

Null Object Constructions, VP-Ellipsis, and Sentence Interpretation

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This paper discusses issues related to VP-Ellipsis and null object constructions in Mandarin Chinese. It consists of two parts. First, pace Li (1998), I argue that it is not true that no null object construction (NOC) sentences can be analyzed as VP-ellipsis in Mandarin Chinese, and I will show that the fact that the interpretation patterns of the relevant sentences deviate from those of their English counterparts is not because there is no VP-ellipsis in Chinese but because Chinese pronouns and reflexives exhibit some special properties. My claim in this paper is that some NOC sentences can be interpreted as VP-ellipsis, and others need to be interpreted as an empty pronoun, depending on whether the V-to-INFL raising occurs or not. Second, pace Kehler (1993), I argue that it is not the parallel vs. non-parallel distinction but the semantic and discourse constraints of coordinate constructions with *too* and *ye* 'also' in VP-ellipsis that explains why some VP-ellipsis sentences are ungrammatical. Hence, the coordination construction in neither English nor Chinese is constrained by the so-called syntactic condition which is based on the parallel vs. non-parallel distinction, as proposed in Kehler (1993), and discourse factors play a crucial role in the interpretation of coordination construction in the two languages concerned.

1. Arguments for and against the VP-Ellipsis Analysis of the Null Object Construction

It is argued that the null object construction (NOC) in Chinese, Japanese, and Korean can be analyzed on a par with the VP-ellipsis in English after V-to-Infl raising and VP deletion (Huang 1988a, b, 1991; Otani and Whiteman 1991), as exemplified in (1) below.

- (1) a. Zhangsan kanjian-le tade mama, Lisi ye kanjian-le.
 see-Perf his mother also see-Perf
 ‘Zhangsan_i saw his_i mother, and Lisi_j also saw his_{i/j} mother.’
 b. Lisi ye [INFL [v kanjian-le] [VP t_v [NP ec]]]
 also see-Perf
 ‘Lisi also saw his_{i/j} mother.’
- (2) a. John_i saw his mother, and Bill_j [INFL did [VP ec]], too.
 b. Bill_j saw his_{i/j} mother.

The second clause in (1) can have the structure in (1) where the verb *kanjian* ‘see’ is raised to INFL. Since the head V and the complement NP are both empty, the whole VP can be considered as an empty category that is similar to the second clause of (2). The second clause in (2) has both readings as shown in (2): the sloppy reading where the pronoun *his* is coindexed with its local subject, the *j* reading of *his*; and the strict reading where *his* is interpreted with the subject of the first conjunct, the *i* reading of *his*. It is claimed that the second clause in (1) also has the strict and sloppy readings, similar to that in (2) (Huang 1988a, b, 1991).

Two arguments have been presented for the VP-ellipsis analysis of NOC: (i) Sentences like (1) exhibit the strict/sloppy ambiguity, typical of VP-ellipsis; and (ii) NOC sentences also show the locality effect of the VP-ellipsis for the sloppy reading (e.g. Huang 1988a, b). The first argument comes from the availability of both sloppy and strict readings in sentences like (1), just like the corresponding English sentences like (2).

The second argument is from the sentences given in (3) and (4). Like the sentence in (3), the second clause of the Chinese sentence in (4) can only have the local subject *Lisi* as the antecedent of the possessive pronoun *tade* 'his/her' for the sloppy reading (Huang 1988a, b), i.e., it cannot have *Mary* as its antecedent for the sloppy reading, as indicated by (3) for the second clause of (3) and the English translation for (4).

- (3) a. John_i saw his mother, and Mary_j knew that Bill_k did, too.
 b. Mary_j knew that Bill_k saw her_{*j}/his_k mother.
 (4) Zhangsan kanjian-le tade mama, Mary zhidao Lisi ye kanjian-le.
 see-Perf his mother know also see-Perf
 'Zhangsan_i saw his_i mother, and Mary_j knew that Lisi_k also saw her_{*j}/his_k mother.'

However, Hoji (1998) and Li (1998) argue against the VP-ellipsis analysis for Japanese and Chinese NOC, respectively. In this paper I will concentrate on Li's arguments which are given in (5). I will first present Li's arguments against the VP-ellipsis analysis of Chinese NOC.¹ Then I discuss the problems in Li's account in the next section.

- (5)
 a. Although the sloppy reading is obligatory or much preferred for anaphors but is optional for pronouns, Chinese examples involving reflexive *ta-ziji* '3s-self' can also have a strict reading;
 b. The so-called VP-ellipsis sentences involving *bici* 'each other' do not have the "couple-internal reading" like their counterparts in English;
 c. No locality effect for the sloppy reading in Chinese;
 d. The sloppy reading in Chinese is really a sloppy-like reading, as suggested in Hoji (1998), and it can even occur with proper names; and
 e. No V-to-INFL raising, but still with sloppy identity reading.

At first, unlike English which does not allow a reflexive to have a strict reading in the second clause for conjoined sentences, as shown in (6), Li claims that it is very easy to get the corresponding Chinese reflexive to have the strict reading, as shown in (7), for the second clause in (7).

- (6) a. John criticized himself, and Bill did, too.
 b. ??Bill criticized John.
 (7) a. Zhangsan piping-le ta-ziji, Lisi ye piping-le.
 criticize-Perf he-self also criticize-Perf
 b. Lisi criticized Zhangsan.

Li (1998) claims that she can even get a reading in which Lisi criticized someone other than *Zhangsan* and *Lisi*, which is prominent in the discourse. However, my informants cannot get this reading. The only way to get this reading is to say that the

¹ Xu (to appear) makes a similar argument. Due to the time limit, I'll leave the discussion of his article to a difference occasion.

first clause and the second clause are two consecutive sentences in a discourse, but they belong to two different discourse segments.² That is, they are accidentally put together, and do not form a conjoined sentence, as required. Hence, it is not appropriate to claim that sentences like (7) can have a reading for the null object in the second clause in which Lisi criticized someone other than *Zhangsan* and *Lisi*, since this reading is not relevant for the discussion.

Secondly, Li claims that the contrast between Chinese sentences and English sentences, given in (8) and (9), indicates that Chinese NOC sentences are different from English VP-ellipsis sentences. This is because only the second clause in (8) (not that in (9)) can have the so-called "couple-internal reading," as given in (8) and (9), respectively. Note that the symbol # in (9) is used to indicate that the relevant reading is not appropriate for the second clause of (9).

- (8) a. Every Chinese couple recommended each other's friends, and every German couple did, too.
 b. Every German couple recommended each other's friends.
- (9) a. Meidui Zhongguo fufu tuijian-le bicide pengyou,
 Every-CL China couple recommend-Perf each-other's friend
 meidui Deguo fufu ye tuijian-le.
 every-CL German couple also recommend-Perf
 b. #Every German couple recommended each other's friends.

Thirdly, sentences like (10) and (11) suggest that only the English sentences observe the so-called locality effect when the relevant pronoun in the second clause of the conjoined sentences is interpreted as bound variables. This is because the second clause in (10a) cannot have the sloppy reading for the relevant pronoun, as indicated by (10b), while that in (11a) can have the relevant reading, as indicated by (11b). Hence, Chinese NOC sentences do not observe the locality effect, so Li reasons that they cannot be analyzed as the counterpart of VP-ellipsis in English.

- (10) a. Mary fed her child, and Susan thought that the nanny did, too.
 b. #Susan thought that the nanny fed Susan's child.
- (11) a. Mary wei-guo zijide haizi le, Susan yiwei Wu ma ye wei-guo le.
 feed-Exp self's child Prt think also feed-Exp Perf
 'Mary fed her (own) child, and Susan thought that the nanny *Wu ma* fed her child, too.'
 b. Susan thought that the nanny *Wu ma* fed Susan's child.

Fourthly, following Hoji (1998), Li claims that the sloppy reading as seen in sentences like (1) is really a *sloppy-like reading*, as we can even see it in sentences that do not contain any pronoun, as exemplified by the contrast between the Chinese and English sentences in (12) and (13). Note that, when the first conjunct does not contain a personal pronoun, the second conjunct in the English sentence (12a) does not allow a sloppy reading (12b), while the Chinese sentence does. Since there is no possibility of a sloppy reading in the first conjunct, the availability of that reading in the second conjunct of the Chinese sentence in (13a) has to be explained by conditions that are different from those for English VP-ellipsis.

- (12) a. John punished John's students, and Bill did, too.
 b. #Bill punished Bill's students.

² Thanks to Liejiong Xu (p.c.) for pointing out this possibility to me.

- (13) a. Zhangsan chufa-le Zhangsande xuesheng, Lisi ye chufa-le.
 punish-Perf student also punish-Perf
 'Zhangsan punished Zhangsan's student, and Lisi did, too.'
 b. Lisi punished Lisi's students.

Finally, sentences like (14) argue against the V-to-INFL raising analysis, since the INFL position is occupied by an auxiliary *hui* 'will', and it thus prevents the verb *tuijian* 'recommend' from raising to INFL. Because the verb cannot be raised to INFL, the only possible analysis is to say that sentences like (14) have a null object construction, and only the object, i.e., not the VP is elided. Although there is no VP-ellipsis in (14), the sloppy reading is available for the second conjunct in (14). Hence, Li concludes that the NOC sentences in Chinese are different from those in English, and have to be analyzed as non-VP-ellipsis constructions, e.g. the null object construction or NOC.

- (14) Zhangsan hui tujian zijide xuesheng, Lisi ye hui tujian.
 will recommend self's student also will recommend
 'Zhangsan will recommend his own students, and Lisi will, too.'

2. Problems for Li (1998)

For (5a), Chinese reflexive *ta-ziji* differs from English *himself* in allowing long-distance antecedents in non-contrastive contexts, as exemplified in (15) (Pan 1997, 1998).

- (15) Zhangsan zhidao zheben shu hai-le ta-ziji.
 know this-CL book hurt-Perf he-self
 'Zhangsan knew that this book hurt him.'
 (i) Know'(Zhangsan', $\lambda x[x \text{ hurt Zhangsan}'](\text{zheben-shu}')$)
 (ii) Know'(Zhangsan', $\lambda x[\text{zheben-shu}' \text{ hurt } x]$)
 (iii) $\lambda x[x \text{ knew that zheben-shu}' \text{ hurt } x](\text{Zhangsan}')$
 (16) Ni wen ta-ziji qu.
 you ask he-self go
 'Go ask HIMSELF.'

Even the first conjunct *Zhangsan piping-le ta-ziji* in (6) can have a reading that gives rise to the strict reading: $\lambda x[x \text{ criticized Zhangsan}'](\text{Zhangsan}')$.

Actually, English does allow strict readings for anaphors, as shown below:

- (17) John_i defended himself_i against the accusation better than his_i lawyer did.

For (5b), we think the relevant reading is possible. It will be much clearer if we change the VP into *zhidao bici de quedian* 'knew each other's flaws'.

- (10') Meidui Zhongguo fufu zhidao bicide quedian, meidui Deguo fufu
 Every-CL China couple know each-other's weakness every-CL German
 couple
 ye zhidao.
 also know
 Possible: Every German couple knew each other's weakness.

For (5c), we don't think it is possible to violate the locality constraint. Even we accept the fact that Chinese NOC sentences do not exhibit the locality effect, as shown in (11), this does not necessarily constitute a problem to the VP-ellipsis analysis of NOC. This is because bare reflexive *ziji* 'self' can have long-distance antecedents and always induces a sloppy reading (Pan 1997, *inter alia*).

- (18) Zhangsan renwei Lisi na-zou-le zijide fenshu, Wangwu ye zheyang renwei.
 think take-away-Perf self score also so think
 'Zhangsan thinks that Lisi took away his score, and Wangwu does so, too.'

One possible reading for the first conjunct in (18) is λx [x thinks that Lisi took away x's score](Zhangsan'), so the second conjunct in (18) will have a similar property applying to *Wangwu*', i.e. λx [x thinks that Lisi took away x's score] (*Wangwu*'). If we take the relevant property ' λx [x thinks that Lisi took away x's score]' as derived from λx P(x. x's score) using the higher order unification method (Pulman 1997), where P = thinks-that-Lisi-took-away'. Then for the first conjunct of (11), we have λx P(x. x's child), where P = feed'. If we say that Chinese allows the copied part from the first conjunct to be λx P(x. x's child) rather than λx P(x fed x's child), then by higher order unification, we can get P = think-that-Wu-ma-feed', namely that we have λx [x thinks that Wu ma fed x's child] applied to *Susan*'. This is a sloppy reading that does not observe the locality effect, but it is compatible with the VP-ellipsis of NOC. Hence, sentences like (11) is not necessarily a counterexample to the VP-ellipsis of NOC.

For (5d), Li claims that one can get a sloppy-like reading. It seems to me that there is no way to get that reading semantically. If we take the empty object to be a pronominal, I see no way to get the claimed reading.

For (5e), sentences like (14) can only suggest that sloppy readings and V-to-INFL raising are not necessarily tied together, and they cannot argue against the VP-ellipsis of NOC. We can get the sloppy reading in (19) with the modal *hui* 'will', either taking a narrow or wide scope with respect to the lambda operator.

- (19) a. λx [x recommend x's students](Zhangsan')
 b. Zhangsan hui tujian zijide xuesheng, Lisi ye hui.
 will recommend self's student also will
 'Zhangsan will recommend his own students, and Lisi will, too.'

Chinese has modals like *hui*, *xiang* 'want', *yao* 'want'. When they are followed by a verb as in (19), they are real auxiliary verbs. These verbs do show the interpretation patterns of VP-ellipsis. Hence, we conclude that the strong claim given below is not correct, but the modest claim given below can be upheld for Mandarin Chinese.

Strong Claim: All NOC sentences are analyzed as VP-ellipsis

Modest Claim: NOC sentences can be analyzed as VP-ellipsis if V-to-INFL raising occurs, otherwise, they are analyzed as sentences with an empty pronominal object.

3. Parallel vs. Non-parallel Distinction and Sentence Interpretation

Kehler (1993) proposes a uniform discourse processing architecture to handle VP-ellipsis by revising the dichotomy between *ellipsis* (surface anaphora) vs. *Model Interpretive Anaphora* (deep anaphora) given by Sag and Hankamer (1984). He tries to

show that the distinction between parallel vs. non-parallel constructions plays a crucial role in the interpretation of VP-ellipsis. In a parallel construction (as exemplified by the sentential structure *A and B too*), there is only a syntactic (propositional) representation available, and the reconstruction of the elided VP in the second conjunct is subject to syntactic constraints such as Binding conditions A, C, etc. However, in non-parallel constructions such as *A but B*, *A because B*, *A better than B*, etc., neither a syntactic representation is necessary, nor do the syntactic constraints apply. Thus, parallel constructions are like ellipsis and can only access the propositional representation stored in the short-term memory, but the non-parallel ones are closer to the Model Interpretive Anaphora (MIA) and processed in the discourse model.

The crucial point of Kehler's proposal is as follows: only the propositional representation of the first conjunct in non-parallel constructions is integrated into the discourse model when the elided VP is reconstructed; and only the reconstruction in parallel constructions is subject to syntactic constraints.

With this proposal, Kehler can explain the following contrasts between the (a) and (b) sentences below:

- (20) a. This problem was to have been looked into, but obviously nobody did.
[look into the problem] (Kehler's (3))
b. *This agent retards embryonic development, and the growth cones were too.
(Kehler's (7))
- (21) a. The lawyer defended Bill better than he could have.
b. *The lawyer defended Bill and he did too. (Kehler's (39))
- (22) a. John defended himself against the accusation better than his lawyer did.
[defended John] (Kehler's (14))
b. ??John defended himself, and Bob did too.
[defended John] (Kehler's (14))
- (23) a. First person pronouns aren't very shiftable, although the plural ones can be.
(Kehler's (24))
b. *First person pronouns aren't very shiftable, and the plural ones also don't.
(Kehler's (25))
- (24) a. John read everything which Bill believes he did. (Kehler's (26))
b. *John read everything which Bill believes the claim that he did.
(Kehler's (27))
c. Which problem did you think John would solve because of the fact that Susan did. (Kehler's (29))

Sentences like (21b) and (22b) are ungrammatical or strange because of violations of Binding conditions C and A, respectively; this explanation holds only if we assume that the elided VPs are copied from the first conjuncts. Sentences (20b) and (23b) are ungrammatical because an appropriate syntactic VP cannot be reconstructed. The corresponding grammatical cases are non-parallel constructions. They are interpreted after the propositional representation of the first conjunct has been integrated into the discourse model, so they are not subject to the relevant syntactic constraints. Sentences (24a, b, c) are explained with the assumption that *which* does not specify an interclausal coherence link, so (24a, b) are parallel constructions while (24c) is not. Thus, the subjacency constraint does apply to (24a, b), but not to (24c). Since there is a subjacency violation in (24b), it is ungrammatical. Note that (24c) is grammatical, as subjacency does not apply to it.

Although Kehler's analysis seems promising and superior to Sag and Hankamer's in the sense that within the ellipsis (surface anaphora) domain, a further distinction must

be made between parallel vs. non-parallel constructions. I will argue in this paper that the apparent parallel vs. non-parallel distinction is not correct and thus inadequate to handle all the cases of VP-ellipsis. Although I will not say anything about the cases in (24), I will show that the cases in (20) and (23) are not strict parallel constructions and their corresponding parallel constructions are grammatical if they observe the semantic and discourse constraints for parallel constructions with *too* in general (not just for VP-ellipsis), as proposed by Kaplan (1984). Furthermore, the ones in (21) and (22) can be explained with a discourse approach, the semantics of *too*, and the acknowledgement of the fact that bound variable and referential readings of pronouns are subject to different constraints; the former obeys a syntactic constraint like C-command (Reinhart 1976), but the latter is interpreted in the discourse model. Therefore, it is the semantic and discourse factors but not the parallel vs. non-parallel (syntactic and semantic) distinction that constrains the contrasts, as exemplified by the sentences in (20-23).

There are grammatical sentences similar to the ungrammatical ones in (20), (21), and (23).

- (20) b'. This agent retards embryonic development, and the growth cones do too.
 (21) b'. The lawyer defended Bill_i and he_i HIMSELF did, too.
 b". The lawyer defended Bill_i and HE_i did, too.
 (23) b'. First person pronouns aren't very shiftable, and the plural ones are also not.

One may argue that sentences (20b') and (23b') are grammatical because the reconstructed VP in the second conjunct is the exact copy of the VP in the first conjunct, i.e. it is the syntactic parallelism that improves the grammaticality of these sentences. However, as discussed in Kaplan (1984), the constraint on the *and ... too* construction involves semantic and discourse factors and it does not only apply to VP-ellipsis.

Kaplan (1984) argues that *too*'s obligatoriness in discourse with one semantic difference between the conjuncts stems from its discourse function, which is to emphasize the similarity between the members of a pair of contrasting items. This applies to both VP-ellipsis and non-VP-ellipsis constructions as shown below:

- (25) Jo had fish and Mo had soup (*too).
 (26) Jo had fish and Mo did *(too).
 (27) Jo wrote the article to debunk Chomsky's claim, and she wrote it to to improve her tenure file *(too).

Sentence (25) has two differences and *too* cannot occur with it, but sentences (26) and (27) have only one difference and *too* is obligatory. This contrast shows that in the sentential conjunction construction with *too*, only one semantic difference is allowed. Sentence (27) also indicates that the *and ... too* construction, i.e. Kehler's parallel construction, allows MIA, for both *she* and *it* in the second conjunct are MIA's, and their antecedents are both in the first conjunct.

This suggests that Kehler's claim is not correct in the sense that in parallel constructions the only available structure is the propositional representation and both conjuncts are integrated into the discourse model at the same time; this also implies that the first conjunct must be integrated into the discourse model before the second one is processed, so we cannot use syntactic constraints to explain the contrasts in (20), (21), and (23), as suggested by Kehler.

Another problem for Kehler is sentences (21b', b'') which differ from (21b) only with an intensive *himself*. The insertion of *himself* should not change the parallel nature of the sentence, so according to Kehler, the elided VP must be the exact copy of the first

VP. He would predict a binding condition C violation, but sentences (21b', b'') are not ungrammatical. The grammaticality of (21b', b'') can be easily explained if the reconstructed VP is interpreted in the discourse model, i.e. the first conjunct has already been integrated into the discourse model. As Baker (1995) shows, the head noun that the intensive *himself* is attached to must be the central role or character in the plot (discourse). In the situation specified by (21b'), the central character is *Bill*, thus, *he* should refer to it because of the intensive *himself*.

Thus sentences like (21b') and (27) suggest that the distinction between parallel and non-parallel constructions is not the right factor to explain the contrasts exemplified in (20), (21), and (23). It is the discourse and semantic factors, e.g. the discourse function of *too*, that play a crucial role in (20), (21), and (23).

The contrast in (22) cannot be explained simply with the discourse model. The two basic readings of pronouns must be recognized to explain the contrast. Pronouns have both bound variable and referential usage; the bound variable usage corresponds to the sloppy reading in VP-ellipsis. The strange reading in (22b) is the strict reading. The strangeness of (22b) can be explained as follows: in the first conjunct only the bound variable reading is possible because of reflexives which have the bound variable usage only, but the elided VP is interpreted as strict, i.e. the second conjunct is forced to be the referential reading. However, *too* only allows one semantic difference which is already been taken by the contrasted subjects. Since the two conjuncts are interpreted differently, as shown below, a second difference exists.

- (28) a. $\lambda x[x \text{ defended } x](\text{John}')$
 b. $\lambda x[x \text{ defended John}](\text{Bob}')$

(28) shows a bound variable interpretation for the reflexive *himself* in (22b), whereas (28) is a referential interpretation of the reflexive. In other words, (28) is the sloppy reading for the second clause in (22b), but (28) the strict reading. Since there are two semantic differences between (28a) and (28b): *John* vs. *Bob*, and *x defended x* vs. *x defended John*. Hence, (22) violates the one difference constraint of *too*. Note that (22b) is strange but not ungrammatical because pragmatics and the discourse are biased towards the intended reading, so the sentence is understandable, but does not obey the constraint of *too*. Also note that the Chinese counterparts allow the strict reading for the second conjunct because Chinese reflexive *ta-ziji* can be interpreted referentially, as pointed out earlier. Hence there will be only one difference in the Chinese case, namely the subject.

Sentences like (20) and (23) can be explained similarly by the semantic and discourse constraints of *too*.

Therefore, it is the semantic and discourse factors but not the parallel vs. non-parallel (syntactic and semantic) distinction that constrains the contrasts, as exemplified by sentences in (20-23). It is not the pure syntactic identity that is involved in VP-ellipsis.

To summarize, I have shown that Kehler's parallel vs non-parallel distinction is not correct and there are alternative ways to explain the contrasts pointed out by him. The contrasts in (20-23) are better explained in the discourse model (deep anaphora) as given in Sag and Hankamer.

4. Conclusion

This paper has discussed the issues related to VP-Ellipsis and null object constructions in Mandarin Chinese. Pace Li (1998), but in consistence with Huang (1988a, b, 1991), I have argued that it is not true that no null object construction (NOC) sentences can be analyzed as VP-ellipsis in Mandarin Chinese, namely that some NOC sentences can be interpreted as VP-ellipsis, and others need to be interpreted as an empty pronoun, depending on whether the V-to-INFL raising occurs or not, and I have shown that the fact that the interpretation patterns of the relevant sentences deviate from those of their English counterparts is not because there is no VP-ellipsis in Chinese but because Chinese pronouns and reflexives exhibit some special properties. The different behavior of Chinese sentences is due to some special properties of Chinese pronouns and reflexives. I have also argued that the parallel vs. non-parallel distinction made by Kehler (1993) is not adequate to account for the VP-ellipsis sentences in English. The involved level must be the discourse model, not just the pure syntactic identity, as suggested in the literature. Hence, the coordination construction in neither English nor Chinese is constrained by the so-called syntactic condition which is based on the parallel vs. non-parallel distinction, as proposed in Kehler (1993), and discourse factors play a crucial role in the interpretation of coordination construction in the two languages concerned.

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