

KENICHI MURATA
TEIKYO UNIVERSITY OF TECHNOLOGY

I. INTRODUCTION

The ga-ga construction has two ga's as case markers in a simple sentence.

Example 1: Taro ga sono hon ga hoshii koto (Neutralized form)
⇒ that Taro wants that book

Example 2: Taro wa sono hon ga hosii. (Natural form)
⇒ Taro wants that book.

There have been heated discussions on the grammatical interpretation of this prima facie problematic nature of ga's. We would like to shed a new light on this issue by studying the meanings of ga-ga constructions by translating them into the logical system. Through this study, we will capture one of unique aspects of ga-ga constructions.

Generally speaking, an expression which has multiple noun phrases (NP1, NP2, ..., NPK) marked with case markers ("ga", "o", "ni", etc.) and one predicate (a verb phrase, adjective phrase, or noun phrase) will give a k-place relation when it is translated into the logical system. However, this is not true with idiomatic expressions.

An idiomatic expression with k noun phrases marked with k case markers will give a j-place relation, where j is an integer smaller than k. We will call this phenomenon as 'degeneration of cases.'

One of the unique aspects of ga-ga constructions is that this degeneration of cases occurs even in non-idiomatic expressions.

Before discussing this phenomenon, we will first identify seven representative classes of ga-ga constructions. In this paper, we will deal with ga-ga constructions that have adjectives as the predicates, because they are most prominent in usage.

For this classification we put the major criteria on:

- (a) semantic properties, and
- (b) behaviors in various grammatical tests.

We examined ga-ga constructions with two noun phrases (NP1 and NP2), i.e., sentences with the pattern of "NP1 ga NP2 ga ...," through four tests:

Test 1: Is a word-order-transposed sentence "NP2 ga NP1 ga ..." acceptable?

Test 2: Can NP1 be topicalized?

Test 3: Is NP2 modifier expression ("NP1 ga... NP2") acceptable?

Test 4: Is "NP1 no NP2 ga ..." sentence acceptable? If acceptable, does it convey the same meaning as the original sentence "NP1 ga NP2 ga ...?"

II. REPRESENTATIVE CLASSES OF GA-GA CONSTRUCTIONS

We present here seven representative classes of ga-ga constructions and their

semantic structures in terms of relations of the objects. Of particular interests is the number of places in the relation that a ga-ga construction expresses. In this paper, however, we will discuss ga-ga constructions that involve one-place relations and two-place relations for simplicity.

In this chapter, we present the summary of our findings, leaving discussions to the next chapter. In our sample sentences discussed hereafter, note the followings:

- (a) “Ga” are replaced by “wa” in some instances to make sample sentences more natural, or acceptable. “Ga” can be restored by neutralizing the sentences, i.e., by embedding them into “koto” clause, as shown in the example 1.
- (b) The symbol \rightarrow stands for a literal translation, while \Leftrightarrow indicates a free translation.

Class 1: Ga-Ga Constructions Expressing Relations Between Emotional Agents And Emotional Objects

Example 3: Boku wa sono hon ga hoshii.
 \rightarrow As for me, that book is desired.
 \Leftrightarrow I want that book.

Semantically, the example 3 expresses an emotional relation “hoshii” (\rightarrow want) between “boku” (\rightarrow I) as an emotional agent and “sono hon” (\rightarrow that book) as an emotional object. Thus, the class 1 involves two-place relations.

Class 2: Ga-Ga Constructions Expressing Relations Between Sensory Agents And Causes of The Sense

Example 4: Boku wa nikkoo ga mabushii.
 \rightarrow As for me, the sunlight is dazzling.
 \Leftrightarrow I am dazzled by sunlight.

Semantically, the example 4 expresses a sensory relation “mabushii” (\rightarrow is dazzling) between “boku” (\rightarrow I) as a sensory agent and “nikkoo” (\rightarrow sunlight) as a cause of the sense. Thus, the class 2 involves two-place relations.

Class 3: Ga-Ga Constructions Expressing Relations Between Sensory Agents And Sensory Parts

Example 5: Boku wa migite ga itai.
 \rightarrow As for me, the right hand aches.
 \Leftrightarrow I have a pain in my right hand.

The sensory part is, naturally, a part of the sensory agent. Therefore, the example 5 is considered to be derived from the example 6 by suppressing self-evident “bokuno” (\rightarrow my).

Example 6: Boku wa bokuno migite ga itai.
 \rightarrow As for me, my right hand aches.
 \Leftrightarrow I have a pain in my right hand.

Semantically, the example 5 expresses two relations:

- (a) A sensory relation “itai” (\rightarrow ache) between “boku” (\rightarrow I) as a sensory agent, and “migite” (\rightarrow right hand) as a sensory part.

(b) Presupposition: A “is-a-part-of” relation between “migite” and “boku”.

Thus, we consider that the class 3 involves two-place relations. Some may argue that the class 3 involves one-place relations because, for example, the example 5 can be paraphrased as follows:

Example 7: Boku no migite ga itai.
→ My right hand aches.
⇔ I have a pain in my right hand.

As to reasons why we treat expressions of this class as two-place relations will be presented later.

The relations involved in the classes 2 and 3 can be considered to be partial relations of three-place relations among the sensory-agent, the sensory-part, and the cause of the sense.

Example 8: Boku wa nikkoo de me ga mabushii.
→ As for me, my eyes are dazzled by the sunlight.
⇔ I am dazzled by the sunlight.

In this paper, however, we will not discuss three-place relations.

Class 4: Ga-Ga Constructions Involving Measure Concept

Example 9: Kare wa se ga takai.
→ As for him, the height is tall.
⇔ He is tall.

Example 10: Kare wa kigurai ga takai.
→ As for him, the pride is high.
⇔ He is a proud man.

Example 11: Kono hon wa nedan ga takai.
→ As for this book, the price is high.
⇔ This book is expensive.

Example 12: Kono kessho wa jundo ga takai.
→ As for this crystal, the purity is high.
⇔ This crystal is of high purity.

Examples 9-12 express one-place relations, “se ga takai” (⇔ is tall), “kigurai ga takai” (⇔ is a proud one), “nedan ga takai” (⇔ is expensive), and “jundo ga takai” (⇔ is of high purity), respectively, where, “se” (→ back), “kigurai” (→ pride), “nedan” (→ price), and “jundo” (→ purity) serve as measure terms.

Class 5: Ga-Ga Constructions Involving Complex Noun Phrases Of The Form “NP1 no NP2”

When we examine the following ga-ga constructions:

Example 13: Kono uchi wa daidokoro ga hiroi.
→ As for this house, the kitchen is spacious.
⇔ This house has a spacious kitchen.

Example 14: Kono gakko wa yakyubu ga tsuyoi.

- As for this school, the baseball team is strong.
- ⇒ This school has a powerful baseball team.

We consider that they are derived from the following expressions:

- Example 15: Kono uchi no mado wa ookii.
 → The windows of this house are large.
 ⇒ This house has large windows.

- Example 16: Kono gakko no yakyubu wa tsuyoi.
 → The baseball team of this school is strong.
 ⇒ This school has a powerful baseball team.

That is, the complex noun phrases of the form “NP1 no NP2” can be considered to be splitted into two noun phrases “NP1” and “NP2”. And the adjectives “hiroi” (→ spacious) and “tsuyoi” (→ strong) are not directly related to “uchi”(→ house) and “gakko” (→ school). Thus, the examples 13-16 express one-place relations.

Do complex noun phrases of the form “NP1 no NP2” always permit ga-ga constructions? The answer is apparently NO as is evident from the examples 17-20:

- Example 17: Sanko no ringo ga aru.
 → Three of apples are existing.
 ⇒ There are three apples.

- Example 18: * Sanko wa ringo ga aru.
 → As for three pieces, there are apples.

N.B. This sentence is not a ga-ga construction because its neutralized form “sanko ga ringo ga aru koto” is not acceptable. As a non-ga-ga construction sentence, however, this is acceptable with the meaning of ‘There are at least three apples.’

- Example 19: Taro no kono okurimono wa kookada.
 → This gift from Taro is expensive.

- Example 20: * Taro wa kono okurimono ga kookada.
 → As for Taro, this present is expensive.

Some complex noun phrases of the form “NP1 no NP2” are names of objects. They are classified into two types: type 1 names and type 2 names. The type 1 names, where NP1 and “NP1 no NP2” stand in a whole-part relationship, permit ga-ga constructions as shown in the examples 13 and 14. The type 2 names, where NP1 and “NP1 no NP2” stand in a part-whole relationship, do not permit ga-ga constructions. For details of these phenomena, please refer to the appendix.

In other complex noun phrases of the form “NP1 no NP2”, the NP2 expresses something like attributes, or facets, of the NP1. They also permit ga-ga constructions as shown in the examples 21-24.

- Example 21: Hikooki no jiko ga kowai.
 → Airplane accidents are fearful.
 ⇒ I have a fear of airplane accidents.
 ⇒ Airplane accidents are disastrous.
 ⇔ Airplanes are not safe.

Example 22: Hikooki wa jiko ga kowai.
→ As for airplanes, accidents are fearful.
⇒ I have a fear of airplane accidents.
⇒ Airplane accidents are disastrous.
⇒ Airplanes are not safe.

Example 23: Taro no okurimono wa itsumo kookada.
→ Taro's gifts are always expensive.
⇒ Taro always presents expensive gifts.

Example 24: Taro wa okurimono ga itsumo kookada.
→ As for Taro, the gifts are always expensive.
⇒ Taro always presents expensive gifts.

However, in this type of expressions, there are some ambiguous cases as shown in the examples 25 and 26:

Example 25: Taro no okurimono wa kookada.
→ Taro's gift(s) is (are) expensive.
→ This gift from Taro is expensive.
⇒ Taro always presents expensive gifts.

Example 26: Taro wa okurimono ga kookada.
→ As for Taro, the gifts are expensive.
⇒ Taro always presents expensive gifts.

Whether the expression of the example 25 permits a ga-ga construction or not depends on its reading. If the reading is "This gift from Taro is expensive," then it does not permit a ga-ga construction. However, if the reading is "Taro always presents expensive gifts," then it permits a ga-ga construction. This can be explained by the fact that in the latter reading the NP2 expresses a facet or an attribute of the NP1 (e.g., Taro's nature on his selecting gifts), while in the former reading, the NP2 does not have such association with the NP1.

It may also be possible to say that the expressions of the class 3 are special cases of the class 5, because the example 5, "Boku wa migite ga itai" (→ As for me, the right hand aches.), can be paraphrased into the example 7, "Boku no migite ga itai" (→ My right hand aches.).

However, we maintain that the class 3 is not the special case of the class 5, but the exception to the class 5. We will present justifications of our theory later.

Class 6: Ga-Ga Constructions Involving Idiomatic Expressions - 1

Example 27: Boku wa atamaga itai.
→ As for me, the head aches.
⇒ I am distressed.

Example 28: Taro wa kuchi ga omoi.
→ As for Taro, the mouth is heavy.
⇒ Taro is slow of speech.

Example 29: Hanako wa kuchi ga karui.
→ As for Hanako, the mouth is light.
⇒ Hanako is talkative.
⇒ Hanako can't keep a secret.

Some may argue that the example 27 belongs to the class 3, on the ground that NP2 is a part of NP1, and the predicate of the expression is a sensory adjective. However, this sentence expresses a figurative meaning while those of the class 3 express literal meanings.

Examples 27-29 express one-place relations "atama ga itai" (\Leftrightarrow am distressed), "kuchi ga omoi" (\Leftrightarrow is slow of speech), and "kuchi ga karui" (\Leftrightarrow is talkative or can't keep a secret), respectively. The differences between the literal and free translations suggests idiomatic nature of such expressions.

Class 7: Ga-Ga Constructions Involving Idiomatic Expressions - 2

Example 30: Kono jiken wa atama ga itai.
→ As for this affair, the head aches.
 \Leftrightarrow This affair is distressing.

Example 30 expresses one-place relation "atama ga itai" (\Leftrightarrow is distressing). It is clear that the examples 27 and 30 express partial relations of two-place relations expressed in the example 31:

Example 31: Boku wa kono jiken de atama ga itai.
→ As for me, the head aches due to this affair.
 \Leftrightarrow I am distressed by this affair.

The characteristics common to the classes 6 and 7 are that they are idiomatic expressions, i.e., the principle of compositionality is not applicable (the principle of compositionality gives only a literal meaning). The major difference between the class 6 and the class 7 is that the class 6 expression describes somebody, while the class 7 expression something.

III. DISCUSSIONS

1. Class 3 and Class 5

The test 3 as well as the analysis of semantic structures helped us to verify the difference between the class 3 and the class 5.

1.1 Test 3

Through the test 3, we examined whether NP2 modifier expression "NP1 ga... Np2" is acceptable when the original pattern is "NP1 ga NP2 ga ..."

Example 32: Boku ga hoshii sono hon wa totemo takai. (Class 1)
→ The book that I want is very expensive.

Example 33: Boku ga mabushii nikkoo wa saegiru ki hitotsu nai. (Class 2)
→ As for the sunlight that I am dazzled, there is not even a single tree to intercept.
 \Leftrightarrow There is not even a single tree to intercept the glaring sunlight (from my eyes).

Example 34: Boku ga itai te wa migite da. (Class 3)
→ The hand that I am painful is the right hand.
 \Leftrightarrow I have a pain in my right hand.

Example 35: Boku ga itai migite wa juushooda. (Class 3)
→ The right hand that I am painful is seriously injured.
⇒ I am painful in my right hand that is seriously injured.

Example 36: * Taro ga takai se wa subarashii. (Class 4)
→ The height that Taro is tall is wonderful.

Example 37: * Kono uchi ga hiroi daidokoro wa subarashii. (Class 5)
→ The kitchen that this house is spacious is wonderful.

Example 38: * Taro ga omoi kuchi wa nanimo iwanai. (Class 6)
→ The mouth that Taro is heavy speaks nothing.

Example 39: * Kono jiken ga itai atama wa hidoi. (Class 7)
→ The head that this affair aches is terrible.

The test results divide the classes into two groups:

- (a) The classes 1, 2, and 3 that pass the test.
- (b) The classes 4, 5, 6, and 7 that fail the test.

When we examine the number of places of the relations involved in the two groups, it is apparent that the classes 1 and 2 of the group (a) involve two-place relations, while all the classes of the group (b) involve one-place relations. This result suggests that the test 3 works as a test for two-place relations. This might be very well the case because the fact that a ga-ga construction passes the test 3 means the existence of some sort of independence between NP1 and NP2. Thus, we consider that the class 3 expressions involve two-place relations.

1.2 Semantic Structures

Compare the semantic structures in the following examples:

Example 5: Boku wa migite ga itai. (Class 3)
→ As for me, the right hand aches.

Example 13: Kono uchi wa daidokoro ga hiroi. (Class 5)
→ As for this house, the kitchen is spacious.

The semantic structure in the example 5 involves two objects: a person who has the sense and a part of the person where he senses. The semantic structure in the example 13 involves only a single object "daidokoro."

Thus, the class 3 involves two-place relations, while the class 5 involves one-place relations. They have to be differentiated.

2. Class 4 and Class 5

The class 4 can be integrated into the class 5. Nevertheless, we are inclined to give special treatments to the expressions of the class 4, because of the importance of the class 4 in the Japanese adjective system.

The Japanese language has a relatively poor vocabulary of adjectives. They are supplemented by, for one thing, the class 4 expressions, where an adjective, e.g., "takai" (→ high) covers a wide variety of meanings, as shown in the examples 9-12.

The other means to supplement Japanese adjective system is noun plus “da” expressions. Most of these expressions are borrowed from foreign languages. Some of them are so-called “keiyodoshi” (→ adjective verb).

3. Conclusion

In ga-ga constructions, the ‘degeneration of cases’ occurs even if they are not idiomatic expressions (the classes 4 and 5 show such cases). And this very fact is one of the unique aspects of ga-ga constructions.

ACKNOWLEDGEMENTS

This study is a part of a project of compiling a lexicon of the Japanese language sponsored by the Information-Technology Promotion Agency, Japan (IPA). We acknowledge all the persons who are involved in the project.

APPENDIX: COMPLEX NOUN PHRASES AS NAMES OF OBJECTS

We suppose readers are well versed in the naive set theory, in particular, in products and quotients. Let $X = Y/R$ be a quotient set of Y .

Example:

Assume X is a set of families that are living in an apartment house, Y is a set of all residents in the house, and R is the relation of being in the same family.

Let X be a class of sets which have the same structure C (C is a set of part names common to every element of X). Then $X = Y/R$ (where $Y = X \times C$), and R is the relation of belonging to the same set in X .

Example:

Assume X is a set of just married couples in an apartment house, C is a husband-wife family structure, and Y is a set of all husbands and wives pertaining to X .

Type 1 names of the form “NP1 no NP2”

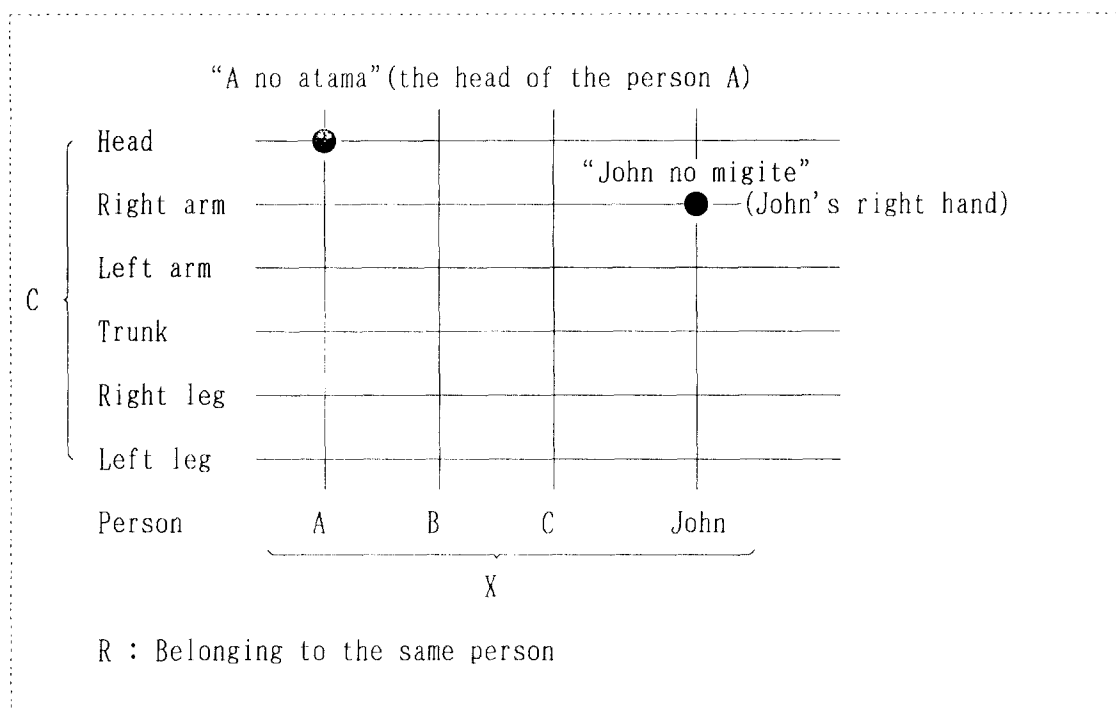
Suppose X is a class, and every member of X can be identified by a noun phrase. Then a member of $Y = X \times C$ can be identified by “NP1 no NP2” or ‘NP2 of NP1’ or ‘NP1’s NP2’, where NP1 designates an element of X and NP2 designates an element of the structure C .

Example:

Assume X is a class of men, and C is a set of parts (head, right hand, left leg, etc.). Then the right hand of John can be identified as “John no migite”

(‘John’s right hand’).

Figure 1. Type 1 names of the form "NP1 no NP2"



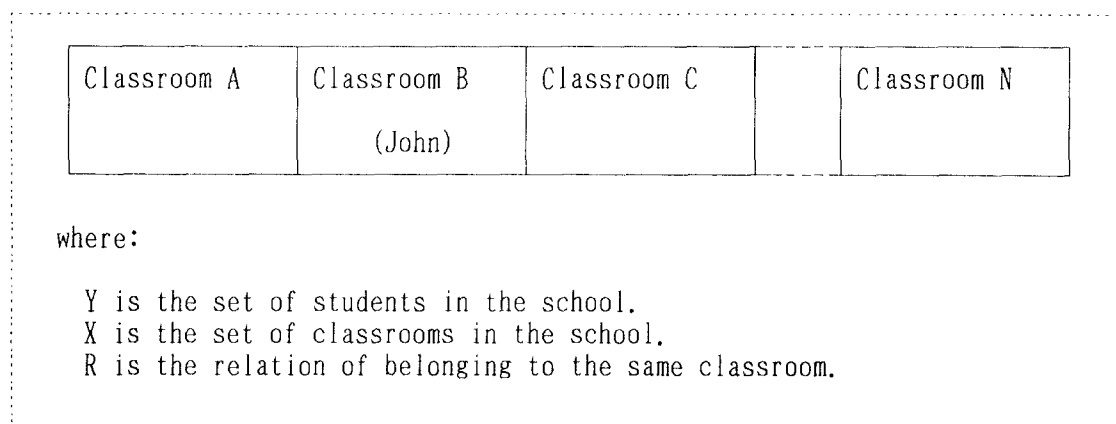
Type 2 names of the form "NP1 no NP2"

Suppose Y is a set, and every member of Y can be identified by a noun phrase. Sometimes, it is possible to identify an element of the set X (where $X = Y/R$) using the expression "NP1 no NP2" (where NP1 designates an element of Y, and NP2 represents a concept associated with the relation R).

Example:

Y is a set of all students in an elementary school. X is a set of classrooms in that school. Then, the classroom to which John belongs can be identified as "John no classroom" or 'John's classroom'. Note that names of type 2 are of limited nature. For example, they are difficult to take ga-ga constructions.

Figure 2. Type 2 names of the form "NP1 no NP2"



REFERENCES

IPA: 1987, *IPA Lexicon of the Japanese Language (Basic Verbs)*, Information-technology Promotion Agency, Tokyo (in Japanese)

IPA: forthcoming, *IPA Lexicon of the Japanese Language (Basic Adjectives)*, Information-technology Promotion Agency, Tokyo (in Japanese)

Mikami, Akira: 1960, *Zoh wa hana ga nagai* (→ Elephants have long trunks), Kuroshio-Shuppan, Tokyo (in Japanese)

Nishio, Toraya: *Keiyooshi no imi · yoohoo no kijutsuteki kenkyu* (→ A descriptive study of the meaning and usage of adjectives), The National Language Research Institute Report No.44, Shuueishuppan, Tokyo (in Japanese)