

L2 Acquisition of the Japanese Associative Plural Marker *-tati*

Keisuke Kume and Heather Marsden

1. Introduction

The Japanese plural marker *-tati* allows a so-called *associative* reading of the noun it attaches to (i.e., *N* and others), in addition to a regular plural reading. However, the associative reading is not always available when a noun with *-tati* is modified with a numeral classifier. This paper investigates whether this semantic constraint on associative *-tati* can be acquired by second language (L2) speakers of Japanese whose first language (L1) is either Korean, which has a corresponding associative plural morpheme and distributional constraint, or English, which has no associative morpheme and hence no constraint.

This paper is organised as follows. Section 2 introduces plurality in Japanese and the semantic constraint on the associative *-tati*. In Section 3, predictions for the acquisition of *-tati* in L2 Japanese are provided after illustrating the relevant properties of Korean and English. Sections 4 and 5 illustrate the methodology and the results, Section 6 discusses the findings, and Section 7 concludes.

2. Plurality in Japanese

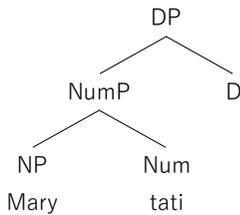
Plural marking is not obligatory in Japanese; it is optionally marked on animate nouns by means of the suffix, *-tati*. As indicated above, *-tati* can also express associativity, whereby *N-tati* refers to a group of individuals denoted by the noun and associated others. For example, *Mary-tati* is ambiguous between two readings: the plural reading, ‘more than one person named Mary’; or the associative reading, ‘Mary and others’. However, when *N-tati* combines with a numeral classifier (NC), the associative reading is not always allowed. In postnominal NC constructions, where a numeral with a classifier follows *N-tati*, both associative and plural readings are available (1a). By contrast, in prenominal NC constructions, where the NC precedes *N-tati*, only the plural reading is possible (1b) (e.g., Ochi, 2012; Ueda, 2014).

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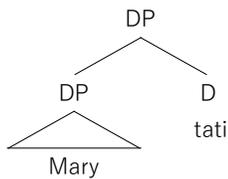
- (1) a. Postnominal NC construction
 Mary-*tati* san-nin
 Mary-TATI 3-CL
 ✓ Associative: ‘Mary and the other two’
 ✓ Plural: ‘three persons named Mary’
- b. Prenominal NC constr.
 San-nin-no John-*tati*
 3-CL-GEN John-TATI
 ✗ Associative
 ✓ Plural

According to Ueda (2014), *-tati* fills distinct structural positions depending on its interpretation: plural *-tati* is the head of NumP, Num, taking an NP complement (2a), whereas associative *-tati* is D, taking a DP complement (2b).

- (2) a. Plural

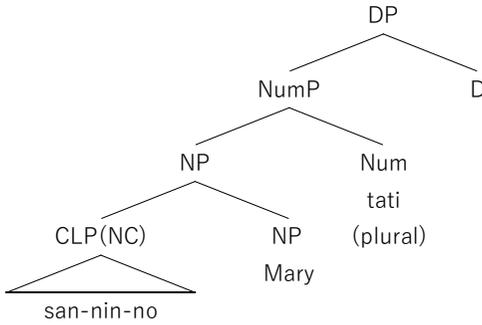


- b. Associative

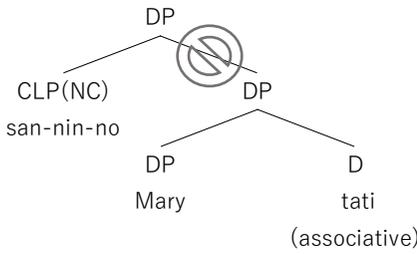


In the prenominal construction, the NC is assumed to be an NP adjunct (e.g., Saito, Lin, & Murasugi, 2008), which means that plural *-tati* can take as a complement an NP consisting of an NC and its associated noun (3). However, because an NC cannot be adjoined to a DP with associative *-tati*, the associative reading is precluded, as sketched in (4).

(3) Prenominal NC construction

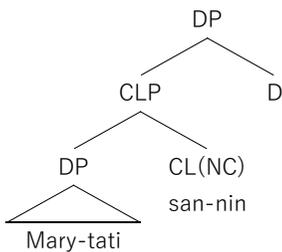


(4) Illicit prenominal NC construction



By contrast, in the postnominal construction, the NC is the head of ClassifierP (CLP) and can take a DP complement (e.g., Shin, 2017) (5). In this configuration, both plural and associative interpretations are available because structurally, *-tati* can be either Num or D. That is, the DP in (5), *Mary-tati*, is ambiguous between the structures in (2a) and (2b).

(5) Postnominal NC construction



This study examines whether L2 learners can acquire this interpretive contrast between prenominal and postnominal NC constructions that include *-tati*. Korean and English were chosen as L1s, because of the properties of these languages regarding plurality and associativity, described in the next section.

3. Crosslinguistic differences and predictions

3.1. Plurality in Korean

Like Japanese, Korean has an associative marker, *-tung* (An, 2016). However, unlike Japanese *-tati*, it cannot have a plural interpretation (6). Plurality is expressed with a suffix, *-tul* instead (7).

(6) *Mary-tung*

✓ Associative: ‘Mary and others’

✗ Plural: ‘more than one person named Mary’

(7) *Mary-tul*

✗ Associative

✓ Plural

Korean *-tung* behaves similarly to Japanese associative *-tati* in NC constructions. In Korean prenominal NC constructions, the associative morpheme *-tung* is not acceptable (8a), though the plural *-tul* is fine (8b) (An, 2016) (cf. Japanese (1b)).

(8) a. *sey-myeng-uy Mary-tung
 3-CL-GEN Mary-TUNG
 ‘Three persons named Mary’

b. sey-myeng-uy Mary-tul
 3-CL-GEN Mary-TUL
 ‘Three persons named Mary’

In the postnominal construction, however, both associativity and plurality can be expressed with *-tung* (9a) and *-tul* (9b) (cf. Japanese (1a)).

(9) a. Associative
 Mary-tung sey-myeng
 Mary-TUNG 3-CL
 ‘Mary and the other two’

b. Plural
 Mary-tul sey-myeng
 Mary-TUL 3-CL
 ‘Three persons named Mary’

Therefore, *-tung* and *-tul* seem to correspond to associative *-tati* and plural *-tati*, respectively.

3.2. Plurality in English

In English, the plural marker *-s* does not mark associativity. That is, *Marys* refers to more than one person named Mary but not a group of people consisting of Mary and others. Furthermore, in English, numerals can directly combine with nouns (e.g., *three Marys*), unlike Japanese and Korean, where classifiers are required. This means English does not have NC constructions equivalent to the ones in Japanese and Korean. Particularly, numerals never occur postnominally in English (e.g., **Marys three*).

3.3. Predictions

Following L1 transfer approaches to L2 acquisition of properties (e.g., Lardiere, 2009), we assume that the abstract L1 grammar is the starting point for L2 acquisition. Given the crosslinguistic differences above, if L1-Korean speakers observe the associative meaning of *-tati*, they are predicted to map this form onto the lexical representation of the associative morpheme *-tung* which already exists from their L1. That is, they will be able to acquire the interpretive constraint as a result of this L1 transfer. By contrast, L1-English speakers, lacking a ready-made lexical representation from their L1, will need to build a lexical representation for the associative form-meaning from scratch. Therefore, the basic prediction is that Korean-speaking learners will acquire the interpretive constraint on the associative *-tati* in the prenominal NC construction more easily or faster than English-speaking learners.

However, the question remains of whether L1-English speakers are predicted to acquire the constraint at all, due to a potential learnability problem that arises because of lack of evidence from which the constraint could be induced. First, although associative *-tati* is absent in prenominal NC constructions, absence alone does not provide determining evidence *for* the constraint. Second, Japanese language instruction is also unlikely to provide evidence. Examination of Japanese textbooks and discussion with teachers confirmed that the interpretive constraint is not commonly (if ever) taught. Finally, the observable evidence of *-tati* in the input may even be misleading for acquiring the constraint. This is because, in most cases, there is no difference in meaning between prenominal and postnominal NC constructions, as in (10).

- (10) a. Gakusei san-nin (postnominal)
 student 3-CL
 '(the) three students'
- b. San-nin-no gakusei (prenominal)
 3-CL-GEN student
 '(the) three students'

This might lead learners to overgeneralise the acceptability of associative *-tati* in postnominal NC constructions to prenominal NC constructions, by analogy. Therefore, these three factors, combined with the lack of an L1 counterpart property, may result in an L2 poverty-of-the-stimulus (POS) problem for L1-English speakers, where there is no direct evidence for the constraint on associative *-tati* (e.g., Schwartz & Sprouse, 2013).

However, previous research on L2 POS at the syntax-semantics interface (e.g., Dekydtspotter & Sprouse, 2001; Marsden, 2009) suggests that similar learnability problems can be overcome. The driver of acquisition in these cases has been argued to be Universal Grammar (UG), an innate domain-specific algorithm preempting certain syntax-semantics mappings. In the case of the incompatibility of associative *-tati* with the prenominal NC construction, we assume that this arises due to associative *-tati* and plural *-tati* having different semantic type properties. UG imposes restrictions on the way in which different semantic types can combine at the syntax-semantics interface. We return to this issue in the Discussion, but in terms of predictions, if UG is operative in L2, then L1-English learners may be able to acquire the subtle interpretive constraint on *-tati*, despite the lack of direct evidence for it. By targeting this novel Japanese phenomenon, the present study aims to expand the database of research on L2 POS at the syntax-semantics interface.

4. Methods

4.1. Participants

Twenty L1-English and 20 L1-Korean speakers of Japanese participated in the study. The L1-English participants were UK university students of Japanese-related majors, Japanese language instructors at UK and US universities, and university teachers at Japanese universities. The L1-Korean speakers were mostly resident in Japan at the time of testing: they were undergraduate students at Japanese universities or Korean language teachers in Japan except for one being an US university student. Twenty Japanese speakers, who were university students and professionals residing in Japan, also participated as native controls. The two L2 groups were matched for proficiency using a cloze test adapted from Marsden (2005). They can be considered relatively advanced learners because their mean scores were within the native range.

4.2. Acceptability judgement task

A web-based acceptability judgement task (AJT) was administered using *Qualtrics*. For each test item, the participants were asked to read a short passage and rate a target sentence for its acceptability on a 7-point scale (0 = completely odd, 6 = completely natural). An *I don't know* option was also included. There were eight experimental item pairs, each of which differed in whether the sentence contained a postnominal or prenominal NC, as illustrated in (11). In each item, the context (presented in Japanese in the experiment though in English for

convenience in (11)) biased towards an associative reading of *-tati*. Consequently, the expected native response was significantly lower ratings in the prenominal condition than in the postnominal construction.

Two item lists were created so that no participant saw both postnominal and prenominal versions of any item. Each list also included 64 distractors that were experimental items for other studies and 24 fillers that were all unacceptable to balance the number of acceptable and unacceptable items. The test items were pseudo-randomised for each participant.

(11) Context: Hanako and her parents visited her uncle by train last weekend.

Target: Ozi-wa yuugata kara
uncle-TOP evening from

{ Hanako-tati san-nin-o / *san-nin-no Hanako-tati-o }
Hanako-TATI 3-CL-ACC / 3-CL-GEN Hanako-TATI-ACC

umi ni doraibu ni turete-itte-kure-masita
sea to drive for take-go-give-did

‘Her uncle took Hanako and the other two for a drive to the seaside in the evening.’

5. Results

5.1. Group results

Group mean acceptability ratings were calculated for each NC construction type, as shown in Figure 1. *I don't know* responses were removed (6/480, or 1.25% of the data). As predicted, the control group gave the prenominal construction clearly lower ratings than the postnominal construction. The L2 groups exhibited similar rating patterns, though less categorically than the control group.

The raw ratings of the experimental items were further analysed with an ordinal mixed-effects model (Christensen, 2018). The fixed effects were CONDITION (*postnominal, prenominal*), L1 (*Japanese, Korean, English*), and their interactions with maximally specified random effects. CONDITION was sum-coded whereas L1 was Helmert-coded so that the native group was compared with the two L2 groups together, and then the L2 groups were compared with each other. Table 1 summarises the model output. The effects of CONDITION, the two L1 contrasts, and the interaction between CONDITION and the native–L2 contrast were significant. However, the interaction between CONDITION and the Korean–English contrast was not significant. This suggests that sensitivity to the interpretive contrast differs between the native and L2 participants, but not between the L2 groups.

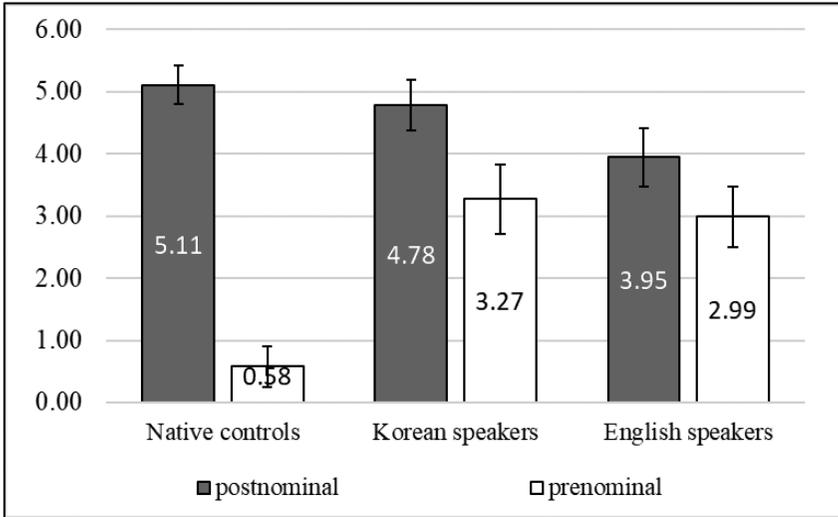


Figure 1. Acceptability of *-tati* in associative contexts (error bars = SE)

Table 1. Omnibus model output

Fixed Effects	β	SE	z	p
Condition	-3.021	0.363	-8.314	<.001*
L1: Native vs L2	-0.964	0.260	-3.714	<.001*
L1: Korean vs English	0.430	0.211	2.031	.042*
Condition \times L1: Native vs L2	-2.971	0.540	-5.506	<.001*
Condition \times L1: Korean vs English	-0.446	0.405	-1.101	0.271

Note. Formula: raw rating \sim condition \times L1 + (condition | participant) + (condition \times L1 | item) * $p < .05$

In order to examine whether the L2 groups distinguished the construction types at statistically reliable levels, a nested ordinal model was fit to the rating data. The model output in Table 2 shows a significant effect of CONDITION for each group. Thus, Table 2 confirms that both L2 groups are sensitive to the constraint, though to a lesser extent than the native group.

Table 2. Nested model output

Fixed Effects	β	SE	z	p
L1(1): Native vs L2	-0.964	0.260	-3.711	<.001*
L1(2): Korean vs English	0.429	0.211	2.030	.042*
L1: Native / condition	-5.993	0.689	-8.696	<.001*
L1: Korean / condition	-1.981	0.653	-3.034	.002*
L1: English / condition	-1.090	0.509	-2.141	.032*

Note. Formula: raw score \sim L1/ condition + (condition | participant) + (condition \times L1 | item) * $p < .05$

5.2. Individual results

Individual response patterns were also examined to see how many participants in each group exhibited target response patterns. Table 3 shows how many individuals per group had lower mean ratings for the prenominal construction than the postnominal (target pattern), how many showed no difference between the two, and how many had the opposite (non-target) pattern.

Table 3. Distribution of response patterns within each group

L1	Prenominal < postnominal		Prenom. = Postnom. <i>N</i>	Prenominal > postnominal	
	<i>N</i>	Size of diff.		<i>N</i>	Size of diff.
Japanese	20	0.50–6.00	0	0	NA
Korean	13	0.50–4.75	3	4	0.25–1.50
English	13	0.25–4.80	2	5	0.25–1.00

In both L2 groups, the majority showed the target pattern, though around a third in each group showed a non-target pattern. We take this as evidence that the interpretive constraint is acquirable for L2 learners, even though not all participants had acquired it.

6. Discussion

Now let us discuss these findings in relation to the research question and predictions. First, the answer to the question of whether L2 learners can acquire the interpretive constraint on *-tati* seems affirmative, in that both Korean and English groups made a significant distinction between the conditions. The individual response analysis also supported this. Turning to the first prediction that L1-Korean speakers would acquire the constraint faster than L1-English speakers due to L1 difference, this was not confirmed because there was no statistical difference between the two L2 groups in terms of sensitivity to the contrast. The second prediction that if UG is operative, L1-English speakers would be able to acquire the constraint was confirmed, as already addressed in the answer to the research question. In the following, we consider what exactly UG provides learners with so that they can acquire the constraint.

We assume that the UG knowledge in question is the syntax-semantics restriction that prenominal numeral quantifiers must be adjoined to an NP of semantic type $\langle e, t \rangle$ (= predicate). This prevents prenominal numeral quantifiers from modifying a DP with the associative *-tati* of type e (= entity), as previously illustrated in (4). Recall that in the structures proposed in (2), *-tati* is Num when it has the plural meaning but D when it has the associative meaning. We assume that a prenominal numeral quantifier must be an NP adjunct, which is semantically a function that takes an NP of the semantic type $\langle e, t \rangle$ and returns an NP of the same type. This prevents a prenominal numeral classifier from modifying a DP headed by the associative *-tati*, which is semantically an entity rather than a

predicate. Assuming this is a cross-linguistic restriction, the structure in (4) is universally impossible. We also assume that the associative meaning is universally incompatible with Num, which preempts the associative *-tati* being mapped onto Num rather than D. Given this UG knowledge, the constraint would emerge automatically once learners acquire (i) the plural and associative interpretations of *-tati*, and (ii) Japanese NC constructions. These properties should in principle be acquirable based on positive evidence alone. Thus, the L2 POS problem is solved for English-speaking learners.

Nevertheless, there are at least two remaining questions. First, why was there no difference between the Korean and English groups? Given the relatively advanced proficiency of the L2 groups, the English group may already have acquired the pre-requisite properties. In that case, the predicted L1-Korean advantage was no longer visible. Second, why were the L2 learners much less sensitive to the semantic constraint than the native controls? We speculate that, in this particular experiment, the complexity of judging inter-sentential acceptability may have played a role. Our experiment required participants to pay close attention to the discourse for judging the acceptability of *-tati*. This task complexity could have meant that L2 participants were less confident about selecting the lowest points on the rating scale, even though they nonetheless selected ratings that differentiated between the two conditions.

7. Conclusion

L2 acquisition of the constraint on the associative *-tati* seems possible whether learners have a corresponding property in the L1 or not. We propose that successful acquisition by L1-English learners despite the absence of direct evidence for the constraint is possible through UG-knowledge, namely prohibition of DP adjunction to prenominal numeral quantifiers. This supports the view that syntax-semantics computation is guided by UG in L2 acquisition, in the same way as in L1.

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