Adult and Child Interpretation of Japanese V-*aw* Construction: A Preliminary Study*

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1. Introduction

The Japanese V-*aw* construction is used to describe a reciprocal situation. For example, the situation where John and Bill hit each other can be described by (1).

(1) John-to Bill-ga ϕ naguri-aw-ta
John-and Bill-Nom hit-AW-Past
'John and Bill hit each other.'

The reading obtained in this construction, however, is not necessarily the reciprocal one. It may vary depending on the following syntactic and semantic factors, as well as the contextual information (cf. Nakato (2003)): (I) the overt realization of an object (i.e. whether or not NP (or DP) occurs in the object position with phonetic contents), (I') semantic properties of the object, and (II) semantic properties of a verb to which *–aw* is attached.

In (1) one of the verb's arguments is not overtly realized: the verb *naguru* ('hit') is a two-place predicate, but (1) has only one argument. The omission of the object is not a syntactic requirement imposed on the V-*aw* construction. This construction also allows an object to be overtly realized. When it has an object, three different readings are obtainable other than the reciprocal reading, depending on semantic properties of the object and contexts.[1] Consider (2), where the object is realized as [$_{NP}$ Tom].

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* I would like to express my gratitude to Noriko Imanishi for her comments on earlier versions of this note and for her helpful suggestions on the experimental designs. I am also indebted to Michiko Nishio, Christopher Tancredi, and Akira Watanabe for their invaluable comments on earlier versions of this note. The experiment presented in this note was conducted at two nurseries in Chiba. I am grateful to the children who participated in the experiment and the teachers who generously allowed me to conduct the experiment. My special thanks also go to Harumasa Miyashita and Akiko Terunuma for their cooperation in the experiment and their helpful suggestions. I would like to thank Hiromi Hayashi, Chiaki Komatsu, and Sigeko Matsufuji for their cooperation at the pilot stage of the experiment.

[1] Although I do not mention here, the interpretive possibilities of the V-*aw* construction with an object may also vary depending on semantic properties of a verb to which *–aw* is attached. Compare

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(2) John-to Bill-ga Tom-o naguri-aw-ta
John-and Bill-Nom Tom-Acc hit-AW-Past
'John and Bill hit Tom.'

(2) can not be interpreted as 'John and Bill hit each other,' but rather it is interpreted as 'John and Bill (in competition/ in collaboration) hit Tom.' Let us term this type of reading *the collective (different-sets) reading* based on the following properties: the agents and the patients are picked out from different sets; and the patients are interpreted collectively (and as a result the number of patients does not correspond to the number of agents). In (2), for example, the agents are picked out from the two-member set {John, Bill} and the patient is picked out from the one-member set {Tom}. Consider another example with an overtly realized object.

(3) John-to Bill-ga hahaoya-o home-aw-ta
John-and Bill-Nom mother-Acc praise-AW-Past
a. 'John and Bill praised each other's mothers.'
b. 'John and Bill praised their mothers.'

The objects in (2) and (3) differ in semantic properties. The object in (2) is a proper noun, which is not semantically related to other arguments. On the other hand, the object in (3) is a relational noun whose interpretation depends on other arguments. The object *hahaoya* ('mother') is interpreted as being in the kin-ship relation with the entities denoted by the subject, John and Bill. As a result, (3) yields the readings different from the one obtained in (2). (3) is interpreted, depending on the context, as either 'John and Bill praised each other's mothers' (*the* each other's X *reading*) or 'John and Bill (in competition) praised their mothers' (*the* one's own X *reading*). Note that given the context that John and Bill are brothers, (3) also yields the reading 'John and Bill praised their mother,' which is similar to the reading obtained in (2).

The above observation shows that the V-*aw* construction with an object yields either collective (diff.-sets), *each other's X*, or *one's own X* reading.[2] Let us next see the case where the construction doesn't have an object. The V-*aw* construction without an object

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the following sentence with (3).
(i) John-to Bill-ga hahaoya-o ziman-si-aw-ta
John-and Bill-Nom mother-Acc boast of-AW-Past
'John and Bill boasted of their own mother(s).'
In (i), the verb is pre-fixed by *zi-*, which means 'self.' In this case, the *each other's X* reading is unavailable.

[2] There is one exception with respect to the interpretive possibilities of the V-*aw* construction with an object. When body-part nouns are used, the agent and the patient can be the same person and then the reciprocal, reflexive, and collective (same-set) readings become possible.

(potentially) allows wider range of readings than the one with an object; the V-*aw* construction without an object may be interpreted in six different ways depending on semantic properties of a verb and contexts. Consider (1) again. When it is used in an out-of-the-blue context, the most salient reading is the reciprocal one. Given an appropriate context, however, it may yield the collective (diff.-sets), *each other's X*, or *one's own X* reading, where the patients of the action 'hit' are understood as the salient entity/entities in the context. Two more readings are also possible in (1): *the reflexive reading* where John and Bill hit themselves, and the reading where John and Bill in collaboration hit either John or Bill. (Let us term the latter reading *the collective (same-set) reading*, since the patients are interpreted collectively and the patients are picked out from the sub-set of agents.) The reflexive reading and the collective (same-set) reading are, however, hard to obtain in (1) because the verb *naguru* ('hit') is normally used to describe a situation where the agent and the patient are different. These readings can be obtained more easily when the verb is replaced by *kazaru* ('decorate'), which can be used to describe a situation where the agent and the patient are the same person, as in (4) (cf. Imai and Peters (1996)).

(4) Mary-to Jane-ga ϕ kazari-aw-te-iru
Mary-and Jane-Nom decorate-AW-Progressive
a. 'Mary and Jane are decorating themselves.'
b. 'Mary and Jane are decorating Mary'

Suppose the following situations: 'Mary and Jane are going to a party. They are decorating themselves to make themselves look more beautiful than the other'; 'Mary is going to a party. She is decorating herself and Jane helps her.' In the former context (4) yields the reflexive reading ((4a)) and in the latter context the collective (same-set) reading ((4b)).[3]

As shown above, the V-*aw* construction allows six different readings depending on the syntactic and semantic factors (I)-(II), as well as the contextual/pragmatic information.[4] Each of these six readings differs with respect to the following semantic properties: (A) the sameness/distinctness between sets of agents and patients, (A′) the sameness/distinctness between referents assigned to agents and patients, (B) the sameness/distinctness between sets of agents and possessors, (B′) the sameness/distinctness between referents assigned to agents and possessors, and (C) the number of patients.

Under the reciprocal and reflexive readings, both agents and patients are picked out from

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[3] (4) also allows the reciprocal, collective (diff.-sets), *each other's X*, or *one's own X* reading given an appropriate context.

[4] When the number of entities denoted by the subject is more than two, the V-*aw* construction may allow readings other than the six readings discussed in this note. I would like to leave open the issue whether or not this construction allows the same range of readings as the English *each other* construction (cf. Heim, Lasnik, and May (1991), Dalrymple et al. (1998)).

the same set ((A)). These two readings differ in the sameness/distinctness of referents assigned to the agent and patient roles ((A')). Different entities are assigned to these roles under the reciprocal reading, but the same entity is assigned under the reflexive reading (see (1) and (4a)). The collective (same-set) reading is similar to the reciprocal and reflexive readings in that the patient is picked out from the sub-set of agents. This reading, however, differs from the latter two readings in that the number of patients does not correspond to the number of agents ((C)) (see (4b)).

The *each other's X*, *one's own X*, and collective (diff.-sets) readings differ from the reciprocal, reflexive, and collective (same-set) readings, since agents and patients are picked out from different sets ((A)). The sameness, however, holds between sets of agents and possessors of patients under the *each other's X* and *one's own X* readings ((B)). These two readings are distinguished by the sameness/distinctness between referents assigned to the agent and possessor roles ((B')): different entities are assigned to these roles under the *each other's X* reading and the same entity is assigned under the *one's own X* reading (see (3)). The collective (diff.-sets) reading differs from the *each other's X* and *one's own X* readings in the number of patients ((C)). The number of patients does not correspond to the number of agents under this reading, while it does under the latter two readings (see (2)).

We have so far observed that the V-*aw* construction allows six readings: the reciprocal reading, the reflexive reading, the *each other's X* reading, the *one's own X* reading, the collective (same-set) reading, and the collective (different-set) reading. They are distinguished by the semantic properties (A)-(C). The availability of each reading depends to some extent on the syntactic and semantic factors (I)-(II). Given these observations, a question arises as to how these readings are derived from the V-*aw* construction, or more specifically, what information is encoded in the lexical content of *–aw*. This is a still controversial issue (cf. Ishii (1989), Nishigauchi (1992), Yumoto (2001)) and two different approaches are possible: one is to assume that *–aw* has a fixed/constant semantic value which yields only one (or some) of the six readings and to attribute other readings to pragmatic implicature (cf. Finego and Lasnik (1973)); the other is to assume that *–aw* has a flexible/variable semantic value which determines the range of possible readings and to attribute the determination of the reading of a given sentence to some pragmatic principles (cf. Dalrymple et al (1998), Philip (2000)). Observation on the process of children's language acquisition helps us determine which approach should be chosen over the other. This note will report the results of an experiment which investigates children's interpretation of Japanese V-*aw* construction. Especially, this note focuses on the following points: (a) among the semantic properties (A)–(C), are there some specific semantic properties children associate with this construction at earlier stages of language acquisition?; (b) to what extent are children sensitive to the syntactic and semantic factors (I)-(II)? It will be shown that the readings that children initially assign to this construction are restricted, but that this

construction is associated with two or more semantic properties. It will also be shown that once children find that this construction allows various readings, they exhibit near adult-like behavior.

2. Experiment

2.1. The Aim of the Experiment

The first aim of this experiment is to investigate whether or not children associate certain semantic properties with the V-*aw* construction at earlier stages of language acquisition. The semantic properties of each reading obtainable in this construction are summarized as follows.

Table 1.

	Reciprocal	Reflexive	Collective (same-set)	Each Other's X	One's Own X	Collective (diff.-sets)
Set(s) of agents and patients	same	same	same	different	different	different
Entities assigned to agents and patients	different	same	same/ different	different	different	different
Collectivity/ distributivity	distributive	distributive	collective	distributive	distributive	collective
Set(s) of agents and possessors				same	same	same/ different
Entities assigned to agents and possessors				different	same	same/ different

Focusing on the shared properties, we have the following predictions.

(5) (i) Children first assign *collective (same-set), reflexive,* and *reciprocal readings* to this construction, if they first associate with this construction *the sameness between sets of agents and patients*.

(ii) Children first assign *collective (diff.-sets), one's own X,* and *each other's X readings* to this construction, if they first associate with this construction *the distinctness between sets of agents and patients*.

(iii) Children first assign *reflexive* and *one's own X readings* to this construction, if they first associate with this construction *the sameness of referents assigned to agents and patients* or *the sameness of referents assigned to agents and possessors*.

(iv) Children first assign *reciprocal* and *each other's X readings* to this construction, if

they first associate with this construction *the distinctness of referents assigned to agents and patients* or *the distinctness of referents assigned to agents and possessors*.

(v) Children first assign *reflexive, reciprocal, one's own X* and *each other's X readings* to this construction, if they first associate with this construction *the distributivity of patients*.

(vi) Children first assign *collective (same-set)* and *collective (diff.-sets) readings* to this construction, if they first associate with this construction *the collectivity of patients*.

The second aim of this experiment is to investigate to what extent children are sensitive to the syntactic and semantic factors that affect the interpretation of the V-*aw* construction. As mentioned above, the interpretive possibilities of this construction depend on the syntactic and semantic factors (I)–(II). Among these factors, this experiment focuses on the effect of the verb's semantic properties ((II)) and the effect of the context when the object is not overtly realized ((I)). With respect to (II), we have the following prediction: if children know that semantic properties of a verb affect the interpretation, they assign a reflexive reading less frequently to sentences with an adversative verb. With respect to (I), we have the following prediction: if children know that the absence of the object does not necessarily reduce the number of possible readings ((I)), they allow collective (diff.-sets), *one's own X*, and *each other's X* readings for sentences without an overt object, given an appropriate context. To put it another way, if they know that the interpretation of the V-*aw* construction without an object is context-dependent, they assign any one of the six readings to this type of sentence, based on the context.

2.2. Materials

This experiment employed the method of four-choice picture identification. Two types of sentences were tested: the V-*aw* construction without an overt object and the V-*aw* construction with an overt object. The sets of pictures were divided into two types depending on the situation depicted. In the first type (Set I), only the entities denoted by the subject were included in the picture, while in the second type (Set II), other entities were included. The pictures used in this experiment are schematically illustrated in Fig. 1 and Fig. 2. In these figures, the circles stand for the entities denoted by the subject, and the triangles stand for the other entities denoted by the object or the ones that are given by the context but do not have any corresponding linguistic expression in a sentence. The arrow represents the action. The dotted line indicates that there is a possessor relationship between the entities. In Fig. 1, pictures (a), (b) and (c) correspond to a collective (same-set) reading, a reflexive reading, and a reciprocal reading, respectively. The situation depicted in picture (d)

corresponds to a false situation because only one of the entities denoted by the subject is actually performing the action.

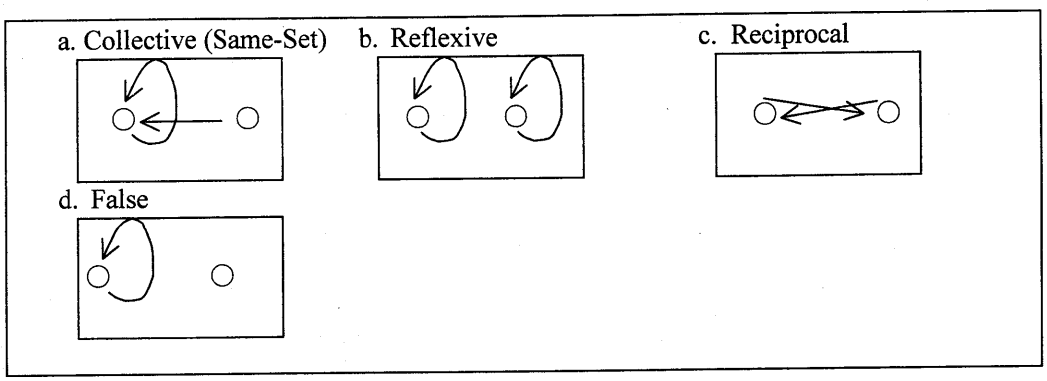

Fig. 1. Set I

In Fig. 2, pictures (a), (b), and (c) correspond to a collective (diff.-sets) reading, a *one's own X* reading and an *each other's X* reading, respectively. The situation depicted in picture (d) corresponds to a false situation.

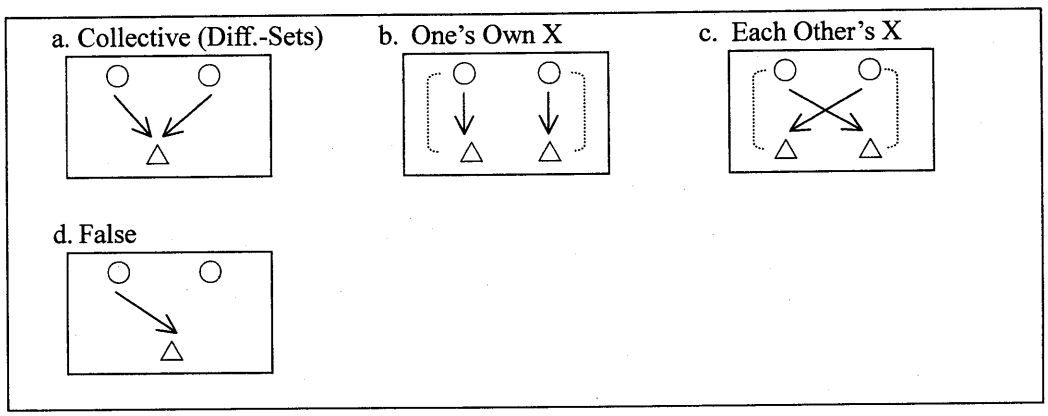

Fig. 2. Set II

Combining the two types of sentences and the two types of picture-sets, we had the following three test conditions.

(6) a. Test Condition A: V-*aw* without an object – Set I
b. Test Condition B: V-*aw* with an object – Set II
c. Test Condition C: V-*aw* without an object – Set II

Under Test Condition A, a sentence of type (7) which doesn't have an object was presented to

the subjects.[5]

(7) $GIRL_1$-to $GIRL_2$-ga ohana-de ϕ kazari-aw-te-iru-yo
$GIRL_1$-and$GIRL_2$-Nom flowers-with decorate-AW-Progressive

In the four pictures, only $GIRL_1$ and $GIRL_2$ were depicted (cf. Fig. 3).

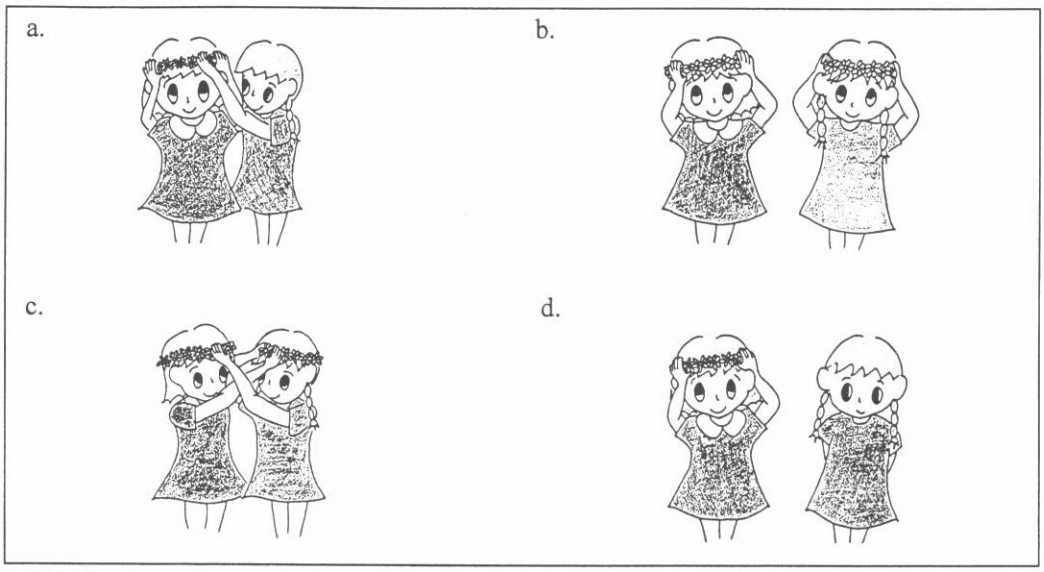

Fig. 3

Under Test Condition B, a sentence of type (8) which has an object was presented to the subjects.

(8) $GIRL_1$-to $GIRL_2$-ga oningyoo-de kurisumasu-turii-o kazari-aw-te-iru-yo
$GIRL_1$-and$GIRL_2$-Nom doll-with Christmas tree-Acc decorate-AW-Progressive

In addition to $GIRL_1$ and $GIRL_2$ (the entities denoted by the subject), Christmas tree(s) denoted by the object was also included in the pictures. There was a difference in the number of trees between pictures of type (b) and (c), on the one hand, and pictures of type (a) and (d), on the other. Two trees were depicted in (b) and (c). Each of the trees had a star with each girl's face on top of it so that the possessor relationship between the girls and the

[5] In this experiment, NPs denoting human entities were used as the subjects. In this case, children would have difficulty in identifying the entities. To avoid this problem, the experimenter asked the children to call each entity by the name of his or her friends. As a result, how to call each entity varies from child to child. In this note, I will use capital letters for NPs, indicating that the entities denoted by the NPs were named by children.

trees could be made clear. There was only one tree in (a) and (d), which had a star with no face (cf. Fig. 4). To make the competitive or collaborative sense salient, an additional description was supplied as linguistic input. For example, in explaining the situation of type (b), the following sentence was added. "Look, these girls are decorating their trees in competition. Which girl do you think can decorate the tree better?"[6]

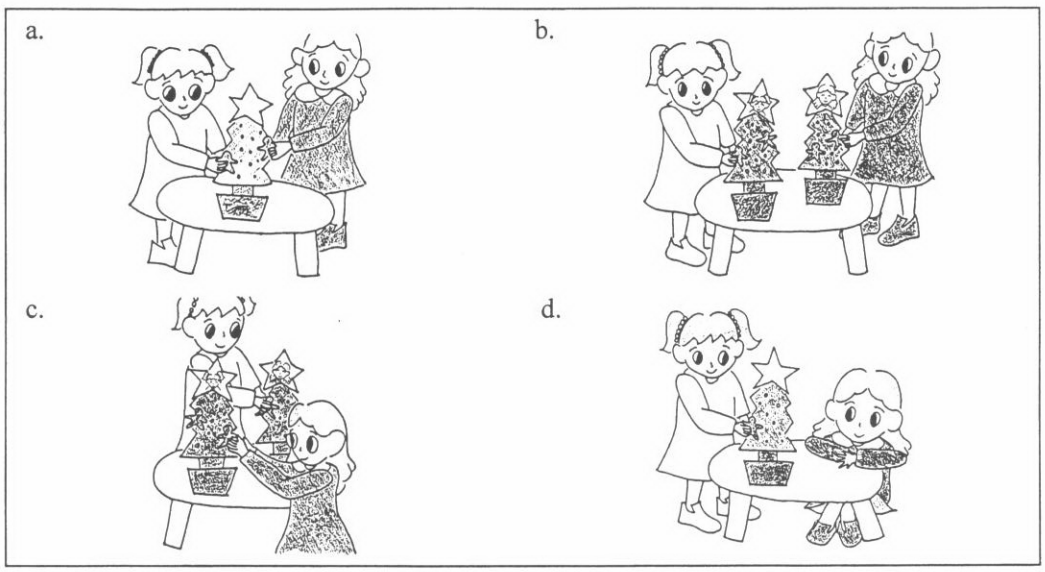

Fig. 4

Under Test Condition C, the subjects were presented the same sentence type as under Test Condition A and the same type of picture-set as under Test Condition B. Under this condition, the patients depicted in the pictures did not have the corresponding linguistic expression in the sentence. Take sentence (9) for example.

(9)	$GIRL_1$-to	$GIRL_2$-ga	ohoshi-sama-de	ϕ	kazari-aw-te-iru-yo
	$GIRL_1$-and	$GIRL_2$-Nom	star-with		decorate-AW-Progressive

In addition to $GIRL_1$ and $GIRL_2$ (the entities denoted by the subject), doll(s) was also included in the pictures. In pictures of type (b) and (c), there were two dolls which looked like each girl. In pictures of type (a) and (d), there was one doll which looked like neither of the two girls (cf. Fig. 5).

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[6] Similar instruction was given to the subjects in every condition.

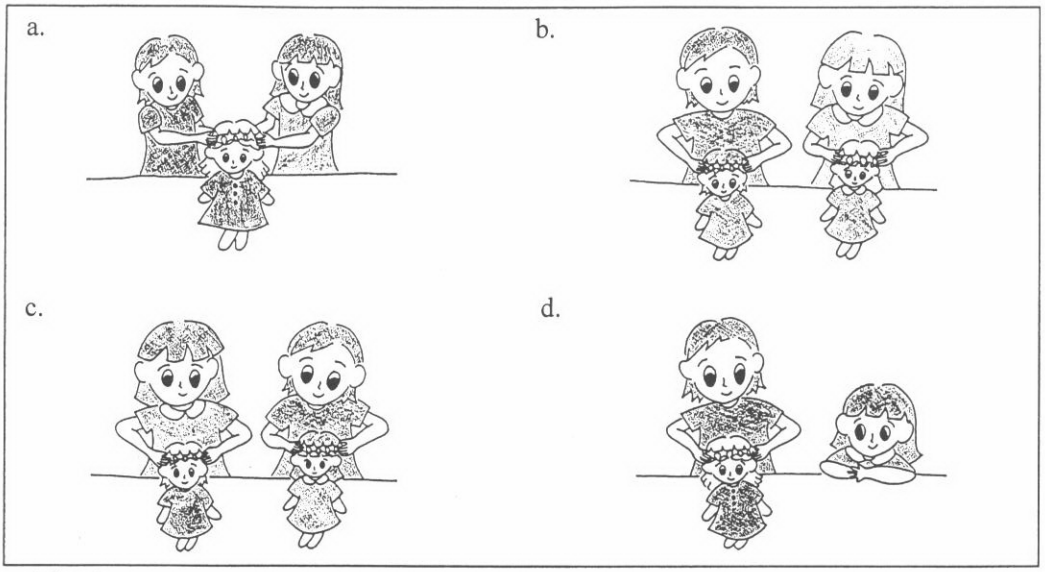


Fig. 5

The subjects were given three trials of each condition. The verbs used in these trials were *tataku* ('hit'), *kazaru* ('decorate'), and *araw* ('wash'). The number of test sentences was nine.

2.3. Adults

2.3.1. Subjects and Procedure

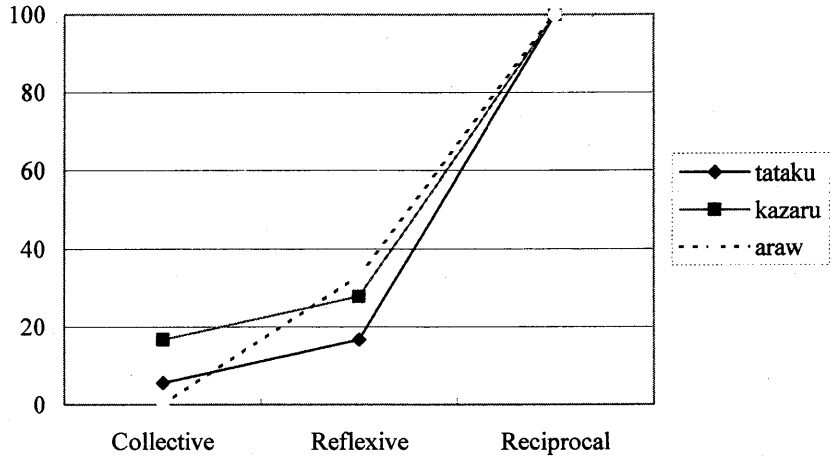
21 Japanese-speaking adults participated in this experiment ranging in age from 20 to 54. The experimental task was to find the pictures matching the sentence uttered by the experimenter by circling the letter assigned to each picture. They were allowed to circle any number of letters if they found the sentence to be true of the situation depicted in the pictures. 3 out of the 21 adults were excluded from the results because they wrongly chose the false pictures. The mean age of the 18 subjects was 24.

2.3.2. Results

The percentages of the subjects who chose each reading under Test Condition A are as follows: 7.4 % of the subjects chose the collective (same-set) readings, 25.9 % of the subjects chose the reflexive readings, and 100 % of the subjects chose the reciprocal readings. The verb-specific percentages are as follows (see Table 2) : with respect to *tataku*, 5.6 % for the collective reading, 16.7 % for the reflexive reading, and 100 % for the reciprocal reading;

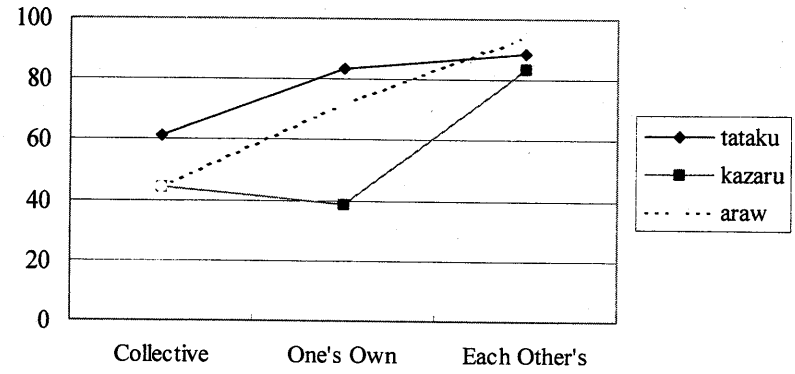
with respect to *kazaru*, 16.7 % for the collective reading, 27.8 % for the reflexive reading, and 100 % for the reciprocal reading; with respect to *araw*, 0 % for the collective reading, 33.3 % for the reflexive reading, and 100 % for the reciprocal reading. As expected, the effect of the verb's semantic properties is observed: the subjects assigned the reflexive reading to the sentence with the verb *tataku*, which is most normally used to describe an adversative situation, less frequently than to the sentence with the verb *kazaru* or *araw*.

Table 2. Test Condition A (Adults)



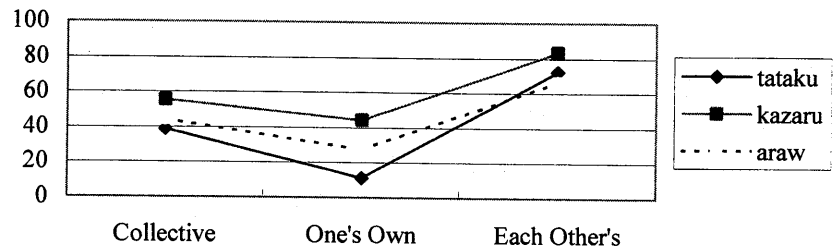
The percentages of the subjects who chose each reading under Test Condition B are as follows: 50 % for the collective (diff.-sets) readings, 64.8 % for the *one's own X* readings, and 88.9 % for the *each other's X* readings. The verb-specific percentages are as follows (see Table 3) : with respect to *tataku*, 61.1 % for the collective reading, 83.3 % for the *one's own X* reading, and 88.9 % for the *each other's X* reading; with respect to *kazaru*, 44.4 % for the collective reading, 38.9 % for the *one's own X* reading, and 83.3 % for the *each other's X* reading; with respect to *araw*, 44.4 % for the collective reading, 64.8 % for the *one's own X* reading, and 88.9 % for the *each other's X* reading.

Table 3. Test Condition B (Adults)



The percentages of the subjects who chose each reading under Test Condition C are as follows: 46.3 % for the collective (diff.-sets) readings, 27.8 % for the *one's own X* readings, and 74.1 % for the *each other's X* readings. The verb-specific percentages are as follows (see Table 4) : with respect to *tataku*, 38.9 % for the collective reading, 11.1 % for the *one's own X* reading, and 72.2 % for the *each other's X* reading; with respect to *kazaru*, 55.6 % for the collective reading, 44.4 % for the *one's own X* reading, and 83.3 % for the *each other's X* reading; with respect to *araw*, 44.4 % for the collective reading, 27.8 % for the *one's own X* reading, and 74.1 % for the *each other's X* reading. As expected, the adults allowed the collective (diff.-sets), *one's own X*, and *each other's X* readings for the sentences without an overt object. The results show that the absence of the object does not necessarily reduce the number of possible readings. Rather, when the object is missing, the interpretation can be any one of the six readings and its determination depends on the context.

Table 4. Test Condition C (Adults)



2.4. Children

2.4.1. Subjects and Procedure

Each child was tested individually in a quiet room. The experimental task was to choose the pictures matching the sentence uttered by the experimenter. They were allowed to choose any number of pictures, if they found the sentence to be true of the situation depicted in the picture. Before the test sessions, the children attended a practice session to understand the task. This practice session included a trial to check whether or not the children could correctly reject the V-*aw* construction under the situation of the type in Fig. 6, where only one of the entities denoted by the subject was actually performing the action denoted by the predicate.

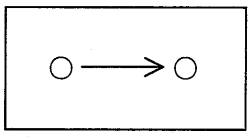


Fig. 6

18 Japanese-speaking children participated in this experiment. 7 children out of the 18 children were excluded from the results because they could not understand the task, gave a wrong answer in the trial, or wrongly chose the false situation under one of test conditions. The age of the 11 children ranged from 4;11 to 6;8, with the mean age of 5;11. The test session was divided into two sub-sessions, each of which lasted 10-15 minutes, to keep the attention of the children.

2.4.2. Results

The children are divided into two groups: the children who chose only one picture under every condition (Group A) and the children who chose more than one picture under at least one of the conditions (Group B). The number of children in Group A is three, ranging in age from 4;11 to 6;6 with the mean age of 6;0. The number of children in Group B is eight, ranging in age from 5;1 to 6;8 with the mean age of 5;11.

Under Test Condition A, all of the Group-A children chose only the reciprocal reading. (For the verb-specific percentages, see Table 5.) The percentages of the Group-B children who chose each reading under this condition are as follows: 4.1 % for the collective (same-set) readings, 29.1 % for the reflexive readings, and 87.5 % for the reciprocal readings. The verb-specific percentages are as follows (see Table 6) : with respect to *tataku*, 12.5 % for the collective reading, 25 % for the reflexive reading, and 87.5 % for the reciprocal reading;

with respect to *kazaru*, 0 % for the collective reading, 37.5 % for the reflexive reading, and 87.5 % for the reciprocal reading; with respect to *araw*, 0 % for the collective reading, 25 % for the reflexive reading, and 87.5 % for the reciprocal reading.

Table 5. Test Condition A (Group A)

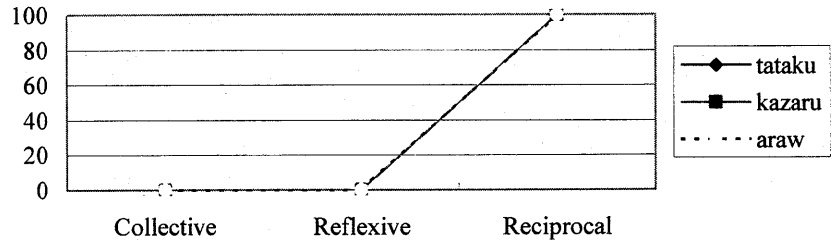
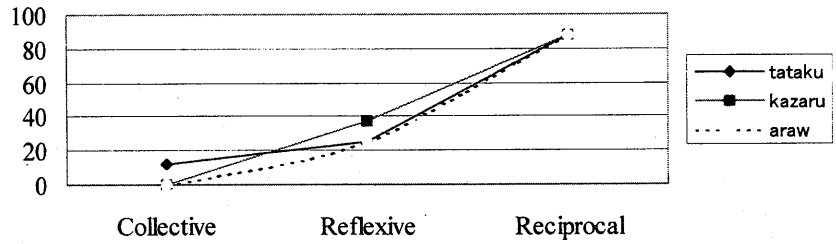
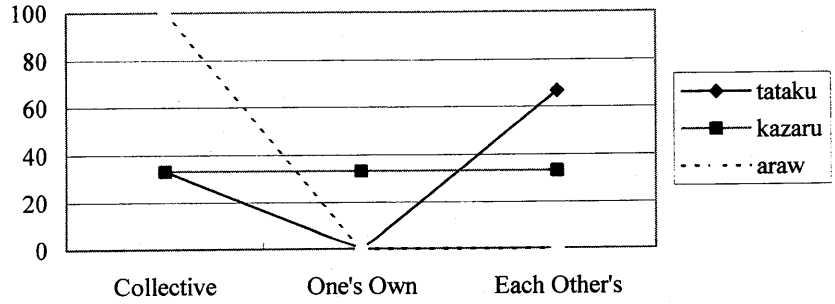


Table 6. Test Condition A (Group B)



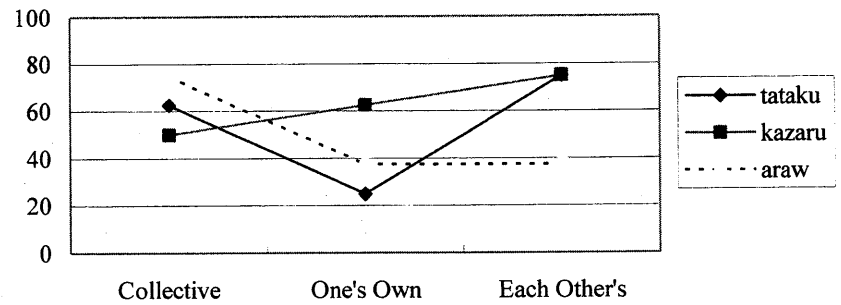
The percentages of the Group-A children who chose each reading under Test Condition B are as follows: 55.5 % for the collective (diff.-sets) readings, 11.1 % for the *one's own X* readings, and 33.3 % for the *each other's X* readings. The verb-specific percentages are as follows (see Table 7) : with respect to *tataku*, 33.3 % for the collective reading, 0 % for the *one's own X* reading, and 66.7 % for the *each other's X* reading; with respect to *kazaru*, 33.3 % for all of the three readings; with respect to *araw*, 100 % for the collective reading, 0 % for the *one's own X* and *each other's X* readings.

Table 7. Test Condition B (Group A)



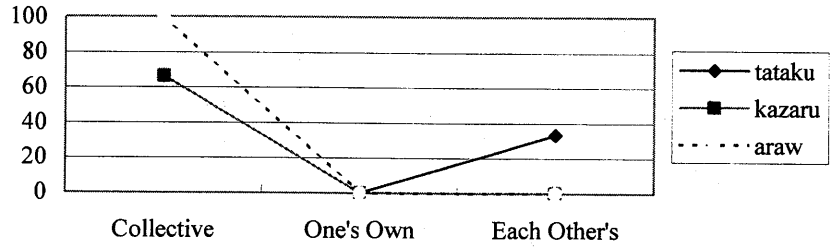
The percentages of the Group-B children who chose each reading under this condition are as follows: 62.5 % for the collective (diff.-sets) and *each other's X* readings, and 41.7 % for the *one's own X* readings. The verb-specific percentages are as follows (see Table 8) : with respect to *tataku*, 62.5 % for the collective reading, 25 % for the *one's own X* reading, and 75 % for the *each other's X* reading; with respect to *kazaru*, 50 % for the collective reading, 62.5 % for the *one's own X* reading, and 75 % for the *each other's X* reading; with respect to *araw*, 75 % for the collective reading, 37.5 % for the *one's own X* and *each other's X* readings.

Table 8. Test Condition B (Group B)



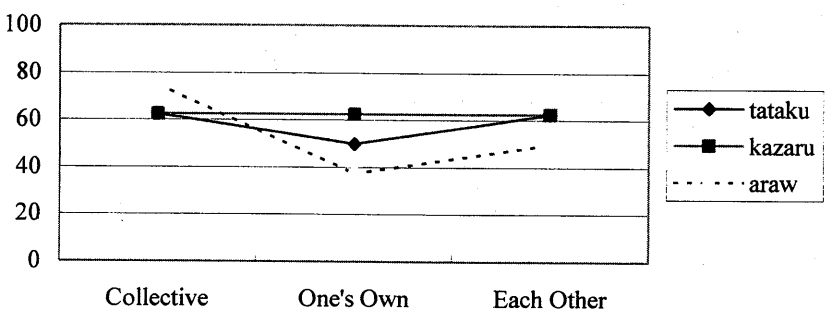
The percentages of the Group-A children who chose each reading under Test Condition C are as follows: 77.8 % for the collective (diff.-sets) reading, 0 % for the *one's own X* readings, and 11.1 % for the *each other's X* readings. The verb-specific percentages are as follows (see Table 9) : with respect to *tataku*, 66.7 % for the collective reading, 0 % for the *one's own X* reading, and 33.3 % for the *each other's X* reading; with respect to *kazaru*, 66.7 % for the collective reading, and 0 % for the *one's own X* and *each other's X* readings; with respect to *araw*, 100 % for the collective reading, and 0 % for the *one's own X* and *each other's X* readings.

Table 9. Test Condition C (Group A)



The percentages of the Group-B children who chose each reading under this condition are as follows: 87.5 % for the collective (diff.-sets) readings, 50 % for the *one's own X* readings, and 58.3 % for the *each other's X* readings. The verb-specific percentages are as follows (see Table 10) : with respect to *tataku*, 62.5 % for the collective and *each other's X* readings, and 50 % for the *one's own X* reading; with respect to *kazaru*, 62.5 % for all of the three readings; with respect to *araw*, 75 % for the collective reading, 37.5 % for the *one's own X* reading, and 50 % for the *each other's X* reading.

Table 10. Test Condition C (Group B)



3. Discussion

Based on the results obtained in the experiment, let us consider the questions addressed in Section 1. The first question is whether or not children first associate certain specific semantic properties with the V-*aw* construction. At this point, the responses given by the Group-A children are worth considering. They assign only one reading to each test sentence, which indicates that they are at the developmental stages earlier than the Group-B children. Under Test Condition A, the Group-A children chose only the reciprocal reading (see Table 5). Under Test Condition C, most of them chose only the collective (diff.-sets) reading (see Table 9). Under Test Condition B, most of them chose the collective (diff.-sets) reading or the

each other's X reading (see Table 7). Although the readings which the Group-A children assign to the V-*aw* construction are restricted, none of the predictions given in (5) is borne out.

Next, let us consider the second question: to what extent children are sensitive to the syntactic and semantic factors that affect the interpretation of the V-*aw* construction. In this respect, the responses given by the Group-B children are worth considering, since they allow various readings for this construction. In the children in this group the effect of the verb's semantic properties ((II)) is to some extent observed. As the results for Test Condition A show, the percentage of the children who chose the reflexive reading was lower for the sentence with *tataku* than for the one with *kazaru*. This pattern is also observed in the adults (see Table 2 and Table 6). The children's response to the sentence with *araw*, however, is different from that of the adults. The percentage of the adults who chose the reflexive reading is the highest for this sentence, but the percentage of the children who chose the reflexive reading is no higher for this sentence than for the one with *tataku*. Second, as the results for Test Condition C show, the children seem to know that the interpretation of the V-*aw* construction without an overt object is context-dependent ((I)). They allow the collective (diff.-sets), *one's own X*, and *each other's X* readings for the sentence without an overt object, although a difference is observed between the children and the adults. The reading chosen most frequently by the children is the collective (diff.-sets) reading, while that chosen most frequently by the adults is the *each other's X* reading (see Table 4 and Table 10).

To sum up so far, we have the following answers to the initial questions.

(10) a. Although the readings which the children initially assign to the V-*aw* construction are restricted, this construction is associated with two or more semantic properties.
b. Although the children exhibit near adult-like knowledge on the factors that affect the interpretation ((I) and (II)) once they come to know that this construction allows various readings, they still give responses different from those of adults event at age of 6.

Now that we have these answers to the initial questions, let us turn to the issue, namely what information is encoded in the lexical content of *–aw*. Recall the two approaches introduced in Section 1: one is to assume that *–aw* has a fixed/constant semantic value which yields only one (or some) of the six readings and to attribute other readings to pragmatic implicature (cf. Finego and Lasnik (1973)); the other is to assume that *–aw* has a flexible/variable semantic value which determines the range of possible readings and to attribute the determination of the reading of a given sentence to some pragmatic principles (cf. Dalrymple et al (1998), Philip (2000)). The results obtained in our experiment seem to support the second one. The children at earlier developmental stages do not associate with the V-*aw* construction only

one of the semantic properties (A), (A'), (B), (B'), and (C), which differentiate each of the six readings. This fact shows that *–aw* does not have a fixed semantic value. If *–aw* had a fixed semantic value, children would initially associate with this construction only one reading or some readings which share either one of the semantic properties.

Based on the second approach, we can explain the difference observed between the Group-B children and the adults as follows. Some previous studies on language acquisition show that pragmatic mechanisms are often acquired gradually and relatively late (the Pragmatic Delay model) (cf. Chien and Wexler (1990), Chierchia et al. (1998), Thornton and Wexler (1999), Philip (2000)). Under this model, the result for the sentence with *araw* under Test Condition A might be explained in terms of the delayed development of pragmatic knowledge in children. To assign the reflexive reading to the sentence with *araw*, children must come to know that one can wash one's body to one's benefit in competition with others. This information is not inherently lexical but pragmatic. The children might not have such knowledge and thus they exhibit non adult-like responses to this sentence.

Though our results seem to support the second approach, I would like to leave the issue open, pending further investigation on adults' and children's knowledge on this construction.

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