

# Children Prefer the Accusative-Dative Order to the Dative-Accusative Order in Japanese

Takaaki SUZUKI

Department of Foreign Languages, Kyoto Sangyo University

E-mail: takaaki@cc.kyoto-su.ac.jp

**Abstract** In recent years, there is a heated discussion about the relative ordering of indirect and direct objects in Japanese. This study investigates Japanese-speaking children's comprehension of the ditransitive construction that involves an indirect object marked with the dative case-marker *ni* and a direct object with the accusative case-marker *o*. Preliminary results show that the children prefer the accusative-dative order to the dative-accusative order, contrary to the adults' preference for the opposite order. I discuss some factors that account for the results, including the Iconicity Hypothesis (Cho et al., 2002; Suzuki et al., 1999).

**Key words** ditransitive construction, word order, first language acquisition, case

## 1. Introduction

Japanese ditransitive construction involves an indirect object marked with the dative case-marker *ni* and a direct object with the accusative case-marker *o*. Thanks to the presence of these case-markers, the order of the two objects is free as shown in (1) where an indirect object is followed by a direct object and in (2) where this order is reversed.

- (1) Daisuke-*ni* Hideki-*o* shookaisita.  
Daisuke-Dat Hideki-Acc introduced  
'(Someone) introduced Hideki to Daisuke.'
- (2) Hideki-*o* Daisuke-*ni* shookaisita.  
Hideki-Acc Daisuke-Dat introduced  
'(Someone) introduced Hideki to Daisuke.'

Both sentences are acceptable in Japanese, but the traditional syntactic analysis suggests that the dative-accusative order in (1) is canonical and the accusative-dative order in (2) is derived by the movement of the direct object, called scrambling (e.g., Hoji, 1985; see Nemoto, 1999 for a summary).

This observation is consistent with recent findings in on-line sentence processing studies. Miyamoto and Takahashi (2002) used the self-paced reading method for testing adult native speakers' comprehension of the ditransitive construction, and found that it took longer for them to read the NP right before the ditransitive verb in the accusative-dative order than in the dative-accusative order. By using the sentence-final judgment task for adults,

Koizumi and Tamaoka (2004) also found that reading times were longer for the accusative-dative order than for the dative-accusative order. Assuming that reading times required for the scrambled sentence are longer than those required for its canonical counterpart due to a processing cost (see Miyamoto, 2006 for a summary), we can take these results as supporting evidence that the dative-accusative order is canonical.

In addition, frequency counts disclosed that the dative-accusative order is used more often than the accusative-dative order in both the newspaper corpus (Miyamoto and Takahashi, 2002) and the speech corpus (Miyamoto and Nakamura, 2005). Frequency does not have a direct connection to syntactic analysis, but it is likely that frequency reflects preferences of sentence structures by native speakers.

## 2. Word order in L1 acquisition of Japanese

Most studies that explored children's comprehension of SOV and OSV sentences found that the canonical SOV is much easier for children to understand than its scrambled counterpart (e.g., Hakuta, 1982; Hayashibe, 1975; Iwatate, 1980; Sano, 1977; Otsu, 1994; Suzuki, 1997). Based on this finding together with what has been observed for the ditransitive construction, it would seem reasonable to predict that Japanese-speaking children would prefer the dative-accusative order to the accusative-dative order. However, there are contradictory results reported in the literature on first

language acquisition.

Suzuki et al. (1999) is the first experimental study that investigated children's sentence comprehension of the ditransitive construction in Japanese. They tested thirty 4-, 5-, and 6 year-old preschool children, divided into three age groups, by using an act-out task. A total of 20 sentences were tested, with five tokens of each of the following four patterns.

(3) Dative-Accusative order with Animate entities

Tora-ni inu-o mise-te.  
tiger-Dat dog-Acc show-Req  
'Show the dog to the tiger.'

Accusative-Dative order with Animate entities  
Inu-o tora-ni mise-te.  
dog-Acc tiger-Dat show-Req  
'Show the dog to the tiger.'

Dative-Accusative order with Inanimate entities  
Siiru-ni kitte-o hat-te.  
sticker-Dat stamp-Acc attach-Req  
'Attach the stamp to the sticker.'

Accusative-Dative order with Inanimate entities  
Kitte-o siiru-ni hat-te.  
stamp-Acc sticker-Dat attach-Req  
'Attach the stamp to the sticker.'

The results indicated that the children's performance was significantly better on the accusative-dative order (84.4%) than on the dative-accusative order (71.7%). On the other hand, there were neither significant main effects nor significant interactions in animacy and age groups. They suggest that unlike adult native speakers of Japanese, preschool children prefer the accusative-dative order.

Sugisaki and Isobe (2001) report the results that are not compatible with Suzuki et al.'s (1999). Sugisaki and Isobe (2001) tested twenty preschool children aged between 3;11 and 5;0 by using the truth value judgment task. The children were told a story with an animation presented on a computer screen. At the end of the story, a cartoon character appeared and made a statement. The child's task was to judge whether the statement was 'true' or 'false'. A sample story (in English here for convenience) and a statement are shown below (Sugisaki and Isobe, 2001, p. 199).

(4) Satoshi came back home with his Pokemon Pikachu during his long journey, in order to introduce Pikachu to his mother. Opening the door, Satoshi said, "Mom, I'm back home!" However, there was no response. On the table he found a memo that said, "I am out shopping." Looking at the memo, he said,

"Oh no, Mom cannot meet Pikachu right now." However, he got a good idea. He took Pikachu to his room, and showed him a picture. In that picture, Satoshi and his mother were smiling. He said, "Hey look, Pikachu. This is my mom!" Pikachu looked very happy to see Satoshi's mother.

Meowce: Satoshi-ga Pikachu-to ouchi-ni kaettekityo.  
Sosite, Satoshi-ga Pikachu-o okaasan-ni misetayo.  
'Satoshi came back home with Pikachu.  
And Satoshi showed Pikachu to his mother.'

If the child correctly interpret the statement, the child's response should be 'false', because *Satoshi* showed a picture of his mother to *Pikachu* in this story. There were two tokens of the nominative-dative-accusative order and one token of the nominative-accusative-dative order, with six other sentences. A verb *miseru* 'show' was used for all test sentences focused here. Note that correct responses for them were all 'false' and that an overt subject marked with nominative *ga* is used in this experiment.

The results showed that the dative-accusative order was correct 90% of the time (85% for one sentence, and 95% for the other) and the accusative-dative was correct only 60% of the time. This seems to indicate that preschool children have difficulty in comprehending the accusative-dative order more often than the dative-accusative order.

Isobe et al. (2004) investigate the same issue but they take into account the two types of ditransitive verbs proposed by Matsuoka (2003) and the base-generation hypothesis by Miyagawa (1997). Miyagawa (1997) claims that both the dative-accusative and accusative-dative orders can be base-generated without scrambling. Therefore, either order can be canonical. Matsuoka (2003), on the other hand, maintains that Japanese ditransitive verbs are categorized into two types in terms of structural positions of two objects. One type is represented by *miseru* (*show*-type) that takes dative-accusative as the canonical order, and the other by *watasu* (*pass*-type) that takes accusative-dative as the canonical order. According to Matsuoka (2003), it is the structurally higher object that can become the subject of the inchoative variant as shown in the following (5): The indirect object in (5a) and the direct object in (5b) become the subjects in the corresponding inchoative sentences.

(5a) John-ga Mary-ni hanataba-o miseta.  
John-Nom Mary-Dat bouquet-Acc showed  
'John showed Mary a bouquet.'

Mary-ga hanataba-o mita.  
Mary-Nom bouquet-Acc saw  
'Mary saw a bouquet.'

(5b) John-ga hanataba-o Mary-ni watashita.  
John-Nom bouquet-Acc Mary-Dat passed  
'John passed a bouquet to Mary.'

Hanataba-ga Mary-ni watatta.  
bouquet-Nom Mary-Dat passed  
'A bouquet passed to Mary.'

Isobe et al. (2004) tested thirteen preschool children ranging in age from 3;7 to 4;6. An act-out task was conducted to examine children's comprehension of the following four test sentences, where the child's actual name was used for a subject.

(6) Dative-Accusative order with *show*-type verb *kabuseru* 'put'  
[Name]-ga akai boosi-ni aoi boosi-o kabuse-te.  
Name-Nom red hat-Dat blue hat-Acc put-Req  
'[Name] put the blue hat on the red hat.'

Accusative-Dative order with *show*-type verb *kabuseru* 'put'  
[Name]-ga kuroi boosi-o aoi boosi-ni kabuse-te.  
Name-Nom black hat-Acc blue hat-Dat put-Req  
'[Name] put the black hat on the blue hat.'

Dative-Accusative order with *pass*-type verb *butukeru* 'hit'  
[Name]-ga aoi kussyon-ni pinkuno kussyon-o butuke-te.  
Name-Nom blue cushion-dat pink cushion-Acc hit-Req  
'[Name] hit the pink cushion on the blue cushion.'

Accusative-Dative order with *pass*-type verb *butukeru* 'hit'  
[Name]-ga midorino kussyon-o pinkuno kussyon-ni butuke-te.  
Name-Nom green cushion-Acc pink cushion-Dat hit-Req  
'[Name] hit the green cushion on the pink cushion.'

The results disclosed 85% correct on the sentences involving *kabuseru* (*show*-type) for both the dative-accusative and accusative-dative orders. For the sentences involving *butukeru* (*pass*-type), the children correctly interpreted the dative-accusative order only 38% of the time, whereas they were correct on the accusative-dative order 100% of the time. Isobe et al. (2004) suggest from these results that the children's performance was consistent with Matsuoka's (2003) theory.

### 3. Experiment

Previous L1 research on the relative ordering of two objects in the ditransitive construction is far from conclusive. Only Isobe et al. (2004) considered two types of ditransitive verbs proposed by

Matsuoka (2003). The present study asks the same fundamental question on the children's comprehension of the ditransitive construction: Which word order is easier and what affects children's preference? In order to investigate these, this study considers the effects of verb types (Matsuoka, 2003) and discourse context (e.g., Otsu, 1994).

According to Matsuoka's (2003) proposal, children should perform better on the dative-accusative order for *show*-type verbs and on the accusative-dative order for *pass*-type verbs than the alternative word orders, if they prefer the canonical word order to the scrambled version. This prediction seems partially consistent with Isobe et al's (2004) data on *pass*-type verbs, but it is difficult to draw a conclusion from their overall results.

The effect of discourse context in sentence comprehension is widely observed in adult sentence processing (see Clifton and Duffy, 2001 for a summary). On the other hand, a traditional sentence comprehension task in L1 research provides children with a test sentence in isolation. However, as Otsu (1994) maintains, this method is likely to underestimate children's grammatical knowledge of word order and case in Japanese. Otsu (1994) demonstrates that discourse context helps Japanese-speaking children understand the scrambled word order for the sentence that involves a transitive verb. If the same effect is available in the ditransitive construction, children should perform better on scrambled sentences with discourse context than those without. The present study explores this possibility as well.

#### Subjects

Eleven Japanese-speaking preschool children (age range = 4;6 – 6;7) participated in the act-out sentence comprehension task.

#### Method and Procedure

Children were asked to respond to requests with the help of toys and props. They were orally given test sentences exemplified below.

(7) Dative-Accusative order with *show*-type verb  
Raion-ni kuma-o mise-te.  
lion-Dat bear-Acc show-Req  
'Will you show the bear to the lion?'

Accusative-Dative order with *show*-type verb  
 Kuma-o panda-ni mise-te.  
 bear-Acc panda-Dat show-Req  
 ‘Will you show the bear to the panda?’

Dative-Accusative order with *pass*-type verb  
 Panda-ni lion-o nose-te.  
 panda-Dat lion-Acc put-Req  
 ‘Will you put the lion on the panda?’

Accusative-Dative order with *pass*-type verb  
 Raion-o kuma-ni nose-te.  
 lion-Acc bear-Dat put-Req  
 ‘Will you put the lion on the bear?’

*Miseru* ‘show’ and *kabuseru* ‘put’ were used as *show*-type verbs, and *noseru* ‘put’ and *otosu* ‘drop’ as *pass*-type verbs. The former of each type was used with animate objects, and the latter with inanimate objects, both of which made reversible sentences. These sentence patterns were tested twice: once with discourse context and once without it. Discourse context introduced the entity that was used as a sentence-initial NP in the following test sentence, as shown in (8).

(8) Koko-ni sinbunsi-ga aru-yo. (context)  
 here-Loc newspaper-Nom exist-Pcl  
 ‘Here is a newspaper.’

Sono sinbunsi-o hankati-ni kabuse-te. (test sentence)  
 that newspaper-Acc handkerchief-Dat cover-Req  
 ‘Will you cover the handkerchief with the newspaper?’

There were a total of sixteen test sentences. Practice sentences were also included to ensure that the children knew the names of animal toys and props and that they understood the task. All participants correctly acted out for the practice sentences, where intransitive and transitive verbs were used. All participants completed the task.

## 4. Results

The overall results indicate that the children performed better on the accusative-dative order (76.2% correct) than on the dative-accusative order (61.4% correct). Due to the small number of participants tested so far, only the results of descriptive statistics are reported here. Table 1 shows the percentages of correct responses for each sentence type.

For *show*-type verbs, it was possible to predict that children were better on the dative-accusative order than on the

accusative-dative order, regardless of whether we adopted the traditional theory (e.g., Hoji, 1985) or Matsuoka’s (2003) proposal. However, it turns out that this is not true. The percentages of the correct responses for the accusative-dative order are higher than those for the dative-accusative order. Discourse context did not affect this tendency, but the effect of the context seems to be greater for the dative-accusative order than for the accusative-dative order.

**Table 1 Percentages of correct responses on each sentence type**

word order	<i>show</i> -type		<i>pass</i> -type	
	with context	w/o context	with context	w/o context
dat-acc	68.2%	50%	72.7%	54.6%
acc-dat	77.3%	72.7%	77.3%	77.3%

In terms of *pass*-type verbs, the children also performed better on the accusative-dative order than on the dative-accusative order. This is what Matsuoka’s (2003) theory predicts but is inconsistent with the traditional analysis (e.g., Hoji, 1985). The children’s performance on the dative-accusative order improved with the help of context, but this effect is hardly observed for the accusative-dative order.

In sum, we can say that children performed better on the accusative-dative order than on the dative-accusative order regardless of verb types, and that the effect of discourse context was observed mainly for the dative-accusative order. They are also shown in Table 2, which indicates the number of children in terms of their word order preferences. The number in each cell shows the number of children (out of eleven) regarding on which word order they scored more than the other.

**Table 2 The number of children in terms of their word order preferences**

	with context	without context
accusative-dative	8	7
dative-accusative	2	3
neither	1	1

## 5. Discussion

In the literature on adult sentence processing in Japanese, it has been reported that the accusative-dative order takes longer to process than the dative-accusative order (Miyamoto and Takahashi, 2002; Koizumi and Tamaoka, 2004). Consistent with the traditional

syntactic analysis, these adults' data could be taken as a piece of evidence that the canonical word order of the ditransitive construction is dative-accusative. On the other hand, both Sugisaki and Isobe (2001) and Isobe et al. (2004) suggest that their children's data contribute to the assessment of syntactic theory. It is important and even ideal that behavioral data can be used to show the psychological reality of linguistic theory, but for the assessment of a theory the data should not contain noise that is not accounted for by the theory. In this sense, children's data are generally believed to be susceptible to performance factors as compared with adults' data. Thus, I would like to assume that adults' performance rather than children's reflects the syntactic theory: The dative-accusative order is canonical. In the following, I will discuss what makes the difference between adults' and children's performance with regard to the word order preferences for the ditransitive construction.

#### *The Iconicity Hypothesis*

The results of the present study are consistent with Suzuki et al. (1997) and Cho et al. (2002). These studies are collaborative research on L1 word order in Japanese and Korean, where we have observed the children's strong preference for the accusative-dative order over the dative-accusative order. In order to account for this, we have adopted the notion of iconicity and isomorphism (e.g., Haiman, 1985a, b) and have suggested the Iconicity Hypothesis shown in (9).

- (9) The Iconicity Hypothesis: Children prefer sentences whose word order is iconic with the corresponding situation (Cho et al., 2002, p. 903).

The ditransitive construction typically denotes the situation where the referent of the subject acts on the referent of the direct object, causing its transfer often in an abstract sense, to the referent of the indirect object. The children's word order preference seems to reflect the way in which this kind of situation comes about. It is not certain, however, whether iconicity represents their grammatical knowledge. If iconicity is part of children's grammar, children are likely to have different syntactic knowledge from that

of adults'. On the other hand, if iconicity is a pragmatic factor, which I believe is the case, it may override children's grammatical knowledge for some reason.

#### *The role of context*

One way to try to exclude pragmatic factors from children's performance is to use test sentences with discourse context. In this way, Otsu (1994) seems to have succeeded in distinguishing pragmatic factors from children's grammatical knowledge, and suggests that the knowledge of scrambling is available in the grammar of children. In light of Otsu (1994), discourse context should have helped children understand the scrambled word order in the current study.

However, a strange effect of context appeared. It was the canonical word order--the dative-accusative--that improved with the help of context. This may be partly because with the context both word orders became natural for children. As a result, the lower scores of the two had more chance to be improved when given context. Another possibility, which is not inconsistent with this, is that the existence of context suppresses the iconicity effect. If this happens, the scores on the dative-accusative order improve since the Iconicity Hypothesis disfavors the order that does not match corresponding situation.

#### *Acquisition of case-markers*

It is very likely that children's unstable knowledge of case-markers affected their performance. For the sentence comprehension task used in this study, the knowledge of case-markers is essential. However, preschool children frequently make case-marking errors in experimental situations (e.g., see Suzuki, to appear for a summary), and Suzuki (to appear) suggests the possibility that children younger than 5;6 sometimes misuse case-markers for sentence comprehension without the information provided by word order. Making errors in the task of the present study indicates that the children cannot use the dative and accusative case-markers for syntactic parsing in an adult-like way, which is likely to induce the iconicity effect.

## 5. Conclusion

Based on preliminary results, this study concludes that preschool children prefer the accusative-dative order to the dative-accusative order in Japanese ditransitive construction. Their preference is unlikely to be affected by verb types (Matsuoka, 2003) or by using context (Otsu, 1994). The effect of iconicity seems to give a robust sentence comprehension strategy to preschool children. Of course, the present study needs much more data to confirm what I have suggested so far. At the same time, we need to investigate what causes the iconicity effect and when it disappears.

## References

- Cho, Sookeun, Lee, Miseon, O'Grady, William, Song, Minsun, Suzuki, Takaaki and Naoko Yoshinaga (2002) Word order preferences for direct and indirect objects in children learning Korean. *Journal of Child Language* 29: 897-909.
- Clifton, Charles Jr., and Susan Duffy (2001) Sentence and text comprehension: Role of linguistic structure. *Annual Review of Psychology* 52: 167-96.
- Hakuta, Kenji (1982) Interaction between particles and word order in the comprehension and production of simple sentences in Japanese children. *Developmental Psychology* 18: 62-76.
- Hayashibe, Hideo (1975) Word order and particles: A developmental study in Japanese. *Descriptive and Applied Linguistics* 8: 1-18.
- Hoji, Hajime (1985) Logical form constraints and configurational structures in Japanese. Unpublished doctoral dissertation, University of Washington.
- Isobe, Miwa, Katsura, Natuko, Koizumi, Masatoshi, Nasukawa, Kuniya, Sakai, Yumi, Sugisaki, Koji, and Noriaki Yusa (2004) The syntax of ditransitives in Japanese: A preliminary report from acquisition. In: Yukio Otsu (ed.), *The proceedings of the fifth Tokyo conference on psycholinguistics*, 163-182. Tokyo, Hitsujishobo.
- Iwatate, Shizuo (1980) The word-order and case strategies in Japanese children. *The Japanese Journal of Psychology* 51: 233-40.
- Haiman, John (1985a) *Natural syntax: Iconicity and erosion*. London: Cambridge University Press.
- Haiman, John (1985b) The iconicity of grammar: Isomorphism and motivation. *Language* 56: 515-540.
- Koizumi, Masatoshi and Katsuo Tamaoka (2004) Cognitive processing of Japanese sentences with ditransitive verbs. *Gengo Kenkyu*: 125, 173-190.
- Matsuoka, Mikinari (2003) Two types of ditransitive construction in Japanese. *Journal of East Asian Linguistics* 12: 171-203
- Miyagawa, Shigeru (1997) Against optional scrambling. *Linguistic Inquiry* 28: 1-25.
- Miyamoto, Edson T. (2006) Processing alternative word orders in Japanese. In: Mineharu Nakayama, Reiko Mazuka and Yasuhiro Shirai (eds.) *The handbook of East Asian psycholinguistics volume II: Japanese*, 257-263. Cambridge, Cambridge University Press.
- Miyamoto, Edson T. and Shoichi Takahashi (2002) Sources in difficulty in processing scrambling in Japanese. In: Mineharu Nakamaya (ed.) *Sentence processing in East Asian languages*, 167-188. Stanford, CA.: CSLI Publications.
- Miyamoto, Edson T. and Michiko Nakamura (2005) Unscrambling some misconceptions: A comment on Koizumi and Tamaoka (2004) *Gengo Kenkyu*: 128, 113-129.
- Nemoto, Naoko (1999) Scrambling. In: Natsuko Tsujimura (ed.), *The handbook of Japanese linguistics*, 121-153. MA.: Blackwell Publishers.
- Otsu, Yukio (1994) Early acquisition of scrambling in Japanese. In: Teun Hoekstra, and Bonnie D. Schwartz (eds.) *Acquisition studies in generative grammar*, 253-264. Amsterdam: John
- Sano, Keiko (1977) An experimental study on the acquisition of Japanese simple sentences and cleft sentences. *Descriptive and Applied Linguistics* 10: 213-233.
- Sugisaki, Koji and Miwa Isobe (2001) Some asymmetries in child Japanese and their theoretical implications. In: Yukio Otsu (ed.), *The proceedings of the second Tokyo conference on psycholinguistics*, 187-208. Tokyo, Hitsujishobo.
- Suzuki, Takaaki (1997) The effects of discourse context on children's interpretations of Japanese non-canonical sentences. In: Dina Yoshimi and Marilyn Plumlee (eds.) *The life of language, the language of life*, 29-36. Honolulu: National Foreign Language Resource Center.
- Suzuki, Takaaki (to appear) The development of Japanese case-markers observed through children's comprehension of single-argument sentences. *Gengo Kenkyu*.
- Suzuki, Takaaki, Cho, Sookeun, Lee, Miseon, O'Grady, William, Song, Minsun and Naoko Yoshinaga (1999) Word order preferences for direct and indirect objects in children learning Japanese. *The 2nd international conference on cognitive science and the 16th annual meeting of the Japanese cognitive science society joint conference*, 108-112.

## Acknowledgements

This work was supported by Grant-in-Aid for Scientific Research (C) 19520373 from The Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan.