

NP Ellipsis and Parameters: An Acquisitional Perspective

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1. Introduction

Within the Principles-and-Parameters approach to UG (including the recent Minimalist Program), the process of language acquisition is interpreted as the process of fixing the values of parameters in one of the permissible ways (see e.g. Chomsky 1995:6). Under this view, the data from child language can (in principle) be especially valuable, in evaluating the parameters proposed through the investigations of comparative syntax. The present study attempts to demonstrate this point through the examination of child Japanese.

In this study, I present preliminary evidence from my own experiment in progress that the grammar of young Japanese-speaking children permits the sloppy-identity interpretation of phonologically null arguments. This finding is in conformity with recent, minimalist approaches to Hale's (1983) Configurationality Parameter that postulate a tight connection between the possibility of noun-phrase ellipsis and the availability of scrambling (Oku 1998, Saito 2003).

2. The Configurationality Parameter

It has been observed at least since the seminal work by Hale (1983) that free word-order languages (or scrambling languages) tend to allow extensive use of null anaphora. Non-configurational languages such as Warlpiri and Japanese show both of these properties, while configurational languages such as English exhibit neither of them. The free word-order property of Warlpiri and Japanese is illustrated in (1) and (2), and the productive use of null arguments in these languages is exemplified in (3) and (4).

(1) Free word-order property in Warlpiri (Hale 1983:6):

- | | | | | | |
|----|-------------------------------------|------------|----------------------|-----------------|----------------------|
| a. | Ngarrka-ngku | ka | wawirri | panti-rni. | |
| | <i>man</i> | <i>Erg</i> | <i>Aux</i> | <i>kangaroo</i> | <i>spear Nonpast</i> |
| | 'The man is spearing the kangaroo.' | | | | |
| b. | Wawirri | ka | panti-rni | ngarrka-ngku. | |
| | <i>kangaroo</i> | <i>Aux</i> | <i>spear Nonpast</i> | <i>man</i> | <i>Erg</i> |
| c. | Panti-rni | ka | ngarrka-ngku | wawirri. | |
| | <i>spear Nonpast</i> | <i>Aux</i> | <i>man</i> | <i>Erg</i> | <i>kangaroo</i> |

(2) Free word-order property in Japanese:

- | | | | |
|----|-----------------------|----------------------|-------------|
| a. | Ken-ga | sono hon-o | yonda. |
| | <i>Ken-Nom</i> | <i>that book-Acc</i> | <i>read</i> |
| | 'Ken read that book.' | | |

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- b. Sono hon-o Ken-ga yonda.
that book-Acc Ken-Nom read
- c. Eri-ga [Ken-ga sono hon-o yonda to] omotteiru.
Eri-Nom Ken-Nom that book-Acc read that think
 ‘Eri thinks that Ken read that book.’
- d. Sono hon-o [Eri-ga [Ken-ga yonda to] omotteiru.]
that book-Acc Eri-Nom Ken-Nom read that think

(3) Productive use of null arguments in Warlpiri (Hale 1983:7):

- a. Ngarrka-ngku ka wawirri panti-rni.
man Erg Aux kangaroo spear Nonpast
 ‘The man is spearing the kangaroo.’
- b. Panti-rni ka.
spear Nonpast Aux
 ‘He/she is spearing him/her/it.’

(4) Productive use of null arguments in Japanese (Takahashi, in press):

- Speaker A: Taroo-wa doo simasita ka?
Taroo-Top how did Q
 ‘What happened to Taroo?’
- Speaker B: *e* ie-ni kaerimasita.
home-to returned
 ‘(He) returned home.’
- Speaker C: Sensei-ga *e* sikarimasita.
teacher-Nom scolded
 ‘The teacher scolded (him).’

In order to account for the cross-linguistic correlation between free word-order and the availability of productive null arguments, Hale (1983) proposed that UG is equipped with the Configurability Parameter, which regulates the application of the Projection Principle in the syntactic component of the grammar. Hale’s formulation of the parameter is given in (5), and an informal version of the Projection Principle is stated in (6). LS and PS refer to lexical structure (the argument structure of a predicate) and phrase structure, respectively.

(5) *The Configurability Parameter* (Hale 1983:26):

- (a) In configurational languages, the Projection Principle holds of the pair (LS, PS).
 (b) In non-configurational languages, the Projection Principle holds of LS alone.

(6) *The Projection Principle* (Chomsky 1981:29):

Representations at each syntactic level (i.e., LF and D- and S-structure) are projected from the lexicon, in that they observe the subcategorization properties of lexical items.

(7) *The θ -Criterion* (Chomsky 1981:36):

Each argument bears one and only one θ -role, and each θ -role is assigned to one and only one argument.

Under Hale’s parametric system, the Projection Principle does not hold at the strictly syntactic levels in non-configurational languages. This means that the θ -Criterion (7) need not be satisfied at D-structure or S-structure. Then, in languages like Warlpiri and Japanese, arguments need not be generated in their D-structure positions, and they need not be generated syntactically at all. Base-generation in non-D-structure position yields free word-order, and absence of generation leads to productive use of null arguments.

3. Minimalist Approaches to the Configurationality Parameter

Even though Hale's (1983) parametric proposal was quite significant in that it was the initial attempt to capture the cross-linguistic connection between free word-order and productive null arguments, it cannot be maintained in its original form within the current Minimalist conceptions of syntax. The Minimalist framework dispenses with D-structure, S-structure, and the associated principles of θ -Criterion and Projection Principle, due to their lack of conceptual necessity (Chomsky 1995:187-8). Since the Configurationality Parameter in (5) crucially refers to the Projection Principle, this parameter needs to undergo Minimalist reformulation. In order to maintain the basic insight of Hale's parametric proposal, attempts have already been made to refine and reformulate the Configurationality Parameter within the Minimalist framework. In the following we review two such attempts, Oku (1998) and Saito (2003).¹

3.1 Noun Phrase Ellipsis

Through a detailed analysis of Japanese, Oku (1998) and Saito (2003) propose that a Minimalist version of the Configurationality Parameter should relate the availability of scrambling in Japanese with the possibility of *noun-phrase ellipsis* (NP-ellipsis). NP-ellipsis is responsible for the sloppy-identity reading of null arguments in sentences like (8). Having (8a) as the discourse antecedent, (8b) may mean either that Mary discarded John's letter (the strict-identity interpretation) or that Mary discarded Mary's letter (the sloppy-identity interpretation).

- (8) a. John-wa [zibun-no tegami-o] sute-ta.
John-Nom self-of letter-Acc discard-Perf
 'John₁ threw out self₁'s letters.'
- b. Mary-mo [e] sute-ta.
Mary-also discard-Perf
^{OK}*strict-identity interpretation:* 'Mary discarded John's letter.'
^{OK}*sloppy-identity interpretation:* 'Mary discarded Mary's letter.'
- (Otani & Whitman 1991:346-7)

As can be shown by the English examples in (9) and (10), the sloppy interpretation is possible with ellipsis but not with pronouns.

- (9) Peter likes his picture, and Joan does, too.
^{OK}*strict-identity interpretation:* 'Joan likes Peter's picture.'
^{OK}*sloppy-identity interpretation:* 'Joan likes Joan's picture.'
- (10) Peter likes his picture, and Joan likes it, too.
^{OK}*strict-identity interpretation:* 'Joan likes Peter's picture.'
^{*}*sloppy-identity interpretation:* 'Joan likes Joan's picture.' (Saito 2003:337)

In addition, the following contrast between Japanese and Spanish suggests that the sloppy-identity reading is not a property of phonologically null arguments in general. While Japanese null subjects exemplified in (11b) permit the sloppy interpretation, the Spanish counterpart in (12b) allows only the strict interpretation. That is, the Japanese example (11b) can mean either that John also thinks that Mary's proposal will be accepted, or that John also thinks that John's proposal will be accepted. In contrast, the Spanish example in (12b) does not permit the latter type of interpretation, and can only be interpreted as meaning that Juan believes that Maria's proposal will be accepted.²

1. See Boeckx (2003) for an alternative minimalist reformulation of the Configurationality Parameter.

2. The contrast between Japanese and Spanish would pose a potential problem to Hoji's (1998) analysis, which claims that the apparent sloppy-identity reading in Japanese stems from the indefinite use of null arguments. See Oku (1998) and Takahashi (in press) for arguments against Hoji's approach.

- (11) a. Mary-wa [zibun-no teian-ga saiyo-sare-ru to] omotteiru.
Mary-Top self-Gen proposal-Nom accept-Pass-Pres Comp think
 ‘Mary₁ thinks that her₁ proposal will be accepted.’
 b. John-mo [e saiyo-sare-ru to] omotteiru.
John-also accept-Pass-Pres Comp think
 Lit. ‘John also thinks that [e] will be accepted.’
- (12) a. Maria cree [que su propuesta será aceptada] y
Maria believes that her proposal will-be accepted and
 ‘Maria₁ believes that her₁ proposal will be accepted and ...’
 b. Juan también cree [que pro será aceptada]
Juan too believes that will-be accepted
 Lit. ‘Juan also believes that *pro* will be accepted.’

(Oku 1998:305)

The observations reported in (9)-(12) suggest that the sloppy-identity interpretation of the Japanese example (8b) cannot be derived from a phonologically empty pronoun and should be attributed to some form of ellipsis.

Otani & Whitman (1991) claim that the sloppy reading of Japanese null objects is obtained by an ellipsis of the VP node whose head verb has moved out of it via overt V-to-T raising. An informal illustration of their derivation for (8b) is given in (13).

- (13) Mary-mo [_{VP} zibun no tegami o ~~t_v~~] sute-ta.
Mary-also self-of letter-Acc discard-Perf
-

Oku (1998) and Kim (1999) argue extensively against such a VP-ellipsis account, however.³ One piece of evidence against the VP-ellipsis analysis comes from a certain interpretive difference between null objects in Japanese and the VP-ellipsis in English (Oku 1998:304).

- (14) a. Bill-wa kuruma-o teinei-ni aratta.
Bill-Top car-Acc carefully washed
 ‘Bill washed the car carefully.’
 b. John-wa [e] arawa-nakat-ta.
John-Top wash-Not-Past
 Lit. ‘John didn’t wash [e].’

- (15) a. Bill washed the car carefully, but
 b. John didn’t.

In the case of the Japanese sentence (14b), it is very hard to obtain the interpretation that John did not wash the car carefully: The most natural interpretation of this example is that John did not wash the car at all. In contrast, for the English example (15b) which involves VP-ellipsis, the most prominent reading is that John did not wash the car carefully, namely that John did wash the car but not in a careful manner. If the same operation of VP-ellipsis were involved both in (14b) and in (15b), a serious question would arise as to why the adverb cannot be interpreted within the elliptic site in the Japanese example (14b). In order to account for the above contrast between Japanese and English, Oku (1998) propose that (14b) is derived through an ellipsis of a smaller constituent, namely an ellipsis of the object NP. According to Oku (1998), such NP-ellipsis is the source of the sloppy-identity interpretation for the example in (8).

3. See Takahashi (in press) for a summary of arguments against the VP-ellipsis analysis of Japanese null objects.

- (16) a. Bill-wa [NP kuruma-o] teinei-ni aratta.
Bill-Top car-Acc carefully washed
 b. John-wa [~~NP kuruma-o~~] arawa-nakat-ta.
John-Top car-Acc wash-Not-Past
- (17) a. John-wa [NP zibun-no tegami-o] sute-ta.
John-Nom self-of letter-Acc discard-Perf
 b. Mary-mo [~~NP zibun-no tegami-o~~] sute-ta.
Mary-also self-of letter-Acc discard-Perf

In sum, we have seen evidence that the sloppy-identity interpretation of Japanese null arguments stems neither from a phonologically empty pronoun nor from VP-ellipsis; it should stem from NP-ellipsis. Then, a sensible next question is why NP-ellipsis is permitted in Japanese but not in English or in Spanish. In light of a small cross-linguistic survey summarized in (18), Oku (1998) and Saito (2003) argue that the availability of NP-ellipsis in a given language is tightly connected to the availability of scrambling, and that both of these properties follow from the Minimalist version of the Configurationality Parameter.

(18) Cross-linguistic Survey:

	Null Arguments?	Sloppy Interpretation of Null Arguments?	Scrambling?
Japanese	YES	YES	YES
Korean	YES	YES	YES
Spanish	YES (Null subjects only)	NO	NO
English	NO	N/A	NO

3.2 Oku's (1998) Parametric Proposal

Oku (1998) establishes the connection between scrambling and NP-ellipsis by making use of the parameter proposed by Bošković & Takahashi (1998), which can be called the Parameter of θ -feature Strength.

- (19) *The Parameter of θ -feature Strength*: θ -features are {strong, weak}.

According to Bošković & Takahashi (1998), θ -features of a verb are weak in Japanese, while they are strong in non-scrambling languages like English and Spanish. Given their weak nature, θ -features of Japanese verbs need not be checked in overt syntax. This property of Japanese makes it possible for an argument to be base-generated in a 'scrambled' position, as shown in (20a). In the LF component, the 'scrambled' object undergoes a lowering operation and merges with the predicate, in order to check the selectional features of the verb.

- (20) a. *In overt syntax*:
 [TP Ken-o [TP Taroo-ga [CP Hanako-ga [VP sikatta to] itta]]
Ken-Acc Taroo-Nom Hanako-Nom scolded that said
 Lit. 'Ken, Taroo said that Hanako scolded.'
- b. *In the LF component*:

 [TP [TP Taroo-ga [CP Hanako-ga [VP **Ken-o** sikatta] to] itta]]
Taroo-Nom Hanako-Nom Ken-Acc scolded that said

Such a derivation is not available in English or Spanish, since θ -features in these languages are strong and hence they must be checked in overt syntax soon after verbs are introduced into the derivation.

Building on Bošković & Takahashi's (1998) LF analysis of scrambling, Oku (1998) argues that the possibility of NP-ellipsis in Japanese also follows from the weakness of θ -features. Since θ -features of Japanese verbs need not undergo checking in overt syntax, an argument position can be literally absent in Japanese, as shown in (21a). At LF, the second clause in (21) comes to have a licit transitive configuration through the LF-copying of an antecedent NP.

(21) a. *In overt syntax:*

John-wa [VP [zibun-no tegami-o] sute-ta.] Mary-mo [VP _____ sute-ta.]
John-Nom self-of letter-Acc discard-Perf Mary-also discard-Perf

b. *In the LF component:*

John-wa [VP [zibun-no tegami-o] sute-ta.] Mary-mo [VP [zibun-no tegami-o] sute-ta.]
John-Nom self-of letter-Acc discard-Perf Mary-also self-of letter-Acc discard-Perf

↓ *LF-Copy* ↓

This way, Oku (1998) attributes both the availability of scrambling and that of NP-ellipsis to a single parametric property of Japanese: the property that θ -features are weak.

3.3 Saito's (2003) Parametric Proposal

Saito (2003) proposes a derivational reformulation of the Configurability Parameter, placing the parameter in the way Merge (either as an independent operation or as part of Move) constructs phrase structure.⁴

(22) *The Derivational Configurability Parameter* (Saito 2003:325):

Configurational languages are subject to (a)-(b), but Japanese-style non-configurational languages are not.

(a) Merge applies only to satisfy selectional requirements. (Merge implies selection.)

(b) Selectional requirements must be satisfied by Merge. (Selection implies Merge.)

Since (22a) is off in Japanese, a phrase can be initially merged at a position where it is selected, and then merged again at a position where it is not. This is instantiated as scrambling, as shown in (23).

(23) **Sono hon-o** [Eri-ga [Ken-ga _____ yonda to] omotteiru]
that book-Acc Eri-Nom Ken-Nom read that think
 Lit. 'That book, Eri thinks that Ken read.'

↓ *Merge without Selection* ↓

Since (22b) is also off in Japanese, the selectional requirement of a predicate can be satisfied by means other than Merge, for example, by the LF-copying of an antecedent into an ellipsis site. Since the operation that underlies NP-ellipsis is permitted, NP-ellipsis becomes possible in Japanese. Under Saito's parametric system, English has neither scrambling nor NP-ellipsis because it is subject to both (22a) and (22b).

3.4 Summary

Even though the parametric system proposed by Oku (1998) and the one proposed by Saito (2003) differ in important respects, these theories share the fundamental proposal that the Minimalist version of the Configurability Parameter should establish a tight connection between the availability of scrambling and the possibility of NP-ellipsis. My experiment to be presented below is an attempt to

4. Saito (2003) suggests that this parameter is also responsible for the possibility of the light-verb construction in Japanese, in addition to scrambling and NP-ellipsis. See Saito (2003) for a detailed discussion.

evaluate this basic insight of their proposals, by investigating the acquisition of Japanese.

4. Prediction for Child Japanese

If the parametric proposals of Oku (1998) and Saito (2003) are on the right track, it is predicted that Japanese-speaking children should acquire knowledge of scrambling and knowledge of NP-ellipsis at the same time.⁵ Previous literature reports intriguing findings concerning the acquisition of Japanese scrambling, which we briefly review here.

In the late 1970s, Hayashibe (1975) examined how Japanese-speaking children interpret sentences with the canonical SOV order and those with the scrambled OSV order, illustrated in (24). The task was act-out, in which children were asked to act out the meaning of the sentence by manipulating toy animals placed in front of them.

- (24) a. SOV: Kamesan-ga ahirusan-o osimashita.
 turtle-Nom duck-Acc pushed
 ‘A turtle pushed a duck.’
 b. OSV: Ahirusan-o kamesan-ga osimashita.
 duck-Acc turtle-Nom pushed

The results indicated that there seems to be a period in development, sometimes up to five years old, where children tend to interpret scrambled sentences like (24b) as if their first NP is the subject (agent) and their second NP is the object (theme). This finding raised the possibility that the grammar of Japanese-speaking children lacks scrambling and this operation is acquired fairly late.

Otsu (1994) pointed out the possibility that even though the child grammar is equipped with the scrambling operation, children may have trouble creating the discourse context by themselves that makes the scrambled sentence sound natural. Specifically, he suggested that the scrambled NP is usually established as a discourse topic, and hence that children cannot comprehend scrambled sentences in the absence of any discourse context. In order to confirm this possibility, Otsu conducted an experiment in which each test sentence was preceded by another sentence that establishes the scrambled NP as the discourse topic. An example is given in (25).

- (25) Kooen-ni ahirusan-ga imashita.
 park-in duck-Nom is-Pol-Past
 Sono ahirusan-o kamesan-ga osimashita.
 the duck-Acc turtle-Nom push-Pol-Past
 ‘There was a duck in the park. A turtle pushed the duck.’

The results showed that three- and four-year-old children had virtually no difficulty in understanding OSV sentences, once the discourse context was provided. This finding indicates that the knowledge of scrambling is acquired early, even though the knowledge relevant to creating the discourse context for scrambled sentences may take more time to develop. Early acquisition of scrambling in Japanese is further confirmed by Murasugi & Kawamura (2005). In addition to children’s comprehension of scrambled sentences, Murasugi & Kawamura tested the acquisition of the reconstruction property of scrambling, one of the syntactic properties associated with A'-movement. The sentences they used are exemplified in (26).

5. Saito (2003) speculates that Chinese, which permits sloppy interpretation of null objects without having the scrambling operation, might be a language that is subject to (22a) but not to (22b). This analysis suggests that two “sub-parameters” in (22) can be independently set, and hence that this prediction of concurrent acquisition may not directly follow from the parameter in (22). I will set aside this possibility, based on Takahashi’s (in press) proposal that sloppy interpretation in Chinese should be analyzed not as an instance of NP-ellipsis but as an instance of VP-ellipsis (Huang 1991).

- (26) a. SOV: Ahiru-ga₁ usi -o [zibun-no₁ niwa-de] oikaketa.
duck -Nom cow-Acc self-Gen garden-at chased
 ‘The duck chased the cow at the garden of himself.’
- b. OSV: Usi-o₁ [zibun-no₂ niwa-de]₃ ahiru-ga₂ t₁ t₃ oikaketa.
cow-Acc self-Gen garden-at duck-Nom chased
 ‘The cow, at the garden of himself, the duck chased.’

In (26a), the subject-oriented anaphor *zibun* is c-commanded and hence is bound by the subject NP *ahiru-ga*. In (26b), this c-commanding requirement is satisfied through reconstruction: The anaphor is properly licensed at its initial position. Using an act-out task, Murasugi & Kawamura showed that even three-year-olds have knowledge concerning the reconstruction property of scrambling. This finding is quite significant in that it suggests that the children had indeed acquired scrambling as a movement operation.

In light of the above observations by Otsu (1994) and Murasugi & Kawamura (2005) that Japanese-learning children acquire scrambling before or around the age of three, the Minimalist version of the Configurationality Parameter should predict (27):

- (27) *Prediction for Acquisition:*
 Japanese-speaking children aged three and four should already have knowledge of NP-ellipsis.

5. Experiment

An experiment was designed in order to examine Japanese-speaking children’s knowledge of NP-ellipsis. Six children have been tested so far (mean age: 4;5). The experiment employed a modified version of the Truth-Value Judgment Task (Crain & Thornton 1998). In this task, each child was told a story, which was accompanied by a series of pictures presented on a laptop computer. At the end of each story, a puppet described verbally what he thought had happened in the story. The task for the child was to judge whether the puppet’s description was true or false, by feeding him either a nice strawberry or a horrible green pepper. The experiment contained (i) two sentences with null objects, and (ii) two sentences with overt pronouns, in order to determine whether children allow the sloppy interpretation for null objects while disallowing this interpretation for overt pronouns. The test sentences are listed in (28).

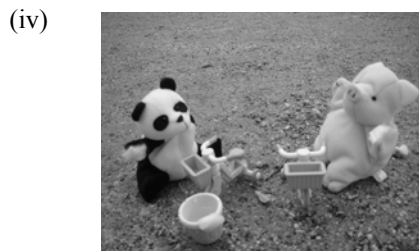
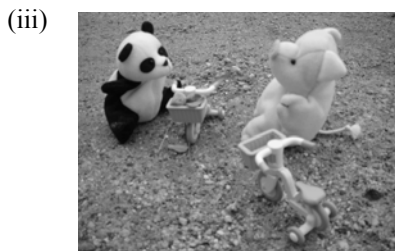
- (28) *Test Sentences:*
- a. Risu kun-ga [zibun-no ehon-o] yondeiru yo.
squirrel-Nom self-Gen picture book-Acc reading Excl
 ‘A squirrel₁ is reading his₁ picture book.’
 Zou san-mo [e] / **sore-o** yondeiru yo.
elephant-also it-Acc reading Excl
 ‘An elephant is also reading [e]/it.’
- b. Usagi san-ga [zibun-no isu-o] hakondeiru yo.
rabbit-Nom self-Gen chair-Acc carrying Excl
 ‘A rabbit₁ is carrying her₁ chair.’
 Buta san-mo [e] / **sore-o** hakondeiru yo.
pig-also it-Acc carrying Excl
 ‘A pig is also carrying [e]/it.’
- c. Zou san-ga [zibun-no oyatsu-o] tabeteru yo.
elephant-Nom self-Gen snack-Acc eating Excl
 ‘An elephant₁ is eating his₁ snack.’
 Penguin san-mo [e] / **sore-o** tabeteru yo.
penguin-also it-Acc eating Excl
 ‘A penguin is also eating [e]/it.’

- d. Panda san-ga [zibun-no sanrinsya-o] aratteru yo.
panda-Nom self-Gen tricycle-Acc washing Excl
 ‘A panda₁ is washing his₁ tricycle.’
 Buta san-mo [e] /sore-o aratteru yo.
pig-also it-Acc washing Excl
 ‘A pig is also washing [e]/it.’

The story for (28d) goes as follows:

(29) *A Sample Story:*

Today, a panda and a pig enjoyed riding on their favorite tricycles. Now they decided to wash them. The panda said, “Oh! My tricycle is very dirty.” The pig said, “Shall I help you wash your tricycle?” The panda replied, “No, thanks. I will try to do it by myself, so you can work on your own.” They started washing their favorite tricycles.



The results are summarized in (30).

- (30) *Results:*
 Sloppy-identity reading of null-object sentences: 92% acceptance (11/12)
 Sloppy-identity reading of overt pronouns: 92% rejection (11/12)

Even though preliminary, these results clearly indicate that young Japanese-speaking children permit the sloppy-identity interpretation for null-object sentences, which in turn suggests that knowledge of NP-ellipsis is already in their grammar. This finding is consistent with the prediction of the minimalist versions of the Configurability Parameter proposed by Oku (1998) and Saito (2003), and hence lends acquisitional support to this approach.

6. Conclusion

Even though the results are still preliminary, there is a clear indication that the grammar of young Japanese-speaking children permits NP-ellipsis. This finding is in conformity with recent, minimalist approaches to Hale's (1983) Configurability Parameter that postulate a tight connection between the possibility of NP-ellipsis and the availability of scrambling. A broader implication of this study is that child language acquisition constitutes an important testing ground for the evaluation of parametric proposals (e.g. Snyder 2001, Sugisaki 2003).

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