

# Singular/plural distinction of Japanese bare nouns by native Japanese and non-native Japanese speakers: A preliminary study

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## Abstract

As already pointed out by Watanabe (2017) and others, reverse partitive constructions in Japanese are subject to the semantic restriction; unlike partitive constructions, they disallow singular interpretation. This paper reports the results of an empirical study that investigated the following two points: (i) whether the semantic restriction on reverse partitives holds true in the grammar of native Japanese non-linguists; and (ii) whether L1 English speakers of L2 Japanese can acquire the semantic restriction on reverse partitives. The results of the Truth-Value Judgement Task (TVJT) revealed that (i) the semantic restriction held true in the grammar of native Japanese non-linguists, and (ii) that the L2er acquired the semantic restriction, although the restriction is absent in his L1. These results are compatible with previous L2 studies on acquisition of the syntax and semantics interface, including Dekydtspotter, Sprouse, & Swanson (2001).

## 1. Introduction

In classifier languages, including Japanese, the traditional view is that all bare nouns are essentially number-neutral; therefore, these languages require classifiers as counting units (Chierchia, 1998). Recently, however, Watanabe (2017) challenged this traditional view, which suggests that bare nouns in Japanese partitive constructions represent systematic number-sensitivity despite the absence of number-sensitive overt morphology. Bare nouns in reverse partitive constructions are interpreted as plural, not singular. In contrast, bare nouns in partitive constructions can be interpreted as either singular or plural. Thus, bare nouns in reverse partitives are subject to semantic restriction.

This paper describes an empirical study of the semantic restriction on reverse partitives in native Japanese and non-native Japanese speakers. It is structured as follows: Section 2 explains the interpretations of bare nouns in (non-)partitive constructions in Japanese; Section 3 introduces a previous L2 study on distinct word-order and sentence interpretation; Section 4 presents research questions; Section 5 explains the experiment's methodology; and Section 6 presents the results and their implications, followed by a conclusion.

## 2. Linguistic property

Watanabe (2017) suggests that bare nouns in Japanese partitive constructions represent systematic number-sensitivity, although Japanese lacks number-sensitive overt morphology. In a partitive construction where a bare noun precedes a partitive, the noun can be interpreted as either singular or plural; accordingly, the sentence is ambiguous. For example, the noun *ringo* in (1) can either be singular ('an apple') or plural ('apples'). However, in a reverse partitive construction where a bare noun follows a partitive, the noun is only interpreted as plural, so

the sentence is unambiguous. For example, the noun *ringo* in (2) must be plural (‘apples’), not singular (‘an apple’). Japanese reverse partitive constructions are thus subject to the semantic restriction that disallows singular interpretation of bare nouns. Table 1 summarizes the interpretations of (reverse) partitive constructions.

(1) Partitive construction: ambiguous (singular or plural interpretation)

Ringo-no ichibu-ga kusasteiru.  
apple-GEN part-NOM is rotten  
‘Part of the apple(s) is/are rotten.’

(2) Reverse partitive construction: unambiguous (plural interpretation only)

Ichibu-no ringo-ga kusasteiru.  
Part-GEN apple-NOM is rotten  
‘Some of the apples are rotten.’

**Table 1.** Singular/plural interpretations of (reverse) partitive constructions

Structures	Singular interpretation	Plural interpretation
Partitive (a bare noun precedes a partitive)	✓	✓
Reverse partitive (a bare noun follows a partitive)	×	✓

Watanabe attributes the unavailability of the singular interpretation of reverse partitives to the syntactic movement of the noun (e.g. *ringo* ‘apple’ in [2]) to Spec of NumP, which is triggered by the [-singular] feature of the NumP head. This movement forces the reading in which multiple apples are rotten, as in (2).

By contrast, in English partitive constructions, no singular/plural ambiguity exists due to the availability of overt plural morphology, as shown in (3). Moreover, fixed word order disallows reverse partitives in English. Therefore, acquisition of the semantic restriction on Japanese reverse partitives may cause a learnability problem for L1 English speakers. The semantic restriction is not taught in Japanese language classrooms, and negative evidence is generally not available outside of classrooms in L2 acquisition.

(3) Interpretation of English partitive construction

- a. Most of the city is off-limits to foreigners.
- b. Most of the cities are off-limits to foreigners. (Watanabe 2017:3)

### 3. Previous L2 studies on word order and sentence interpretations

Few attempts have been made to investigate interpretations of nouns in Japanese (reverse) partitive constructions. Many L2 studies that have investigated acquisition of singular/plural distinction have focused on languages with overt plural morphology, such as English. Acquisition of the singular/plural distinction in languages without overt plural morphology, such as Japanese, has been overlooked.

Among L2 studies on the syntax-semantics interface, Dekydtspotter, Sprouse, & Swanson (2001) may be relevant, as their study suggests that advanced L2ers can successfully acquire the subtle interpretive differences

caused by the distinct word orders of L2. For instance, Dekydtspotter et al. investigated the interpretation of French interrogatives by L1 English speakers. French has two types of interrogatives, continuous and discontinuous, as shown in (4). In the continuous interrogative (4a), the interrogative cardinality determiner *combien* ('how many') and its nominal restriction *de livres* ('of books') are adjacent. In the discontinuous interrogative (4b), they are separated.

(4) Two types of French interrogatives:

a. Continuous interrogative

Combien de livres est-ce que les étudiants achètent tous?

how many of books is it that the students buy all

'How many books are the students all buying?'

b. Discontinuous interrogative

Combien est-ce que les étudiants achètent tous de livres?

how many is it that the students buy all of books

'How many books are the students all buying?'

As (4) shows, the two types of interrogatives have different word orders and they also have different interpretations. Both (4a) and (4b) suppose that there is a context in which two students, John and Mary, are buying books: John is buying Books A, B, and C, while Mary is buying Books A, B, and D. Two answers are possible for the continuous interrogative (4a) in this context: 'three,' i.e. the number of books any given student is individually buying (individual interpretation), or 'two,' i.e. the number of books in common the students are buying (common interpretation). However, for the discontinuous interrogative (4b), only the individual interpretation is possible. These interpretive differences between the two types of interrogatives are presented in Table 2.

**Table 2.** Two types of interrogatives and their interpretations in French

Interrogative types	Common interpretation	Individual interpretation
Continuous interrogative	✓	✓
Discontinuous interrogative	×	✓

Table 2 shows that discontinuous interrogatives are subject to the semantic restriction, which is relevant to mapping (morpho) syntactic and semantic representations. The semantic restriction on discontinuous interrogatives poses a learnability problem for L1 English speakers of L2 French. In English, discontinuous interrogatives are not grammatical. Moreover, the semantic restriction is not explicitly taught in French language classrooms. Nevertheless, the advanced L2ers in Dekydtspotter et al. made the distinction between the two interpretations just like native French speakers. Consequently, Dekydtspotter et al. concluded that L2ers successfully acquired the semantic restriction, which cannot be triggered simply by L2 input, and so suggests that UG is operative in L2 acquisition.

## 4. Research questions

The present study gives rise to the following two research questions:

- (5) a. Does the semantic restriction on reverse partitives hold true in the grammar of native Japanese non-linguists?  
 b. If the semantic restriction holds in (a), is it acquirable by L1 English speakers of L2 Japanese?

The first question concerns the strength of the singular/plural distinction of bare nouns in reverse partitive constructions among native Japanese speakers. As we have seen in Section 2, the linguistic literature suggests that bare nouns in reverse partitives cannot be interpreted as singular, but must be plural. However, no empirical attempt has been made to examine whether native Japanese speakers who are not linguists truly interpret bare nouns in reverse partitives as exclusively plural. This study aims to clarify whether native Japanese non-linguists make a clear distinction between the singular and plural interpretations of bare nouns in reverse partitive constructions. If native Japanese non-linguists make a clear distinction, it follows that the semantic restriction truly holds in Japanese. The second question seeks to clarify whether native English speakers studying Japanese can acquire the semantic restriction. To the best of the author's knowledge, no previous L2 study has investigated the interpretations of bare nouns in Japanese partitive constructions by native English speakers. If we extend the findings in Dekydtspotter et al. and assume that any L2 property of the syntax-semantics interface is acquirable, it is predicted that native English speakers of L2 Japanese with advanced proficiency levels can acquire the semantic restriction on reverse partitives. To address these questions, an experiment was conducted, which is described in Section 5.

## 5. Experiments

### 5.1 Participants

30 native Japanese speakers and one native English speaker of L2 Japanese participated in the experiment. All native Japanese speakers were university freshman (non-linguistics majors) who had never been abroad for more than three months. They served as a control group. The L2er was an international student from Singapore. Although Singapore is a multilingual country, the student's parents' first language is English, and he grew up in an English-speaking environment. He also speaks Mandarin Chinese, which he learned at the age of 17, with self-reported intermediate proficiency. His understanding of Japanese, including knowledge of grammar and vocabulary, was confirmed in a written cloze test adapted from Okuma (2015) consisting of 55 items. His accuracy rate was 85% (28/33), and his proficiency level was judged as advanced. Table 3 summarizes the participants' profiles.

**Table 3.** Participant groups

group	L1	n	Age (range)	Japanese proficiency	Age of first exposure to Japanese	Naturalistic exposure to Japanese (years)
control	Japanese	30	19 (18-20)	native	0	19
L2er	English	1	25	advanced	22	3

## 5. 2 Stimuli

A TVJT was administered to the participants. The participants were presented with combinations of written Japanese sentences and pictures. They then judged whether the sentence matched the situation illustrated in the picture by choosing one of the three responses, *tadashii* ('true'), *machigai* ('false'), or *wakaranai* ('I don't know'). The sentence contained either a partitive or reverse partitive construction, and the accompanying picture depicted either a single object or multiple objects, creating a total of four different conditions. Table 4 presents these four conditions and the expected response for each condition from the native Japanese control group.

**Table 4.** Stimuli conditions and expected responses by the control group

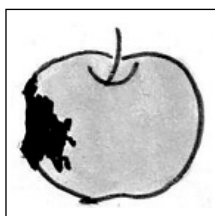
	Sentences	Pictures	Expected response
Condition 1	partitive	singular	✓
Condition 2	partitive	plural	✓
Condition 3	reverse partitive	singular	×
Condition 4	reverse partitive	plural	✓

The stimuli examples of Conditions 3 and 4 are presented in (6a) and (6b), respectively. In (6a), the Japanese sentence given contains a reverse partitive and the accompanying picture shows a single object, a partly rotten apple. This combination is contradictory (Condition 3), so the native Japanese speakers were expected to choose *machigai* ('false'). Similarly, in example (6b), the Japanese sentence given contained a reverse partitive, exactly same as in (6a). However, the accompanying picture showed multiple objects (five apples, two of which were rotten), and differed from the picture in (6a). This is an appropriate combination (Condition 4), so the control group was expected to choose *tadashii* ('true'). Each condition consisted of six combinations of a single sentence and a single picture. In the subject position, each sentence contained one of the six countable nouns: *ringo* ('apple'), *coppu* ('cup'), *bara* ('rose'), *hata* ('flag'), *ie* ('house'), and *shatu* ('shirt'), for a total number of 24 test items. 12 distractor items, which were inappropriate combinations of a sentence and a picture, were added to the test items so that an even number of "true" and "false" responses were expected to the all items in the task. The participants judged 36 items in total.

### (6) Stimuli examples

#### a. Condition 3 (reverse partitive with singular interpretation)

Ichibu-no ringo-ga kusastteiru.  
 part-GEN apple-NOM is rotten  
 'Some of the apples are rotten.'



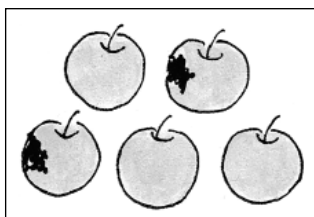
Tadasii   Machigai   Wakaranai  
 'true'   'false'   'I don't know'

## b. Condition 4 (reverse partitive with plural interpretation)

Ichibu-no ringo-ga kusastteiru.

part-GEN apple-NOM is rotten

‘Some of the apples are rotten.’



Tadasii Machigai Wakaranai  
 ‘true’ ‘false’ ‘I don’t know’

## 6. Results and discussion

### 6.1 Group results

Table 5 presents the group means of the ratios of choosing “true” by each participant.

**Table 5.** The group means of the ratios of choosing “true” in each condition  
 (The figures in the brackets represents SD)

Group	Condition 1 (partitive-sing.)	Condition 2 (partitive-plu.)	Condition 3 (reverse-sing.)	Condition 4 (reverse-plu.)
Control	0.98 (0.07)	0.63 (0.38)	0.16 (0.35)	0.97 (0.13)
L2er	1.00	0.38	0.00	1.00

Table 5 presents two findings regarding the native Japanese control group. First, the control group made a clear distinction between the singular and plural interpretations of reverse partitives. They accepted the singular interpretation of reverse partitives only 16% of the time (Condition 3 in Table 5), whereas they accepted the plural interpretation of reverse partitives 97% of the time (Condition 4). The difference between the acceptance ratios in Condition 3 and Condition 4 is statistically significant ( $t(29)=4.80, p<0.01$ ). It then follows that native Japanese speakers’ grammar disallows singular interpretation of reverse partitives, suggesting that the semantic restriction on reverse partitives does exist in non-linguists’ grammar. Second, the control group accepted the plural interpretation of partitives only 63% of the time (Condition 2). In contrast, they accepted the singular interpretation of partitives 98% of the time (Condition 1). The difference between Condition 1 and Condition 2 is statistically significant ( $t(29)=10.28, p<0.01$ ). Given that either the singular or plural interpretation of partitives is possible, as suggested by Watanabe, this contrast between Conditions 1 and 2 is unexpected. I suggest that the low acceptance rate of the plural interpretation of partitives can be attributed to pragmatics, not grammar. That is, the native Japanese speakers did not fully accept the plural interpretation of partitives to avoid ambiguity. They preferred reverse partitives to partitives to express multiple objects because the former is unambiguous, while the latter can ambiguously express either single or multiple objects. To use ambiguous expression where an unambiguous option is available would object to the Maxim of Manner, which states: avoid ambiguity (Grice, 1989). Therefore, the ambiguous expression inherent in the plural interpretation of partitives, was not chosen by the controls, even though it is logically possible. Therefore, the results of the experiment reflect preference due to pragmatics, and they do not challenge Watanabe’s view, who suggests that either singular or plural interpretation of partitives is

possible in Japanese.

Regarding the L2er, the overall tendency of his responses was same as the control group. The L2er accepted the licit singular interpretation of partitives (Condition 1) and the plural interpretation of reverse partitives (Condition 4) 100% of the time. In contrast, he rejected the illicit singular interpretation of reverse partitives (Condition 3) 0% of the time and only accepted the plural interpretation of partitives (Condition 2) 38% of the time. Unfortunately, due to the limited number of L2 participants, I was unable to carry out statistical analysis to compare the responses from the control group and the L2er. Nevertheless, the figures in Table 5 show that the L2er's responses fell in the same range as the control group, suggesting that L2er's grammar is similar to the controls.'

## 6.2 Discussion and limitation

In section 4, I put forward the following research questions:

- (5) a. Does the semantic restriction on reverse partitives hold true in the grammar of native Japanese non-linguists'?
- b. If the semantic restriction holds in (a), is it acquirable by L1 English speakers of L2 Japanese?

Regarding the first question (5a), the native Japanese control group made a clear distinction between the singular and plural interpretation of reverse partitive in the experiment. As we have seen in the previous section, the native Japanese speakers rejected the singular interpretation of reverse partitives 84% of the time, while they accepted the plural interpretation of reverse partitives 97% of the time. These results suggest that the semantic restriction on reverse partitives holds true in the grammar of non-linguists, which is in line with Watanabe (2017). As for the second question (5b), the result of the L2er suggests that he successfully made the singular/plural distinction, just like the control group. It then follows that the L2er has acquired a distinction that does not exist in his L1, English. This result is also in line with previous L2 studies on the syntax-semantics interface, including Dekydsprotter et al. (2001) and Dekydsprotter and Sprouse (2001), which have suggested that advanced L2ers successfully acquire subtle interpretative differences between different syntactic forms in L2s.

This present study demonstrates two points: (i) Japanese reverse partitives have a semantic restriction on their interpretation, unlike partitives; (ii) a native English speaker can successfully acquire this restriction, which is not present in their L1. To bolster the reliability of these findings, two aspects must be improved in future studies. First, more advanced L2ers should be tested. This study tested only one L2er, which makes it difficult to generalize the findings. More L2ers should participate in the experiment and statistical analyses should be done to compare the group means of the controls and the L2ers. Second, L2ers with different proficiency levels should also be tested. The L2er in the present study was an advanced Japanese learner, but data from L2ers with elementary and intermediate proficiency would help to clarify the developmental path in acquiring the semantic restriction.

## 7. Conclusion

This study investigated (i) whether the semantic restriction on reverse partitives holds true in the grammar of native Japanese non-linguists', and (ii) whether the semantic restriction on reverse partitives can be acquired by L1 English speakers of L2 Japanese. The TVJT was administered to 30 native Japanese speakers and one L1 English speaker of L2 Japanese to compare their interpretations of bare nouns in reverse partitive constructions

in Japanese. The results suggest: (i) the semantic restriction holds firm in the grammar of native Japanese non-linguists; and (ii) that the L2er had acquired the semantic restriction, although the restriction is absent in his L1. These results are in line with previous L2 studies which have investigated acquisition of syntax-semantics interface, including Dekydsptter et al. In order to make these results more reliable, the number of the L2ers should be increased in future studies.

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# 日本語母語話者及び日本語学習者による 名詞の単数・複数の解釈に関する予備調査

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## 要 旨

日本語の可算名詞は、通常単数解釈と複数解釈の両方が可能であるが、Watanabe (2017) によると、reverse partitive construction では、可算名詞は複数と解釈され、単数の解釈は許されない。そこで本稿では、(i) 言語学者ではない一般の日本語母語話者が reverse partitive construction の可算名詞を単数解釈しないかどうか、(ii) 英語を母語とする日本語学習者は、reverse partitive construction を日本語母語話者と同じように解釈するのか、について実験を行い調査した。その結果、Watanabe の指摘通り、(i) 一般の日本語母語話者も reverse partitive constructions の可算名詞の単数解釈を否定し、(ii) 英語を母語とする日本語学習者は、日本語母語話者同様の解釈をすることがわかった。これらの結果は、統語と意味のインターフェイスの獲得は可能であると主張する先行研究 (Dekydspotter, Sprouse, & Swanson 2001, 他) に合致する。