

A Choice of the Interpretations of the Case Particle *-no* in Japanese*

Satoshi Nambu

National Institute for Japanese Language and Linguistics

1. Introduction

This study examines how people choose one interpretation over the other in terms of the case particle *-no* in Japanese, exploring indirect effects of sociolinguistic factors on language processing and comprehension. The case particle *-no* can be interpreted as either a “possessive” marker (1a) or an embedded subject marker (1b).

- (1) a. Naomi-wa kinoo [Ken-**no** hon]-o katta.
Naomi-Top yesterday Ken-Gen book-Acc bought
‘Naomi bought Ken’s book yesterday.’
- b. Naomi-wa [kinoo Ken-**no** mottekita] hon-o katta.
Naomi-Top yesterday Ken-Gen brought book-Acc bought
‘Naomi bought a book that Ken brought yesterday.’

The embedded subject (but not the “possessive” NP-*no*) can be alternatively marked by the nominative case particle *-ga*, called nominative/genitive alternation (henceforth NGA) (cf. Harada 1971), as shown in (2).

- (2) Nominative/genitive alternation (NGA)
- Naomi-wa [kinoo Ken-**ga/no** mottekita] hon-o katta.
Naomi-Top yesterday Ken-Nom/Gen brought book-Acc bought
‘Naomi bought a book that Ken brought yesterday.’

From a sociolinguistic perspective, Nambu (2007, 2011, to appear) and Nambu and Matsuda (2008) investigated the alternation between *-ga* and *-no* on the embedded subject using corpora and found that sociolinguistic factors such as formality, gender, and age affect frequencies of *-ga* and *-no* in the corpora. Since the use of the embedded genitive subject NP-*no* is influenced by those factors, referring to the embedded nominative subject NP-*ga*, it is

plausible that the sociolinguistic factors affect a choice of the two interpretations of NP-*no* (“possessor” or embedded subject) when NP-*no* occurs in an ambiguous context as follows.

(3) Okaasan-wa kodomo-no kattedekita boosi-o nakusita.

mother-Topic child-Gen bought hat-Acc lost

a. Genitive subject interpretation

Okaasan-wa [[kodomo-no kattedekita] boosi]-o nakusita.

‘The mother lost a hat that the child bought.’

b. “Possessor” interpretation

Okaasan-wa [kodomo-no [[pro kattedekita] boosi]]-o nakusita.

‘The mother lost the child’s hat that someone bought.’

(3a) is the genitive subject interpretation, treating the NP-*no* as a subject of the embedded clause that modifies the head noun *boosi* ‘hat’, and (3b) is the “possessor” interpretation, treating NP-*no* as a possessor of *boosi* that is modified by an embedded clause *kattedekita* with a pro subject. As mentioned above, the embedded genitive subject in (3a) is the one that sociolinguistic factors affect in use. This study verifies a hypothesis that the effects on the use of the embedded genitive subject NP-*no* also affect a choice of the two interpretations of NP-*no*, since an interpretation of NP-*no* under certain environments is ambiguous. To verify the hypothesis, I conducted a sentence completion task. In the next section, I introduce effects of the sociolinguistic factors on NGA. Then, I illustrate the procedures of the experiment in Section 3, and describe the results in Section 4.

2. Background

2.1. Effects of sociolinguistic factors on NGA

Nambu (2011, to appear) conducted a statistical analysis on NGA, using two corpora, the Minutes of Japanese Diet (MJD) and the Corpus of Spontaneous Japanese (CSJ). The analysis clarified what kind of language-external and -internal factors affect the use of the variants (the nominative case particle *-ga* and the genitive case particle *-no*). Among the factors identified in Nambu (2011, to appear), I introduce three language-external/sociolinguistic factors that are relevant to the current study; formality, gender, and birth year/age. The corpus study on NGA in Nambu (2011, to appear) reveals that the nominative *-ga* is dominant in use as a subject marker in embedded clauses, compared to the genitive *-no*, as shown in Table 1.

	MJD	CSJ
Nominative <i>-ga</i>	87.7% (6,662/7,600)	91.8% (4,540/4,945)
Genitive <i>-no</i>	12.3% (938/7,600)	8.2% (405/4,945)

$\chi^2=54.03$, d.f.=1, $p < 0.001$

Table1: Distributions of *-ga* and *-no* in the two corpora (Nambu to appear)

In addition, Table 1 shows that there are stylistic effects on the use of the two case particles. As Nakagawa (1987) claims that more formal speech contains more use of the genitive *-no* as an embedded subject marker, the MJD corpus as more formal than the CSJ corpus contains more use of the genitive *-no* as an embedded subject marker (MJD, 12.3 % vs. CSJ, 8.2%).

Ide (1999) discusses that there is a correlation between the effects of speech style and gender, pointing out that female prefers to use formal expressions more than male in Japanese. The effects of gender on the use of the two case particles have been confirmed by the Rbrul analysis (cf. Johnson 2008) of the CSJ data in Nambu (2011) (Rbrul, the factor weight, male: 0.425, female: 0.575 in the CSJ), showing that females use the genitive *-no* as an embedded subject marker more often than males.¹

From a perspective of language change, Nambu and Matsuda (2008) and Nambu (2011) claims that there exists an ongoing change in the use of the two case particles *-ga* and *-no* as an embedded subject marker. Figure 1 presents the rate of the genitive *-no* from 1870 to 1970 with respect to speakers' birth years in the data from the MJD corpus.

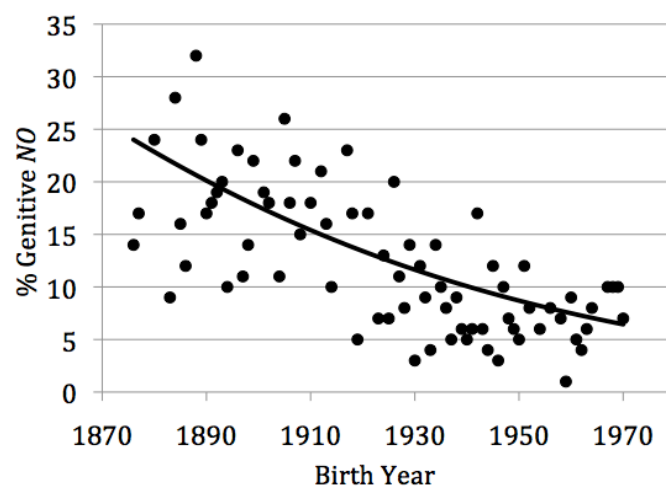


Figure 1: Scatter plot of the rate of *-no* in the MJD corpus (Nambu and Matsuda 2008)

In Figure 1, each point represents each speaker, which contains 100 tokens of the variants. The gradual decline of the overall trend is fairly clear, with speakers gradually switching from

-no to *-ga*. The logistic regression line ($Y=1/(1+e^{-(29.239-0.0162X)})$), pseudo $R^2=0.4876$) given in Figure 1 supports this impression statistically.²

2.2. Research question

As I argued in Section 1, the three sociolinguistic factors might affect a choice of the two interpretations of NP-*no* (“possessor” or embedded subject), since the three factors affect the alternation between *-ga* and *-no* as an embedded subject marker and there are ambiguous contexts where either of the interpretations of NP-*no* is acceptable, as shown in (3) in Section 1. Thus, a research question in this study is whether sociolinguistic factors affect language processing and comprehension in an indirect way, reflecting their effects on the use of the case particles *-ga* and *-no* as an embedded subject marker. The study of sociolinguistic variation has been primarily the study of production (e.g., Labov 1972), and there have been few studies on comprehension of variable linguistic behavior, such as listener’s perception of sociolinguistic variables (Strand 1999, Casasanto 2008, Campbell-Kibler 2009, Squires 2011). The current study investigates effects of sociolinguistic factors on a choice of the interpretations of NP-*no*, that is, their indirect effects on language processing and comprehension.

3. Methodology

I conducted a sentence completion task, where 25 native speakers of Japanese (age 25-49 (mean: 33), Female: 12, Male: 13) were asked to complete a sentence fragment to make a sentence. The stimuli consist of 20 target fragments and 20 fillers. The target fragments are ambiguous in that NP-*no* can be interpreted as either a “possessor” or an embedded subject, as shown in (5).

(5) Ambiguous sentence fragment in the stimuli

Okaasan-wa kinoo kodomo-no
mother-Top yesterday child-Gen

a. Example of how to complete a sentence in the embedded subject interpretation

Okaasan-wa kinoo [kodomo-no *kaita*] *memo-o yonda*.
mother-Top yesterday child-Gen wrote note-Acc read
‘The mother read a note that the child wrote yesterday.’

b. Example of how to complete a sentence in the “possessive” interpretation

Okaasan-wa kinoo [kodomo-no *hon*]-o *nakusita*.

mother-Top yesterday child-Gen book-Acc lost

‘The mother lost the child’s book yesterday.’

This study examined effects of three sociolinguistic factors; formality (formal/casual), gender, and age. The stimuli were controlled in terms of formality (formal or casual), based on vocabulary choice. Furthermore, I investigated effects of the number of temporal adverbs (1 or 2) in each sentence fragment. The stimuli with two temporal adverbs are intended to elicit an embedded clause in an answer more often, since the use of the genitive subject NP-*no* in an embedded clause is generally not preferred, compared to the nominative case particle *-ga*, as in Table 1 in Section 2. Thus, the stimuli consist of two formats, as shown in (6). (7) is a summary of predictions of the results.

- (6) a. One temporal adverb: [NP-topic adverb NP-*no* ...]
b. Two temporal adverbs: [adverb NP-topic adverb NP-*no* ...]

(7) Predictions

- a. Formality: More formal style prompts the embedded subject interpretation.
b. Gender: Females interpret NP-*no* as an embedded subject more often than males.
c. Age: Younger participants incline to the “possessor” interpretation.
d. Temporal adverbs: Two temporal adverbs prompt the embedded subject interpretation.

4. Results

The results of this experiment show that the “possessor” interpretation of NP-*no* is dominant, as in Table 2, which is compatible with the low frequency of the use of the genitive *-no* as an embedded subject marker, compared to the nominative *-ga* in NGA, as in Table 1.

	“possessor”	embedded subject
NP- <i>no</i>	83.2% (416/500)	16.8% (84/500)

Table 2: Frequency of the two interpretations of NP-*no*

First, the stimuli consist of sentences with one temporal adverb and two temporal adverbs, and Table 3 with Pearson’s chi-square test shows that two temporal adverbs induce the “possessor” interpretation more often than one temporal adverb, as predicted.

	“possessor”	embedded subject
One temporal adverb	88% (220/250)	12% (30/250)
Two temporal adverbs	78.4% (196/250)	21.6% (54/250)

$$X^2 = 8.24, p < 0.01$$

Table 3: The number of temporal adverbs and the interpretation of NP-*no*

Second, Table 4 shows that there exist effects of formality on the interpretations of NP-*no*. It indicates that formal speech prefers the embedded subject interpretation, compared to casual speech, which is compatible with the effects on NGA, where more formal speech contain more use of *-no* as an embedded subject marker compared to casual speech.

	“possessor”	embedded subject
Casual	86.8% (217/250)	13.2% (33/250)
Formal	79.6% (199/250)	20.4% (51/250)

$$X^2 = 4.64, p < 0.05$$

Table 4: Formality and the interpretation of NP-*no*

Third, Table 5 shows that males chose the embedded subject interpretation more often than females. The effects on the choice here are opposite to our prediction based on their effects on NGA.

	“possessor”	embedded subject
Male	80% (208/260)	20% (52/260)
Female	86.7% (208/240)	13.3% (32/240)

$$X^2 = 3.92, p < 0.05$$

Table 5: Gender and the interpretation of NP-*no*

As Labov (2011) argued, gender effects are interwoven with other sociolinguistic factors such as social class (e.g., Trudgill 1974), rural settings (e.g., Labov 2011), and social meaning of variants (e.g., Eckert 2000), even though the major expectation governing language and gender is that women should show a lower rate of stigmatized variants and a higher rate of prestige variants than men. Another possible explanation to the results is that we did not include the age effects in this statistical analysis, and the effects of gender were skewed due to the age effects. We need a further investigation in terms of other sociolinguistic factors to detect what causes the discrepancy between the gender effects on the choice of the interpretations and the ones on NGA.

Lastly, effects of birth year/age could not be investigated due to lack of enough data. We need a sufficient data with a wider range of birth year/age of participants.

In addition to the chi-square test, I conducted an Rbrul analysis to confirm the results. The logistic regression model includes “the number of adverbs”, “formality”, and “gender” as statistically significant factors. (8) provides factor weights of the results of the Rbrul analysis, which indicates how the factors affect the choice of the interpretations of NP-*no* (cf. Johnson 2008).

(8) Factor weights in the Rbrul analysis

(“The embedded subject interpretation” is the application value for the response)

- a. the number of adverbs (single 0.411, double 0.589)
- b. formality (formal 0.567, casual 0.433)
- c. gender (male 0.562, female 0.438)

5. Conclusion

We observed the effects of sociolinguistic factors on the choice of interpretations of the case particle *-no*. However, the sociolinguistic factors have nothing to do with the relationship between the embedded subject interpretation and the “possessor” interpretation of NP-*no*. Rather, their effects on the choice of the interpretations are derived from their relationship with NGA. Even so, this study provides evidence that sociolinguistic factors can affect language processing and comprehension. In addition, the choice of the interpretations is sensitive to features that relate to sentence structure such as the number of temporal adverbs.

References

- Campbell-Kibler, Kathryn. (2009). The nature of sociolinguistic perceptions. *Language Variation and Change* 21, 1: 135–156.
- Eckert, Penelope. (2000). *Linguistic variation as social practice*. Oxford: Blackwell.
- Harada, Shin-ichi. (1971). Ga-no conversion and idiolectal variations in Japanese. *Gengo Kenkyu* 60, 25-38.
- Ide, Sachiko. (1999). Sociolinguistics: Honorifics and gender differences. In N. Tsujimura (ed.), *The Handbook of Japanese Linguistics*. 444–480. Oxford: Blackwell.
- Johnson, Daniel Ezra. (2008). Getting off the GoldVarb standard: Introducing Rbrul for mixed-effects variable rule analysis. *Language and Linguistic Compass* 3: 359–383.
- Labov, William. (1972). *Sociolinguistic patterns*. University of Pennsylvania Press.

- Labov, William. (2011). Discovering the unexpected. An invited talk at NWAV Asia-Pacific 1, University of Delhi, India.
- Nakagawa, Yoshiko. (1987). Ga-no conversion in Japanese particles. *Bulletin of the Kyoto University of Foreign Studies* 28: 309–318.
- Nambu, Satoshi. (2007). Reconsideration of ga/no conversion based on a quantitative analysis. *Gengo Kenkyu* 131: 115–149.
- _____. (2011). Nominative/genitive alternation in Japanese: A quantitative study. ms.
- _____. (to appear). A quantitative analysis of the nominative/genitive alternation in Japanese. The proceedings of BLS 36 in 2010.
- Nambu, Satoshi & Matsuda, Kenjiro. (2008) Change and variation in ga/no conversion in Tokyo Japanese. In Joseph C. Salmons and Shannon Dubenion-Smith (eds.), *Historical Linguistics 2005: selected papers from the 17th International Conference on Historical Linguistics*, Madison, Wisconsin, 119–132. Amsterdam: John Benjamins.
- Staum Casasanto, Lauren. (2009). Experimental investigations of sociolinguistic knowledge. Doctoral dissertation. Stanford University.
- Strand, Elizabeth A. (1999). Uncovering the roles of gender stereotypes in speech perception. In L. Milroy & D. R. Preston (eds.), *Special issue: Attitudes, perception, and linguistic features*. *Journal of Language and Social Psychology* 18, 1:86–100.
- Squires, Lauren M. (2011). Sociolinguistic priming and the perception of agreement variation: Testing predictions of exemplar-theoretic grammar. Doctoral Dissertation, University of Michigan.
- Trudgill, Peter. (1974). *The social differentiation of English in Norwich*. Cambridge: Cambridge University Press.

* I would like to thank Bill Labov, Catherine Lai, Chizuru Nakao, John Trueswell, Kenshi Funakoshi, Ken Matsuda, Shin-ichiro Sano, and Yusuke Yoda for their help to conduct the experiment and their thoughtful comments. Any remaining errors are my own.

¹ Nambu (2011) could not analyze the effects of gender in the MJD data, since the dataset obtained from the MJD corpus does not include enough female speakers.

² Note that a statistical analysis with the CSJ data in Nambu (2011) does not show that there is an ongoing change in the use of the two case particles. Nambu (2011) argues that it is probably because the chronological length of the CSJ data in terms of speakers' birth year is not long enough to observe the change, compared to the MJD data.