Configurational Structures in Child Japanese: New Evidence

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1. Introduction

One of the major characteristics that distinguishes Japanese from languages like English is its property of free word order: For example, both Subject-Object-Verb (SOV) and Object-Subject-Verb (OSV) orders are permitted for a simple transitive sentence, and they mean virtually the same.

(1) a. SOV: Ken-ga sono hon-o yonda (koto)
Ken-Nom that book-Acc read fact
“(the fact that) Ken read that book.”

b. OSV: Sono hon-o Ken-ga yonda (koto)
that book-Acc Ken-Nom read fact

In order to account for why word order is flexible in a group of languages including Japanese, Hale (1980, 1983) proposed a highly influential theory known as the Configurationality Parameter, which partitioned the languages of the world into two types: configurational and nonconfigurational.

(2) a. Configurational Languages

S
 NP VP
 V NP

b. Nonconfigurational Languages:

S
 NP NP V

In configurational languages like English, sentences have the structure in which the object NP and the verb make up a phrasal unit of VP to the exclusion of the subject NP. In contrast, nonconfigurational languages like Japanese lack the VP node and hence are associated with a ‘flat’ structure, with all phrases being dominated directly by the S node. Since all phrases have a symmetrical relation with the verb, they are free to occur in any order without disturbing the meaning of the sentence.

However, later studies on Japanese syntax provided ample evidence that Japanese is just as configurational as English (e.g. Saito and Hoji 1983), which gave rise to the movement analysis of free word order (e.g. Saito 1985). The configurational approach to Japanese has in turn led to the view

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explicitly stated in Miyagawa and Saito (2008:6) that the configurational-nonconfigurational dichotomy does not exist, and that every language has the hierarchical structure shown in (2a). This view, if correct, suggests that the configurational structure with a VP node should directly follow from principles of UG.

If UG constrains every language to be configurational as the theory claims, we predict that the phrase structure in child Japanese should be hierarchically organized in the same way as the adult phrase structure. The goal of this study is to evaluate the validity of this prediction, by conducting an experiment with Japanese-speaking preschool children. The results would provide a new piece of evidence for the assumption that UG associates every language with a configurational syntactic structure.

2. Evidence for Configurational Structures in Japanese

In this section, we review some of the major arguments for the configurational nature of Japanese sentences, in order to set the stage for the discussion of child Japanese in subsequent sections.

Saito and Hoji (1983) demonstrated that Japanese sentences have a VP node, using data that involve weak crossover effects. In English, the contrast between (3a) and (3b) is analyzed in terms of the constraint on weak crossover stated in (4).

(3)  a. Who1 t1 loves his1 mother ?
    b. * Who1 does his1 mother love t1 ?

(4)  A variable cannot be the antecedent of a pronoun or an anaphor that it does not c-command.

(Saito and Hoji 1983:256)

In (3a), the variable (the trace of wh-movement) c-commands the pronoun, and hence the structure satisfies the constraint in (4). On the other hand, in (3b), the variable in the object position does not c-command the pronoun contained in the subject NP, given that there is a VP node in the structure of English sentences. Note that the existence of VP is crucial here: If there is no VP, the variable would c-command the pronoun not only in (3a) but also in the ill-formed example in (3b).

According to Saito and Hoji (1983), a contrast that is parallel to (3) can be observed even in Japanese:

(5)  a. Dare1-ga [ John-ga zibun1-no kuruma-o kowashita koto ]-ni    
        who-Nom John-Nom self-Gen car-Acc broke fact-at
        odorota no Q    
        surprised
        "Who1 was surprised at the fact that John broke his1 car?" (Hoji 1985:32)

    b. *[John-ga zibun1-no kuruma-o kowashita koto ]-ga dare1-o    
        John-Nom self-Gen car-Acc broke fact-Nom who-Acc
        odorokaseta no Q    
        surprised
        "*Who1 has the fact that John broke his1 car surprised?" (Saito and Hoji 1983:249)

Under the assumption that in-situ wh-phrases undergo movement in the LF component, the subject position in (5a) is occupied by a variable at LF, which c-commands the anaphor zibun contained in the object NP. If Japanese sentences indeed have a ‘flat’ structure without a VP node, we expect that the same c-command relation should hold for the LF representation of (5b): The variable in the object position would c-command the anaphor contained in the subject NP, and hence the sentence should be well-formed, contrary to the fact. The ungrammatical status of (5b) indicates that a VP node exists in Japanese, which in turn suggests that Japanese is just as configurational as English.

The second piece of evidence for the configurational structure in Japanese comes from the phenomenon called Case Marker Drop (CMD). It has been observed at least since Saito (1985) that the...
nominative Case-marker -ga and the accusative Case-marker -o exhibit a contrast with respect to their “deletability” in colloquial speech. As illustrated in (6), while the accusative -o can be dropped, the nominative -ga cannot. The examples in (7) show that this contrast goes away in scrambled sentences: neither -ga or -o can be deleted when the sentence has an OSV order. Even though there is still much to be discovered about CMD including its dialectal variations, the facts shown in (6) and (7) seem to be fairly straightforward for speakers of Tokyo dialect.

(6) a. SOV: Dare-ga nani-o yonda no?

   "Who read what?"

b. Dare-ga nani yonda no?

   "Who read what?"

c. * Dare nani-o yonda no?

(7) a. OSV: Nani-o dare-ga yonda no?

   "Who read what?"

b. * Nani dare-ga yonda no?

   "Who read what?"

c. * Nani-o dare yonda no?

In order to account for the phenomenon of CMD, Takezawa (1987:126) formulated the PF-deletion rule in (8).

(8) Case Marker Deletion (optional):
Delete o/ga if the NP containing them is adjacent and c-commanded by V in PF.

Since the object NP in (6a) is adjacent and c-commanded by V, the deletion of its accusative Case-marker satisfies the condition in (8). On the other hand, under the assumption that Japanese is configurational and has a VP node, the subject NP is never c-commanded by V, which accounts for the ungrammatical status of (6c) and (7c). Under the movement analysis of free word order, which is necessitated by the configurational approach to Japanese, the object NP that is moved to the sentence-initial position in (7b) should occupy a structural position higher than the subject NP, and hence the omission of its accusative Case-marker violates the c-command requirement in (8), resulting in the ungrammaticality of (7b). Thus, the basic set of data concerning CMD follows from the PF-deletion rule in (8) along with the assumption that Japanese sentences have a configurational structure.

Another piece of evidence for hierarchical structures in Japanese is based on the distribution of the formal noun -koto.2 Kuno (1976) observes that when the object NP of feeling, thinking, and saying verbs is human, -koto appears optionally after this NP (see also Sasaguri 1996 and Kishimoto 2004). What is crucial in the present context is that -koto can be attached only to the NP in the object position: The NP in the subject position does not qualify as a phrase to which this formal noun may be added. The examples in (9) illustrate this constraint with a verb that takes an accusative object, and those in (10) illustrate this constraint with a verb that takes a nominative object.

(9) a. Ken-ga Hanako-o aisite iru rasii.

   Ken-Nom Hanako-Acc loving is seem

   “It seems that Ken loves Hanako.”

b. Ken-ga Hanako-no-koto-o aisite iru rasii.

   Ken-Nom Hanako-Gen-fact-Acc loving is seem

2. This formal noun takes its origin from the contentful noun koto, which means ‘fact, thing’, but when used as a formal noun, it is devoid of its original meaning.
Given the contrast between (9b) and (9c), one might think that the distribution of -koto can be described in terms of Case: -koto cannot be attached to nominative NPs. However, the examples with a nominative object in (10) show that this is not a correct generalization. In (10b), the object NP is marked nominative, but still the sentence is well-formed. Thus, in order to characterize the distribution of -koto properly, it is necessary to postulate a structural distinction between the subject and the object NPs: Japanese sentences have a configurational structure, and -koto can be attached only to the NP that is in the complement position of V.

To briefly summarize this section, we have reviewed three pieces of evidence for the configurationality of Japanese: the existence of weak crossover effects, the contrast between nominative and accusative Case-markers with respect to CMD, and the contrast between subject and object NPs concerning the insertion of the formal noun -koto. In light of this background, we now turn to child Japanese.

3. Configurational Structures in Child Japanese: A Previous Study

If Japanese is indeed associated with a configurational syntactic structure, an important acquisitional question arises as to whether the phrase structure of Japanese-speaking children is also hierarchically organized in the same way as the adult phrase structure. In order to demonstrate that the answer to this question is positive, one needs to show that Japanese-speaking children can provide the same judgments as adults with respect to the phenomena discussed in the previous section. Otsu (1994) was the first study which attempted to do this. Taking into consideration the fact that the sentences involving weak crossover effects are too complex for children to understand, Otsu investigated whether children obey the structural condition on CMD given in (8).

In one of the two experiments he conducted, Otsu tested 10 three-year-olds and 10 four-year-olds using a sentence completion task. In this task, each child was presented a picture of someone involved in some action, such as a mother eating a watermelon, and was given the following instruction from the experimenter.

(11) Kono e-nitsuite ohanashi-shitekureru? Mazu, X-de hajimetene?
    this picture-about talk-for me first X-with begin
    “Can you tell me about this picture? First, can you begin with X?”

X in the instruction was either the word corresponding to the agent or the theme, as illustrated in (12). Note that no Case-marker was added to the word in X.

(12) Kono e-nitsuite ohanashi-shitekureru? Mazu, okaasan-de hajimetene?
    this picture-about talk-for me first mother-with begin

When the instruction is (12), the set of possible and impossible answers are as in (13). If X in the instruction is the theme (e.g. watermelon), the set of possible and impossible answers are as in (14).

    mother-Nom watermelon eating
    b. Okaasan-ga suika __ tabeteiru.
The results are summarized in Table 1, which succinctly show that children are able to make the same judgments as adults concerning CMD. These findings, according to Otsu (1994), suggest that hierarchically-organized phrase structure, along with the constraint on CMD, is already in the grammar of Japanese-speaking preschool children.

<table>
<thead>
<tr>
<th>(13)</th>
<th>(14)</th>
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<tbody>
<tr>
<td>a</td>
<td>b</td>
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<tr>
<td>33%</td>
<td>50%</td>
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Table 1: Results of Otsu’s (1994) Experiment

Even though Otsu’s (1994) findings clearly indicate that children have adult-like knowledge about CMD, recent developments in syntactic theory may suggest that these findings would not be convincing enough to demonstrate the configurationality of child Japanese. This concern stems from the minimalist account of the distribution of null complementizers (null C) in English proposed by Bošković and Lasnik (2003). The following examples illustrate the basic distribution of a null C: While a null C can appear as the head of a complement clause of a verb, it is barred from subject clause contexts, as shown by the contrast between (15) and (16). In addition, the sentence becomes ungrammatical if the complement clause with a null C is moved to the sentence-initial position, as exemplified in (17b).

(15)  a. It was widely believed [ that he liked linguistics ].
     b. It was widely believed [ C he liked linguistics ].
(16)  a. [ That he liked linguistics ] was widely believed.
     b. * [ C he liked linguistics ] was widely believed.
     b. * [ C John likes Mary ] Jane didn’t believe.

Bošković and Lasnik (2003) proposed an analysis of the distribution of the null C which crucially relies on PF adjacency: The null complementizer is an affix (Pesetsky 1992), and this affix must be adjacent to a host ([+V] elements) in PF in order for it to be phonologically realized. In (16b) and (17b), the null C and its host believe(d) are not adjacent in PF, and hence the affixation of the null C onto V fails.

Let us now recall the basic pattern of CMD in Japanese illustrated in (6) and (7). While the accusative -o in the object NP can be dropped, the nominative -ga in the subject NP cannot, and such omission of the accusative -o becomes impossible when the object NP is scrambled to the sentence-initial position. Then, the environments in which CMD is allowed is quite parallel to the environments in which a null C is licensed: In both cases, the element that undergoes deletion (the complementizer that in English and the accusative -o in Japanese) must be adjacent to a verb in order for it to be successfully omitted. This similarity between the deletion of that and the deletion of accusative Case-Marker would give rise to the possibility that CMD in Japanese can also be accounted for in terms of PF adjacency, without relying on the structural notion of c-command as in (8). If this alternative approach is on the right track, the phenomenon of CMD may have no bearing on the
question of whether Japanese sentences have a hierarchical structure. Consequently, children’s sensitivity to the constraint on CMD which Otsu (1994) revealed may not be relevant to the issue of whether child Japanese is configurational or not. Thus, a new piece of evidence is called for in order to guarantee that the phrase structure of Japanese-speaking children is indeed hierarchically organized.


In order to reevaluate the configurationality of child Japanese, I conducted a new experiment, which investigated children’s knowledge about the distribution of the formal noun -koto. As discussed in Section 2, -koto can be attached only to the object NP (irrespective of its Case-marker), which can be accounted for if we adopt the following two assumptions:

(18)   a. Japanese has VP.
   b. -koto can be inserted into the NP that is in the complement of V.

Given (18), if it can be shown that children have adult-like knowledge concerning koto-insertion, this would indicate that children’s sentences has a VP node and hence are associated with a configurational syntactic structure.

The subjects of my experiment were 18 Japanese-speaking children, ranging in age from 4(years);02(months) to 6;08 (mean age 5;01). The task for children was question-after-story: Each child was presented with a short story accompanied by a picture, and after each story, the child was asked to answer one of the questions with or without -koto. A sample story, a picture that accompanied this story, and sample test sentences are presented in (19) and (20).

(19)   Sample Story:
   Elephant, Baby Chick, and Panda are having their favorite pizza. They are very good friends, but Elephant likes Baby Chick the most, and Baby Chick likes Panda the most.

(20)   Sample Test Sentences:
   a. Hiyokochan-ga ichiban sukina-no-wa dare kana?
      Baby Chick-Nom the-first like-C-Top who Q
      ‘Who is it that Baby Chick likes the most?’   (A: Panda)
      or ‘Who is it that likes Baby Chick the most?’   (A: Elephant)
   b. Hiyokochan-no-koto-ga ichiban sukina-no-wa darekana?
      Baby Chick-Gen-fact-Nom the-first like-C-Top who Q
      ‘Who is it that likes Baby Chick the most?’   (A: Elephant)
      * ‘Who is it that Baby Chick likes the most?’   (A: Panda)

Note that in (20), neither Case-marker nor word order provides a clue as to whether the underlined NP should be interpreted as the subject or the object. The predicate in (20) (and also in all the other test sentences) takes a nominative object, and hence both the subject and the object NP are marked with nominative, which results in the ambiguity of the sentences without -koto as in (20a). In addition, the test sentences have a cleft structure, in which one of the arguments is “postposed” to sentence-final focus position. Hence, word orders are controlled to be exactly the same between the sentences without -koto as in (20a) and those with -koto as in (20b).

The experiment consisted of one practice item, one filler item, and four target trials. Half of the target trials included the test sentence with -koto, and the other half of the target trials included the test sentences without -koto.

The results are summarized in Table 2. When presented with a structurally ambiguous sentence as in (20a), children showed a strong tendency to interpret the nominative NP as the subject. In sharp contrast, when presented with a sentence involving a nominative NP with -koto as in (20b), children...
consistently interpreted that NP as the object. A repeated measures ANOVA revealed that a main effect of the presence vs. absence of -koto was significant (F(1, 53) = 51.304, p < 0.001). These results suggest that Japanese-speaking preschooolers know that -koto can be attached only to the NP in the complement of V, which in turn indicates that configurational structure is already in children’s grammar.

<table>
<thead>
<tr>
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<th>Interpreted as the Subject</th>
<th>Interpreted as the Object</th>
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<tbody>
<tr>
<td>Nominative NP without -koto</td>
<td>83.3% (30/36)</td>
<td>16.7% (6/36)</td>
</tr>
<tr>
<td>Nominative NP with -koto</td>
<td>11.1% (4/36)</td>
<td>88.9% (32/36)</td>
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Table 2: Children’s Responses

5. Conclusion

In light of the potential problem in the previous study by Otsu (1994), this study conducted a new experiment which investigated children’s knowledge about the distribution of the formal noun -koto, and provided a new piece of evidence that the grammar of Japanese-speaking preschool children generates adult-like hierarchical structures. These results are consistent with the view proposed by Miyagawa and Saito (2008) that UG constrains every language to be configurational. The findings of this study lend further support to the view that principles of UG play a significant role in child language acquisition, thereby guiding children to form configurational syntactic structures from the very beginning.

References


3. The four error responses to the sentences with -koto were obtained from two children (4;02 and 5;03), who interpreted the NP with -koto as the subject in both of the two test sentences involving this formal noun. I speculate that their incorrect responses would have resulted from their lack of attention, taking account of the fact that at least one of these two children is relatively old. However, at the current stage of the research I admit that these two children pose a potential problem to my overall claim. A larger-scale experiment would reveal the (non-)generality of such response pattern, which I have to leave for future research.

