The Acquisition of Scrambling in Japanese

1. Introduction: This paper reports an acquisition study on scrambling in Japanese. Several studies have shown that Japanese scrambling is acquired later in the development of grammar. For example, Hayashibe (1975) examines the Japanese children's interpretation of scrambled sentences, and reports that there is an acquisition stage to interpret the first NP (even if it is the scrambled object) as Agent, and the second NP (even if it is the subject following the scrambled object) as Patient. Otsu (1992), on the other hand, argues that Hayashibe's experimental results do not accurately reflect the children's grammatical knowledge. He shows that 3-4 year-old Japanese children interpret scrambled sentences correctly when appropriate discourse contexts are given.

Otsu's findings are reasonable because it has been known that children are quite sensitive to pragmatics. However, it is also curious because for the adults, no context is necessary to interpret scrambled sentences correctly. We demonstrate in this paper that 3-4 year-old children understand scrambled sentences even without discourse contexts, when we make them pay proper attention to the grammatical structure of the sentences. In our experiments, children are asked to interpret active, passive, and scrambled sentences. By including passives in the test sentences, the children are forced to pay more attention to the relation between the Case markers and the thematic roles. We further demonstrate that children at the relevant stage not only interpret the predicate-argument structure of the scrambled sentences correctly, but also exhibit knowledge of the grammatical properties of scrambling, e.g., the reconstruction property.

2. Experiments 1 and 2: Experiment 1 examines whether young children understand the predicate-argument structure of scrambled sentences. Not only scrambled sentences but also passive sentences are tested. Some of the test sentences are shown in (1).

(1)

   bear -nom rat -acc chased
   (The bear chased the rat.)

b. Kaeru-ga, Nezumi-ni ti oikaker-are-ta. <Passives>
   flog -nom rat -by chase-passive-past
   (The flog was chased by the rat.)

c. Usi-o, Ahiru-ga ti oikaketa. <Scrambling>
   cow -acc duck-nom chased
   (The cow, the duck chased.)

The experimental technique used is Act-out. The result we obtain so far is uniformly positive, that is, the children in the stage in question have no problem interpreting the test sentences. However, in one of our experiments, we tested younger children (2-3
year-olds) and obtained an interesting result. They had no problem with scrambling, but some of them showed mixed results with passive. This suggests that the acquisition of passive is delayed compared to scrambling. An implication of this finding is discussed in Section 3 of this paper.

Experiment 2 tests the children's knowledge of the grammatical properties of scrambling. (For the grammatical properties of scrambling, see, Saito 1985, 1989, Tada 1993.) An example of the test sentences for the reconstruction property is shown in (2).

\[(2)\]

\[
\begin{align*}
a. & \text{Kuma-san-ga Usi-san-o zibun-no niwa -de oikaketa.} \\
& \text{bear -nom cow -acc himself-dat garden-at chased.} \\
& \text{(The bear chased the cow at the garden of himself.)}
\end{align*}
\]

\[
\begin{align*}
b. & \text{[Usagi-san-o] [zibun -no niwa -de] Kuma-san-ga t\_t\_ oikaketa.} \\
& \text{rabbit -acc himself-gen garden-at bear -nom chased} \\
& \text{(The rabbit, at the garden of himself, the bear chased.)}
\end{align*}
\]

The experimental technique employed is again Act-out. Our experiments so far show that even early 4-year olds interpret examples like (2) properly. This shows that they are not only able to connect arguments with theta-roles using Case-marking, but also has the knowledge of scrambling as a movement operation.

3. Discussion: As noted earlier, Otsu (1992) shows that the children's knowledge of scrambling surfaces when appropriate discourse contexts are provided. Our results are consistent with his. But we have demonstrated that the relevant factor is just the "attention." When children pay proper attention to the relation between the Case-markers and the thematic roles, they interpret scrambled sentences correctly. Also, one of our pilot studies suggested that knowledge of scrambling is acquired much earlier than generally assumed. Finally, we have demonstrated that young Japanese children not only can interpret simple scrambled sentences, but they have knowledge of scrambling as a movement operation.

We have noted above that the acquisition of passive is probably delayed compared with scrambling. This has an implication for the acquisition research on passive. It has been known that passive is problematic for very young children. There are two possible reasons for this. One is that passive involves complex morphology, and the other is that passive does not conform to the "canonical sentence pattern." Exploring the latter possibility, de Villiers and de Villiers (1973) conjectures that Canonical Sentence Strategy (Bever 1970) may override the syntactic knowledge in comprehension tasks, and that children may tend to interpret the first NP as agent even with passive sentences. Our findings show that this cannot be the whole story. If this is the only source of the difficulty, then children should have problems with passive and scrambling in the same way. Since scrambling is easier than passive for the children, the difficulty with passive is likely to be due, at least in part, to its complex morphology.