

# Children's Incorrect Association of the Focus Particle *Dake* in Japanese Clefts

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## 1 Introduction

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\* We are grateful to the organizers and the audience of Japanese/Korean Linguistics 29. We especially thank the members of Tokyo Psycholinguistic Laboratory for their support and valuable comments. The earlier version of this paper was submitted to International Communication Department of Hokuriku University as the graduation research project conducted by Shouei Murata, Kuuya Kawagishi, and Moeka Nishio. The usual disclaimers apply.

*Japanese/Korean Linguistics 29.*

Edited by Kaoru Horie, Kimi Akita, Yusuke Kubota, David Y. Oshima, and Akira Utsugi.

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The acquisition of focus particles/phrases have received a lot of attention in the literature, and it has been cross-linguistically observed that children aged around 4-6 show incorrect association of such focus expressions (Mandarin Chinese: Notley et al. 2009, Zhou and Crain 2010, German: Müller 2011, Japanese: Endo 2004, Matsuoka 2007, Sano 2012, Mochizuki et al. 2021). For example, let us consider (1), in which the focus marker *only* is attached to the subject *cat*.

(1) Only the cat is holding a flag.

Suppose that this sentence is given in the following situation: a cat is holding a flag, a duck is holding a flag and a balloon, and a frog is holding a balloon. In this situation, (1) is false since the duck is also holding a flag. However, according to Crain et al (1994) and Notley et al. (2009), over half of children interpret the sentence as if *the cat is only holding a flag*, and thus, the children judged the sentence to be true. In other words, English-speaking children incorrectly associate *only* with VP. On the other hand, children do not show such non-adult-like performance with sentences such as (2), in which *only* precedes VP.

(2) The cat is only holding a flag.

In other words, they do not incorrectly associate *only* with the subject *cat* in (2). Thus, English-speaking children show subject-object asymmetry in their interpretation of *only*. Interestingly, as will be discussed below, Endo (2004) and Mochizuki et al (2021) observed similar phenomena in child Japanese. In this study, we experimentally demonstrate that Japanese-speaking children's incorrect association is not based on linear order, which provides supporting evidence for Mochizuki et al. (2021).

## 2 Previous Studies in Child Japanese

As mentioned above, in Japanese, Endo (2004) originally observed Japanese children's incorrect association of the Japanese focus particles *dake* and *sika*. Let us consider the following examples:

(3) a. Zousan-dake-ga    ringo-o            tabe-ta.  
       elephant-foc-Nom   apple-Acc        eat-Past  
       'Only the elephant ate an apple.'

      b. Zousan-ga            ringo-dake-o        tabe-ta.  
       elephant-Nom        apple-foc-Acc      eat-Past

‘The elephant only ate an apple.’

- (4) a. Zousan-sika      ringo-o      tabe-\*(nakat)-ta.  
elephant-foc      apple-Acc      eat-neg-Past  
‘Only the elephant ate an apple.’
- b. Zousan-ga      ringo-sika      tabe-\*(nakat)-ta.  
elephant-Nom      apple-foc      eat-neg-Past  
‘The elephant only ate an apple.’

The focus particle *dake* corresponds to *only* in English, and *sika* is almost the same as *nothing but* in English. *Sika* is a negative polarity item, and thus, it requires clause-mate negation as in (4).<sup>1</sup>

According to Endo (2004), Japanese-speaking children aged 3-6 misinterpret sentences such as (3a) and (4a) as if the focus particles are associated with the object. The correct response rates for (3a) and (4a) were 31.7 percent and 40.3 percent, respectively. On the other hand, the children did not show such non-adult-like performance with (3b) and (4b), in which the focus particles are attached to the object. The correct response rates for (3b) and (4b) were 83.9 percent and 78.0 percent, respectively. In other words, as observed by Crain et al. (1994) and Notley et al. (2009), there is also asymmetry in child Japanese.

What causes children’s non-adult-like behavior and this subject-object asymmetry? According to Notley et al. (2009), adults assign a syntactic structure such as that in (5) to (1), but children assign a structure such as (6) to it.

(5) [<sub>IP</sub> [<sub>NP</sub> Only the cat] is holding a flag].

(6) [<sub>IP</sub> Only [<sub>IP</sub> the cat is holding a flag]].

Notley et al. (2009) claim that children misanalyze *only* as if it were a sentential adverb. Therefore, children, unlike adults, incorrectly associate *only* with elements which are within the *c*-command domain of *only*. Also, this can account for why children do not misinterpret a sentence when *only* appears in the pre-verbal position such as in (2); it does not *c*-command the subject. However, there are other possibilities. One of which is the linear order effect. It seems that children’s incorrect association occurs from left to

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<sup>1</sup> In Japanese, a negative polarity can appear in the subject position unlike *anyone* in English. How to license the negative polarity item in the subject position in Japanese is beyond the scope of this paper, and hence, we leave this issue open.

right, but not vice versa. In this paper, we call this possibility *the Linear Order Effect Hypothesis*.

Sano (2012) addressed this issue examining children's interpretation of scrambled sentences such as (7).

- (7) Mikan<sub>i</sub>-o      zou-dake-ga      t<sub>i</sub>      tot-ta.  
orange-Acc   elephant-foc-Nom      take-Past  
'An orange, only the elephant took.'

(Sano 2012, p. 529)

The object *mikan* is in the sentence-initial position via scrambling. Therefore, the object precedes the subject with the focus particle, and the subject precedes its trace. In his experiment, some Japanese-speaking children incorrectly rejected test items such as (7) in the matching condition. The correct response rate was 62.5 percent. Compared with the results of Endo's study, although this acceptance rate is high, it is still at chance level. This result suggests that the scrambled object was reconstructed and the participants incorrectly associated *dake* with the object.

In order to investigate to what extent linear order affects children's incorrect association of the focus particle, Mochizuki et al. (2021) examined children's interpretation of Japanese Right Dislocation (JRD) such as in (8) and (9).

- (8) a. Kumasan-dake-ga    tot-ta      yo,      ringo-o.  
bear-foc-Nom    take-Past    SFP    apple-Acc  
'Only the bear took an apple.'
- b. Kumasan-ga      tot-ta      yo,      ringo-dake-o.  
bear-Nom      take-Past    SFP    apple-only-Acc  
'The bear only took an apple.'
- (9) a. Ringo-dake-o      tot-ta      yo,      kumasan-ga.  
apple-foc-Acc    take-Past    SFP    bear-Nom  
'The bear only took an apple.'
- b. Ringo-o      tot-ta      yo,      kumasan-dake-ga.  
apple-Acc      take-Past    SFP    bear-foc-Nom  
'Only the bear took an apple.'

The object is right-dislocated in (8), and thus, the word order is SVO. In contrast, the subject is right-dislocated in (9). Thus, the word order is OVS. In

(8a) and (9a), the focus particle is attached to the sentence-initial argument, and in (8b) and (9b), it is attached to the right-dislocated argument. Using this paradigm allowed us to investigate whether linear order affects children's incorrect association of the focus particle. If the non-adult-like behavior occurs based on the linear order (i.e., from left to right), children should show incorrect associations in (8a) and (9a) since the focus particle appears in the sentence-initial position. In contrast, incorrect associations should not occur in (8b) and (9b) since the focus particle appears with the sentence-final argument. In other words, if the linear order is a crucial factor for children's incorrect association of focus particles, it should not matter whether the argument that the focus particle is attached to is the subject or not.

Contrary to the prediction above, Mochizuki et al. (2021) reported that the participants showed adult-like behavior with (8b) and (9a), in which the focus particle is attached to the object.<sup>2</sup> The correct response rates for (8b) and (9a) were 81.3 percent. In contrast, the participants showed non-adult-like behavior with (8a) and (9b). The correct response rates for those were 31.3 percent and 25.0 percent, respectively. These results indicate that the surface position of the focus particle is not relevant. For example, in (9a), although the focus particle appears with the sentence-initial argument, children did not show incorrect association. On the other hand, even when the focus particle appeared with the sentence-final argument, children showed non-adult-like behavior. Therefore, Mochizuki et al. (2021) denied the Linear Order Effect Hypothesis. Rather, they suggest that, after reconstruction, the subject is syntactically higher than the object, and incorrect association occurs from the higher position to the lower position. We call this the Syntactic Hierarchical Structure Hypothesis.<sup>3</sup>

However, to our knowledge, children's interpretation of the focus particles with this kind of non-canonical word order sentences have received less

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<sup>2</sup> Mochizuki et al. (2021) examined children's interpretation of *sika* in JRDs as well. The results are almost the same as those for *dake*.

<sup>3</sup> The Syntactic Hierarchical Structure Hypothesis is different from the analysis proposed by Notley et al. (2009) in terms of the followings. First, this hypothesis states that one of the factors causing the subject-object asymmetry is the syntactic hierarchy, but not the c-command domain of the focus phrase/particles; the subject is syntactically higher than the object, but we do not assume here that *dake* attached to the subject directly c-commands the object. Adopting *dake*-raising, Sano (2015) proposed an analysis which is similar to Notley et al.'s analysis, in which *dake* c-commands the object as well as the subject (sentential scope analysis). Second, we do not assume that children incorrectly assign non-adult-like syntactic structures or have non-adult-like grammatical knowledge since such analysis should pose a learnability problem. Suppose that, following Notley et al. (2009) or Sano (2015), children somehow allow non-adult-like structures at a certain stage. Then how do children correct it without negative evidence, which is not available in child-directed speech? This issue is beyond the scope of this paper, and hence, we leave this issue open.

attention. In this study, in order to confirm whether Mochizuki et al.'s claim is valid, we examined children's interpretation of the focus particle *dake* in Japanese Cleft constructions (JCs), which are superficially similar to RDs in terms of the word order.

### 3 Experiment

Before going into our experiment, let us briefly consider some properties of JCs.

- (10) a. Zousan-ga            arat-ta            no wa usisan da.  
          elephant-Nom    wash-Past        C Top cow Cop  
          'It is the cow that the elephant washed.'
- b. Zousan-o            arat-ta            no wa usisan da.  
          elephant-Acc    wash-Past        C Top cow Cop  
          'It is the cow that washed the elephant.'

In JCs, a presuppositional clause precedes a focused phrase. (10a) and (10b) exemplify Object Cleft and Subject Cleft, respectively. We would like to note here that the word orders are quite similar to those of JRDs: SVO and OVS.<sup>4</sup> Also, as shown in (11) below, keep in mind that the focus particle *sika* cannot appear in the focused position even when the presuppositional clause contains negation.

- (11) a. Zousan-ga            arat-ta        no wa usisan-dake da.  
          elephant-Nom    wash-Past C Top cow-foc Cop  
          'It is only the cow that the elephant washed.'
- b. \*Zousan-o            arawa-nakat-ta no wa usisan-sika da.  
          elephant-Acc    wash-neg-Past C Top cow-foc Cop  
          'It is only the cow that washed the elephant.'

For this reason, we used *dake* in our experiment.

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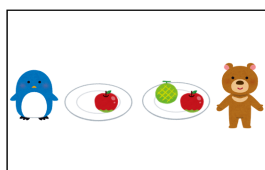
<sup>4</sup> Needless to say, the syntactic structures of JRDs and JCs should be totally different. In the literature, syntactic analyses of JCs have received a lot of attention, and to our knowledge there are at least four types of analyses: (i) V-raising, the remnant movement and the operator movement analysis (e.g. Koizumi 1995, 2000, Kuwabara 1996); (ii) Base-generation of focus, the topicalization and the operator movement analysis (e.g. Matsuda 1997); (iii) Base-generation of the presuppositional clause and the focus, and the operator movement analysis (e.g. Kizu 2005, Hoji 1985, 1987, 1990); (iv) Direct focus movement and the remnant movement analysis (e.g. Hiraiwa and Ishihara 2002, 2012). In this study, however, we do not commit to a particular analysis.

We examined 10 children (5;7-6;5, mean 6;0) using the Truth Value Judgement Task (Crain and Thornton 1998). In order to directly compare our results with those of Mochizuki et al. (2021), we used the same materials and paradigm as given below. (12a) and (12b) are replications of Endo's study and (12c)-(12f) are the target items.

- (12)a. *S-dake* O V (Canonical)
- b. S *O-dake* V (Canonical)
- c. *S-dake* V O (Object Cleft)
- d. S V *O-dake* (Object Cleft)
- e. O V *S-dake* (Subject Cleft)
- f. *O-dake* V S (Subject Cleft)

Let us examine the target items given in (13) and (14).

- (13)a. Matched situation



- b. Test sentence (= 12e)

Melon-o tot-ta no wa kumasan-dake da yo.  
 Melon-Acc take-Past C Top bear-foc Cop SFP.  
 'It is only the bear that took a melon'

- (14)a. Mismatched situation



- b. Test sentence (=12f)

Ehon-dake-o kat-ta no wa nekosan da yo.  
 picture book-Foc-Acc buy-Past C Top cat Cop SFP  
 'It is only the picture book that the cat bought'

There were two trials for each condition. Considering the results of Mochizuki et al. (2021), it was predicted that the participants would show non-adult-like behavior for (13) but show good performance for (14).

#### 4 Results and Discussion

First, let us present the results of the canonical sentences. As observed in the previous studies, the participants showed the subject-object asymmetry. When the focus particle was attached to the subject, the correct response rate was 45 percent (9/20). In contrast, when it was attached to the object, the correct response rate was 90 percent (18/20). Thus, we successfully replicated the results of Endo's study.

Next, let us show the results for Object Clefts such as (12c) and (12d). As for Object Clefts, both the Linear Order Effect Hypothesis and the Syntactic Hierarchical Structure Hypothesis predict the same results. In (12c), the focus particle is attached to the subject and it appears in the subject position. Thus, it was predicted that children should show incorrect association of *dake*. In contrast, in (12d), *dake* is attached to the object and it appears in the sentence-final position. Therefore, it was predicted that they should show adult-like performance. In fact, this prediction was borne out. The correct acceptance rate for (12c) is only 30.0 percent (6/20), while for (12d) it was 90.0 percent (18/20).

Finally, let us present the results for Subject Clefts: (12e) and (12f), which correspond to (13) and (14). Note that the Linear Order Effect Hypothesis and the Syntactic Hierarchical Structure Hypothesis predict different results. Under the Linear Order Effect Hypothesis, children's incorrect association should not occur in (13) since the subject with *dake* appears in the sentence-final position. In contrast, under the Syntactic Hierarchical Structure Hypothesis, the subject with *dake* is syntactically higher than the object after reconstruction to the canonical position. Thus, children should show incorrect association. Furthermore, for (14), the Linear Order Effect Hypothesis predicts that children's incorrect association should occur, but the Syntactic Hierarchical Structure Hypothesis predicts that it should not. The results are as follows: The correct response rate for (13) was 55 percent (11/20) and that of (14) was 95 percent (19/20). Thus, these results clearly refute the Linear Order Effect Hypothesis.

#### 5 Conclusion

Our results clearly refute the possibility of incorrect association based on linear order. Our observations suggest that incorrect association occurs based on syntactic hierarchical structures after the reconstruction of subjects and



objects in JCs. These results also provide supporting evidence for the findings in Mochizuki et al. (2021): there is clear subject-object asymmetry. However, there remains the possibility that subject-object asymmetry is due to their grammatical function (i.e. Subject/Object) rather than to syntactic hierarchy (i.e. asymmetrical c-command relation). We leave this issue for future research.

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