, while using the theory-neutral terms “null/empty/missing” for the unsaid/invisible parts.
2. Chomsky (1981) discusses “null subject” and the term “pro-drop” was used, which is mainly tied to rich morphological agreement in the relevant languages; this is known as Taraldsen’s Generalization (Adams, 1987; Rizzi, 1982, 1986; Taraldsen, 1980; among many others). Because such an agreement and null argument correlation is not found as such in languages like Chinese, which has no agreement but widely uses null arguments, terms such as ‘radical pro-drop’, ‘rampant pro-drop’, or ‘discourse pro-drop’ are used (see, e.g., Neeleman & Szendrői, 2007).
4. Scope interaction between quantificational expressions and referential dependency relations governed by the binding principles (Binding Principle A for anaphors, B for pronouns, and C for names) are tests to determine hierarchical relations in phrase structures, specifically, the c-command relation.
5. See Landau (2020) for tests on object ellipsis excluding the c-commanded duration/frequency phrases in East Asian languages. However, see Simpson (in press) on the nuances and challenges.
6. This distinction suggests that thematic contributions by lexical items should be recognized, unless the two patterns with the same experiencer-theme arguments have different event structures, which would seem to require ad hoc stipulations. In an approach that takes event or aspectual structures as basic and lexical items as being simply roots, without subcategorization properties, lexical information is irrelevant in syntax (see Borer, 2005a, 2005b; Huang, 1997; Lin, 2001; Ramchand, 2008, among many others. Also see the decomposition and hierarchical structures of lexical items in Hale & Keyser, 1993). The fact that lexical information affects the noted possibility of omitting arguments indicates that relevant lexical information should be at work in grammar. The constraint cannot be a matter of pragmatics or world knowledge.
7. Questions have been raised on the validity of this generalization (see, for instance, Cheng, 2013, section 4.1.2.2, p. 237–239). The following examples are Cheng’s (28a, c) on p. 181, which seemingly allow a clausal object to be missing, even though a nominal object is disallowed.

(i)

wo renwei [<sub>CP</sub> Zhangsan hen congming ]. tamen que bu renwei.  
I think Zhangsan very smart they whereas not think  
'lit. I think Zhangsan is smart. On the other hand, they do not think e.'

(ii)

Zhangsan hen houhui [<sub>CP</sub> ziji nianqing-de shihou meiyou nuli yonggong]  
Zhangsan very regretful self young-DE time not work.hard  
Lisi ye hen houhui [<sub>CP</sub> e ]  
Lisi also very regretful

'lit. Zhangsan regrets/is regretful that he didn't work when he was young. Lisi also regrets/is regretful e.'

<sup>3</sup>It is not clear whether generalizations can be built on such examples. First of all, *renwei* 'think' in (i) must take the negative form. If it is changed to the positive, *tamen/Lisi ye renwei* 'they also think', the object cannot be missing without the pro-form *zheme/name* 'so'. It seems that 'think' and negation take a special status. A relevant case is the unique expression in English *I think not*, which can stand as it is; but *I think* is followed by an object or the pro-form *so* (parentheticals not under consideration). 'Regret/Regretful' in (ii) can be taken as an instance of null complement anaphora, not due to the absence of a linguistic object, as discussed in Cheng (2013, section 4.3.4). Note that the following sentence with a nominal topic is perfectly fine in Chinese. If we replace *houhui* 'regret/be regretful' with the verbs used in the unacceptable sentences in this section, the result is unacceptable:

(iii)

- a. zhe-jian shi, Lisi hen houhui ma?  
this-CL matter, Lisi very regretful Q  
'(Regarding) this matter, is Lisi regretful?'
- b. \*zhe-jian shi, Lisi yiwei/cai ma?  
this-CL matter, Lisi thought/guess Q

<sup>3</sup>Our generalization does not apply to those verbs allowing null complement anaphora. Note that it is reasonable to separate null complement anaphora from the cases with objects missing. For instance, English does not allow objects to be deleted, but null complement anaphora is available.



8. The pronoun test does not work in Chinese because Chinese has an independent constraint against using pronouns for inanimate objects (and the O of VO idioms are generally inanimate). We will not explore the exact notion of referentiality here. Readers are referred to Landau's work. We will just present the Chinese data corresponding to the discussion by Landau (2022).

9. Landau proposes that only real quantificational expressions cannot be missing—those not replaceable by pronouns. As in note 9, the pronoun test is not reliable in Chinese. We put this category aside. Landau further distinguishes the O of V+O idioms: only some V+O idioms are transparent and de-composable, and the object is referential, permitting deletion. However, it is not clear how referentiality is determined to avoid circularity (if an element is referential, then it can be null, and vice versa). Nor is it clear that the properties of being referential and decomposable are correlated with the possibility of taking the null form. Observe the following contrasts:

(i)

- a. *dui zhejian shi, nimen bu neng ti piqu; tamen ye bu neng ti \*(piqu).*  
to this matter, you not can kick ball; they also not can kick ball  
'On this matter, you cannot pass the buck; they cannot pass (the buck), either.'
- b. *dui zhejian shi, nimen bu neng ti piqu; tamen ye bu neng huxiang ti (piqu).*  
to this matter, you not can kick ball; they also not can mutually kick ball  
'On this matter, you cannot pass the buck; they cannot mutually pass (the buck), either.'
- c. *\*tamen huxiang ti \_\_\_\_ de piqu*  
they mutually kick DE ball  
'the buck that they passed to each other'
- d. *\*piqu, tamen hui huxiang ti \_\_\_\_.*  
ball they will mutually kick  
'the buck, they will pass to each other.'

<sup>2</sup>The object in the VO idiom *ti piqu* 'kick ball=pass the buck' seems not to be movable (ic-d) and its taking the null form does not sound good (ia). However, if the adverb *huxiang* 'mutually' is added before the verb, it seems acceptable for the object to be missing as in (ib), although the addition of the adverb does not rescue the unacceptable movement cases (ic-d). We leave the issue to be investigated in further research.

10. As indicated by the indexing, a strict reading keeps the same referential index; a sloppy reading allows the index to vary with the subject of the sentence. The index 3 refers to some entity other than those with the index 1 and 2. H.-J. G. Li (2002, pp. 86–87), using the mixed reading test by Fiengo and May (1994), shows that the true sloppy reading for missing objects does indeed exist in Chinese.

11. 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.

12. Sato (2019) has examples showing that the sloppy reading is allowed for null subjects when the subject need not be definite, such as a construction that contains a hanging topic.

(i)

- a. Kayne, *tade wenzhang chuxian yu LI*;  
his article appear at
- b. Rizzi, *e chuxian yu NLLT*.  
appear at

(ii)

- a. Zhangsan, *zijide haizi wei Guge gongzuo*,  
self's child for Google work
- b. Lisi, *e wei Weiruan gongzuo*.  
for Microsoft work

<sup>3</sup>We found it difficult to interpret (iib) as Lisi's child working for Microsoft, although (ib) is acceptable with the so-called sloppy reading. To obtain the sloppy reading, (iib) needs to be changed to *Lisi de (shi) wei Weiruan gongzuo* 'Lisi's (child) works for Microsoft'. The possession marker *de* should be added. For (i), it is possible to use the name of a person to represent the articles that he writes: 'Rizzi published in NLLT'. It is not clear that there is a null subject in (ib) referring to Rizzi's articles. Other examples in Sato's work should be reconsidered in a similar manner, either in terms of alternative explanations or different judgments.

13. Specific mechanisms for LF-copying have been proposed in many works (Chung et al., 1995; Fiengo & May, 1994, Johnson, 2008; Oku, 1998; Schwabe & Winkler, 2003; Williams, 1977, and especially Tomioka, 2008, pp. 210–228, among many others). Further note that idioms do not challenge an LF-copying approach (e.g., Pan, 2019, Ye, 2020). Idioms can come together for interpretation at LF, which accounts for why idiomatic readings forces LF reconstruction in cases like the following (Chomsky, 1993, from Hicks, 2009, p. 271, (32a–b)):

(i)

- a. John wondered [which ~~picture of himself~~] [Bill took ~~which~~ picture of himself].
- b. John wondered [which picture of himself] [Bill took ~~which picture of himself~~].

<sup>3</sup>In order to obtain the idiomatic reading 'take picture of = photograph', reconstruction takes place, accounting for why *himself* can only be coindexed with the lower subject *Bill* in (a). The one in (b) does not have the idiomatic interpretation. Chomsky claims that on the idiomatic reading, *take a picture of himself* has to be interpreted at LF as a syntactic unit, so reconstruction is forced. Also see Sato (2020) for the use of different types of idioms to argue for an LF-copying approach to null arguments in Japanese.

14. A TEC differs from Xu's (1986) free empty category (FEC) in distribution and feature specifications. Xu's FEC can be a trace/pronoun/reflexive and can appear in any positions.

15. The works adopting an LF-copying approach to ellipsis constructions, such as those by Oku and Saito cited here, generally assume an “e” in the null position in the phrase structure, although attempts have not been made to clarify what this “e” is. Our TEC proposal fills the gap.

16. In contrast, Landau (2022) claims that extraction from within a null argument is possible. He gives the following example from Hebrew. See the next note (18) for the contrast. His example in (71) is copied below.

(i)

naxeš eyze ma’amar Dan hiskim likro  
guess which article Dan agreed to.read

ve-eyze (ma’amar) hu serev \_\_\_\_?  
and-which (article) he refused

‘Guess which article Dan agreed to read and which (article) he refused \*(to)?’

17. Some cases of topicalization seem to be possible, such as (i).

(i)

pingguo, wo zhidao Zhangsan xihuan chi; juzi, wo bu zhidao.  
apple I know Zhangsan like eat orange I not know  
‘Apples, I know Zhangsan likes to eat; oranges, I don’t know.’

<sup>†</sup>Importantly, the corresponding sentence in English (ii) is also acceptable.

(ii)

(As for) apples, I know that Zhangsan likes to eat; (as for) oranges, I don’t know.’

<sup>†</sup>English does not allow argument ellipsis. If there seems to be an object missing, it is a verb that does not select an object syntactically—the so-called null complement anaphora. No objects are present syntactically, but pragmatics makes the interpretation of an apparent object acceptable. That is, (ii) does not contain an elided clausal object. The difference between null complement anaphora and the TEC is that the latter, not the former, has a position in the syntactic structure. It is possible that (i–ii) are instances of null complement anaphora, with pragmatics providing interpretation without the syntactic presence of the object.

<sup>†</sup>Relativization is more consistent, disallowing any extraction from within a null argument. This raises the question of how topic structures and relativization constructions should be distinguished derivationally so that the null complement anaphora analysis is available for the topic structure (i), but not the relativization construction in (iii).

(iii)

wo zhidao Zhangsan xihuan chi de shuiguo gen  
 I know Zhangsan like eat DE fruit and  
 ni zhidao \*(Zhangsan xihuan chi \_\_) de shuiguo shi yiyang de.  
 you know Zhangsan like eat DE fruit be same DE  
 ‘The fruit that I know that Zhangsan likes to eat is the same as the fruit that you know  
 \*(Zhangsan likes to eat).’

<sup>3</sup> Landau (2022) observes that extraction from within a null object is possible. It is not clear why Chinese and Hebrew contrast in extraction possibilities. Takahashi (2019) notes that extraction from within a null phrase is possible in SOV languages, such as Japanese and Korean, but not possible in SVO languages, like Chinese or Vietnamese. He proposes a derivational ellipsis analysis (timing of ellipsis) to capture the difference. Unfortunately, Hebrew is SVO; yet it allows extraction as claimed by Landau. We leave this issue to be the subject of further research, but not without pointing out the following interesting contrast—the presence vs. absence of *to* in English in (iva–b) below (Merchant, 2013):

(iv)

- a. Which films did he refuse to see, and which films did he agree to?
- b. \*Which films did he refuse to see, and which films did he agree?

<sup>3</sup> *Wh*-movement is acceptable only when *to* is present. The example shows that the fronted *wh*-phrase in English must be the result of movement. This contrasts with topicalization such as that seen in (i) and (ii), which can be interpreted according to an aboutness relation that can be established pragmatically. Note that the example by Landau also involves *wh*-movement.

18. Lin (in press) notes that objects of applicative projections are more difficult to omit. These objects include (a) unselected objects (Lin, 2001), (b) indirect objects, and (c) the objects of unaccusative verbs such as ‘die’. In contrast, it is easier for subjects to take the null form. However, it is not true that unselected objects cannot be missing, as illustrated by (i) below.

(i)

ni xie de shi shenme bi/zhi?  
 you write de be what pen/paper  
 ‘What pen/paper are you writing with/on?’

<sup>3</sup> Nonetheless, not all unselected objects can be missing. What distinguishes the acceptable and unacceptable cases requires further research to establish.

<sup>3</sup>In regard to indirect objects, Li (1990) observes that indirect objects cannot undergo movement. Therefore, they should behave differently from direct objects which can be moved. For the type involving unaccusative verbs, the inability of a missing object is captured by the emptiness of a TEC. More generally, an inner object cannot be missing when there is an outer object (which can become a subject), but the outer object can be missing when the inner object is present.

19. Williams (2012, p. 126) lists some alternative terms for this construction: “null complement anaphora” (Hankamer & Sag, 1976); “definite ellipsis” (Shopen, 1973); “definite null complements” (Fillmore, 1986); “implicit variables” (Partee, 1989); “anaphoric implicit arguments” (Pedersen, 2011); and “incomplete predicates” (Gauker, 2012).

20. Pan (2022) notes that adjunct relativization allows deletion of the head noun if the context is clear enough for the recovery of the missing content, illustrated by the following sentence (also see Lin, in press):

(i)

Yanjiusheng shang-ke de shijian wo zhidao, benkesheng shang-ke de \_\_ wo bu zhidao.  
graduate go-class DE time I know, undergraduate go-class DE I not know  
‘The time for graduate students to have classes, I know; and that for undergraduate students to have classes, I do not know.’

<sup>3</sup>It is not clear whether contexts are sufficient to license deletion. For instance, the examples in (37–38) have clear contexts, facilitated the use of the resumptive *wh* within the relative clause and an antecedent clause with the same structure can be added, producing a parallel structure (such as ‘We know the reason you resigned; we don’t know the (reason) he resigned’). Yet, the addition of an antecedent does not help in these. It seems that the acceptability of a null NP such as in (i) requires its modifier not be a full clause. If an adjunct relative is clearly a full clause (embedded under a clausal taking verb), the modified NP cannot be null.

(ii)

zhe shi wo shuo yanjiusheng yao shang-ke de shijian, bu shi  
this is I say graduate will go-class DE time not be  
ta shuo benkesheng yao shang-ke de \*(shijian).  
he say undergraduate will go-class DE \*(time)  
‘This is the time I said the graduates would go to class, not the (time) he said the undergraduates would go to class.’

<sup>3</sup>According to the analysis of Aoun & Li (2003), it is the licensing of a null relative operator that prevents the head noun from being missing. It is possible that expressions like ‘the time of undergraduate classes’ and ‘the time of their class attending’ in (i) do not contain a null relative operator.

21. Pan (2022) discusses a contrast observed in Pan and Hu (2003) as in (i) and proposes the condition in (ii) to capture the contrast.

(i)

- a. \*jihua wo zhidao [Zhangsan chu-guo liuxue de].  
plan I know Zhangsan go-abroad study DE
- b. ?jihua [Zhangsan chu-guo liuxue de] wo zhidao.  
plan Zhangsan go-abroad study DE I know

(ii)

### Condition on the Identification of the Empty Head Noun

An empty head noun must be identified through predication under adjacency.

<sup>7</sup> Nonetheless, (ib) is not fully acceptable. Bingfu Lu (personal communication) suggests that it might be an instance of parenthetical expression. It is also possible that (ib) is not a noun-complement structure but involves apposition. Clear noun-complement cases like the one below in (iii) are not acceptable.

(iii)

- \*chuban, zhe ben shu de, wo zhidao.  
publication, this-CL book DE I know

<sup>7</sup> The questions of how appositives differ from noun-complement structures and how they can be distinguished need much more study (cf. Stowell, 1981).

### Related Articles

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