

# The Agent-First Strategy and Word Order: Children's Comprehension of Right Dislocations and Clefts in Japanese

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## 1. Introduction

In the literature, the acquisition of non-canonical word order sentences has received much attention. In particular, it has been well-known that Japanese children often show non-adult-like performance with sentences which begin with an object (a theme/patient argument) such as scrambled sentences and Subject Cleft constructions (SCs) in Japanese (Hayashibe 1975, Otsu 1994, Ohba et al 2019, a.o.). According to Hayashibe (1975), Japanese children seem to interpret OSV (scrambled) sentences by using a word order strategy; they often interpret a sentence-initial theme/patient argument as an agent since the canonical word order is SOV. This strategy, which we call the Agent-first Strategy in this paper, can also account for Japanese children's non-adult-like behavior with SCs as discussed in Ohba et al. (2019). Considering this kind of children's non-adult-like behavior, one intriguing question arises here: do Japanese children always apply the Agent-first Strategy to sentences which begin with a theme/patient argument? In the current study, we will experimentally demonstrate that Japanese children may apply it to SCs as observed in Ohba et al. (2019), while they do not apply it to Subject Right Dislocations (SRDs), despite the fact that both of the two constructions contain a sentence-initial theme/patient argument. Thus, we conclude that it is not the case that Japanese children always apply the Agent-first Strategy to sentences containing a sentence-initial theme/patient argument, and that the non-adult-like behavior observed in the previous studies does not come from

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\* We would like to sincerely thank Tetsuya Sano, Takuya Goro, Yoshiki Fujiwara and TPL members for their valuable comments. We are grateful to the children and the teachers at Zoshigaya Day Care Center in Tokyo. The usual disclaimers apply. The authors' affiliations and contact information are: Hiroyuki Shimada (Hokuriku University, h\_shimada0525@yahoo.co.jp), Yuko Masaki (Ochanomizu University, yuko.tt.12030@gmail.com) Akari Ohba (University of Hawai'i at Mānoa, akario@hawaii.edu), Rika Okada (Ochanomizu Univ., rika.okada.ocha@gmail.com), Kanao Ikeda (Ochanomizu Univ., ki.by170@gmail.com) and Kyoko Yamakoshi (Ochanomizu Univ., yamakoshi.kyoko@ocha.ac.jp).

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the word order only. In addition, this result gives a piece of supporting evidence for the early acquisition of RDs as observed in Sugisaki (2005) and Dansako (2018).

## 2. Previous acquisition studies

### 2.1. Scrambled sentences (Hayashibe 1975, Otsu 1994)

As is well-known, Japanese is an SOV language and allows scrambled word order sentences as given in (1) and (2).

(1) Taro-ga          Jiro-o          tatai-ta. (Canonical)  
       Taro-NOM      Jiro-ACC      hit-PAST  
       ‘Taro hit Jiro.’

(2) Jiro-o          Taro-ga      tatai-ta. (OSV = Scrambled)  
       Jiro-ACC      Taro-NOM    hit-PAST  
       Lit. ‘Jiro, Taro hit (him).’

According to Hayashibe (1975) and Otsu (1994), it was observed that Japanese children often misinterpret a sentence-initial argument as an agent even when it is a theme/patient as long as a pragmatically felicitous context which can make scrambled sentences sound natural is not provided.<sup>1</sup> For example, in (2), they often interpret the patient argument *Jiro* as the agent, and they regard the second argument *Taro* as the patient. In these previous studies, this children’s non-adult-like behavior is called the NNV strategy, which is equivalent to the Agent-first Strategy in the current study. Roughly speaking, Japanese children misinterpret scrambled sentences following the canonical word order of Japanese: the first NP is an agent and the second NP is a theme/patient.

### 2.2. Cleft constructions (Ohba et al. 2019)

Next, let us briefly see the case of Japanese cleft constructions, which are exemplified in (3) and (4).<sup>2</sup>

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1. Hayashibe (1975) and Otsu (1994) conducted the experiments using an act-out task. Otsu (1994) concluded that Japanese children at age three have already acquired the knowledge of scrambling since they were able to show adult-like performance if stimulus sentences were given under the pragmatically appropriate contexts. See Otsu (1994) for the detailed discussion for the pragmatic condition and contexts.

2.  $\Delta$  is used to indicate a gap without any theoretical commitments. See Hoji (1987), Kizu (2005), Hiraiwa and Ishihara (2012), a.o. for detailed discussion on the syntactic analyses of the cleft constructions in Japanese.

- (3) [Inu-ga  $\Delta_i$  oikake-teiru no wa] neko<sub>i</sub>(-o) da. (Object Cleft: SVO)  
 dog-NOM chase-PROG C TOP cat-ACC COP  
 'It is a cat that the dog is chasing.'
- (4) [ $\Delta_i$  neko-o oikake-teiru no wa] inu<sub>i</sub>(-ga) da. (Subject Cleft: OVS)  
 cat-ACC chase-PROG C TOP dog-NOM COP  
 'It is a dog that is chasing the cat.'

In Japanese cleft constructions, a presuppositional clause containing a gap precedes a focused phrase. For example, in (3), the bracketed part is the presuppositional clause and *neko* (cat), which is co-indexed with the gap in the presuppositional clause, is the focused element. Note that the word order of Object Cleft constructions (OCs) such as (3) is SVO. In contrast, as mentioned in Section 1, the word order of SCs is OVS. Given that Japanese children apply the Agent-first Strategy to sentences containing a sentence-initial theme/patient argument, it is expected that they show non-adult-like behavior with SCs, but not with OCs. In fact, it is the case. Ohba et al. (2019) examined 23 Japanese children (4;0-6;7, Mean: 5;2) and investigated their interpretations of SCs and OCs using Truth Value Judgment Task (Crain and Thornton 1998). In the false conditions, test items were given under a situation where the subject (agent) and the object (patient/theme) were inverted. For example, the sentence in (4) was uttered by a puppet under the situation where the cat is chasing the dog. The result of their experiments is given below.

**Table 1: Percentages of children's correct responses**

Age (Number)	Declarative sentences	Object Clefts	Subject Clefts
4-year-olds (N=11)	96.6% (85/88)	88.6% (39/44)	59.1% (26/44)
5-year-olds (N=8)	96.9% (62/64)	100% (32/32)	56.3% (18/32)
6-year-olds (N=4)	100% (32/32)	93.8% (15/16)	81.3% (13/16)
Total (N=23)	97.3% (179/184)	93.5% (86/92)	62.0% (57/92)

(Ohba et al. 2019)

As shown above, even 4-year-olds seem to have no difficulty comprehending OCs. In contrast, 4-year-olds and 5-year-olds clearly showed non-adult-like behavior with SCs, which contain a sentence-initial theme/patient argument. Ohba et al. (2019), in fact, discussed the possibility that the children at age 4-5 may have used the Agent-first Strategy in their experiment. In contrast, children are expected to show adult-like behavior with OCs although these sentences have a non-canonical word order, since the sentence-initial argument of OCs is an agent. Thus, it is quite natural that Japanese children do not misinterpret OCs at least in terms of the thematic roles even if they apply the Agent-first Strategy to them.

### 2.3. Right Dislocations (RDs)

As we have seen above, Japanese children often show non-adult-like performance with sentences containing a sentence-initial theme/patient argument such as scrambled sentences (OSV) and SCs (OVS). In addition to these constructions, Japanese allows other types of non-canonical word order sentences such as Object Right Dislocations (ORDs) and Subject Right Dislocations (SRDs).<sup>3</sup>

(5) Inu-ga  $\Delta_i$  oikake-teiru yo, neko-i-o. (ORD: SVO)  
 dog-NOM chase-PROG SFP cat-ACC  
 ‘A dog is chasing (it), the cat.’

(6)  $\Delta_i$  Neko-o oikake-teiru yo, inui-ga. (SRD: OVS)  
 cat-ACC chase-PROG SFP dog-NOM  
 ‘(It is) chasing a cat, the dog.’

Most importantly, the basic word orders of RDs given in (5) and (6) are very similar to those of the cleft constructions in (3) and (4), although their syntactic backgrounds are quite different. Thus, given that children often misinterpret (4) but they correctly show adult-like behavior with (3), it would be intriguing to see whether Japanese children apply the Agent-first strategy to (6) as well as (4).

Before moving on to our experiment, let us briefly see some previous acquisition studies concerning RDs in Japanese. It has been observed that a *wh*-phrase cannot be right-dislocated as the direct object (*nani-o*) as shown below (Tanaka 2001, Sugisaki 2005).

(7) a. Taro-wa nani-o tabe-ta no? (Canonical: SOV)  
 Taro-TOP what-ACC eat-PAST Q

b. \*Taro-wa  $\Delta_i$  tabe-ta no, nani-i-o? (ORD: SVO)  
 Taro-TOP eat-PAST Q what-ACC  
 ‘What did taro eat?’

Sugisaki (2005) examined the utterances of RDs in the two Japanese children’s corpus (Aki at age 2;6.15-3;0.0 and Ryo at age 2;4.25- 3;0.30) in the CHILDES database (MacWhinney 2000). Let us see his results in the following table.

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3. As in Footnote 2, we do not commit any syntactic analyses of RDs. See Haraguchi (1973), Kuno (1978), Abe (1999), Whitman (2000), Tanaka (2001), Takita (2011) for the detailed syntactic analyses of RDs.

**Table 2: The children's spontaneous speech**

	Aki		Ryo	
	(S) OV	(S)VO	(S) OV	(S)VO
Total #of utterances	518	38	252	43
# of direct wh-question	185	0	40	0
% of wh-question	35.7%	0%	15.9%	0%

(Sugisaki 2005)

As shown in Table 2, Sugisaki (2005) observed that Aki and Ryo at age 2-3 produce VO order sentences (i.e., ORDs). Moreover, interestingly, they seem to be sensitive to the constraint on the direct wh-question in OV sentences; they never produced the sentences such as (7b). In short, Japanese children spontaneously utter (S)VO order sentences at a very early stage.

In addition, Dansako (2018) observed that younger Japanese children produce (O)VS (i.e., SRD) order sentences as well. He examined Aki (1;5,07-3;0,0), Ryo (1;3,3-3;0,30), Tai (1;5,20-3;1,29), Jun (0;6,1-2;6,28), and Sumihare (0;0,13-2;6,22) in the CHILDES database. According to Dansako (2018), the children at age two have already started to produce VS order sentences, and he observed that the children never show misuse of Case in (O)VS order sentences although they do in S(O)V order (i.e., canonical word order) sentences.

To summarize, considering the observations discussed in Sugisaki (2005) and Dansako (2018), it seems to be plausible to assume here that Japanese children at age 2-3 have already acquired the knowledge of RDs, that is, SRDs and ORDs. However, to our knowledge, whether Japanese children misinterpret SRDs like SCs has not been examined by experiments.

### 3. Experiment

First, let us see the research question and prediction in the current study, which is given in (8).

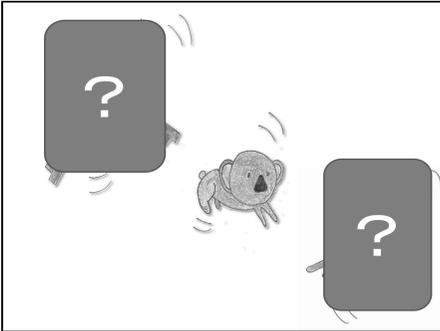
#### (8) The research question and prediction

Do Japanese children always apply the Agent-first Strategy to sentences containing a sentence-initial theme/patient argument? If so, they are expected to misinterpret not only SCs (as observed in Ohba et al. 2019) but also SRDs, while they should not misinterpret ORDs as well as OCs.

In order to address this issue, we examined 18 Japanese children (4;7-6;7, Mean = 5;6) and 11 adults. The 18 Japanese children were divided into two groups: Group 1 for SRDs and ORDs (N = 9, 4;8-6;7, Mean = 5;7) and Group 2 for SCs and OCs. (N = 9, 4;7-6;6, Mean = 5;5).

Next, let us see the procedure of the experiment. As shown in Picture 1, we introduced a context.

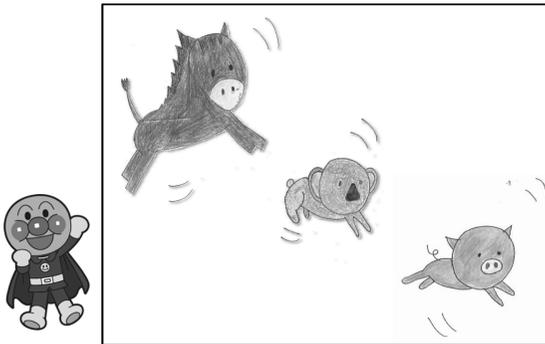
Picture 1



Mite! Dareka-ga koarasan-o oikake-teite, koarasan-ga dareka-o oikake-teiru yo.  
(Look! Someone is chasing the koala, and the koala is chasing someone.)

After that, the hidden animals (a horse and a pig) came out, and test items were given by Anpanman (the leftmost character) as shown in Picture 2. This context can set up the presuppositions for the cleft constructions, and thus, the target items given below sound more natural.

Picture 2



Then, let us see sample target items given below.

- (9) [ Koarasan-o oikake-teiru no wa] oumasan da yo. (SC: OVS)  
 koala-ACC chase-PROG C TOP horse COP SFP  
 'It is a horse that is chasing the koala.'
- (10) Koarasan-o oikake-teiru yo, oumasan-ga. (SRD: OVS)  
 koala-ACC chase-PROG SFP horse-NOM  
 'It is chasing a koala, the horse.'

The sentence given in (9) is an example of the target items (SCs) for Group 2, and (10) is an example of the target items (SRDs) for Group 1. Note here that the word order of the both constructions is OVS. The procedure given above was almost the same as the one used in Ohba et al. (2019). In other words, our aim of the experiment for Group 2 is to replicate their study. Thus, it is expected that the participants of Group 2 in the current study were expected to show non-adult-like performance with (9). We will compare the children's correct response rate of (9) with the one of (10) below.

Next, let us see the control items exemplified in (11) and (12).

- (11) Oumasan-ga oikake-teiru no wa koarasan-o da yo. (OC: SVO)  
 horse-NOM chase-PROG C TOP koala-ACC COP SFP  
 'It is a koala that the horse is chasing.'
- (12) Oumasan-ga oikake-teiru yo, koarasan-o. (ORD: SVO)  
 horse-NOM chase-PROG SFP koala-ACC  
 'A horse is chasing it, the koala.'

The sentence in (11) and (12) were given for Group 2 and Group 1, respectively. As shown above, the sentence-initial argument of both (11) and (12) is an agent. Thus, it is expected that the participants of Group 1 and Group 2 should be able to show adult-like performance. As discussed in 2.2., in fact, the participants in Ohba et al. (2019) showed adult-like performance with the sentence such as (11).

We tested false conditions in which the two arguments (i.e. the subject and the object) were inverted in the statement. There were four trials for each item: two true conditions and two false conditions. The results are summarized in Table 3 and 4.

**Table 3: Correct Acceptance Rates of Children's and Adults' Responses**

	SRD	ORD	SC	OC
Children	83.3% (15 / 18)	100% (18 / 18)	55.6% (10 / 18)	94.4% (17 / 18)
Adults	100% (22 / 22)	100% (22 / 22)	100% (22 / 22)	100% (22 / 22)

**Table 4: Correct Rejection Rates of Children's and Adults' Responses**

	SRD	ORD	SC	OC
Children	88.9% (16 / 18)	100% (18 / 18)	50.0% (9 / 18)	88.9% (16 / 18)
Adults	100% (22 / 22)	100% (22 / 22)	100% (22 / 22)	100% (22 / 22)

First, let us see the results of Group 2, that is, SCs and OCs. As observed in Ohba et al. (2019), the participants of Group 2 showed non-adult-like performance with SCs such as (9), while they did show adult-like performance with (11). Thus, we successfully replicated Ohba et al. (2019). This result confirms that Japanese children have difficulty correctly comprehending SCs.

Interestingly, however, the participants showed quite good performance not only with ORDs such as (12) but also with SRDs such as (10) despite the fact that the sentence-initial argument of SRDs is a patient/theme. Roughly speaking, the children's correct response rate of SCs is around the chance level, but the one of SRDs is clearly higher than the chance level.

#### 4. Discussion

As mentioned above, Japanese children showed non-adult-like behavior with SCs, which begin with objects as Ohba et al. (2019) observed. However, interestingly, they did show adult-like performance with RDs even when the sentences begin with objects (i.e., SRD as well as ORD). This result indicates that the children's non-adult-like behavior with scrambled sentences or SCs in the previous studies do not come from the non-canonical word order only. If so, the participants in the current study would show non-adult-like performance with SRDs as well. However, given that Japanese children's speech of RDs appear at a very early stage, this result may be expected. In other words, this result can be a piece of supporting evidence for the early acquisition of RDs.

One of the remaining issues is that "What causes children's misinterpretations?". In other words, it is still unclear why children apply the Agent-first Strategy to scrambled sentences and SCs, but they do not apply it to SRDs. As mentioned above, according to Otsu (1994), under the pragmatically felicitous condition, Japanese children can correctly interpret scrambled sentences, and thus, he concluded that Japanese children at age 3 have already acquired the knowledge of scrambling, namely, the early acquisition of scrambling. Why did the participants successfully interpret SRDs? Unfortunately, in order to answer this question, further investigations are required. However, before concluding, we stipulate as follows. RDs can be divided into two parts, [Subject *pro* V] / [*pro* Object V] and a right-dislocated item as follows.

(13) [Subject *pro* V] + Dislocated Item  
 [Koarasan-ga *pro*<sub>i</sub> oikake-teiru yo] + oumasani-o.  
 koala-NOM *pro* chase-PROG SFP horse-ACC  
 'The koala is chasing it, the horse.'

(14) [*pro* Object V] + Dislocated Item  
 [*pro*<sub>i</sub> Koarasan-o oikake-teiru yo] + oumasani-ga.  
 koala-ACC chase-PROG SFP horse-NOM  
 'It is chasing koala, the horse.'

The first argument and the verb (i.e., shown as [Subject *pro* V] / [*pro* Object V]) in RDs seem to be canonical word order sentences containing *pro*, and they seem to finish when the verb appears. In other words, the bracket part in the sentences looks like a simple declarative containing only one overt NP (subject or object) and a verb. Thus, the thematic role of the first NP must be fixed as soon as the verb appears, and this may reduce the burden of processing sentences. In contrast, cleft constructions and scrambled sentences cannot be interpreted in this way. Let us see the following examples.

- (15) [Presuppositional Clause] + focused element  
 [ Koarasan-o oikake-teiru no wa] oumasan da (yo).  
 koala-ACC chase-PROG C TOP horse COP SFP  
 ‘It is a horse that is chasing the koala.’

For listeners, this sentence finishes when the focused element and the copula appeared. In other words, listeners have to hold the information of the first NP (e.g., nominative-marked or accusative-marked) until the sentence comes to an end. In other words, cleft constructions do not finish when the verb appears. Let us consider the case of scrambled sentences.

- (16) Koarasan-o oumasan-ga oikake-teiru yo.  
 koala-ACC horse-NOM chase-PROG SFP  
 ‘It is chasing a koala, the horse.’

In the case of scrambled sentences as well, listeners have to hold the information of the two NPs (which NP is nominative-marked/accusative-marked) until the sentence finishes, namely, the verb appears. The difference may cause the children’s (non-)adult-like behavior with SRDs and SCs. However, needless to say, this is a speculation, and hence, further research is required.

## 5. Conclusion

It has been observed that Japanese children incorrectly interpret sentence-initial objects as an agent in constructions such as scrambled sentences or SCs. The children’s incorrect interpretations can be accounted for by the Agent-first Strategy, since Japanese is a SOV language. This study examined Japanese children’s interpretations of right dislocations (RDs) in which objects can appear in sentence-initial positions. If the Agent-first strategy is applied to sentence-initial objects because of the non-canonical word order, it is expected that children apply it to SRDs as well as SCs. Our experimental results suggest that this is not the case; Japanese children comprehend SRDs much more correctly than Subject Clefts. Thus, it is not the case that Japanese children always use the Agent-first Strategy to sentences that contain sentence-initial theme/patient arguments.

Rather, Japanese children's (mis)comprehension of non-canonical sentences and the Agent-first Strategy seems to be related to the processing burden of them.

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# Proceedings of the 44th annual Boston University Conference on Language Development

edited by Megan M. Brown  
and Alexandra Kohut

Cascadilla Press    Somerville, MA    2020

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ISSN 1080-692X  
ISBN 978-1-57473-057-9 (2 volume set, paperback)

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