Japanese V-*aw* Construction: A Preliminary Study*

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1. Introduction

Any language in the world has a way to express a reciprocal situation. There is, however, a typological variation in the form employed. In English, for example, a nominal anaphoric expression (*each other* or *one another*) is employed. In Japanese, in addition to a nominal anaphoric expression *otagai*, a verbal affix *–aw* is used. Besides this typological variation, there is another variation in the range of possible interpretations of sentences with these elements. Though the English *each other* construction (EOC) denotes only a reciprocal situation,[1] the Japanese V-*aw* construction can denote situations other than a reciprocal situation. Consider the following instances of the V-*aw* construction.

(1) a. John-to Bill-ga ϕ naguri-aw-ta[2]
John-and Bill-Nom hit-AW-Pst

b. Musumetati-ga hana-de ϕ kazari-aw-teiru (Imai and Peters (1996: 100))
girls-Nom flowers-with decorate-AW-Prg

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[1] In what follows, a reciprocal situation should not be taken in the strict sense that a reciprocal relation holds among all entities denoted by arguments. The EOC can be used to describe a situation where a reciprocal relation does not hold among all entities. This construction, however, differs from Japanese V-*aw* construction in that all readings obtainable in the former construction have three semantic properties, distributivity, anaphoric dependency, and distinctness, which are introduced in the next section. For the possible readings of the EOC, see Heim, Lasnik, and May (1991) and Dalrymple, Kanazawa, Kim, and Peters (1998) among others.

[2] In this paper, I will use the following notation. The symbol ϕ indicates the position of missing arguments. For example, in (1a) the symbol indicates that one argument of the two-place predicate *naguru* is not overtly realized. Though the exact pronunciation of the past form of V-*aw* is V-*at-ta*, not V-*aw-ta*, I will use the notation V-*aw-ta* so that the occurrence of *–aw* can be clearly indicated. In the gloss, *–aw* is expressed by AW because there is no appropriate words. Pst and Prg indicate a past tense marker and a progressive aspectual marker, respectively.

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c. John-to Bill-ga Tom-o naguri-aw-ta
John-and Bill-Nom Tom-Acc hit-AW-Pst

In normal circumstances, (1a) yields a reciprocal reading: it is interpreted as "John hit Bill and Bill hit John." (1b) does not yield only a reciprocal reading, but also a reflexive reading: it is interpreted as "the girls are decorating each other" and/or "each of the girls is decorating herself."[3,4] (1c) yields a competitive/collaborative reading: it is interpreted as "John and Bill hit Tom in competition/collaboration."

The V-*aw* construction allows more than one readings. (1a) yields only a reciprocal reading and (1c) yields only a competitive/collaborative reading, while (1b) allows a reciprocal reading and a reflexive reading.

Each instance of (1) differs in the range of possible interpretations, but all of the instances share a certain property: they take a plural subject. As shown in (2), when the subject in the V-*aw* construction is a singular NP, the sentence is unacceptable.

(2) *John-ga ϕ naguri-aw-ta
John-Nom hit-AW-Pst

At this point, let us see the plural subject construction (PSC). The V-*aw* construction in (1c) minimally differs from the PSC in (3) in that a verb is affixed by *–aw*.

(1) c. John-to Bill-ga Tom-o naguri-aw-ta
John-and Bill-ga Tom-Acc hit-AW-Pst
'John hit Bill and Bill hit Tom.'

(3) John-to Bill-ga Tom-o nagut-ta
John-and Bill-Nom Tom-Acc hit-Pst
'John and Bill hit Tom.'

The V-*aw* construction and the PSC have a certain semantic similarity: the V-*aw* construction denotes an event that comprises of some sub-events, and the PSC can also denote such an

[3] Note that a reflexive reading may have an implication that each entity competitively does the action denoted by a verb. Though the terminology of reflexive vs. competitive/collaborative reading is misleading in this regard, I will use it for convenience.

[4] In this paper, we will limit our attention to the interpretations of the V-*aw* construction when it is uttered in a normal context. Given appropriate contexts, (1a) and (1b) allow a competitive/collaborative reading. For example, imagine a situation where some girls are planning to have a welcome party at a dormitory and they are decorating a common room with flowers. (1b) can be used to describe this situation, and in this case it yields a collaborative reading, where the patient is different from the agents.

event.

Various analyses have been presented on the V-*aw* construction (e.g. Ishii (1989), Nishigauchi (1992), Yumoto (2001, 2002)) but they all have some problems in describing and explaining the properties of this construction.[5] They do not answer all of the following three questions. (I) How are the three readings mentioned above semantically distinguished? (II) What are the core properties that differentiate the V-*aw* construction from the PSC? (III) What factors determine the interpretation of the V-*aw* construction?

In this paper, I will consider these three questions, by comparing the V-*aw* construction with the PSC. Through our comparison, the semantic properties distinguishing the V-*aw* construction from the PSC will be made clear, as well as those characterizing each reading of the V-*aw* construction. Some generalizations will be deduced with respect to the syntactic and semantic factors that determine the interpretation of this construction.

2. Semantic Properties of Japanese V-*aw* Construction

In English, a reciprocal situation is expressed by the EOC. The EOC in (4a) is semantically differentiated from the PSC in (4b) by the following three properties: distributivity, anaphoric dependency, and distinctness (cf. Beck (2001)).

(4) a. The children are touching each other (Beck (2001: 95))
b. The boys touch the ceiling (Landman (1996: 429))

First difference is related to the denotation of the entire sentence. Though both (4a) and (4b) denote a touching event, the event is necessarily decomposed into some sub-events in the former (i.e. the EOC), but not in the latter (i.e. the PSC). In other words, the predicate must distribute to each of the entities denoted by the subject in the EOC, while it need not in the PSC. (4a) is true only in the following situation: each child is touching at least one other child and each child is being touched by at least one other child. (4b) can be true of both the following situations: (i) each of the boys does the actual touching; (ii) the boys form a pyramid and the boy on the top touches the ceiling. Second, the EOC and the PSC differ from each other in the relation among the participants that comprise of events. The set of

[5] Ishii (1989) argues that *–aw* is a lexical affix which changes the argument structure of a verb in the lexicon. Under his proposal, the internal argument position is not projected, as a result of absorption. Nishigauchi (1992), on the other hand, proposes that the V-*aw* construction with a reciprocal reading includes a null argument, which is an A′-variable left behind by null operator movement. Yumoto (2001, 2002) points out some problems for both of these analyses and provides an alternative analysis. Though her analysis is quite insightful, it is still not free from problems. All the analyses require some additional assumptions or stipulations to fully explain the properties we will observe in this paper.

patients anaphorically depends on the set of agents in the EOC, but not in the PSC. In (4a), the agent and the patient are both picked out from the same set of children. In (4b), on the other hand, the agent is picked out from the set of boys and the patient is picked out from a distinct set (the set consisting of one member, a ceiling). Third, the condition that the agent and the patient of each atomic touching event must be distinct is imposed on the EOC. Though anaphoric dependency can be established in a situation where every child is touching himself or herself, (4a) cannot be true in this situation.[6]

The reciprocal reading of Japanese V-*aw* construction has the three semantic properties mentioned above. Consider again the example in (1a):

(1) a. John-to Bill-ga ϕ naguri-aw-ta
John-and Bill-Nom hit-AW-Pst
'John hit Bill and Bill hit John.'

In this sentence, the predicate must distribute to each of the entities denoted by the subject, namely John and Bill: it is true only in the situation where both John and Bill actually do the hitting. Anaphoric dependency holds between the set of agents and the set of patients: the agent and the patient are both picked out from the set {John, Bill}. Distinctness also holds since different entities are assigned to the agent and the patient of the atomic hitting events: the sentence is interpreted as "John hit Bill and Bill hit John," not as "John hit himself and Bill hit himself."

The reflexive reading, however, does not have all of the three semantic properties. Consider the reflexive reading obtained in (1b):

(1) b. Musumetati-ga hana-de ϕ kazari-aw-teiru (Imai and Peters (1996: 100))
girls-Nom flowers-with decorate-AW-Prg
i. 'The girls are decorating each other with flowers.' (reciprocal reading)
ii. 'Each of the girls is decorating herself with flowers.' (reflexive reading)

Though the predicate distributes to each entity and anaphoric dependency holds, distinctness does not hold in the reflexive reading. The sentence in (1b) can be true in a situation where each of the girls is decorating herself.

The competitive/collaborative reading is further distinguished from the reciprocal and

[6] Focusing on these semantic properties of the EOC, Heim, Lasnik, and May (1991) argue that they are compositionally derived from the properties of *each*, as a distributor, and [*t other*], as a reciprocator. Although I do not discuss this here, it has been controversial whether or not these properties are attributed to the property of *each other*. See Dalrymple, Mchombo, and Peters (1994),

reflexive readings. Consider (1c) again:

(1) c. John-to Bill-ga Tom-o naguri-aw-ta
John-and Bill-Nom Tom-Acc hit-AW-Pst
'John and Bill hit Tom'

As in the reciprocal and reflexive readings, the predicate distributes to each of the entities denoted by the subject in the competitive/collaborative reading. This reading, however, differs from the other two readings in that it does not have the property of anaphoric dependency (or the property of distinctness).[7] In this sentence, the agent and the patient are picked out from different sets of {John, Bill} and {Tom}, respectively.

At this point, a question arises as to whether or not the competitive/collaborative reading has any property that distinguishes it from the distributive reading assigned to the PSC. These two readings cannot be distinguished by the three semantic properties alone: they both have the property of distributivity but do not have the property of anaphoric dependency (or the property of distinctness).

As Imai and Peters (1996) note, however, the V-*aw* construction has an implication that is absent from the PSC. Compare the following sentences:

(5) a. Otoko-ga yo-nin warat-ta
men-Nom four-Cl laugh-Pst
b. Otoko-ga yo-nin warai-aw-ta
mem-Nom four-Cl laugh-AW-Pst
'The four men laughed' (Imai and Peters (1996: 107))

(5b) is another instance of the V-*aw* construction which yields a competitive/collaborative reading. Imagine the following situation: there was a party and three men were laughing at the party, and one man, who had no relationship with them, was laughing, watching TV at home. (5a) can be true in this situation, but (5b) cannot be. The laughing sub-events can be independent of each other in (5a), but they cannot be in (5b). The same is true of (1c), repeated here.

Sternefeld (1998), and Beck (2001) among others for discussion.

[7] By the term "distinctness," we refer to the relation that holds between the entities picked out from anaphorically dependent sets. This is the case where the sets of two arguments are in the relation of anaphoric dependency and different entities are assigned to each argument. In this sense, (1c) does

(1) c. John-to Bill-ga Tom-o naguri-aw-ta

(6) John-to Bill-ga Tom-o nagut-ta
John-and Bill-Nom Tom-Acc hit-Pst
'John and Bill hit Tom.'

Compared with the sentence without *–aw* in (6), (1c) has an implication that the sub-events are related to each other. (6) can be true even if John was ignorant of Bill's hitting and Bill was ignorant of John's hitting, while (1c) cannot be true in this situation. The same contrast is observed between the V-*aw* construction with the reciprocal/reflexive reading and the corresponding PSCs. Thus, it generally holds that the V–*aw* construction has an implication that the sub-events denoted by a predicate must be connected in terms of time and space (cf. Imai and Peters (1996)): they must be conceivable as a single EVENT.

The observations above show that though the EOC is well differentiated from the PSC by the properties of distributivity, anaphoric dependency, and distinctness (see (4)), focusing on the three properties is not enough to distinguish the V-*aw* construction from the PSC. To appropriately characterize the V-*aw* construction, we should take into consideration the relation among sub-events, in addition to the three properties. The semantic properties of each reading of the V-*aw* construction and the PSC are summarized as follows.

Table 1

		Sub-events	Predicate		Participant(s)	
		Relation among sub-events	Distributivity		Anaphoric Dependency	Distinctness
V-*aw*	reciprocal reading	$\Box\exists$[8]	$\Box\exists$		$\exists$	$\exists$
	reflexive reading				$\exists$	$\neg\exists$
	competitive/collaborative reading				$\neg\exists$	
PSC	distributive reading	$\neg\Box\exists$	$\neg\Box\exists$	$\exists$	$\neg\exists$	
	collective reading			$\neg\exists$	$\neg\exists$	

The property of distributivity and the relation among sub-events distinguish the V-*aw* construction from the PSC. In the V-*aw* construction, a predicate necessarily distributes, while in the PSC it need not, and the former, but not the latter, has an implication that the sub-events denoted by a predicate are related to each other. The properties of anaphoric dependency and distinctness differentiate each reading obtained in the V-*aw* construction. When anaphoric dependency and distinctness hold, the reading counts as a reciprocal one; when anaphoric dependency holds but not distinctness, the reading counts as a reflexive one;

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not have the property of distinctness, though the agent and the patient are different in this case.

[8] The symbol □ is used for the indication of necessity.

and when neither anaphoric dependency nor distinctness holds, the reading is a competitive/collaborative one.

3. Syntactic and Semantic Factors that Determine Interpretation of V-*aw* Construction

Given that the V-*aw* construction allows more than one readings, the question arises about under what circumstances each reading is obtained. In this section, we will focus on the factors that determine the interpretation. The following syntactic assumption is shared by previous studies (cf. Ishii (1989) and Nishigauchi (1992)): when a sentence with *–aw* has a null argument, the sentence yields a reciprocal reading. Consider the sentences in (1a) and (1c). These two sentences syntactically differ from each other. In (1a), one of the arguments required by a verb is not overtly realized: though *naguru* is a two-place predicate, only one argument is overtly realized. In (1c), on the other hand, both of the two arguments are overtly realized. Though the contrast between (1a) and (1c) apparently shows that the assumption is reasonable, there are counter examples indicating that the presence of a null argument is not a necessary and sufficient condition to obtain a reciprocal reading. As we have already seen in (1b), there is a case where the sentence with a null argument still yields the reflexive reading. This indicates that the presence/absence of a null argument indeed determines the interpretation of the V-*aw* construction, but not in an unambiguous way. The following generalization is deduced from our observations: when a sentence with *–aw* has a null argument, a reciprocal reading and/or a reflexive reading become(s) available; otherwise, the sentence yields a competitive/collaborative reading.[9]

As observed above, the syntactic factor, namely the presence of a null argument, determines the interpretation of the V-*aw* construction. The next question to ask is why, among the V-*aw* constructions with a null argument, some yield only a reciprocal reading and

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[9] A null argument is not necessary an argument of a verb. The generalization also holds in the case where a sentence with *–aw* takes a relational noun as its object. Compare the following example with (1c).

(i) John-to Bill-ga kao-o naguri-aw-ta
John-and Bill-Nom face-Acc hit-AW-Pst
'John and Bill hit each other's face '

In this sentence, the object of the verb, *naguru*, is overtly realized as *kao* ('face'). This sentence still yields the reciprocal reading, where anaphoric dependency and distinctness hold between the set of agents and the set of possessors. Both the agent and the possessor are picked out from the set {John, Bill} and different entities are assigned to the agent and the possessor. The sentence is interpreted as "John hit Bill's face and Bill hit John's face." Under the assumption that a relational noun has the internal structure in (ii) (cf. Vergnaud and Zubizarreta (1992)), where the specifier position of DP can be filled by a possessor argument, there is still a syntactic difference between sentences (i) and (1c).

(ii) $[_{DP}$ Spec D $[_{NP}$ kao]]

The sentence in (i) has a null argument in [Spec DP], while sentence (1c) does not. Though we do not discuss this type of examples in this paper, our descriptive generalization is maintained in this case, too.

others allow reciprocal and other readings. Consider again (1a) and (1b). They both have a null argument but their interpretive possibilities differ: (1a) yields only the reciprocal reading, while (1b) allows both the reciprocal reading and the reflexive reading. At this point, we should pay close attention to the meaning of a verb, which is affixed by *-aw*. In the most normal case, the verb *naguru* ('hit') is used to describe a situation where the agent and the patient are different. Consider the example in (7) where the verb takes a reflexive expression *zibun* ('self') as the object. Though it is not ungrammatical, it is judged as pragmatically unnatural.

(7) ##John-ga (boo-de) zibun-o nagut-ta.[10]
John-Nom (stick-with) self-Acc hit-Pst
'John hit himself with a stick.'

The verb *kazaru* ('decorate'), on the other hand, can be used to describe a situation where the patient is identical to the agent, in addition to a situation where the patient is different from the agent. Compared with the sentence in (7), the sentence in (8) is more acceptable, because it is easier for us to imagine a situation where the agent is decorating her head, for example, with flowers.

(8) #Mary-ga (hana-de) zibun-o kazatte-iru
Mary-Nom (flower-with) self-Acc decorate-Prg
'Mary is decorating herself with flowers.'

The contrast between (1a) and (1b) indicates that when a verb is a type of predicate that is most naturally used to describe a situation where the agent and the patient are different, a reciprocal reading becomes most salient; otherwise, both a reciprocal reading and a reflexive reading become possible.[11]

4. Summary

In this paper, we have closely examined the properties of Japanese V-*aw* constructions,

[10] The symbol # means that the sentence is pragmatically unnatural. The number of this symbol indicates the degree of pragmatic unnaturalness.
[11] This is an oversimplified generalization. As we noted, a competitive/collaborative reading is also obtainable in the V-*aw* construction with a null argument if an appropriate context is provided (see note 4). This indicates that the interpretation of the V-*aw* construction with a null argument is context dependent and that its interpretation is determined neither in the syntactic component nor in the semantic component, but rather in the pragmatic component. Taking this point into consideration, I would like to propose an analysis of the V-*aw* construction (see Nakato (in preparation)).

comparing it with Japanese PSCs. Specifically, we have concentrated on the following three questions. (I) How are the three readings semantically distinguished? (II) What are the core properties that differentiate the V-*aw* construction from the PSC? (III) What factors determine the interpretation of this construction? With respect to the first question, the following semantic definitions have been proposed.

(9) *Semantic definitions of each reading of the V-*aw *construction*

a. Reciprocal reading:
   A reading that has the properties of anaphoric dependency and distinctness counts as a reciprocal reading.

b. Reflexive reading:
   A reading that has the property of anaphoric dependency but does not have the property of distinctness counts as a reflexive reading.

c. Competitive/collaborative reading:
   A reading that does not have the property of anaphoric dependency or the property of distinctness counts as a competitive/collaborative reading.

For the second question, we have factored out the core semantic properties of the V-*aw* construction that differentiate it from the PSC. The differences between the V-*aw* construction and the PSC are summarized as follows.

(10) *Differences between the V-*aw *construction and the PSC*

The V-*aw* construction differs from the PSC in two respects. In the V-*aw* construction, the predicate must distribute to each of the entities denoted by the subject, while in the PSC it need not. The V-*aw* construction has an implication that the sub-events denoted by the predicate are related to each other: the events must be conceivable as a single EVENT.

We have discussed the third question from both syntactic and semantic (or pragmatic) points of view.

(11) *Syntactic and semantic factors that determine the interpretation*

a. When a sentence with *–aw* has a null argument, a reciprocal reading and/or a reflexive reading become(s) salient; otherwise the sentence yields a competitive/collaborative reading.

b. When a verb in the V-*aw* construction is a type of predicate that is most naturally used to describe a situation where the agent and the patient are different, a reciprocal

reading becomes most salient; otherwise both a reciprocal reading and a reflexive reading become possible.

Through our examination, a further question arises about what is a natural classification of verbs, which determine the interpretation of the V-*aw* construction. If the question is answered, it will be possible to propose an appropriate analysis of this construction. To answer the question, further investigation is required and I would like to leave the question open for future research.[12]

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[12] See Nakato (in preparation).

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