Ga-No Conversion Revisited
—— A Reply to Shibatani ——

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1. Background

In Harada (1971), I reported on the existence of an idiolectal variation among the speakers of (the Tokyo dialect of) Japanese about the convertibility of the particle ga to no in prenominal clauses (relative clauses and complements). I pointed out there that there are at least two groups of speakers, A and B, whose acceptability judgments on the construction types (1)-(4) differ systematically, in the way represented in Table 1.

\[(1)\] a. \(\text{[boku no yon-da\$ s hon]\$NP}\)
   \(\text{I read-past book}\)
   \(\text{"the book I read"}\)

b. Taroo wa \(\text{[kinoo Ziroo no ki-ta\$ s koto]\$NP}\)
   \(\text{topic yesterday come}\)
   \(\text{o sir-anakat-ta.}\)
   \(\text{object know-not}\)
   \(\text{"Taro didn’t know that Jiro came yesterday."}\)

\[(2)\] [[me no naka-naka de- na-il\$ s sakura-no-ki]\$NP]
   \(\text{sprout not-easily come out-not cherry tree}\)
   \(\text{"a cherry tree that is slow to sprout"}\)

\[(3)\] Watasi wa [[Nixon no uso o tui-te i-ru\$ s koto]\$NP]
   \(\text{I lie tell-gerund be-pres}\)
   \(\text{o satot-ta.}\)
   \(\text{realize}\)
   \(\text{"I realized that Nixon was telling a lie."}\)

\[(4)\] a. [[Taroo no Hanako ni kasi-ta\$ s Ziroo no hon]\$NP]
   \(\text{to lend possessive}\)
   \(\text{"Jiro’s book which Taro lent to Hanako"}\)
My proposed account was that the two groups of people employed different grammatical systems: Ga-No Conversion, the transformation responsible for the *ga-no* alternation in prenominal clauses, has a different formulation and a different ordering with respect to relativization. Schematically, the two grammars would be representable in the following fashion.

(5) a. Grammar A
   i) Ga-No conversion A
   
   \[ X [[[Y NP ga (M) PRED]s N]NP W \]
   \[ \begin{array}{ccccccc}
   1 & 2 & 3 & 4 & 5 & 6 & 7 & 8 \\
   \end{array} \]
   
   \[ \rightarrow \begin{array}{ccccccc}
   1 & 2 & 3 & no & 5 & 6 & 7 & 8 \\
   \end{array} \]
   
   ii) Relativization

b. Grammar B
   i) Relativization
   ii) Ga-No Conversion B
   
   \[ X [[[Y NP ga PRED]s N]NP W \]
   \[ \begin{array}{ccccccc}
   1 & 2 & 3 & 4 & 5 & 6 & 7 \\
   \end{array} \]
   
   \[ \rightarrow \begin{array}{ccccccc}
   1 & 2 & 3 & no & 5 & 6 & 7 \\
   \end{array} \]

The generalizations underlying this account are as follows:

(6) a. For Group B, the particle *no* derived from *ga* must im-

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1) The symbol M that figures in this formula between *ga* and PRED refers to a single major phrase, covering such phrases as ADV, PP, etc.
mediately precede the predicate in surface structure, while this is not necessary for Group A.

b. For Group A, the particle no derived from ga may be separated by one constituent from the predicate at the stage prior to the application of Relativization (cf. the contrast between (3) and (4a)).

I even ventured to claim, though on admittedly scanty evidence, that the variation was indicative of a diachronic change under way: Grammar A was once the majority dialect, though Grammar B was taking the position over. My explanation for this putative syntactic change was based on Halle's theory of linguistic change in terms of the imperfect learning of the previous linguistic system by later generations (cf. Halle 1962).

Recently, however, Masayoshi Shibatani has dealt with the same topic and written an interesting paper (Shibatani 1975), in which he not only proposed a different explanation for the phenomenon but also objected to my observation, stating that "[my] data do not seem quite accurate." (p. 479) According to him, the following acceptability judgments should hold for speakers of the newer generation.

(7) a. [[Taroo no kat-ta]s hon]NP
   'the book Taro bought'
   b. Boku ga [[Taroo no ki-ta]s koto]NP o sit-te i-ru.
   'I know that Taro came.'

(8) [[Taroo no awate-te kaet-ta]s koto]NP
    hurriedly return
   'that Taro hurriedly returned'

(9) Daremo [[Taroo no Amerika e ki-ta]s koto]NP o sir-ana-i.
    anybody
   'Nobody knows that Taro came to America.'

(10) *Daremo ga [[Ziroo no uso o tui-te i-ru]s koto]NP o sit-te iru.
    Everybody knows that Jiro is telling a lie.'

Shibatani argues, on the basis of this paradigm, that conversion of
ga to no results in an unacceptable sentence when the output structure contains an NP-no-NP sequence amenable to the wrong grouping as a single NP by a perceptual rule. Thus (10) is unacceptable because there is a danger of grouping the sequence Ziroo no uso into a single NP, while (9) is not, because the sequence Taroo no Amerika is not likely to be grouped together, on semantic grounds.

The purpose of my present paper is to show that Shibatani's proposal is groundless despite its initial attractiveness. There are two kinds of grounds on which to reach this conclusion. First, I will show that his acceptability judgments do not reflect those of the majority dialect in contemporary Japanese. Second, I will argue that the actual variation is hardly explicable in terms of perceptual factors.

2. Present Data

In May 1975, I investigated the acceptability of Ga-No Conversion sentences by means of two questionnaires, each consisting of 15 and 17 sentences, among which the crucial examples were scattered. The informants were 28 students (10 men and 18 women; average 26 years old) at the School for Training Speech Therapists Attached to the National Institute for Speech and Hearing Disorders, and 42 male students in my freshman English class at Tokyo Metropolitan University (average 20 years old). The questionnaires began with an instruction to mark each sentence with either X (total unacceptability), ? (partial unacceptability), or O (acceptability). The informants were also instructed to make corrections on whatever parts they found unnatural. The sentences in the questionnaires relevant to Ga-No Conversion are the following:

(11) [[Ame ga sito-sito hut-te i-ru]s hi]NP wa zitu-ni iya-na mono des-u.

'A gentle but incessant rain is really unpleasant.'
I included these sentences in the questionnaires just because they serve as crucial examples distinguishing my 1971 theory and Shiba-tani's. These theories would make the following predictions about the acceptability judgments of these examples.
Two remarks are in order. First, my 1971 theory would predict that sentence (17) would be judged by some speakers (both in Group A and Group B) as acceptable, because the sentence is derivationally ambiguous. It could either be derived from a remoter structure like

(18) \[[\text{Tanaka ga Aoki ni yat-ta}]\text{s} \text{saigo no tegami}]_{\text{NP}} \text{o mi-ta ga,...}\]

or from a different source, which would look as follows:

(19) \[[\text{Tanaka no} \text{[Tanaka ga Aoki ni yat-ta}]\text{s} \text{saigo no tegami}]_{\text{NP}} \text{o mi-ta ga,...}\]

where the subject \text{Tanaka} of the embedded sentence is deleted by Equi-NP Deletion. As a piece of evidence for this derivation, consider the movement of the possesive NP over the relative clause:

(20) Aoki ni yat-ta Tanaka no saigo no tegami o mi-ta ga,...

which is generally impossible in real \text{ga-no} conversion cases:

(21) *naka-naka de-na-i me no sakura-no-ki... (cf. (12))

Second, sentence (16) was included in my questionnaire despite the fact that Shibatani’s theory does not make any prediction about its acceptability. He says, however, that “those who accept forms like [15] are likely to accept a form like 

\text{Taroo no Hanako kara moratta hon} ‘the book Taro got from Hanako.’ The reason for [his] saying this comes from the fact that... Ryūnosuke Akutagawa, who uses forms like [15] quite freely, uses a form like the one cited above (see [the example quoted below]).” (pp. 479–480)
(22) Kore wa boku no kimi ni ageru saigo no tegami ni naru daroo to omou.

'I think this would be the last letter I give you.'

Table 3 presents the observed reaction types and the number of speakers belonging to each type. Note that the reactions "?" and "X" are both represented as "*" here. "S" and "T" refer to the School for Speech Therapists and Tokyo Metropolitan University, respectively. Sentence (17) was included only in the questionnaire for the students at Tokyo Metropolitan University, and the number of informants who accepted this sentence is indicated in parentheses for this group.

Table 3.

<table>
<thead>
<tr>
<th>Reaction Types</th>
<th>Examples</th>
<th>Number of speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(11) (12) (13) (14) (15) (16)</td>
<td>S</td>
</tr>
<tr>
<td>I</td>
<td>OK * * * * *</td>
<td>5</td>
</tr>
<tr>
<td>II</td>
<td>OK OK * * * *</td>
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<td>V</td>
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<td>0</td>
</tr>
<tr>
<td>VIIa b</td>
<td>* * * * * *</td>
<td>0</td>
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<tr>
<td></td>
<td>OK * OK *</td>
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</tr>
<tr>
<td>c</td>
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<tr>
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<td>e</td>
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<td>OK OK * OK * OK</td>
<td>0</td>
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<tr>
<td>g</td>
<td>OK OK OK OK *</td>
<td>0</td>
</tr>
<tr>
<td>h</td>
<td>OK OK OK OK *</td>
<td>0</td>
</tr>
</tbody>
</table>

2) One informant in group S is excluded because of his failure to follow the instructions on marking procedure.
3. Discussion of the Present Data

The result of my present investigation, summarized in Table 3, reveals several interesting facts. First of all, it can easily be observed that, quite surprisingly, the acceptabilities of Ga-No Conversion sentences form a squish-like hierarchy, though ten speakers do not react in a systematic way. I will discuss this matter in more detail below.

Furthermore, Table 3 also shows that neither my 1971 paper nor Shibatani's correctly reflects the majority dialect in the younger generation. However, the fact that there are 18 speakers who belong to type I indicates that the report in Harada (1971) on the existence of such a group of speakers was not an artifact as might be suggested by Shibatani's remark that "the younger informants... would accept forms like [12 & 13]." Moreover, I indicated (but did not explicitly discuss) the fact that Ga-No Conversion yields mildly unacceptable results in cases where a single-word adverb intervenes between the converted particle no and the predicate. The present data reveal the same tendency in a more articulated fashion, as the gradient deterioration of acceptability.

What is damaging to Shibatani's theory is the fact that there are only two speakers whose reaction type (IV) is consistent with his predictions. Note that this group of speakers is on a par with the groups VII b and VII d in proportion, and hence there is a possibility that the reaction type IV might have resulted from the informant's uncertainty about acceptability rather than from their systematic intuition.

The same point can be made through a somewhat different analysis of the data. Table 4 presents for each sentence tested the percentage of the informants who accepted it. 1)

3) Except for (17), the figures are calculated with 69, the total number of the informants, as the divisor. In the case of (17) the divisor is 42, the number of informants in group T, for this sentence was included only in the questionnaire for this group.
The differences between (11) and (12), (12) and (13), and (13) and (14), are all statistically significant, $p < .01$. Those between (14) and (15) and between (15) and (16) are not significant, however.

Overall, then, the present data are far more consistent with the statements in Harada (1971) than with those in Shibatani (1975), though the former still presents an oversimplified picture of the actual variation.

4. The Effect of Particle Choice on Syntactic Perception

Shibatani (1975) proposes to account for the alleged restriction on Ga-No Conversion as illustrated in (7)-(10) above in terms of perceptual constraints. He argues that the restriction is due to "systematic avoidance of the NP no NP sequence resulting from the NP ga NP sequence." (p. 474) He claims that the following perceptual rule is operative for speakers of Japanese:

(23) \[ X \text{ NP no NP Y} \rightarrow X [\text{NP NP no NP}]_{\text{NP}} Y \]

He goes on to argue that "[the] conversion of NP ga NP into NP
no NP results in a perceptually ambiguous construction that interferes with the above perceptual rule” but “systematic avoidance of NP no NP sequences... maximizes the probability of [28] and constitutes a perceptual generalization.” (ibid.)

The passages quoted above appear to indicate that Shibatani considers the particle no as the primary cue for the perception of the relevant construction. Such an assumption is, however, unwarranted by psycholinguistic evidence, and there is in fact ample evidence to the contrary.

In 1974, a research group at the Research Institute of Logopedics and Phoniatrics, including myself, carried out a series of psycholinguistic experiments on syntactic perception⁴. The subjects were 46 adults connected with the University of Tokyo (i.e. students, faculty members, employees, etc.). Their task was to repeat the stimulus sentences recorded on tape. Among the stimuli were included pairs of sentences related through Ga-No Conversion, e.g.

(24) a. Ueda-san wa Noguti-kun ga syookai-si-ta aite to kekkon-
         suru tumori rasi-i.
         intend mate marry

b. Ueda-san wa Noguti-kun no syookai-si-ta aite to kekkon-
         suru tumori rasi-i.

‘Ueda appears to intend to marry the person Noguchi introduced him/her to.’

The responses were scored along two independent dimensions: (1) preservation of the core syntactic structure, i.e. particle choice in the case of Ga-No Conversion stimuli; and (2) preservation of the basic semantic relations, e.g. whether the grammatical relations are correctly retained. The result was as follows:

⁴) For a general description of the experiments and some discussion of their results, see Uyeno and Harada (1975).
This means that there is no significant difference in perceptual complexity between the two constructions. On one hand, the absence of a significant difference in the percentage of semantic errors entails that the difference in particle choice does not affect the perceptual processing. On the other hand, the absence of significant difference in syntactic errors entails that the percept structure of the relevant sentences is not closer to either of the two constructions. In other words, difference in particle choice does not have any effect on any stage in perceptual processing. Hence the difference between the two constructions that we might feel intuitively must be explained in other terms than in perceptual ones.

This is not an isolated phenomenon. The constructions tested were classifiable into three categories: (1) those in which the transformationally related pair differ in the order of constituents, (2) those in which the related pair differ in phrase structure hierarchy, and (3) those in which the related pair differ only in particle choice. The general finding was that the first category provoked the highest percentage of correct responses (average 86.6%), the second the intermediate (average 70.0%), and the last the lowest (average 67.7%). The difference in the percentage of correct response is significant between the first and the second categories, $\chi^2 = 55.61$, $P < .001$. That between the second and the third is not significant, $\chi^2 = 0.93$. Stated in informal terms, it was found that particle choice is not the primary cue for syntactic perception. Perception of syntactic structure is dependent primarily on word order, and other factors such as particle choice play only subsidiary roles in syntactic perception.
These facts about the syntactic perception by adults seem to correlate with the order of acquisition of perceptual strategies. Recent studies of language development in Japanese children (Hayashibe 1975, Matsuki 1974) have shown that children before 5 do not have a perfect command of simple active transitive sentences with subject and object marked by case particles. Consider the following paradigm sentences:

(26) a. Zoo ga usagi o osu.
   elephant rabbit push
   'An elephant pushes a rabbit.'
   b. Usagi o zoo ga osu.

(27) a. Neko ga hako o akeru.
   cat box open
   'A cat opens a box.'
   b. Hako o neko ga akeru.

Sentences like those in (26) are called 'reversible sentences', for there is a set of corresponding sentences composed of the same set of lexical items in which the relational organization is reversed, e.g.:

(28) a. Usagi ga zoo o osu.
   'A rabbit pushes an elephant.'
   b. Zoo o usagi ga osu.

Sentences like those in (27) are, on the contrary, called 'irreversible sentences', for there is no such set of reversed sentences corresponding to them. Now, at the earliest stage of development, children give the correct interpretation systematically to irreversible sentences, but unsystematically to reversible ones. At the next developmental stage, they systematically give the correct interpretation to sentences like (26a) but they also systematically give the wrong interpretation to sentences like (26b). It is only in later stages of development that children give the correct interpretation systematically to all of the four relevant sentence types (average 5.0 years old in Hayashibe's study). The situation is represented in Table 5 below.
Table 5.

Stages of development in children’s comprehension of sentences (26) and (27)

<table>
<thead>
<tr>
<th>Reversibility</th>
<th>Word Order</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reversible</td>
<td>SOV</td>
<td>Mixed</td>
<td>Correct</td>
<td>Correct</td>
</tr>
<tr>
<td></td>
<td>OSV</td>
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<td>Irreversible</td>
<td>SOV</td>
<td>Correct</td>
<td>Correct</td>
<td>Correct</td>
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<tr>
<td></td>
<td>OSV</td>
<td>Correct</td>
<td>Correct</td>
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where “Mixed” means that both the correct and the wrong interpretations are observed.

This implies that children of Stage 1 predominantly follow semantic strategies and those of Stage 2 employ the word order strategy in cases where the semantic strategies fail to uniquely determine the interpretation. The kind of information conveyed by particles is not used until children reach Stage 3. We see, therefore, that perceptual strategies in terms of particles are a rather late addition to children’s perceptual apparatus.

Comparison of the findings about adult syntactic perception and those about child language development will immediately reveal the existence of a hierarchy among the perceptual strategies heretofore mentioned. We may represent the hierarchy in the following manner:

(29) Semantic strategy > word-order strategy > particle strategy

Given (29) we can now describe the finding of the psycholinguistic studies mentioned above in the following way. First, strategies of a higher rank in (29) serve as more effective cues in adult syntactic perception than those of a lower rank. Second, strategies of a higher rank are acquired by children earlier than those of a lower rank. We can go on further to suppose that the former fact is a consequence of the latter: strategies of a lower rank are acquired to supplement the previously acquired higher-rank strategies.

To summarize, I have presented some evidence against Shibatani’s
implicit assumption that particles are the primary cues for syntactic perception, though this does not preclude the possibility of providing a psycholinguistic explanation for the Ga-No Conversion phenomena.

5. Final Remarks

In this paper I have raised more questions than I was able to answer, but it is necessary at least to suggest a plausible line of future research. It now seems to me that the most promising approach to the Ga-No Conversion phenomena is likely to be provided by an intersection of Labov's theory of 'variable rules' and Ross' theory of 'nouniness squish'.” Ga-No Conversion appears to be a rather typical instance of variable rule, i.e., a rule whose applicability is determined by a function of several grammatical and extra-grammatical variables. Though it is not easy to locate the variables and their inherent probabilities, some of the variables involved in Ga-No Conversion are readily recognizable.

In the first place, note that the sharp contrast between (12) and (13) on one hand and (14), (15), and (16) on the other strongly suggests that the element intervening between the ga-phrase to be converted to a no-phrase and the predicate of the embedded sentence is one of the major grammatical variables. An informal statement would be as follows:

(30) The nounier the intervener, the less acceptable is the output of Ga-No Conversion.

In addition, the nouniness of the entire NP in which Ga-No Conversion takes place seems to be another important grammatical variable. The contrasts between (12) and (13) and between (17) and (15) entail that Ga-No Conversion is more acceptable in NPs with relative clauses than in complement sentences. The grammatical difference between

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5) See Labov (1972) and Ross (1973) for details of these notions.
these two is that the former has a lexical head noun whereas the latter does not. In terms of nouniness, then, NPs with a relative clause are nounier than complement sentences. We can therefore propose (31):

(31) Ga-No Conversion is applied more often in nounier NPs.

It is of great importance to realize that the notion of ‘variable rule’, viewed from the psycholinguistic perspective, relates to speech production rather than to perception: it concerns the frequency of a certain option on the part of the speaker. Since we have shown that the acceptability of the outputs of Ga-No Conversion is not correlated with perceptual factors, it would not require an imagination to reach the conclusion that, if there is a psycholinguistic reason for the difference, it must be sought in the realm of speech production.6)

Although the above remarks are not in any sense definitive, the basic lines of future investigation seem clear enough. It is also hoped that Ga-No Conversion will provide an interesting testing ground on which to examine the validity of the notions of variable rule and nouniness squish.

REFERENCES

Hayashibe, Hideo (1975) “Word Order and Particle: an Experimental

6) In a recent paper, Tanenhaus and Carroll (1975) have argued that Ross’s observations on nouniness are not indicative of the necessity of a revision in grammatical theory—as he proposes—but can be accounted for in perceptual terms. They may be correct in ascribing the nouniness squish to perceptual factors, but I would rather prefer to regard the squish as a psycholinguistic notion also relevant to speech production.


Uyeno, Tazuko, and S.I. Harada (1975) "Perception of Syntactic Structures in Japanese," *Annual Bulletin, Research Institute of Logopedics and Phoniatrics, Faculty of Medicine, University of Tokyo, No. 9, 171–192.*

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