

Change and variation in *ga/no* conversion in Tokyo Japanese*

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1. Introduction

One of the most prominent case alternations in Japanese is *ga/no* conversion (henceforth GNC). As shown in (1) and (2), a genitive particle *no* is variably substituted for a nominative particle *ga* in certain embedded clauses.¹

- (1) a. *Ken-ga/no kaita hon*
Ken-NOM/GEN write book
'the book which Ken wrote'
- b. *ryoosin-ga/no nokosita isan*
parents-NOM/GEN left assets
'the assets which parents left'
- c. *yuki-ga/no ooi kuni*
snow-NOM/GEN heavy country
'the country where there is heavy snow'
- d. *inu-ga/no neteita basyo*
dog-NOM/GEN sleep place
'the place where the dog slept'
- (2) *Ken-ga/*no hon-o kaita.*
Ken-NOM/GEN book-ACC write
'Ken wrote the book.'

GNC was first noted by Harada (1971), who historically derived the genitive construction from the nominative one. In this paper, however, we take GNC as it is and do not take a particular position as to its derivation. Since Harada (1971) a number of studies of GNC have emerged in almost every grammatical paradigm proposed to date. What has been missing in previous approaches, however, is empirical verification of Harada's (1971) hypothesis that there is indeed an ongoing change, whereby the speakers of Tokyo Japanese increasingly prefer *ga* to *no* in relevant environments. This intriguing hypothesis has been left untouched for about 30 years. In this paper we will

attempt to verify Harada's hypothesis quantitatively. In a word, we will conduct a real time verification of change in progress, as many previous studies have done, such as Fowler's restudy of (r) in New York City (Fowler 1986), and the three surveys at 20-year intervals by The National Institute for Japanese Language (The National Institute for Japanese Language 1953, 1974, Yoneda 1997). It is particularly worth noting that the corpus which we have used, as seen in the following section, makes it easy to access decades of speech data, compared to the usual studies using real time evidence which face some problems, such as the comparability of the data, and the need for time to acquire them (Bailey 2002). In addition to the analysis of change, we will also specify the language external/internal factors which affect GNC through the use of the data, and also attempt to check whether the Constant Rate Hypothesis, one of the most intriguing hypotheses about language change and variation in recent years, holds in our dataset.

2. Methodology

2.1 Corpus-Based Analysis

To verify whether language change is indeed occurring requires solid empirical data. Almost all of the huge number of syntactic treatments of GNC are based on introspection, while only a few rely on usage or surveys of judgments. Horie and Kang (2000), for example, is a corpus-based study on the variation and Maki et al. (2004) reported results from a questionnaire-based survey. Both of them, however, are purely synchronic in nature, and as such, they do not mention Harada's hypothesis. Obviously, we need a diachronic corpus of substantial size with historical depth, covering generations of the same dialect, so that any syntactic change can be clearly observed and analyzed.

For this purpose, we draw our data from the Minutes of the Japanese Diet as our data. The Minutes store records of Diet members' speeches from every meeting in the Diet in an almost verbatim way, and it is available on the web.² Its most prominent feature, for our purpose, is that the Minutes have speech data spanning about 60 years, starting from 1947 (Matsuda 2004), and as such it provides us with an ideal dataset. Furthermore, the website features a user-friendly search facility by which the data can be searched by keyword, speaker, date of the session, session name, etc., and the search results can be downloaded to the user's terminal at once.

2.2 Subjects and Speech Data

Because Harada's hypothesis was based on Tokyo Japanese, we restrict our data to the speech of members who are also native speakers of the dialect. By checking the hometown of the Diet members,³ we came up with 182 subjects.⁴ Then we sampled one Diet member for each birth year to create a dataset with chronologically equal proportions. This yielded 76 subjects whose birth years range over almost 100 years (1876 to 1970). Their data in the Minutes was downloaded from the website as a text file. For each speaker, we took 100 tokens of the variable, making the final sample size 7,600 tokens of which 948 (or 12.5%) were marked with *no*.⁵

2.3 Envelope of variation

Before counting occurrences of *ga* and *no* in the data, we needed to delineate the environments where variation is possible (the envelope of variation). One such environment is adnominal clauses, which have been discussed as a typical situation where GNC can occur, as in (3).

- (3) *Ken-wa musuko-ga/no yonda hon-o katazuketa.*
Ken-TOP son-NOM/GEN read book-ACC clean up
'Ken cleaned up the books which his son read.'

In addition to adnominal clauses, we included *made* or *yori* subordinate clauses, following Watanabe (1996) and Kikuta (2002) who claim that these clauses allow GNC as shown below:

- (4) a. *Basu-ga/no kuru made suwatte iyooka.*
bus-NOM/GEN come until sit be
'Let's sit until the bus comes.'
- b. *Kyaku-ga/no kuru yori hayaku nimotu-ga tuita.*
customer-NOM/GEN come than earlier package-NOM arrive
'The package arrived before the customer came.'

(Kikuta 2002)

Also included in our data set are *toyuu* and *tono* apposition clauses, which have intervening *toyuu* or *tono* between the embedded clause and its head noun. Those

clauses are discussed in Inoue (1976) as environments where *no* cannot be used as a subject marker. Contrary to Inoue (1976), however, Ura (1993) showed that *no* can appear in such clauses, if the head noun is a non-derived one such as *uwasa*. This can be seen in (5), which contrasts with (6) where the head noun is a noun derived from the verb *siraseru*.

- (5) *Handai-ga dansigakusei-ga kinben-da toyuu uwasa*
 Osaka Univ.-NOM male student-NOM diligent-be COMP rumor
 ‘the rumor that male students in Osaka University are diligent’

(Ura 1993)

- (6) *karera-ga buzi-datta toyuu/tono sirase*
 they-NOM safety-be COMP news
 ‘the news that they were safe’

(Inoue 1976)

3. Results

3.1 Language Change

To test Harada’s hypothesis, we calculated the rate of *no* and checked its correlation with the Member’s birth year. If his hypothesis is right, the rate should decrease as birth year increases. The result is given in Figure 1, where each dot represents a Diet Member. The gradual decline of the overall trend is fairly clear, so that the Members are gradually switching to *ga* at the sacrifice of *no* as their birth year approaches the present. The logistic regression line also supports this impression statistically. Thus, Harada’s insight in the early 1970’s was right, and GNC is indeed involved in a change in progress.

What, then, causes this change? Table 1 shows the historical change in the distribution of *ga* and *no* over the known period of Japanese history (Konoshima 1970, Doi 1982, Matsunaga 1983).⁶ At the first stage before the Kamakura and Muromachi periods (-1192), *ga* and *no* show a similar distribution, occurring between nominals and in embedded clauses (represented by white cells in the table). They then underwent a change during the Kamakura and Muromachi periods (1192-1573), as *ga* emerged in main clauses as a subject marker. In present-day Japanese *ga* cannot be used between nominals, and in embedded clauses, as we observed above, a change is now in progress (shaded gray).⁷ Notice here that a completion of this change will make the distribution of the two particles perfectly complementary, so that where *ga* can occur, *no* cannot.

Figure 1. Scatterplot of the rate of *no* and the birth year of the Diet Members

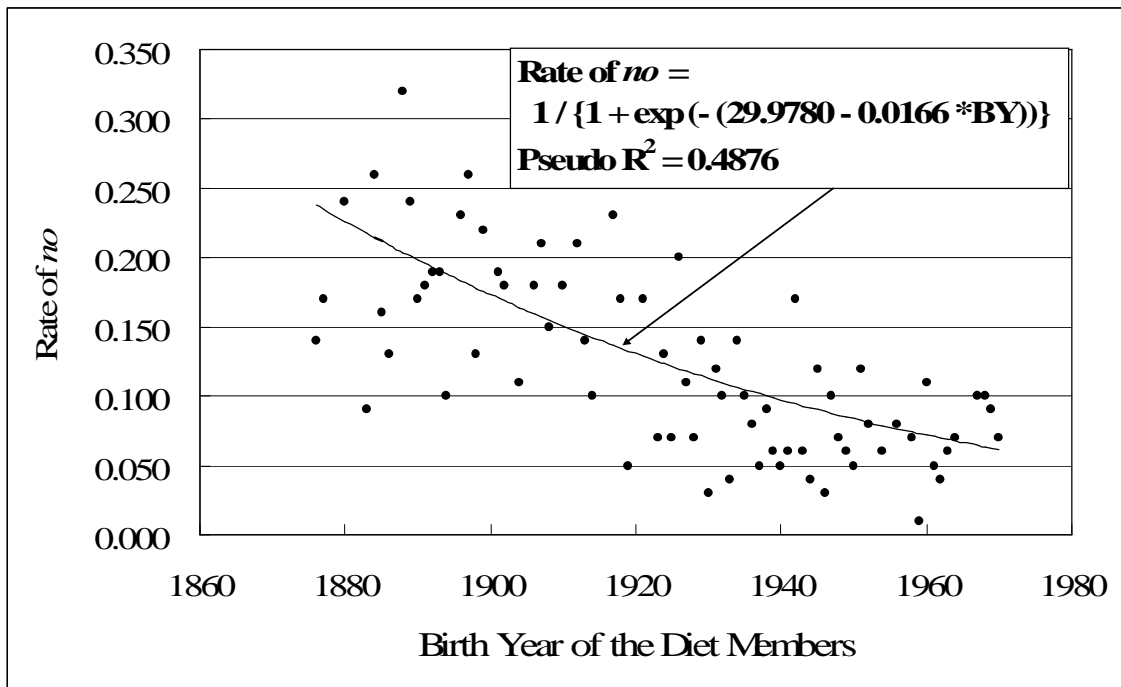


Table 1. Historical distribution of *ga* and *no*

(a black cell represents non-occurrence of the given form in the environment)

	Before Kamakura / Muromachi Era (-1192)		Kamakura / Muromachi Era (1192-1573)		Present	
	<i>GA</i>	<i>NO</i>	<i>GA</i>	<i>NO</i>	<i>GA</i>	<i>NO</i>
Between Nominals						
Embedded Clauses						
Main Clauses						

The picture suggests to us that the current change is the final stage of this millennium-long transition, which was originally motivated by a need for differentiation of two particles with similar syntactic distribution.⁸

Although we observed the change in progress, we are not suggesting that the change began only in the present time. Here we would like to hypothesize about the time when

the change in GNC may have begun by considering its relation to the emergence of *ga* in main clauses. Our hypothesis is that the change in GNC began around the same time that *ga* in main clauses emerged. As Ono (1977) and Kikuta (2006) mention, the rise of *ga* as a subject marker has been underway since the Muromachi period. We can thus assume that the change in GNC has progressed following this trend across all environments since that time. Ono (1977) gives evidence to support this hypothesis, through an investigation of two versions of the epic *Heike Monogatari* (*Tale of the Heike*) written in different periods. Comparing two books, *Kakuitibon Heike Monogatari* written in the Kamakura period and *Amakusabon Heike Monogatari* written in the Muromachi period, Ono observes that the former used *no* as a subject marker in some embedded clauses, but the latter used *ga* in the same clauses. Although we need to examine the relative proportion of the change between those books, the difference implies that the change in GNC had already begun in that period.

3.2 Language External/Internal Factors

In this section we will discuss the language external and internal factors which affect GNC. First, we take up language internal factors: adjacency between the subject NP and the verb, Transitivity Restriction, and stativity.⁹ We then look into language external factors, Plenary/Committee sessions and House of Representative/Councilors.

3.2.1 Adjacency

Harada (1971) pointed out that the existence of intervening elements between the subject NP and its predicate affects the acceptability of GNC. If there exist some intervening elements, genitive *no* cannot appear as a subject marker as in (7).

- (7) *kodomotati-ga/*no minna-de ikioiyoku kakenobotta kaidan*
 children-NOM/GEN all-with swiftly run up stairs
 ‘the stairs which all children run up swiftly’

(Harada 1971)

Table 2 compares the adjacent case with the non-adjacent one. Here the rate of *no* in the former case is higher than in the latter one. It shows that adjacency has a crucial effect on the rate of *no*. But why does the adjacency matter? Here, Shibatani (1975) suggests us a possible explanation. He indicates that the particle *no* has a latent ambiguity

between subject marker and possessive marker, and this ambiguity causes a processing problem for the hearer. The problem becomes more serious when the particle stands in the non-adjacent environment, and consequently the interpretation would require more time. All of this would be resolved once *ga* is used instead of *no*.¹⁰

Table 2. Probability of *no* by Adjacency

	Adjacent	Non-Adjacent	Total
% <i>no</i>	17.3%	1.6%	16.2%
#	907/4,398	36/1,417	943/5,815

3.2.2 Transitivity Restriction

Watanabe (1996) proposes a Transitivity Restriction (TR hereafter) where if a direct object exists as an argument of the predication in the embedded clause, as in (8), genitive *no* cannot appear in the same embedded clause as a subject marker.

- (8) a. *Ken-ga hon-o katta mise*
 Ken-NOM book-ACC buy store
 ‘the store where Ken bought a book’
- b. *hon-o Ken-ga katta mise*
 book-ACC Ken-NOM buy store
 ‘the store where Ken bought a book’

If TR indeed affects GNC, the rate of *no* in clauses with a direct object should be lower than in clauses without a direct object. The result is given in Table 3. As it shows, no tokens of *no* have been found with a direct object in the data here. Hence, TR correctly captures an aspect of the distribution of *ga* and *no*.

Table 3. Probability of *no* by TR

	With Direct Object	Without Direct Object	Total
% <i>no</i>	0%	13.7%	12.5%
#	0/656	948/6,944	948/7,600

3.2.3 Stativity

Horie and Kang (2000) claim, on the basis of their corpus-based analysis, that *ga* is preferred if the predicate is stative. They argue that the acceptability of GNC follows the hierarchy of predicate type: *Verb* > *Existential predicate*, *Adjective* > *Copula* (in the order of ascending stativity). Although their claim is based on *frequency* and not on the *rate* of occurrence, their interesting insight is worth checking with our Minutes data. Here we categorized the predicates into verb, adjective, and nominal adjective.¹¹ Contrary to Horie and Kang (2000), our result, shown in Table 4, indicates that it is the rate of *no* that follows the order of *Adjective* > *Nominal Adjective*, *Verb*, which is in the order of *descending* stativity. Notice that the result is consistent with the result of TR. In fact, TR is a direct antithesis of stativity, and there would be a discrepancy if we took the claim of Horie and Kang (2000) as it is: higher usage of *no* in lower stativity, that is, higher transitivity, does not go with TR.

Table 4. Probability of *no* by type of predicate

	Adjective	Nominal Adjective	Verb	Total
% <i>no</i>	30%	14%	14%	16.20%
#	222/718	17/121	704/4,976	943/5,815

3.2.4 Speech Style

Nakagawa (1987) states that there is a style difference between *ga* and *no*, and it is often said that written language and formal speech promote the use of *no* instead of *ga*. To check the style difference in this research, we considered the kind of session (plenary session versus other committee) and type of House (House of Representatives or *Shugiin* versus Councilors or *Sangiin*). With respect to the former, there is a difference between plenary session and other committees in the degree of formality. A Plenary session provides a more formal environment than others because all Diet members are required to attend it and it is broadcast nationwide. The prediction from this difference is that the probability of *no* in a plenary session would be higher than in others.

Our study, however, failed to find any style effect in terms of kind of session and type of House. One can think of several possible explanations for this result, but most probably, the style difference may be subtler than is detectable with our broad taxonomy.

Indeed, our scheme cannot, in principle, capture the style difference that should exist within the same House or session. In order to pursue the style issue in the Diet Minutes, then, we must come up with some means to precisely locate a given speech on a style gamut, and we leave this for future research.

4. GNC and Constant Rate Hypothesis

The GNC data also provides us with a rare opportunity to test the Constant Rate Hypothesis (Kroch 1989, henceforth CRH) with a change in progress. The CRH is a hypothesis concerning the relationship between the linguistic environments where the change occurs, and the rate of change with which it proceeds. While its predecessor, the Wave Model (Bailey 1973) holds that the rate of change is different for different contexts, with “favored” contexts (where the innovative form appears often) proceeding faster, the CRH claims that the rate of change is uniform across the linguistic environments in which the change occurs.

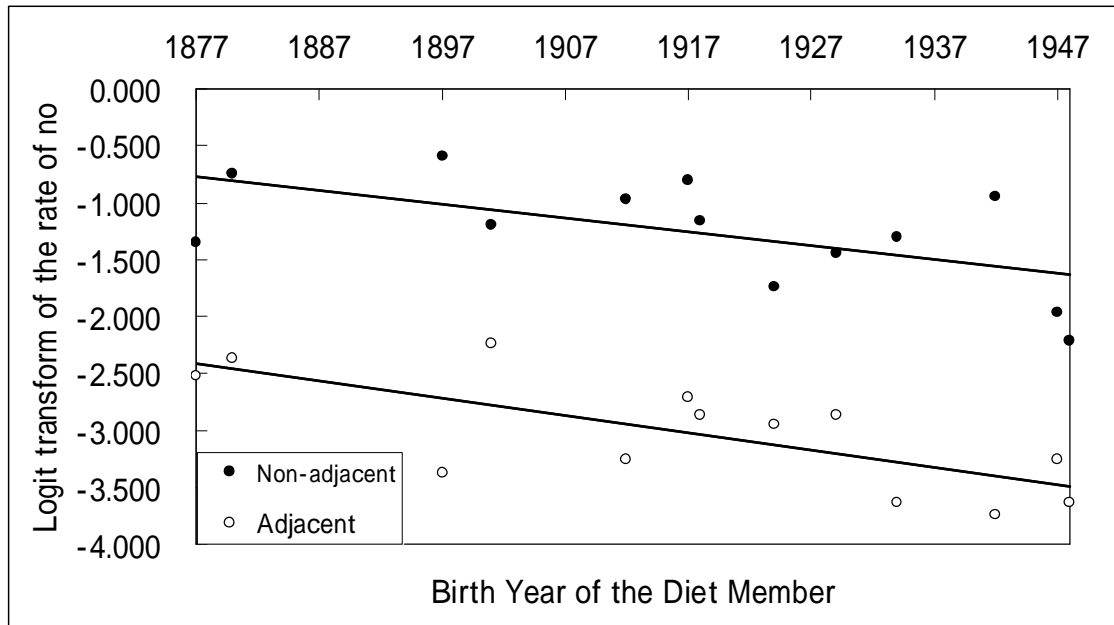
Being a hypothesis about syntactic changes, however, most of the evidence for the CRH comes from past changes where only documentary evidence is available. But it is from change in progress that linguists can learn about the way language changes in the most detailed and empirically satisfiable way (Labov 1994). GNC, although it is approaching its final stage (Fig. 1), surely gives us the most reliable data in this sense. It is then worthwhile to check whether the hypothesis also holds in our data.

In statistical terms, the CRH is reduced to the independence of the time variable from the linguistic variable in the logistic regression modelling (Matsuda 2006). In the regression model under consideration, the dependent variable is the rate of occurrence of *no*, and the time corresponds to the birth year of the Diet Members. As for the linguistic factor, we take up adjacency for its decisive effect and its comparatively balanced distribution within the dataset. We can then test the significance of the interaction term made up with the birth year variable and the binary adjacency variable, and if the term turns out to be non-significant, we can conclude that the CRH also holds in the ongoing change of GNC. As the statistical program requires all cells to be non-zero, we used 13 birth year points for this analysis.

The result shows that the interaction term is not significant ($p < 0.6367$), while the birth year ($p < 0.0007$), adjacency ($p < 0.0001$) and the constant ($p < 0.0033$) are all highly significant. The Pearson goodness-of-fit statistics also shows a satisfactory fit of $p < 0.5054$ ($d.f. = 23$). The two independent variables, then, are independent from each other, and the CRH is demonstrated to be true in our GNC data. Figure 2, which plots

the logit transform ($\ln(p/(1-p))$) of the rate of *no* from the 13 data points for the adjacent and non-adjacent environments, indeed shows that the regression lines for each environment are almost parallel, a situation that is expected under the CRH.

Figure 2. Scatterplot of the logit transform of the rate of *no* for adjacent/non-adjacent environments and the birth year of the Diet Members



5. Conclusion

We have tested Harada's language change hypothesis regarding GNC variation and demonstrated, using the Diet Minutes data, that the linguist's insight 30 years ago was correct. The change, we argued, is moving toward the complementarity of the two particles, which originally showed a similar distribution. The GNC was also found to be affected by several internal and external factors. For the internal factors, the adjacency between the subject NP and the predicate, TR, and the stativity of the predicate are all strong factors affecting the rate of *no*. In contrast, only the birth year of the Members had any notable effect on the GNC variation, although the style effect still leaves some room for exploration. Finally, the Minutes data demonstrated that the CRH holds for the GNC, at least with respect to adjacency.

The fact that GNC is involved in an ongoing change suggests several interesting questions. First of all, since GNC itself is a famous syntactic phenomenon in Japanese,

the question arises the reliability of numerous grammatical judgments that have been used as data during the past 30 years. Naturally, younger linguists may well prefer *ga* to *no* in certain syntactic positions than the older ones, but the issue has never been addressed in the field of Japanese syntax. Once we know that GNC itself is in transition, we should be wary of using introspective judgments on GNC without considering the background of the linguist.

Second, there is the issue of locating the change within an individual. The classical model of language change seeks its source at the time of language acquisition where the child remodels the input data as its own new grammar. Such a model excludes the possibility of language change *after* acquisition, but there is some evidence that casts doubt on this point (Labov 1982). The fact that GNC is an ongoing change and that the Minutes are a goldmine of transcribed speech data makes it a prime experimental ground to check whether a Member (an adult) shows any significant change in rate of *no* in the course of his tenure, which could be as long as 30 years. At this stage, we can only give a rough sketch of these problems, but we hope that the current paper managed to mark the beginning of such a research program.

Notes

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1. Kyusyu dialect permits *no* as a subject marker in main clauses:

- i. *Ame-no futte kita.*
rain-GEN fall become
'It's started to rain.'
- ii. *Doroboo-no haitta.*
thief-GEN come in
'The thief came in.'

(The National Institute for Japanese Language 1989)

2. The website is accessible at 'Full-text Database System for the Minutes of the Diet' (<http://kokkai.ndl.go.jp/>).

3. The references we used are as follows: *Kizokuin/Sangiin Giin Meikan* (Shugiin/Sangiin 1990a), *Shugiin Giin Meikan* (Shugiin/Sangiin 1990b), *Gendai Seijika Jinmei Jiten* (Nichigai Associates 1999), *Seijika Jinmei Jiten* (Nichigai Associates 2003), *Kokkai Binran* (Nihon Seikei Shimbunsha 1998, 1999, 2000, 2001, 2002, 2003, 2004).
4. Diet members who experienced special language training (e.g. TV announcers) were excluded from the sample.
5. Data in parentheses or brackets in the Minutes were not extracted, because they are citations from someone else's speech. Also sections where Diet members clearly read texts were excluded from the sample.
6. Of course Table 1 is a brief summary of the historical development of *ga* and *no*. When we talk about the historical transition of Japanese, we should keep in mind that there was a migration of the political center from Kyoto to Tokyo (known at the time as Edo). It is necessary to consider to what extent change in this period reflects historical change and how much is due to the shift in dialect.
7. Here we show the context in the Edo period (1603-1867), just before the present that we investigate. Yamada (1936), studying the language in "Ukiyoburo" and "Ukiyodoko" by Sanba Shikitei (1776-1822), shows that the proportion of *ga* to *no* in embedded clauses which precede an NP is 12.4% (25/202) *ga* and 87.6% (177/202) *no* in those books. Of course it should be taken into account that Yamada (1936) and our study probably differ in environments where *ga* and *no* are counted as GNC. This suggests that GNC has changed from a situation where *no* was predominant in the relevant clauses to the current state that we have seen.
8. At this point, we would like to mention another change in the roles of *ga* and *no*. As pointed out in Kinsui (1984), there was a difference between *ga* and *no* in honorific usage, but the difference disappeared in modern Tokyo dialect. It is reasonable to assume that this disappearance provided an impetus for the change in GNC, since the disappearance brought about an overlap of *ga* and *no* in embedded clauses. However this reasoning might also be reversed, with the change in GNC interpreted as causing the disappearance of the different roles of *ga* and *no*.
9. We also checked other internal factors such as animacy (Silverstein 1976) and negativity (Givón 1979). None of these factors, however, turned out to be significant in our analysis.
10. Interestingly, another particle, *o*, which marks the accusative case and shows variation between *o* and zero in the colloquial speech of Tokyo Japanese, shows a similar effect of adjacency, so that the zero-form is more likely to be used when the verb and the object NP are adjacent to each other (Matsuda 1995).
11. Because of space limitations, we do not mention the copula, but we have also investigated the copula. The probability of *no* is very low because of certain reasons, discussed in detail in Nambu (2005a).

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