Multiple Factors in Morphological Case-marking Errors

TAKAAKI SUZUKI, University of Hawai'i at Manoa

Abstract

There seems to be tacit agreement that the acquisition of Japanese case can be measured by the emergence and increasing frequency of case particles in children's spontaneous speech (e.g., Clancy, 1985). However, research on the acquisition of case must also consider the correct/incorrect use of morphological case particles. This paper reports on two experimental studies investigating Japanese-speaking children's production of case-marking particles ga and o. The results of the experiments revealed that the children rarely make case-marking errors on subjects of intransitive verbs, whereas they often overextended the nominative case to direct objects of transitive verbs, and suggested that the errors were rooted in multiple factors.

1 Introduction

Early studies on the acquisition of Japanese case generally focused on the emergence of case-marking particles and the period of their increasing use in children's spontaneous speech (e.g., Nagano, 1959; Okubo, 1967). Reviewing a large number of Japanese acquisition studies up to the early 1980's, Clancy (1985) suggests that "the typical course of acquisition is from failure to use a particle where appropriate to a gradually increasing rate of production until the child's frequency approximates adult usage" (p. 387). However, there is reason to believe that the acquisition of case may not be measured by the absolute frequency of case particles in children's speech alone.

First of all, it has been reported that children's use of case particles sometimes contains errors (e.g., Clancy, 1985; Ito, 1990; Morikawa, 1989; Yokoyama, 1997). As long as children use case particles incorrectly, they are not considered to have acquired case, even though the number of case particles increases in their speech. Second, researchers focusing on frequency are likely to overlook situations where case-marking particles are unavailable due to grammatical and discoursal reasons. Case particles are often suppressed by the use of adverbial particles such as *wa* and *mo*, which should be treated independently of the developmental issues at hand. Case particle drop and argument drop are other examples where case particles are suppressed, thereby reducing the opportunity for the child to use case-marking particles.

Taking these points into account, I discard the frequency criterion, and investigate children's overt use of case-marking particles to see whether their usage is grammatically correct or not. For this purpose, unlike most previous studies on the acquisition of Japanese case, this study adopts an experimental approach. It has the advantage of controlling children's linguistic behavior to test their knowledge of particular types of sentence structures, and it also makes it possible to test relatively large numbers of children under the same condition. This paper reports on two experiments investigating children's knowledge of morphological case-marking, focusing on the nominative ga on subjects and the accusative o on direct objects.

2 Morphological Case in Acquisition

2.1 Case-marking for Intransitive Verbs

The subject of intransitive verbs is marked with the nominative case particle ga as in the following (1).

(1) Dare-ga kita no? who-Nom came Q 'Who came?'

Among children's case-marking errors reported in previous studies, there are few on the subject of intransitive verbs. In one such study, Clancy (1985, p.388) observes an accusative case particle error in the following mother-child interaction.

(2) Mother: Tittyana hora, porusya atta deshoo.
little listen Porsche existed Cop
'Listen, there was a little Porsche, wasn't there.'

Child: Porusha-o.
Porsche-Acc

In replying to the mother, the child supplied a case particle on the argument NP but dropped the predicate. If the child intended to use the same verb that was used by the mother, an error would have been made on the subject of the intransitive verb: the child used accusative o for the subject of a dropped verb *atta* 'existed'. But there is no evidence that this is true, and no other case-marking errors have been reported for intransitive structures.

Nonetheless, this does not necessarily mean that children make no case-marking errors for intransitive verbs. As mentioned above, there is a possibility that the errors might be hidden by elliptical characteristics of Japanese such as argument drop and case particle drop. If this is true, the case-marking errors may show up when children are forced to use case particles in a controlled situation.

2.2 Case-marking for Transitive Verbs

In a transitive sentence, the subject is marked with the nominative ga and the direct object with the accusative o as in the following example.¹

¹ In stative verbal constructions, the subject is marked with either ga or ni (dative), and the direct object with ga. These case-marking patterns are not considered in this paper.

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

In children's spontaneous speech, a typically reported error in the literature is the substitution of nominative *ga* for accusative *o*. Clancy (1985, p.389) observes the following utterance in the speech sample of her subject at 2;1.

(4) *Omizu-ga ireta noni.

water-Nom put in although
'Although she put in water.'

The nominative case particle was used to indicate a direct object in (4). Morikawa (1989) also found some instances of overextension of the nominative case particle in the speech sample of a child from 1;11 to 3;3. However, she observed only six case-marking errors in her large corpus. This is consistent with previous general findings that children's case-marking errors for transitive structures were not frequently observed in naturalistic situations. An exceptional study is Yokoyama (1997), where the child studied made 686 case-marking errors between 1;11 and 3;5. This is consistent with the view that Japanese-speaking children must have difficulty in learning case-marking patterns (Rispoli, 1995).¹

These previous studies are based on longitudinal observations. Longitudinal studies have an advantage in that researchers can examine the continuous progress of a child. However, these previous studies are case studies on a single child or a few children and the comparison of the studies exhibits great individual differences among children and among the studies. In the next section, by using experimental techniques I examine children's performance in the same controlled condition, focusing on the nominative ga and the accusative o.

3 Experiments

Experiment I examines preschool children's production of case particles for five types of intransitive verbs which are basically grouped into two classes--unergative and unaccusative. These are shown in Table 1 in 3.2.2. Unaccusativity and animacy of the arguments were considered in order to explore their effects on children's case-marking errors. This came as a result of Suzuki (1998) which found that Japanese-speaking children's transitivity errors were closely related to unaccusativity. In an experiment eliciting intransitive-transitive paired verbs of Japanese, he

¹ Another aspect frequently discussed in relation to the acquisition of case particles is word-order (e.g., Hakuta, 1982; Hayashibe, 1975). However, I do not consider the word-order variable in this paper (see Otsu, 1994; Suzuki, 1997; Suzuki, Cho, Lee, O'Grady, Song, and Yoshinaga, 1999 for recent word-order studies) because it is relevant only for sentences containing more than one overt argument, which are not explored in my experiments presented in this paper.

² However, I have to admit that one of the important factors of case-marking errors is excluded from my experimental study. That is the effects of parental input which is carefully examined in Yokoyama (1997).

observed that the overextension of intransitive verbs was almost completely restricted to unergative verbs, whereas the overextension of transitive verbs was limited to transitive verbs whose intransitive counterpart was unaccusative. These transitivity errors might have certain consequences for children's case-marking, because verb transitivity is directly linked with the number of arguments. However, since only verbs were elicited in Suzuki (1998), it remains to be seen whether children make case-marking errors in relation to unaccusativity.

Experiment II examines semantic effects of arguments and verbs. Clancy (1985, p.39) suggests the possibility that the overextension of the nominative case may be due to the great diversity of semantic features on the argument NPs to which the nominative case particle attaches. Thematic roles of arguments and case-marking do not have one-to-one correspondences in Japanese, but there are some corresponding patterns (e.g., agent is typically marked with nominative and patient with accusative). Thus, it is plausible that case-marking errors are caused in part by these semantic features. In the experiment, the semantic features are investigated on the basis of verb causality and argument-animacy.

3.1 Experimental Procedures

Experimental procedures described in this section are common to both Experiments I and II. The method I adopted is called elicited production where the child is urged to produce a target sentence in controlled situations (see, for example, Crain & Thornton, 1998). The experiments examine children's production of sentences containing *wh*-arguments: a *wh*-subject question and a *wh*-object question shown in the following (5).

(5) Wh-subject question
Dare-ga tabeta no?
who-Nom ate Q
'Who ate (X)?'

Wh-object question
Nani-o tabeta no?
what-Acc ate Q
'What did (X) eat?'

Wh-questions were elicited because *wh*-arguments are not usually compatible with an adverbial particle *wa*. Therefore, when particle errors are made on *wh*-arguments, it is assumed that the errors are the results of misuse of case-marking particles.⁴

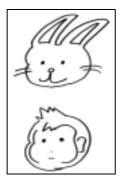
Let us suppose we are trying to elicit a subject of the transitive verb *yomu* 'read'. First, a picture depicting a reading event was shown to the child (Figure 1). In order to ensure that the child understood the names of the entities in the picture, the experimenter had a conversation with the child about the entities, by asking about and/or just mentioning them. In doing so, the experimenter also gave the child the verb *yomu* 'read' by using the sentence in (6), while he never gave casemarking information to the child.

⁴ Note that in this experimental situation, another adverbial particle *mo* 'also' is also inappropriate contextually.

(6) Yondan da ne.
read Cop Pcl
'(X) read (Y).'



Figure 1. The first picture used for the elicitation of a wh-subject of yomu 'read'.



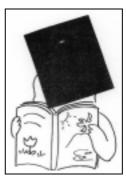


Figure 2. Second pictures used for the elicitation of a wh-subject of yomu 'read.'

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.) The right picture showed the same event as in the first picture with one of the entities hidden with a black cover. For this picture, a cue sentence (7) was given.

(7) Nee, Yuka-tyan, hora yonda yo. 'Hey, Yuka, look, (X) read (Y).'

At this moment, the child was 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 (8).

(8) 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 question in this interaction. When the target entity was the

direct object of the sentence, an object question was expected. The target sentences are shown in (9).

(9)	Wh-subject question	<i>Wh</i> -object question
	Dare-ga yonda no?	Nani-o yonda no?
	who-Nom read Q	who-Acc read Q
	'Who read (X)?'	'What did (X) read?'

3.2 Experiment I (Intransitive verbs)

3.2.1 Participants

Twenty-three preschool children living in Japan participated in Experiment I. Their ages ranged from 3;0 to 6;1 (mean age = 4;5). The children were divided into two age groups: 3- and 4-year-olds (younger), and 5- and 6-year-olds (older). There were fifteen 3- and 4-year-olds, and eight 5- and 6-year-olds.

3.2.2 Method

The procedure described above was used to investigate the children's morphological case-marking for intransitive verbs summarized in Table 1.

Verb Types	Verbs (4 tokens)		
Type 1: unergative verbs inherently selecting an	oyogu 'swim', hasiru 'run', odoru 'dance', tatu		
animate subject	'stand up'		
Type 2: unaccusative verbs inherently selecting	korobu 'fall over', tukareru 'get tired', hutoru		
an animate subject	'get fat', mayou 'get lost'		
Type 3: unaccusative, change of state verbs	aku 'open', kowareru 'break', kireru 'cut',		
inherently selecting an inanimate subject	wareru 'break'		
Type 4: unaccusative verbs used with an animate	otiru 'fall', taoreru 'fall down', ukabu 'float',		
subject that they do not inherently select	sizumu 'sink'		
Type 5: unaccusative verbs used with an inanimate	same as Type 4 verbs		
subject that they do not inherently select			

Table 1 Intransitive Verbs Tested in Experiment I

After a brief practice session, a total of 20 sentences were elicited from each child in random order (Appendix A).

3.2.3 Results and Discussion

First, the children's utterances were examined as to whether they were consistent with the target sentence shown in (10).

(10) Wh-argument (+ case particle) + verb

The children used only case particles to mark the *wh*-arguments. 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.¹

The criterion for a case-marking error is the incorrect use of an overt case particle on the subject. Using a case particle other than the nominative marker ga was, therefore, considered to be an error. When a wh-argument was not marked with any particle, it was not counted as an error. Inappropriate use of wh-words such as dare 'who' for inanimate and nani 'what' for animate was not considered to be an error here.

Only three children made errors. Two of them made one error each: HK (3;4) used the accusative case particle for the Type 3 verb *aku* 'open', and YH (6;0) used the dative *ni* for the Type 5 verb *taoreru* 'fall down'. The third child ST (3;6) used the accusative case particle fourteen times, and errors were observed for all five types of verbs. He also used the nominative case particle, but only twice: once for a Type 2 verb and again for a Type 3 verb.

The overall results are generally consistent with most previous studies investigating children's spontaneous speech. Namely, Japanese-speaking children do not usually make casemarking errors, and if they do, the errors are not on the subjects of intransitive verbs. In this experiment, only three children made errors and unergative-unaccusative dichotomy appears to have nothing to do with the children's case-marking errors.

3.3 Experiment II (Transitive verbs)

3.3.1 Participants

Thirty preschool children living in Japan participated in Experiment II. Their ages ranged from 3;1 to 6;2 (mean age = 4;10). They were divided into two age groups. The younger group consisted of seventeen 3- and 4-year-old children (mean age = 4;1). The older group consisted of thirteen 5- and 6-year-old children (mean age = 5;9).

3.3.2 Methods

Elicited production described above was used to investigate the children's morphological case-marking for transitive verbs summarized in Table 2. After a brief practice session, a total of 32 sentences were elicited from each child in random order (Appendix B).

A four-way ANOVA with one between-subject factor and three within-subject factors was performed. The between-subjects factor was the age group with two levels (Younger/Older). Three within-subjects factors were grammatical relations with two levels (Subject/Direct object), verb causality with two levels (Causative/Non-causative), and argument-animacy with two levels (Animate/Inanimate). The alpha level was set at .05.

¹ A one-way repeated-measures ANOVA was performed 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, p > .05.

Table 2 Transitive Verbs Tested in Experiment II

	Semantics	Animacy*		Verbs (4 tokens)	
		Subj.	Obj.		
Type 1	Causative	+	+	okosu 'get someone up', nakasu 'make someone cry',	
				odokasu 'surprise', yorokobasu, 'please'	
Type 2	Causative	+	_	akeru 'open', kowasu 'break', kiru 'cut', waru 'break'	
Type 3	Non-causative	+	+	osu 'push', tataku 'hit', kamu 'bite', keru 'kick'	
Type 4	Non-causative	+	ı	taberu 'eat', nomu 'drink', yomu 'read', motu 'hold'	

^{*} For animacy, + indicates animate, and - indicates inanimate

3.3.3 Results and Discussion

As in the case of Experiment I, the children's utterances were examined as to whether they were consistent with the target sentence form shown in (10). Note that the target sentence may contain only one overt argument and a verb even though the verb is transitive. This is because a sentence containing one overt argument--either a subject or a direct object--is more natural than a two-overt-argument sentence in the context of the experiment. In fact, the experiment did not aim at eliciting sentences involving two overt arguments (see also footnote 2). Out of 960 tokens, 907 utterances were considered to exhibit the target form. This proportion reached 94.5%, ranging from 90.8% for Type 2 objects to 98.3% for Type 2 subjects.²

The criterion for case-marking errors in transitive verbs was a subject marked with a case particle other than the nominative ga and a direct object marked with a case particle other than accusative o.³ Inappropriate use of wh-words and ellipsis of particles are not considered errors here. Table 3 summarizes the mean proportions and standard deviations of case-marking errors by age and by grammatical relation.

Table 3 Mean Proportions and Standard Deviations of Case-marking Errors

		Younger $(n = 17)$		Older $(n = 13)$		Total $(N = 30)$	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Type 1	subject	.226	.342	.122	.172	.181	.282
	object	.559	.455	.442	.397	.508	.428
Type 2	subject	.118	.295	.058	.110	.092	.232
	object	.417	.453	.199	.372	.322	.427
Type 3	subject	.132	.267	.096	.217	.117	.243
	object	.485	.419	.397	.295	.447	.367
Type 4	subject	.118	.332	.038	.094	.083	.257
	object	.402	.450	.077	.158	.261	.386
Mean	subject	.148	.291	.079	.089	.118	.226
	object	.466	.426	.279	.267	.385	.373

² A four-way repeated-measures ANOVA was performed to examine whether any of the main effects or the interaction effects were significant for the children's production of the target form. But, the results show that no effect was significant.

³ Although *ni*-marked objects may not necessarily be errors for certain causative verbs in special contexts, such use was considered incorrect in the context of the present experiment. Also, it should be noted that stative constructions (i.e., NP-*ga*/-*ni* NP-*ga* stative verbal) were not tested in Experiment II.

A four-way ANOVA with one between-subject factor and three within-subject factors shows a main effect of grammatical relations, F(1,28) = 7.691, P < .05, reflecting the fact that the children made errors more frequently on direct objects than on subjects. A main effect of verb causality was also found to be significant, F(1,28) = 6.354, P < .05. This is because the children made errors more frequently for causative verbs (Types 1 & 2) than for non-causative verbs (Types 3 & 4). For both subjects and direct objects, there were more errors for causative verbs than for non-causative verbs, as there was no interaction effect between verb causality and grammatical relations, F(1,28) = .760, P > .05. A main effect of argument-animacy was significant, F(1,28) = 24.041, P < .05, reflecting the larger number of errors for verbs taking animate direct objects than for verbs taking inanimate direct objects. This difference seems to suggest that the errors with animate-object verbs were mainly due to errors on direct objects. This is confirmed by a significant interaction effect between animacy and grammatical relations, F(1,28) = 9.143, P < .05. Lastly, a main effect of age group was found with a probability value .05 (F(1,28) = 4.186, P = .05).

In general, there are two important findings in Experiment II. One is that case-marking errors for transitive verbs were not rare at all and they persist during preschool age. Another remarkable finding is that the errors were rooted in multiple factors: effects of grammatical relations, verb causality, and argument-animacy were found to be significant.

Regarding grammatical relations and case-marking, as shown in Figure 3, most errors were overextension of the nominative case particle to the direct object and the accusative case particle to the subject. Errors were in fact bi-directional, but the predominant errors were those made on direct objects, which is consistent with the data reported in previous naturalistic studies (see, for example, Clancy, 1985). Children have more difficulty in using the accusative case particle on a direct object than using the nominative case particle on a subject.

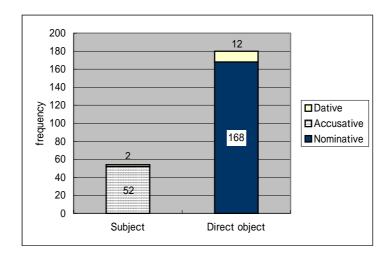


Figure 3. Numbers of case particles erroneously used for subjects and direct objects.

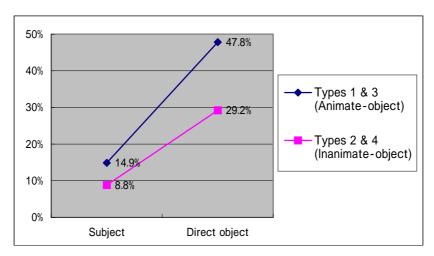


Figure 4. Case-marking errors in terms of argument-animacy and grammatical relations.

The results suggest that two semantic aspects as to argument NPs of transitive verbs had effects on the children's case-marking errors. Causative verbs were more difficult than non-causative verbs. As to argument-animacy, while it had no effect on the children's case-marking for intransitive verbs, its effects were observed in children's case-marking for transitive verbs, and this is one of the factors that increased the subject-object asymmetry (see Figure 4).

4 Conclusion

These experiments revealed that children often made case-marking errors for transitive verbs, whereas the case-marking errors for intransitive verbs were rare. The predominant errors were the overextension of the nominative case particle on direct objects. Children's learning of morphological case seems to take place gradually in preschool years and continues until school age.

Acknowledgements

I would like to thank the audience at the First Conference of the Japanese Society for Language Sciences for their valuable input to my presentation, and to the two anonymous reviewers and the editors for their comments on an earlier version of this paper.

References

- Clancy, P. (1985). The acquisition of Japanese. In D. I. Slobin (Ed.), *The crosslinguistic study of language acquisition:*The data (pp. 373-524). Hillsdale, NJ: Lawrence Erlbaum.
- Crain, S., & R. Thornton. (1998). *Investigations in Universal Grammar: A guide to experiments on the acquisition of syntax*. Cambridge, MA: MIT Press.
- Hakuta, K. (1982). Interaction between particles and word order in the comprehension and production of simple sentences in Japanese children. *Developmental Psychology*, 18, 62-76.
- Hayashibe, H. (1975). Word order and particles: A developmental study in Japanese. *Descriptive and Applied Linguistics*, 8, 1-18.
- Ito, K. (1990). Kodomo no kotoba: Syuutoku to souzou. Tokyo: Keiso Shobo.

- Morikawa, H. (1989). Acquisition of case marking and predicate-argument structures in Japanese: A longitudinal study of language acquisition mechanisms. Unpublished doctoral dissertation, University of Kansas.
- Nagano, M. (1959). Youzi no gengo hattatu ni tuite: Syu to site zyosi no shuutoku-katei o tyuusin ni. *Kotoba no kenkyuu dai 1-syuu*, 383-396. The National Language Research Institute.
- Okubo, A.. (1967). Youzi-gengo no hattatu. Tokyo: Tokyodo.
- Otsu, Y. (1994). Early acquisition of scrambling in Japanese. In T. Hoekstra & B. Schwarts (Eds.), *Acquisition studies in generative grammar* (pp. 253-264). Amsterdam: John Benjamins.
- Rispoli, M. (1995). Missing arguments and the acquisition of predicate meanings. In M. Tomasello & W. E. Merriman (Eds.), *Beyond names for things: Young children's acquisition of verbs* (pp. 331-352). Hillsdale, NJ: Lawrence Erlbaum.
- Suzuki, T. (1997). The effects of discourse context on children's interpretations of Japanese non-canonical sentences. In D. R. Yoshimi & M. K. Plumlee (Eds.), *The life of language, the language of life: Selected papers from the first college-wide conference for students in languages, linguistics and literatures* (pp. 29-36). University of Hawai'i at Manoa: National Foreign Language Resource Center.
- Suzuki, T. (1998). Transitivity and unaccusativity in child Japanese. *Chicago Linguistic Society: The panels 34-2*, 521-533.
- Suzuki, T., Cho, S., Lee, M., O'Grady, W., Song, M., & N. Yoshinaga. (1999). Word order preferences for direct and indirect objects in children learning Japanese. *The 2nd International Conference on Cognitive Science and The16th Annual Meeting of the Japanese Cognitive Science Society Joint Conference*, 108-112.
- Yokoyama, M. (1997). Bunpou no kakutoku: zyosi o tyuusin ni. In H. Kobayashi & M. Sasaki (Eds.), *Kodomotati no gengo kakutoku* (pp. 131-151). Tokyo: Taishukan.

Appendix A

Sample test sentences in Experiment I

- Type 1. Dare-ga oyoida no? 'Who swam?'
- Type 2. Dare-ga koronda no? 'Who fell over?'
- Type 3. Nani-ga aita no? 'What opened?'
- Type 4. Dare-ga otita no? 'Who fell?'
- Type 5. Nani-ga otita no? 'What fell?'

Appendix B

Sample test sentences in Experiment II

Subject elicitation

- Type 1. Dare-ga okosita no? 'Who got (X) up?'
- Type 2. Dare-ga aketa no? 'Who opened (X)?'
- Type 3. Dare-ga osita no? 'Who pushed (X)?'
- Type 4. Dare-ga tabeta no? 'Who ate (X)?'

Object elicitation

- Type 1. Dare-o okosita no? 'Who did (X) get up?'
- Type 2. Nani-o aketa no? 'What did (X) open?'
- Type 3. Dare-o osita no? 'Who did (X) push?'
- Type 4. Nani-o tabeta no? 'What did (X) eat?'

日本語習得における形態格の誤用

鈴木孝明 (ハワイ大学)

日本語の「格」の獲得は、主として、自然発話での格助詞の初出やその頻度によって議論されてきたが(たとえば、Clancy、1985 など)、 子供の発話中に格助詞の誤用がある限り、格助詞使用の正誤も考慮する必要がある。本稿では、日本語の形態格「が」と「を」の獲得を子供の格助詞使用に焦点を当てて実験調査した結果を報告する。格助詞の産出を促す2つの実験の結果、幼稚園児は、自動詞文においてはほとんど誤りを犯さないが他動詞文ではしばしば主格の「が」を他動詞の目的語をマークする助詞として誤用することが確認された。また、この「が」の過剰使用に関しては、項や動詞の意味に関わる複数の要因が関係していることがわかった。

Multiple Factors in Morphological Case-marking Errors Takaaki Suzuki University of Hawai'i at Manoa

Paper presented at the first Conference of Japanese Society for Language Science (JCHAT 言語科学研究会第 1 回大会) on August 8, 1999 at Sophia University.

In Y. Oshima-Takane, Y. Shirai, & H. Shirai (Eds.), Studies in Language Sciences (1), 123-134. 中京大学情報科学部 (An earlier version appeared in the conference handbook, pp. 69-72.)