A Subject-object Asymmetry in the First Language Acquisition of Japanese: The Omissibility and Retention of Case-marking Particles

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1 Introduction
The acquisition of Japanese case involves the processes of learning at least two aspects of case. One is morphological case-marking. Children need to learn which case-marking particles to use in order to mark grammatical relations of argument NPs. The other is the omissibility of the case-marking particles. Children must acquire the knowledge as to under what circumstances they can drop case-marking particles. This paper is focused on the second issue, and investigates children’s syntactic knowledge of case drop in experimental settings.

Japanese case is morphologically marked by postpositional particles. A subject is usually marked with nominative ご and a direct object with accusative お as in the following sentence in (1).

(1) Dare-ga nani-o tabeta no?
who-Nom what-Acc ate Q
'Who ate what?'

These case-marking particles are primary indicators of the grammatical relations in Japanese; however, they may often be dropped from argument NPs. This phenomenon is typically referred to as case drop or case particle deletion, which is widely believed to involve a syntactic constraint (e.g., Fukuda 1993; Saito 1985; Takezawa 1987a). This is represented as a contrast between (2a) and (2b), both of which are intended to mean 'Who ate what?'.

(2) a. ?Dare-∅ nani-o tabeta no?
b. Dare-ga nani-∅ tabeta no?

In a discoursally neutral context, accusative お may be dropped from the direct object as in (2b), whereas nominative ご may not be dropped from the subject as in (2a). Therefore, the omissibility of case-marking particles is manifested as a subject-object asymmetry stated as in the following (3).

(3) Subject-object asymmetry in case drop: A case particle on a direct object NP may be dropped, whereas that on a subject NP may not.

Fukuda (1993) proposes that Japanese case drop is licensed by one of the universal principles of UG: the Empty Category Principle (ECP) which requires that traces must be properly governed. In this view (see also Kanno, 1996), the accusative case particle may be dropped since the direct object position—sister of
V—from which it is dropped is lexically governed by V; therefore, this is proper government and the ECP is satisfied. On the other hand, the subject position—out of VP (e.g., Spec of IP)—may not be properly governed because INFL is not a lexical governor. Hence, the omission of the nominative case particle in the subject position results in a violation of the ECP.

According to this account, the language-particular phenomenon of Japanese case drop is viewed as the manifestation of a universal constraint on natural language, where the subject-object asymmetry is hierarchically represented. Moreover, since the asymmetry refers to hierarchical syntactic structure, it follows that any argument NPs in the direct object position (i.e., sister of V) should allow case drop.

Compare the following sentences: the so-called stative verbal constructions in which both subjects and direct objects of stative verbals are marked with the nominative case.\(^2\)

\[(4) \text{Dare-ga nani-ga kiraina no?}\]
\[\text{who-Nom what-Acc dislike Q}\]
\[\text{'Who dislikes what?'}\]

\[(5) \text{a. ?Dare-}\phi \text{nani-ga kiraina no?}\]
\[\text{b. Dare-ga nani-}\phi \text{kiraina no?}\]

As shown in the contrast between (5a) and (5b), case drop from the direct object NP is acceptable even though the dropped case particle is nominative \(ga\), whereas case drop from the subject NP is unacceptable. Note that some stative verbals may take dative subjects as well as nominative subjects. Nevertheless, only case drop from direct objects is possible. On the assumption that the syntactic structure of the stative verbal construction is identical to that of a canonical Japanese sentence like in (1), we can account for this contrast as the subject-object asymmetry.\(^3\) That is, the case drop in (5b) is permitted, because the second argument NP is the sister of V.

Further observations on case drop are available for intransitive sentences. An intransitive verb, by nature, requires only one argument NP. This is the syntactic subject of the sentence, but it has been suggested that the subject position of intransitive verbs varies depending on two types of intransitive verbs: unergative and unaccusative (Kageyama, 1993; Nishigauchi, 1992). Unergative verbs typically select agentive-subjects and unaccusative verbs theme-subjects. According to Kageyama (1993) and Nishigauchi (1992), the subject of unergative verbs is out of VP, whereas that of unaccusative verbs is the sister of V, which is identical to the syntactic position of a direct object.\(^4\) As a consequence, only the subject of unaccusative verbs allows case drop. The following are based on instances provided by Kageyama (1993) to show this contrast.
Otsu (1994) experimentally demonstrated that Japanese-speaking children as young as three years old know the syntactic constraint involved in case drop. He examined twenty Japanese-speaking children aged between 3;0 and 4;11 on both production and comprehension tasks. In the production task, no child dropped the nominative case particle from subjects. On the other hand, the children dropped the accusative case particle from direct objects 35% to 50% of the time. For comprehension, Otsu found that argument NPs without case particles were always interpreted by the children as patient which is most likely to be the direct object of actional verbs used in the experiment.

These results were clear and impressive, suggesting that the children's knowledge of case drop is consistent with the subject-object asymmetry (3). However, since Otsu tested only transitive verbs that require subjects marked with nominative \textit{ga} and direct objects with accusative \textit{o}, the asymmetry observed in the experiment may simply be a nominative-accusative asymmetry as stated in (7).

\begin{equation}
(7) \text{ Nominative-accusative asymmetry in case drop: o may be dropped, but ga may not.}
\end{equation}

The nominative-accusative asymmetry is consistent with the subject-object asymmetry; however, the former refers only to types of case particles. Hence, it is independent of syntactic structure. If the children in Otsu's study employed the strategy of dropping \textit{o} and retaining \textit{ga} for a certain reason, then their performance might not have necessarily been based on syntactic knowledge such as the ECP.

\section*{2 Experiments}

In order to investigate the subject-object asymmetry in children's case drop, the present study examines children's sentence production involving case-marking particles for stative verbals and for the two types of intransitive verbs mentioned above. Two experiments were conducted: Experiment I involved stative verbal constructions as compared with canonical transitive sentences, and Experiment II involved unergative and unaccusative constructions. For these experiments, the following hypotheses were formulated.
If children know the syntactic constraint on the omissibility of case-marking particles (i.e., the subject-object asymmetry),
a. in Experiment I, the children will drop the nominative case particle from direct objects more frequently than from subjects even for stative verbal constructions.
b. in Experiment II, the children will drop the nominative case particle from subjects of unaccusative verbs more frequently than from those of unergative verbs.

Since the two experiments were conducted in the same way, I will describe the experimental procedures before getting into the details of each experiment.

The method adopted here is called elicited production (see, for example, Crain & Thornton 1998). My experiments used picture cues and a puppet with whom the child communicated in order to elicit wh-argument questions from the child. Questions involving wh-arguments were targeted because they are compatible with case particles but not with the topic marker as shown in (9).

\[(9) \text{ Dare-ga/wa} \text{ tabeta no?} \]
\[\text{ who-Nom/Top ate Q} \]
\[\text{ 'Who ate?'} \]

Since wh-arguments are not usually used with the topic marker, it is naturally assumed that dropped particles are case particles when the wh-arguments appear without any particle. Thus, by identifying the grammatical relations of the wh-argument, we can recover the dropped case particle.

Let us suppose we are trying to elicit a subject of the stative verbal *kirai* 'dislike'. First, a picture depicting this event was shown to the child (Figure 1). In order to ensure that the child understood the names of the entities in the picture, the experimenter had a conversation with the child about the entities, by asking about and/or just mentioning them. In doing so, the experimenter also gave the child the verbal *kirai* 'dislike' by using the sentence in (10).

\[(10) \text{ Kirainan da ne.} \]
\[\text{ dislike Cop Pcl} \]
\[\text{ '(X) dislikes (Y).'} \]

Note that the experimenter never gave case-marking information to the child. That is, he did not mention argument NPs, but this is totally natural in this context. Next, two pictures were shown (Figure 2). They were placed side by side in transparent sheets in a binder. The left picture showed two objects. (In this case, two animate objects.)
Figure 1. The first picture used for the elicitation of a *wh*-subject of *kirai*.

Figure 2. The second pictures used for the elicitation of a *wh*-subject of *kirai*.

The right picture showed the same event as in the first picture but the entity being elicited was hidden with a black cover. The other entity not elicited here was the same one as in the first picture. (A carrot in this case.) For this picture, a cue sentence (11) was given.

'Hey, look, (X) dislikes (a carrot).'

The child was also told that the covered entity was one of the two objects in the left picture. Then, a third party, a puppet named *Zyazzi 'Judge'* was introduced and the experimenter told the child that he (*Zyazzi*) was the one who knew what the hidden object was by saying (12).

(12) Kore mie-nai deshoo. Demo ne, Zyazzi-wa wakaru-n dat-te sa. Dakara,  
Zyazzi-ni kiite-mite.  
'We can't see this.' 'But the Judge knows.' 'So, ask the Judge (who).'
The child was supposed to ask a subject *wh*-question in this interaction. When the target entity was the direct object of the sentence, an object *wh*-question was expected. The target sentences are shown in (13).

(13) Subject *wh*-question Object *wh*-question
    Dare-ga kiraina no? Nani-ga kiraina no?
    who-Nom dislike Q what-Nom dislike Q
    'Who dislikes (X)?' 'What does (X) dislike?'

2.1 Experiment I

Subjects

Twenty-seven preschool children living in Japan participated in this experiment. The ages of the children ranged from 3;5 to 6;6 (mean age = 4;10). They were divided into two age groups. The younger group consisted of twelve children (mean age = 3;10). There were five 3-year olds and seven 4-year olds in this group. The older group consisted of fifteen children (mean age = 5;3). There were ten 5-year olds and five 6-year olds in this group.

Materials

The stative verbals tested in this experiment are summarized in Table 1. The children's performance on these stative verbals was compared with their performance on non-stative transitive verbs (hereafter, transitive verbs).

Table 1 Tested Verbs in Experiment I

<table>
<thead>
<tr>
<th>Verb Types</th>
<th>Subject</th>
<th>Direct object</th>
<th>Verbs (4 tokens)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stative</td>
<td>animate</td>
<td>inanimate</td>
<td>*kirai 'dislike', *mieru 'be able to see', *suki 'be fond of', *wakaru 'understand'</td>
</tr>
<tr>
<td>Transitive (non-causative)</td>
<td>animate</td>
<td>inanimate</td>
<td>*motu 'pick up', *taberu 'eat', *nomu 'drink', *yomu 'read'</td>
</tr>
</tbody>
</table>

Among the four stative verbals, *wakaru 'understand'* and *mieru 'be able to see'* are compatible with both dative and nominative subjects. The other two, *suki 'be fond of'* and *kirai 'dislike'* are nominal adjectives, and they are compatible only with nominative subjects (Kuno 1973:90-1). All the stative verbals tested here can be used in reversible sentences. But, they were used with animate subjects and inanimate direct objects in this experiment. Both the stative verbals and the transitive verbs were used in the present tense.

There were four tokens for each type. The verbs were used twice: once for subject elicitation and once for direct object elicitation. Therefore, a total of 16 sentences were elicited from each child in random order.

For inferential statistics, there were three independent variables. They were grammatical relations with two levels (subject, direct object), verb type with
two levels (stative, transitive), and age group with two levels (younger, older). The effect of each variable and their interactions will be examined.

Results

The children’s utterances were examined as to whether they were consistent with the target sentence form shown in (14).

(14)  \textit{Wh}-argument (+ case particle) + verb(al)

Out of 432 tokens, 414 utterances were considered to exhibit the target form. This proportion reaches 95.8\%, ranging from 91.7\% for stative subjects to 98.1\% for transitive subjects.\textsuperscript{6}

Table 2 shows the percentages of dropping rate for case particles out of the total number of target sentences.

| Table 2 Proportions of Case Drop for Stative Verbals and Transitive Verbs |
|-----------------------------|-----------------|-----------------|-----------------|-----------------|
|                             | Subject | Object | Subject | Object |
| Younger                     | 11.1\%  | 13.2\% | 19.4\%  | 54.2\% |
| Older                       | 6.7\%   | 28.3\% | 18.9\%  | 46.7\% |
| Mean                        | 8.6\%   | 21.6\% | 19.1\%  | 50.0\% |

A three-way repeated measures ANOVA was performed to examine the effect of each independent variable and interactions. The main effect of grammatical relations was significant, $F(1,25) = 20.620\ast$, $P = .000$, reflecting the fact that the children dropped case particles from direct objects more frequently than those from subjects. Also, the main effect of verb type was significant, $F(1,25) = 24.919\ast$, $P = .000$, since the children dropped case particles for transitive verbs more frequently than those for stative verbals. There was a significant two-way interaction between grammatical relations and verb type, $F(1,25) = 7.769\ast$, $P = .010$. This is because the children dropped case particles from direct objects more frequently than from subjects for both types of verbs, while the difference in the dropping rate of particles between subjects and direct objects was greater for transitive verbs than for stative verbals. In other words, the subject-object asymmetry of case particle deletion was observed to be more remarkable for transitive verbs than for stative verbals. There were no effect of age group, $F(1,25) = .004$ n.s., $p = .951$, and no interaction effect involving age group ($p > .05$).
2.2 Experiment II

Subjects
Twenty-three preschool children living in Japan participated in this experiment. Their ages ranged from 3;0 to 6;1 (mean age = 4;5). There were fifteen 3- and 4-year-olds, and eight 5- and 6-year-olds.

Materials
The tested verbs are summarized in Table 3. They include both unergative and unaccusative verbs. An unergative-unaccusative distinction is made based on the agentivity of the subject that each verb takes. Type 1 verbs are unergative since they select agentive subjects, while all others are unaccusative taking non-agentive subjects. Unaccusative verbs are further classified into four subtypes depending on the animacy of arguments that they can take. Type 2 verbs are those inherently selecting animate subjects and Type 3 inanimate subjects. Type 4 and Type 5 verbs are identical, and can be used to take either animate or inanimate subjects. In this experiment, both animate subjects (Type 4) and inanimate subjects (Type 5) were elicited.

Table 3 Tested Verbs in Experiment II

<table>
<thead>
<tr>
<th>Verb Types</th>
<th>Verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1: unergative</td>
<td>oyogu 'swim', hasiru 'run', odoru 'dance', tatu 'stand up'</td>
</tr>
<tr>
<td>Type 2: unaccusative</td>
<td>korobu 'fall over', tukareru 'get tired', hutoru 'get fat', mayou 'get lost'</td>
</tr>
<tr>
<td>Type 3: unaccusative</td>
<td>aku 'open', kowareru 'break', kirera 'cut', wareru 'break'</td>
</tr>
<tr>
<td>Type 4: unaccusative</td>
<td>otiru 'fall', taoreru 'fall down', ukabu 'float', sizumu 'sink'</td>
</tr>
<tr>
<td>Type 5: unaccusative</td>
<td>same as Type 4 verbs</td>
</tr>
</tbody>
</table>

There were four tokens for each type: a total of 20 sentences were elicited from each child in random order.

Results
The children's utterances were examined as to whether they were consistent with the target sentence form. Out of 460 tokens, 386 utterances were considered target utterances. This proportion reaches 83.9%, ranging from 80.4% for Type 1 verbs to 87.0% for Type 5 verbs. Overall, case drop was observed in 12.5% of all target utterances, and there is no effect of verb type as shown in Table 4. The results show that the children's case drop for intransitive verbs was not frequent. They used case particles more than 85% of the time in the experimental situation. Eleven children never dropped case particles. The results suggest that the retention/omission of case particles does not depend on verb types. This is confirmed by the results of a
one-way repeated measures ANOVA examining the effect of verb type, $F(4, 88) = .169$ n.s., $p = .954$. Importantly, therefore, no effect of unaccusativity was observed in the children's case drop because no contrast between Type 1 verbs (unergative) and others (unaccusative) was found.

<table>
<thead>
<tr>
<th>Verb types</th>
<th>Dropped case particles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>12.2%</td>
</tr>
<tr>
<td>Type 2</td>
<td>14.5%</td>
</tr>
<tr>
<td>Type 3</td>
<td>10.1%</td>
</tr>
<tr>
<td>Type 4</td>
<td>14.3%</td>
</tr>
<tr>
<td>Type 5</td>
<td>11.3%</td>
</tr>
<tr>
<td>Mean</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

3 Discussion
3.1 Experiment I
The results of Experiment I suggest that the children demonstrated their knowledge of the subject-object asymmetry in case drop. They dropped case particles from direct objects more frequently than from subjects in both transitive and stative verbal constructions. If their case drop were dependent on particle types (i.e., the nominative-accusative asymmetry), the subject-object asymmetry would not have been observed for stative verbal constructions because both subjects and direct objects are marked with nominative *ga* in this construction. The fact that the children dropped *ga* from direct objects more often than from subjects suggests that they make reference to hierarchical syntactic structure in deciding which case particles to drop; therefore, the syntactic constraint on the omissibility of case-marking particles (e.g., ECP) must be available in the child grammar.

What was not expected is, however, the fact that the subject-object asymmetry in case drop was greater for transitive verbs than for stative verbs. This must be taken to be interpreted that the subject-object asymmetry alone cannot account for the children's performance. If the children's case drop was solely due to the subject-object asymmetry, there should have been no difference between the two constructions.

Here I suggest that the semantic functions of the nominative case particle may be involved in the children's retention of *ga*. Unlike the accusative case particle *o*, nominative *ga* has semantic functions such as exhaustive listing (e.g., Kuno 1973) and focus (e.g., Shibatani 1990). If children are sensitive to these semantic and functional aspects of particles, it is likely that they have a strategy of retaining only those having semantic functions, because they may semantically be required. If this is true, the children's treatment of *ga* for direct objects of stative verbs is influenced by both the semantic and syntactic aspects of Japanese case. Since they give children contradictory directions—retention due to semantics while dropping due to syntax—their case drop for stative verbal constructions
may have resulted in less remarkable subject-object asymmetry than that for transitive verbs.

I have assumed that the dropped case particle in stative verbal constructions is the nominative case particle. But, in fact there is no way to identify what the dropped particle was, and this would be problematic if children's case-marking for stative verbal constructions involved the accusative case particle. That is, if the children had assumed accusative o for a direct object and they had dropped it, what was being tested might simply be the nominative-accusative asymmetry. Although it is impossible to completely reject this possibility, there is indirect evidence that the dropped particle was the nominative case ga. This comes from the children's production of morphological case-marking particles. When they used case particles for direct objects of stative verbals, they were almost always nominative ga: accusative o was produced only four times by two children. Therefore, I believe that this may be considered a minor factor to argue against the children's subject-object asymmetry for stative verbal constructions.

3.2 Experiment II

The results of Experiment II suggest that the children might not have knowledge of case drop. This is because they did not differentiate unaccusative verbs from unergative verbs in terms of case drop. Following Kageyama (1993) and Nishigauchi (1992), I adopted the theoretical basis that the subject of unaccusative verbs is the sister of V and thus it allows case drop. However, the children's performance was not consistent with this analysis. Does this mean that their linguistic knowledge does not involve the syntactic constraint represented as the subject-object asymmetry? This may not necessarily be true for two reasons.

One reason is based on the adults' performance on case drop. Hirakawa (1999) tested Japanese-speaking adults on case drop as part of her L2 experiment, and found that regardless of verb type—unergative or unaccusative—adult native speakers of Japanese judged intransitive sentences involving case drop as rather ungrammatical. She closely examined the performance of those consistently showing the subject-object asymmetry for transitive sentences, and reports that even these people had no contrast for the two types of intransitive verbs. Considering these results, I believe that it would be unsatisfactory to jump to conclusions that the syntactic constraint on the omissibility of case-marking particles is not available in child grammar, because the children's performance is consistent with the adults'.

The second reason is that there is a disagreement on Japanese unaccusativity and case drop among linguists. Taking the results of her experiment, Hirakawa (1999) considers the proposal by Nakayama and Koizumi (1991) who claim that the subject of unaccusative verbs optionally moves out of VP in Japanese. According to this position, case drop may or may not be allowed for unaccusative subjects since they may or may not be the sister of V. On the other hand, following Burzio (1986), Miyagawa (1989) suggests that in Japanese
the subject of unaccusative verbs moves out of VP just like the subject of unergative verbs. Thus, they end up taking the same syntactic position. If this is correct, there is no subject-object asymmetry for intransitive subjects, and there should be no difference in the omissibility of case particles between unergative and unaccusative verbs. The children's performance is consistent with this analysis. Moreover, in this view, the children's retention of the subject case markers may be regarded as their sensitivity to the structural position of the subjects, because the children were not affected by semantic aspects of verbs and arguments for the retention of the nominative case.

4 Conclusion
Experimental findings include that the Japanese-speaking children's case drop is not simply based on the nominative-accusative asymmetry. They certainly make reference to hierarchical syntactic structure to demonstrate the syntactic constraint on the omissibility of case-marking particles. On the other hand, it was also found that the children's case drop is likely to involve other factor(s). I have suggested the children's sensitivity to the semantic functions of *ga* as an account of their retention of the nominative case particle, which has been reflected in the results of Experiment I. In Experiment II, the children's performance was not consistent with the adopted theory. Although the children had no contrast between unergative and unaccusative verbs in terms of case drop, their performance was consistent with adults'. This may suggest that it is the theoretical assumption of Japanese unaccusativity that requires reconsideration.

Notes
1. For a full discussion of the ECP, see, for example, Chomsky (1981, 1986a, 1986b) and Lasnik and Saito (1984).
2. A variety of syntactic tests are available to demonstrate the subject and object statuses of the argument NPs in this construction (see, for example, Shibatani, 1977, 1990; Takezawa, 1987b). It should also be noted that the term ‘verbal’ is used to refer to adjectives and nominal adjectives as well as verbs in Japanese.
3. See, for example, Takezawa (1987a).
4. For example, Kageyama (1993:56-62) examines PRO interpretation, indirect passive, and passivized causative as well as case drop to demonstrate the difference in the subject positions between unergative and unaccusative verbs.
5. It should be noted that the focus of the production task in Otsu (1994) was to examine the adjacency condition for case drop (Takezawa 1987a). That is, the accusative case particle, which may be dropped in an SOV word-order, may not be dropped in an OSV word-order, because the direct object NP is not adjacent to V. The production task investigates the children's knowledge with this regard, and revealed that the children followed the adjacency condition. In Otsu's study, therefore, this is taken as another reason to believe that the child grammar involves hierarchical syntactic structure and the knowledge of case drop.
6. A three-way repeated measures ANOVA was conducted to examine whether any main effect or interaction effect was significant for the children's production of the target form. The results indicate that no effect was significant ($p > .05$).
7. A one-way repeated measures ANOVA was conducted to examine whether there was a significant difference among verb types for the children's production of the target form. But, the results show no effect of verb type, $F(4, 88) = .796$ n.s., $p = .531$. 
8. The accusative case particle might also have some focusing effects, but they seem to be much less than those of the nominative case particle. For comparison, examine the following sentence where both ga-marked object and o-marked object are possible for the stative verb dekiru 'can do'.

(i) John-wa eigo-ga/-o dekiru.
John-Top English-Nom/-Acc can 'John can speak English.'

In the above sentence, eigo 'English' sounds more focused when it is used with ga than o. This contrast would not arise if there were no difference between the two particles.

References

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