

Children's Acquisition of Exhaustivity in Clefts and Right Dislocations in Japanese*

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1 Introduction

In cleft constructions, it has been noted that focused phrases show exhaustivity (Kiss 1998, Hedberg 2000, among others). Furthermore, it is reported that children's acquisition of exhaustivity in clefts delays in various

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languages (English: Heizmann 2007, French: Tieu and Križ 2017, Japanese: Dansako and Mizumoto 2008, etc).

In Japanese, clefts and right dislocations (RDs) both include dislocated items and they may have similar word orders (e.x. SVO, OVS, etc), but they are different with regard to the exhaustivity of dislocated phrases. This study examines whether children are aware of the difference between clefts and RDs in Japanese with regard to their exhaustivity.

In an example of a Japanese cleft (1) below, the presuppositional clause comes first and the focus phrase appears at the end. According to Hiraiwa and Ishihara (2012), the focused phrase in (1), *itigo* ‘strawberry,’ moves to FocusP. And then, the presuppositional phrase *usagisan-ga tot-ta no* ‘that the rabbit took’ moves to TopicP, which is placed before FocusP linearly. In Japanese clefts, like clefts in English and other languages, the focused phrase needs to be exhaustive. That is, adults interpret it as ‘only the item taken by the rabbit was strawberry.’ In (1), if the rabbit took not only a strawberry but also a pineapple and a kiwi, the sentence sounds infelicitous.

(1) Japanese cleft

| | |
|---|--------------------------|
| <u>Presuppositional clause</u> | <u>Focus</u> |
| [Zousan-ga tot-ta no wa] | itigo-(o) da. |
| elephant-Nom take-Past C Top | strawberry-Acc Cop |
| ‘It was a strawberry that the elephant took.’ | |

Now let us look at an example of Japanese RD in (2). In Japanese RD, there is a gap in the first part of the sentence before the pause, and the right-dislocated item, *itigo-o* ‘strawberry-Acc,’ comes at the end, but the dislocated phrase does not have to be exhaustive (Ko 2017). Takami (1995) points out that, in Japanese, right-dislocated elements are informationally non-focused. For example, even if it is in a situation where the rabbit took not only a strawberry but also a pineapple, and a kiwi, the RD in (2), which mentions only the strawberry, is felicitous:

(2) Japanese right dislocation (RD)

| | | | | |
|---|---|-----------|-----|----------------|
| Zousan-ga | e | tot-ta | yo, | itigo-wo. |
| elephant-Nom | | take-Past | Prt | strawberry-Acc |
| ‘The elephant took (it), a strawberry.’ | | | | |

To our knowledge, children’s acquisition of the non-exhaustivity in RDs and its comparison with the exhaustivity in clefts in Japanese have not been examined. Therefore, this study investigates whether Japanese children are sensitive to the difference between RDs and clefts concerning their (non)-exhaustivity.

2 Previous Acquisition Studies

There are several studies which tested children's knowledge of exhaustivity in clefts in different languages. Heizmann (2007) tested the exhaustivity of English clefts with 33 children (3;2 – 5;11). The method was the Truth Value Judgment Task (Crain and Thornton 1998), and the children were asked to judge whether exhaustive and non-exhaustive cleft test sentences uttered by Kermit the Frog were correct after stories were given with movies. In a sample story, Cookie Monster had a nice book, a hat and a football, but he threw away the football and the hat. Examples of cleft test sentences are given in (3). As for the non-exhaustive test sentence in (3a), only one of the two items, e.g. the football, was given in the underlined focus position. In the exhaustive test sentence (3b), both items, the football and the hat, were given exhaustively in the underlined focus position:

(3) a. Non-exhaustive:

It was the football that Cookie Monster threw into the trashcan.

b. Exhaustive:

It was the football and the hat that Cookie Monster threw into the trashcan.

Heizmann's results were as follows. 3- and 4-year-olds were able to accept exhaustive test sentences well, but they could not correctly reject the non-exhaustive answers and the correct response rates were quite low: 27.2% for 3-year-olds and 54.5% for 4-year-olds. The correct response rate of non-exhaustive sentences for 5-year-olds was 72.7% and much better than those of 3-year-olds and 4-year-olds. These results have shown that children at the age of 3 and 4 are not quite sensitive to the exhaustivity of English clefts.

Furthermore, Dansako and Mizumoto (2008) examined the exhaustivity of Japanese clefts with 45 children (4;0 - 6;7, Mean=5;4). They used the Truth Value Judgment Task and similar test sentences as those in Heizmann (2007). Dansako and Mizumoto's results also show that 3- and 4-year-olds were not quite sensitive to the exhaustivity of Japanese clefts: the correct response rates were 12.1% for 3-year-olds and 35.3% for 4-year-olds. The correct response rate for 5-year-olds becomes better, 54.9%, but it is still not very high.

The studies by Heizmann and Dansako & Mizumoto both show that 3- and 4-year-olds were not sensitive to the exhaustivity of clefts in English and Japanese. In the next section, we introduce our experiment, which examined Japanese-speaking children's sensitivity of (non-)exhaustivity for clefts and RDs.

3 Experiment

In our experiment, we examined 16 Japanese monolingual children (4;7–6;4, Mean=5;6). We divided the children into two groups: eight children in the Cleft group (3 six-year-olds, 3 five-year-olds, 2 four-year-olds), and eight children (3 six-year-olds, 3 five-year-olds, 2 four-year-olds) in the RD group.

We used the method called the Ternary Judgment Task (Katsos and Bishop 2011). The previous studies reviewed in Section 2 used the Truth Value Judgment Task, which led children to give binary answers: whether test sentences were correct or wrong. Instead of leading children towards binary answers, we considered that the Ternary Judgment Task may give more options and the task may reveal children’s knowledge in more detail. Let us explain how we used the Ternary Judgment Task below.

A child listened to recorded stories with the animations on the computer screen. In the stories, an animal found three items and took three items with him. At the end of each story, the child listened to a recorded test sentence (either clefts or RDs) including one or two (i.e. non-exhaustive), or three items (i.e. exhaustive). Those test sentences were given as the utterances by an anime character, *akachanman*, appeared beside the last picture. The child was asked to judge whether the test sentence matched the story. The child was asked to give the anime character a large cookie (L) if the test sentence matched the story perfectly, a medium cookie (M) if the sentence matched the story fairly well but not perfectly, and a small cookie (S) if the sentence did not match the story. By using three different-sized cookies, we urged children to judge test sentences in a ternary way.

As for the test sentences, we included 2 exhaustive sentences with three items, either clefts or RDs in each group, 2 non-exhaustive sentences with two items, 2 non-exhaustive sentences with one item, and 4 fillers. A sample story, the picture of the last scene of the story, and test sentences are given below:

- (4) Sample story (originally in Japanese and translated in English here):
There was an elephant in the grass field. He was looking for some food. Then, he found a strawberry. It looked delicious, so he took it. Walking through the grass field, he found a pineapple. He wondered whether he took it because he didn’t like it, but he took it since he was hungry. Walking further, he found a kiwi fruit and took it.



Figure 1. Last Picture of the Story

(5) Sample test sentences

a. Exhaustive cleft (All the three items):

Zousan-ga tot-ta no wa itigo to painappuru to kiui
 elephant-Nom take-Past C Top strawberry and pineapple andkiwi
 da yo.

Cop Prt

‘It was a strawberry, a pineapple and a kiwi fruit that the elephant took.’

b. Non-exhaustive RD (Two items among three):

Zousan-ga tot-ta yo, itigo to painappuru-o.
 elephant-Nom take-Past Prt, strawberry and pineapple-Acc

‘The elephant took (them), a strawberry and a pineapple.’

(5a) is an example of an exhaustive cleft sentence with all the three items, i.e. a strawberry, pineapple and a kiwi, in the focus position. (5b) is an example of a non-exhaustive RD sentence with two items, i.e. a strawberry and a pineapple, given in the right-dislocated position. The next section gives the results and discussion.

4 Results and Discussion

Let us show the results by age groups. Table 1 shows the results of 6-year-olds (L = large cookie, M = medium cookie, S = small cookie).

| | | 6-year-olds | |
|----------------------------------|---|--------------|-------------|
| | | Clefts (N=3) | RDs (N=3) |
| Exhaustive | L | 100% (6/6) | 100% (6/6) |
| | M | 0.0% (0/6) | 0.0% (0/6) |
| | S | 0.0% (0/6) | 0.0% (0/6) |
| Non-exhaustive (with 2 items) | L | 0.0% (0/6) | 33.3% (2/6) |
| | M | 83.3% (5/6) | 66.7% (4/6) |
| | S | 16.7% (1/6) | 0.0% (0/6) |
| Non-exhaustive (with 1 item) | L | 0.0% (0/6) | 33.3% (2/6) |
| | M | 50.0% (3/6) | 33.3% (2/6) |
| | S | 50.0% (3/6) | 33.3% (2/6) |

Table 1. Response Rates for 6-year-olds

With regard to the exhaustive test sentences, 6-year-olds gave large cookies to both clefts and RDs 100% of the time. This shows that 6-year-olds know that exhaustive answers are perfect for both clefts and RDs.

As for non-exhaustive test sentences with 2 items and 1 item (the cells highlighted with gray color), 6-year-olds gave large cookies to the puppet 0% of the time for clefts. This clearly shows that 6-year-olds judged the non-exhaustive answers as not perfect for clefts and that they have knowledge of exhaustivity of clefts. The results of clefts for 6-year-olds look much better than those of Dansako and Mizumoto (2008). The use of the Ternary Judgment Task, instead of the binary Truth Value Judgment Task, may have captured subtle differences regarding children's sensitivity to exhaustivity.

Concerning RDs, 6-year-olds judged the non-exhaustive sentences as perfect more than clefts (33.3% vs. 0.0%, highlighted by gray). This shows that 6-year-olds are aware of the non-exhaustivity of RDs, and that 6-year-olds are sensitive to the difference between RDs and clefts with respect to their (non-)exhaustivity.

Next, let us look at the results of 5-year-olds and 4-year-olds together in Table 2 and 3:

| | | 5-year-olds | |
|----------------------------------|---|--------------|-------------|
| | | Clefts (N=3) | RDs (N=3) |
| Exhaustive | L | 100% (6/6) | 100% (6/6) |
| | M | 0.0% (0/6) | 0.0% (0/6) |
| | S | 0.0% (0/6) | 0.0% (0/6) |
| Non-exhaustive (with 2 items) | L | 33.3% (2/6) | 33.3% (2/6) |
| | M | 66.7% (4/6) | 66.7% (4/6) |
| | S | 0.0% (0/6) | 0.0% (0/6) |
| Non-exhaustive (with 1 item) | L | 66.7% (4/6) | 33.3% (2/6) |
| | M | 0.0% (0/6) | 33.3% (2/6) |
| | S | 33.3% (2/6) | 33.3% (2/6) |

Table 2. Response Rates for 5-year-olds

| | | 4-year-olds | |
|----------------------------------|---|--------------|-------------|
| | | Clefts (N=2) | RDs (N=2) |
| Exhaustive | L | 75.0% (3/4) | 100% (4/4) |
| | M | 25.0% (1/4) | 0.0% (0/4) |
| | S | 0.0% (0/4) | 0.0% (0/4) |
| Non-exhaustive (with 2 items) | L | 50.0% (2/4) | 25.0% (1/4) |
| | M | 25.0% (1/4) | 75.0% (3/4) |
| | S | 25.0% (1/4) | 0.0% (0/4) |
| Non-exhaustive (with 1 item) | L | 0.0% (0/4) | 25.0% (1/4) |
| | M | 25.0% (1/4) | 75.0% (3/4) |
| | S | 75.0% (3/4) | 0.0% (0/4) |

Table 3. Response Rates for 4-year-olds

The contrast between clefts and RDs among 5- and 4-year-olds was not as clear as that in 6-year-olds. As shown in Table 2, for both exhaustive clefts and RDs, 5-year-olds gave large cookies 100% of the time, which is correct. However, the performance of 5-year-olds did not show much difference between clefts and RDs for non-exhaustive sentences and 5-year-olds did not seem to distinguish those two clearly.

Table 3 shows the results of 4-year-olds. If we focus on non-exhaustive sentences with one item, as shown in the highlighted part, 4-year-olds seem to distinguish clefts and RDs since they gave large and medium cookies more for RDs (25.0% and 75.0%) than for clefts (0.0% and 25.0%). Still, 4-year-olds accepted non-exhaustive test sentences with two items for clefts to some extent (i.e., giving large and medium cookies). Goro (2007) suggested Japanese children's late acquisition of the exhaustive list implicature of subjects with the nominative case marker *-ga*, and our results of 4 and 5-year-olds

may have shown the similar tendency regarding the acquisition of exhaustivity of clefts in Japanese.

To summarize, the overall results suggest that 6-year-old Japanese children have knowledge of the exhaustivity of clefts and the non-exhaustivity of RDs, and that 4- and 5-year-old children are still acquiring those properties of clefts and RDs in Japanese.

5 Conclusion

This study examined children's sensitivity to the exhaustivity of clefts and the non-exhaustivity of RDs in Japanese. We tested Japanese monolingual children from 4 to 6 years old by using the Ternary Judgment Task. The results of our experiment have shown that 6-year-olds are sensitive to the exhaustivity of clefts and the non-exhaustivity of RDs in Japanese, but the results suggest that 4- and 5-year-olds are still in the course of acquiring those properties.

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