1. Introduction

In modern Japanese (Japanese, hereafter), stative predicates such as *hoshi-i* “want” take a nominative object rather than an accusative object. Therefore, there is a clear contrast in grammaticality between (1a) and (1b).

(1) a. Watashi-wa ocha-ga hoshi-i.
   I TOP tea NOM want
   “I want tea.”

b. */Watashi-wa ocha-o hoshi-i.
   I TOP tea ACC want

As predicates ending with *i* are characterized as adjectives in Japanese, we call the construction in (1a) the *transitive adjective construction* (TAC) in this paper. It has been considered in the literature that in principle, the TAC in Japanese takes a nominative object. To our knowledge, Maki and Morishima (2004) first report, based on a statistical analysis, that in limited circumstances, the TAC takes an accusative object, as shown in (2).

(2) a. Ocha-o watashi-wa hoshi-i.
   tea ACC I TOP want
   “Tea, I want.”

b. Watashi-ga ocha-o hoshi-i wake.
   I NOM tea ACC want reason
   “the reason why I want tea”
In (2a) the accusative object is fronted to the sentence initial position, and in (2b) the sentence containing the stative predicate and the accusative object is embedded into a complex NP as an adjunct clause to the head noun. Maki and Morishima’s (2004) analysis is based on a series of t-Tests. However, it is methodologically inappropriate from the viewpoint of the standard statistics-based analysis of linguistic phenomena, because they did not use a counterbalanced (Latin square) design for the questionnaire. Therefore, the results reported in their work do not seem completely reliable.

In this paper, by rectifying their inadequacies, we examined the acceptability of TAC examples in the environments suggested in Maki and Morishima (2004). Specifically, we used a counterbalanced design for the questionnaire, and analyzed the collected data by ANOVA. The research questions we addressed in this paper are shown in (3).

(3) a. Is there a preposing effect for an accusative object in the TAC in Japanese?
   b. Is there an embedding effect for an accusative object in the TAC in Japanese?

Through an ANOVA-based analysis, we found that both (3a) and (3b) had positive answers, which reconfirmed Maki and Morishima’s (2004) original findings. However, in this study, we further found that there was an embedding effect for an accusative object in the stative construction in modern Japanese, not only when the construction was embedded in a relative clause, as Maki and Morishima (2004) showed, but also when the construction was embedded in a clause subcategorized by the verb. We then discuss what these findings might suggest for the theory of (Japanese) syntax.

The organization of this paper is as follows. Section 2 summarizes Maki and Morishima’s (2004) work as a background to this research and points out the potential problems. Section 3 presents this study by using an ANOVA-based analysis. Section 4 discusses the implications of the findings from the analysis. Finally, Section 5 concludes the paper.


Let us start by summarizing Maki and Morishima (2004) as a background to the present research. They collected 1150 sets of data from undergraduate and graduate students in 18 universities and colleges, and from teachers at 5
elementary and secondary schools in Japan. Maki and Morishima (2004) found, based on a t-Test-based analysis, that an accusative object of a stative predicate is allowed in two environments, as shown in (4a) and (4b).

(4) a. The Fronting Effect: when the object is moved across the subject.
   b. The Embedding Effect: when the object is in the relative clause of a complex NP.

2.2. Problems
Maki and Morishima (2004) made a questionnaire which asked the participant to indicate the degree to which s/he would judge each of the examples on the three level scale shown in (5).

(5) The Scale
1. totally ungrammatical
2. not perfectly grammatical
3. perfectly grammatical

There are some problems with Maki and Morishima’s (2004) analysis, as shown in (6).

(6) a. The two sentences that constitute a minimal pair are directly compared.
   b. The questionnaire contains only one example for each predicate in Table 1.

Table 1: The Predicates Used in Maki and Morishima (2004)

<table>
<thead>
<tr>
<th>Predicates</th>
<th>Japanese</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>hoshi-i “want”</td>
<td>i-adjective</td>
<td>verb</td>
</tr>
<tr>
<td>suki-na “like”</td>
<td>na-adjective</td>
<td>verb</td>
</tr>
<tr>
<td>wakar-u “understand”</td>
<td>verb</td>
<td>verb</td>
</tr>
<tr>
<td>kowa-i “afraid”</td>
<td>i-adjective</td>
<td>adjective</td>
</tr>
</tbody>
</table>

Maki and Morishima (2004) used one example for each of the 4 stative predicates shown in Table 1, and analyzed the data by a t-Test.

Two examples are illustrated below. First, they analyzed the data regarding the examples in (7a-b) by a t-Test. The result of the t-Test is shown in Table 2.
(7) a. Watashi-wa Kappaebisen-ga hoshii.
    I TOP shrimp snack NOM want
    “I want Kappaebisen.”

b. Watashi-wa Kappaebisen-o hoshii.
    I TOP shrimp snack ACC want

<table>
<thead>
<tr>
<th></th>
<th>(7a)</th>
<th>(7b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.91</td>
<td>0.2</td>
</tr>
<tr>
<td>t Stat</td>
<td>42.09</td>
<td></td>
</tr>
<tr>
<td>P(T&lt;=t) two-tail</td>
<td>5.7E-235</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: The Result of the t-Test ((7a) and (7b))

Table 2 shows that there is a statistically significant difference between those who judged (7a) perfectly grammatical and those who judged (7b) perfectly grammatical. Based on this, Maki and Morishima (2004) claim that in a simple sentence, a sentence with a stative predicate is not perfectly grammatical or totally ungrammatical if the object is marked accusative.

Second, they analyzed the data regarding the examples in (8a-b) by a t-Test. The result of the t-Test is shown in Table 3.

(8) a. Watashi-ga Kappaebisen -ga hoshii wake
    I NOM shrimp snack NOM want reason
    “the reason why I want Kappaebisen.”

b. Watashi-ga Kappaebisen -o hoshii wake
    I NOM shrimp snack ACC want reason

<table>
<thead>
<tr>
<th></th>
<th>(8a)</th>
<th>(8b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>0.25</td>
<td>0.93</td>
</tr>
<tr>
<td>t Stat</td>
<td>-40.45</td>
<td></td>
</tr>
<tr>
<td>P(T&lt;=t) two-tail</td>
<td>3.6E-223</td>
<td></td>
</tr>
</tbody>
</table>

Table 3: The Result of the t-Test ((8a) and (8b))

Table 3 shows that there is a statistically significant difference between those who judged (8a) perfectly grammatical and those who judged (8b) perfectly grammatical. Based on this, Maki and Morishima (2004) claim that embedding a simple sentence that contains a stative predicate with an accusative object into the adjunct clause to a head noun ((8a)), saves an otherwise ungrammatical in-situ accusative object of the stative predicate ((8b)).
Although the results are clear, this analysis is faced with the problems in (6). First, as the two sentences that constitute a minimal pair are directly compared, the participants might have the bias that there should be some difference between them. Second, as the questionnaire contains only one example for each predicate in Table 1, the result of the t-Test may not provide a true generalization about the distribution of accusative objects.

3. This Study
As shown above, Maki and Morishima’s (2004) analysis is methodologically inappropriate from the viewpoint of the standard statistics-based analysis of linguistic phenomena, because they did not use a counterbalanced (Latin square) design for the questionnaire. In order to circumvent their problems, in this research, we used a counterbalanced design for the questionnaire, and analyzed the collected data by ANOVA. This research started in May of 2007, and all of the data were collected by the end of September of 2007. In this study, we obtained 685 sets of data from undergraduate students (60% male and 40% female) at 3 universities in Japan. The average age was 18 years and 11 months (ranging from 18 to 29).

3.1. Materials and Methodology
To answer the questions in (3), repeated in (9), we used the structures in (10) for (9a) and the structures in (11), where (11a-b) = (10a-b), for (9b), along with the 8 stative predicates in (12).

(9) a. Is there a preposing effect for an accusative object in the TAC in Japanese?
   b. Is there an embedding effect for an accusative object in the TAC in Japanese?

(10) a. NP(subject) NP(object NOM) Predicate
    b. NP(subject) NP(object ACC) Predicate
    c. NP(object NOM) NP(subject) ti Predicate
    d. NP(object ACC) NP(subject) ti Predicate

(11) a. NP(subject) NP(object NOM) Predicate
    b. NP(subject) NP(object ACC) Predicate
    c. [NP(subject) NP(object NOM) Predicate] COMP ... Verb
    d. [NP(subject) NP(object ACC) Predicate] COMP ... Verb
The representative examples for the structures in (10a-b) and (10c-d) are provided in (13a) and (13b), respectively, and those for the structures in (11a-b), (11c-d), and (11e-f) are provided in (13a), (13c), and (13d), respectively.3,4

(13) a. Hideo-wa Ryoko-no -koto-ga/ -o koishi-i.
   "Hideo feels Ryoko lovely."
   b. Ryoko-no -koto -ga/ -o Hideo-wa koishi-i.
      "Hideo feels Ryoko lovely."
   c. Takashi-ga Yuki-no -koto -ga/ -o koishi-i to
      Harumi-ga kanzuita.
      "Harumi smelled out that Takashi felt Yuki lovely."
   d. Takashi-ga Yuki-no -koto -ga/ -o koishi-i riyuu -o
      Harumi-ga oshiete-kureta.
      "Harumi told me the reason why Takashi felt Yuki lovely."

In the questionnaire, we asked the participants to indicate the degree to which s/he would judge each of the examples on the five-level scale shown in (14).

(14) The Scale
1. totally ungrammatical
2. probably ungrammatical
3. cannot decide
4. probably grammatical
5. perfectly grammatical

3.2. Analysis

3.2.1. Question (9a)

This section addresses Question (9a), repeated as (15).

(15) Is there a preposing effect for an accusative object in the TAC in Japanese?

The basic statistics for (10) is shown in Table 4.

<table>
<thead>
<tr>
<th>case</th>
<th>position</th>
<th>count</th>
<th>average</th>
</tr>
</thead>
<tbody>
<tr>
<td>(10a)</td>
<td>ga</td>
<td>688</td>
<td>3.92</td>
</tr>
<tr>
<td>(10c)</td>
<td>preposed</td>
<td>688</td>
<td>3.50</td>
</tr>
<tr>
<td>(10b)</td>
<td>o</td>
<td>688</td>
<td>1.72</td>
</tr>
<tr>
<td>(10d)</td>
<td>preposed</td>
<td>688</td>
<td>2.55</td>
</tr>
</tbody>
</table>

The result of the analysis is as follows. We conducted a two-factor ANOVA (2x2), and found a statistically significant interaction between the two factors (case and position) ($F(1,2748)=149.36, p=0.00$). We then examined the main effect of each factor, and found a statistically significant difference between the two conditions within each factor ($F(1,2748)=950.96, p=0.00$ for case, and $F(1,2748)=17.22, p=0.00$ for position). We then conducted a multiple comparison by a Tukey’s HSD test, and found a statistically significant difference between (10a) and (10c), (10b) and (10d), (10a) and (10b), and (10c) and (10d), as shown in (16).

(16) a. (10a) > (10c) c. (10a) > (10b)
    b. (10b) < (10d) d. (10c) > (10d)

3.2.2. Question (9b)

Then, this section addresses Question (9b), repeated as (17).

(17) Is there an embedding effect for an accusative object in the TAC in Japanese?

The basic statistics for (11) is shown in Table 5.
Table 5: The basic statistics for (11)

<table>
<thead>
<tr>
<th>case</th>
<th>clause</th>
<th>count</th>
<th>average</th>
</tr>
</thead>
<tbody>
<tr>
<td>(11a)</td>
<td>ga matrix</td>
<td>688</td>
<td>3.92</td>
</tr>
<tr>
<td>(11c)</td>
<td>embedded</td>
<td>682</td>
<td>1.98</td>
</tr>
<tr>
<td>(11e)</td>
<td>relative</td>
<td>682</td>
<td>2.49</td>
</tr>
<tr>
<td>(11b)</td>
<td>o matrix</td>
<td>688</td>
<td>1.72</td>
</tr>
<tr>
<td>(11d)</td>
<td>embedded</td>
<td>682</td>
<td>2.60</td>
</tr>
<tr>
<td>(11f)</td>
<td>relative</td>
<td>682</td>
<td>3.20</td>
</tr>
</tbody>
</table>

Note that we collected data from two sources: (10a-d) from one (number of data=688), and (11c-f) from the other (number of data=682).

The result of the analysis is as follows. We conducted a two-factor ANOVA (2x3) (without repetition), and found a statistically significant interaction between the two factors (case and clause) ($F(2,4098)=526.99$, $p=0.00$). We then examined the main effect of each factor, and found a statistically significant difference between the two conditions within factor case ($F(1,4098)=48.77$, $p=0.00$) and among the three conditions within factor clause ($F(2,4098)=74.49$, $p=0.00$). We then conducted a multiple comparison by a Tukey’s HSD test, and found a statistically significant difference between (11a) and (11b), (11c) and (11d), (11e) and (11f), (11a) and (11c), (11a) and (11e), (11c) and (11f), (11b) and (11d), (11b) and (11f), and (11d) and (11f), as shown in (18).

(18) a. (11a) > (11b) 
    b. (11c) < (11d) 
    c. (11e) < (11f) 
    d. (11a) > (11c) 
    e. (11a) > (11e) 
    f. (11c) < (11e) 
    g. (11b) < (11d) 
    h. (11b) < (11f) 
    i. (11d) < (11f)

3.3. Findings

The important findings are provided in (19) and (20), where $\alpha > \beta$ indicates that $\alpha$ is statistically better than $\beta$.

(19) a. (10a) > (10c) 
    preposed $o >$ in-situ $o$

    b. (10b) < (10d) 
    in-situ $ga >$ preposed $ga$

(20) a. (11f) > (11f) > (11b)
relative $o >$ embedded $o >$ matrix $o$

b. (11a) > (11e) > (11c)

matrix $ga >$ relative $ga >$ embedded $ga$

Therefore, (19) and (20) provide positive answers to the questions in (15) and (17), respectively, and thus, support Maki and Morishima’s (2004) essential claims, shown in (21a) and (21b).

(21) a. There is a preposing effect for an accusative object in the stative construction in modern Japanese.

b. There is an embedding effect for an accusative object in the stative construction in modern Japanese, when the construction is embedded in a relative clause.

However, (20) suggests more than their claims, since the present research has made it clear that not only relative $o >$ matrix $o$, as shown in Maki and Morishima (2004), but also relative $o >$ embedded $o$, and embedded $o >$ matrix $o$. Therefore, (21b) is revised to (22).

(22) There is an embedding effect for an accusative object in the stative construction in modern Japanese, when the construction is embedded in an IP with an outer head C/N.

4. Discussion

Let us discuss what these findings might suggest for the theory of (Japanese) syntax. First, let us consider what (21b) suggests, following Maki and Morishima, before we consider (22) and (21a).

Maki and Morishima (2004) argue that the reason why this phenomenon takes place is the morphological difference between the stative predicate in the matrix clause and the stative predicate in the adjunct clause to a head noun, and this difference is still abstractly retained in all predicates, and it is the attributive form of the stative predicate that gives the saving effect in the embedded contexts. They expressed the differences between old Japanese and modern Japanese below.

In old Japanese, the conclusive form and the attributive form of predicates (verbs, auxiliary verbs, and adjectives) are morphologically/inflectionally different. Consider a verb and an adjective case in (23) and (24), respectively.
(23) verb (From *Taketori Mongatari*)
   a. ...mono *ari.*
      person be
      “there is a man...”
   b. *aru* hito...
      be man
      “the man who is there...”

(24) adjective (From *Makura no Sooshi*)
   a. ito utsukushi
      very beautiful
      “very beautiful”
   b. utsukushi-*ki* hi
      beautiful day
      “a beautiful day”

In (23) the conclusive form of the verb ends with vowel *i*, and the attributive form with vowel *u*. In (24) the conclusive form of the adjective ends with a zero morpheme, and the attributive form with *ki*.

In modern Japanese, the conclusive and attributive forms of verbs both end with *u*, and those of *i*-adjectives both end with *i*, as shown in (25) and (26).

(25) verb
   a. ...hito-ga *iru*.
      man NOM be
      “there is a man...”
   b. *iru* hito...
      be man
      “the man who is there...”

(26) *i*-adjective
   a. totemo utsukushi-*i*
      very beautiful
      “very beautiful”
   b. utsukushi-*i* hi
      beautiful day
      “a beautiful day”

The verb *aru* “to be” in old Japanese changed to *iru* “to be” in modern Japanese. And, both the conclusive and attributive forms share the same morphology. Likewise, the conclusive and the attributive forms of the adjective in (26) share the same morphology.

The careful reader might have already noticed that there is a case in which the contrast between the conclusive form and the attributive form is morphologically retained in modern Japanese. That is *da* or *na* of *na*-adjectives and the copula. The conclusive form of *na*-adjectives and the copula is *da*, as shown in (27).

(27) a. Ano hito-wa shizuka-*da*.
      that man TOP quiet   DA
   b. Ano hito-wa gakusei-*da*.
      that man TOP student  DA
“That man is quiet.”  “That man is a student.”

The attributive form of *na*-adjectives is *na*, as shown in (28a), and the attributive form of the copula is *no*, as shown in (28b).

(28) a. shizuka-*na* hito quiet NA man
    “a quiet man”

b. gakusei-*no* hito student NO man
    “a man who is a student”

Therefore, at least marginally, the morphological distinction between the conclusive and the attributive form of predicates is retained in modern Japanese. Given this, they claim that this morphological difference is still abstractly retained in all predicates, and it is the attributive form of the stative predicate that gives the saving effect in the embedded contexts. If this claim is correct, it has an interesting implication for Case Theory. We have seen that there is a contrast in grammaticality between examples such as (29a) and examples such as (29b).

(29) a. *Watashi-wa* atsu i ocha-o hoshi-i. I             TOP hot    tea    ACC want
    “I want hot tea.”

b. Watashi-ga atsui ocha-o hoshi-i jijoo-o Misa-ga I             NOM hot   tea    ACC want reason ACC NOM shitte-iru. know
    “Misa knows the reason why I want hot tea.”

The contrast between (29a) and (29b) suggests that a particular conjugation form of a given predicate, rather than the predicate itself, assigns the accusative case marker in Japanese. Then, it implies that there are at least two types of Case/case assigning/marking mechanisms in Case Theory.

In Japanese, as for transitive verbs, all conjugation forms assign the accusative case marker. On the other hand, as for stative predicates that take an object, only the attributive form can. This is shown in five conjugation forms of predicates in (30) and (31).

(30) Transitive Verb: *yom-u* “read”
    a. irrealis:    yom-a
    b. conjunctive: yom-i
c. conclusive: yom-u
d. attributive: yom-u
e. hypothetical: yom-e

(31) Transitive Adjective: niku-i “hate”
a. irrealis: nikuk-u
d. attributive: niku-i
b. conjunctive: nikuk-u
e. hypothetical: nikuk-ere
c. conclusive: niku-i

The examples for each predicate with the accusative case marker are shown in (32) and (33).

(32) Co-occurrence of the Transitive Verb and the Accusative Case Marker
   NOM       ACC read not
   “John does not read LGB.” (irrealis)
b. John-ga LGB-o yom-i, Mary-ga SPE-o yom-u.
   NOM       ACC read       NOM       ACC read
   “John reads LGB, and Mary reads SPE.” (conjunctive)
c. John-ga LGB-o yom-u.
   NOM       ACC read
   “John reads LGB.” (conclusive)
d. John-ga LGB-o yom-u wake.
   NOM       ACC read reason
   “the reason why John reads LGB.” (attributive)
e. John-ga LGB-o yom-e ba, Mary-mo pro yom-u.
   NOM       ACC read if    also       read
   “If John reads LGB, Mary will, too.” (hypothetical)

(33) Co-occurrence of the Transitive Adjective and the Accusative Case Marker
   I             TOP Japan   GEN ghost  ACC afraid      not
   “I am not afraid of Japanese ghosts.” (irrealis)
b. *Watashi-wa [pro Nihon-no obake-o kowak-u], Kankoku-ni
   I             TOP Japan   GEN ghost  ACC afraid Korea in
   live
   “I am afraid of Japanese ghosts, and I live in Korea.” (conjunctive)
c. *Watashi-wa Nihon-no obake-o kowa-i.
   I TOP Japan GEN ghost ACC afraid
   “I am afraid of Japanese ghosts.” (conclusive)

d. Watashi-ga Nihon-no obake-o kowai wake.
   I NOM Japan GEN ghost ACC afraid reason
   “the reason why I am afraid of Japanese ghosts.” (attributive)

e. *Watashi-wa [pro Nihon-no obake-o kowak-ere ba],
   I TOP Japan GEN ghost ACC afraid if
   Kankoku-ni iku.
   Korea to go
   “I will go to Korea if I am afraid of Japanese ghosts.” (hypothetical)

On the other hand, in languages such as English, the Case assigning property is attributed to the category of the given predicate, but not to a particular conjugation form of the predicate. In English, transitive verbs can assign accusative Case, but transitive adjectives cannot in any environment, as shown in (34) and (35).

(34) Transitive Verb: see
   a. Mary did not see him.
   b. Mary saw him, and he saw her.
   c. Mary saw him.
   d. the reason why Mary saw him.
   e. If Mary saw him, she would have been surprised.

(35) Transitive Adjective: afraid
   a. Mary is not afraid *(of) him.
   b. Mary is afraid *(of) him, and does not meet him.
   c. Mary is afraid *(of) him.
   d. The reason why Mary is afraid *(of) him.
   e. If Mary is afraid *(of) him, she does not meet him.

Therefore, this indicates that there are two types of Case/case assigning/marking mechanisms in human languages: (1) the mechanism based on the conjugation forms of the predicate, and (2) the mechanism based on the category of the predicate, and languages such as Japanese adopt the first mechanism, and languages such as English the second mechanism.
On the basis of the above implications, Maki and Morishima are led to conclude that Case Theory is not completely uniform, as has been implicitly assumed so far in the inquiry of generative grammar, but is flexible in such a way that it allows two types of mechanisms, that is, the mechanism based on the conjugations of the predicate, and the mechanism based on the category of the predicate.

Let us then consider what (22) suggests. As shown above, Maki and Morishima (2004), based on relative $o >$ matrix $o$, claim that $o$ in the TAC is licensed by the attributive (adnominal), not the conclusive, form of the predicate, suggesting that there are two types of Case/case licensing mechanisms in Case/case Theory: (1) the case mechanism based on the conjugation forms of the predicate, as in Japanese, and (2) the case mechanism based on the category of the predicate, as in English.

The present research, however, suggests, based on the fact that predicates in matrix clauses and those in embedded clauses take the conclusive forms, yet, there is a contrast in grammaticality between (11b) and (11d), as illustrated in (29a), repeated as (36a), and (36b), that another kind of case licensing mechanism might be involved in Japanese.

   I TOP hot tea ACC want
   “I want hot tea.”

   I NOM hot tea ACC want COMP NOM guessed
   “Misa guessed that I wanted hot tea.”

One crucial difference between (11b) and (11d) is the existence/absence of the C introducing a TAC. Note here that one crucial difference between (11b) and (11f) is the existence/absence of the N hosting a TAC. Therefore, the generalization is that an outer head (C/N) is related to case licensing in the TAC, although the mechanism based on the conjugation forms of the predicate should also be involved to distinguish (11f) from (11b) and (11d).

The question is then why the COMP that heads the clause subcategorized by the verb has an ability to assign the accusative case marker to the object. In the following, we would like to suggest one possible approach to this issue. Maki et al (in preparation) shows that modern Mongolian, one of the Altaic languages like Japanese, allows the nominative/accusative alternation for the subject of the clause headed by C, as illustrated in (37).
    Baator tomorrow Ulaan NOM/ACC here come will that said
    Baator said that Ulaan would come here tomorrow.

In (37), the embedded subject may be marked either nominative or accusative. Since the embedded verb is an intransitive verb, it is impossible for it to assign the accusative case marker to the subject NP. Therefore, they suggest that it is the C heading the clause subcategorized by the verb that has an ability to assign the accusative case marker to the subject NP.

Of course, what is assigned the accusative case in the embedded clause headed by C in the TAC in Japanese is the object NP rather than the subject NP. However, what is common to the Mongolian case and the Japanese case is the existence of the C which heads the clause subcategorized by the verb. Based on this similarity, we tentatively suggest that in the TAC, C has an ability to assign the accusative case marker to the object of the clause.

Finally, let us consider what (21a) suggests. The relevant data are (36a), repeated as (38a), and (38b).

(38) a. *Watashi-wa atsui ocha-o hoshi-i.
    I TOP hot tea ACC want
    “I want hot tea.”

b. Atsui ocha-o watashi-wa hoshi-i.
    hot tea ACC I TOP want
    “I want hot tea.”

In the above discussion, we tentatively suggested that in the TAC, C had an ability to assign the accusative case marker to the object of the clause. In the following, we would like to suggest a possible approach to the contrast between (38a) and (38b) based on the suggestion we made in the above discussion.

The idea that in the TAC, C has an ability to assign the accusative case marker to the object of the clause, if correct, may extend to account for the difference between (38a) and (38b). In (38b), the accusative NP is moved to the sentence initial position. If this movement is triggered by a feature on a head independent of T/I, this outer head might have the effect to license the accusative case, like the outer C/N. Of course, at the present stage of our understanding, much is still unclear about the TAC, and future research is needed to elucidate the principles behind the TAC phenomena. We hope to have
shown that although no rigid explanation is provided for the TAC phenomena, this paper at least raises intriguing issues calling for genuine explanations.6

5. Conclusion

In this paper, by using ANOVA, we reconfirmed Maki and Morishima’s (2004) original findings in (21a) and (21b), reproduced as (39a) and (39b), and found that (21b) be further revised to (22), reproduced as (40).

(39) a. There is a preposing effect for an accusative object in the stative construction in modern Japanese.
   b. There is an embedding effect for an accusative object in the stative construction in modern Japanese, when the construction is embedded in a relative clause.

(40) There is an embedding effect for an accusative object in the stative construction in modern Japanese, when the construction is embedded in an IP with an outer head C/N.

Then, based on (39) and (40), we discussed the following.

(41) a. Modern Japanese still uses the invisible morphological distinction of predicates that was overtly represented in old Japanese.
   b. Case Theory needs to allow two types of Case/case assigning/marking mechanisms in human language: (1) the mechanism based on the conjugation forms of the predicate, and (2) the mechanism based on the category of the predicate.
   c. In the TAC, C has an ability to assign the accusative case marker to the object of the clause.
   d. The preposing effect might suggest the existence of an independent projection of a category at the left periphery of the clausal structure in Japanese, which has the ability to assign the accusative case marker to the object of the clause in the TAC.

Appendix: The Examples Used in This Study

(1) Structure (10a)
       I TOP hot tea NOM want
“I want hot tea.”
A2. Tomoe-wa Masao-no -koto-ga niku-i.
   TOP GEN thing NOM hate
   “Tomoe hates Masao.”
A3. Hideo-wa Ryoko-no -koto-ga koishi-i.
   TOP GEN thing NOM feel lovely
   “Hideo loves Ryoko.”
   TOP GEN thing NOM love
   “Hiroyuki loves Misaki.”
A5. Tatsuro-wa Kenta-no -koto-ga urayamashi-i.
   TOP GEN thing NOM envy
   “Tatsuro envies Kenta.”
   TOP GEN thing NOM jealous
   “Shota is jealous of Kazuya.”
   TOP GEN thing NOM ashamed
   “Natsuko is ashamed of Kyosuke.”
   TOP GEN thing NOM proud
   “Chiaki is proud of Naoki.”

(2) Structure (10b)
B1. Watashi-wa atsui ocha-o hoshi-i.
   I TOP hot tea ACC want
   “I want hot tea.”
B2. Tomoe-wa Masao-no -koto-o niku-i.
   TOP GEN thing ACC hate
   “Tomoe hates Masao.”
B3. Hideo-wa Ryoko-no -koto-o koishi-i.
   TOP GEN thing ACC feel lovely
   “Hideo feels Ryoko lovely.”
   TOP GEN thing ACC love
   “Hiroyuki loves Misaki.”
B5. Tatsuro-wa Kenta-no -koto-o urayamashi-i.
   TOP GEN thing ACC envy
“Tatsuro envies Kenta.”
   TOP GEN thing ACC jealous
   “Shota is jealous of Kazuya.”
   TOP GEN thing ACC ashamed
   “Natsuko is ashamed of Kyosuke.”
B8. Chiaki-wa Naoki-no -koto-o hokorashi-i.
   TOP GEN thing ACC proud
   “Chiaki is proud of Naoki.”

(3) Structure (10c)
C1. Atsui ocha-ga watashi-wa hoshi-i.
   hot tea NOM I TOP want
   “I want hot tea.”
C2. Masao-no -koto -ga Tomoe-wa niku-i
   GEN thing NOM TOP hate
   “Tomoe hates Masao.”
C3. Ryoko-no -koto -ga Hideo-wa koishi-i.
   GEN thing NOM TOP feel lovely
   “Hideo feels Ryoko lovely.”
C4. Misaki-no -koto -ga Hiroyuki-wa itooshi-i
   GEN thing NOM TOP love
   “Hiroyuki loves Misaki.”
C5. Kenta-no -koto -ga Tatsuro-wa urayamashi-i.
   GEN thing NOM TOP envy
   “Tatsuro envies Kenta.”
   GEN thing NOM TOP jealous
   “Shota is jealous of Kazuya.”
   GEN thing NOM TOP ashamed
   “Natsuko is ashamed of Kyosuke.”
C8. Naoki-no -koto -ga Chiaki-wa hokorashi-i.
   GEN thing NOM TOP proud
   “Chiaki is proud of Naoki.”

(4) Structure (10d)
D1. Atsui ocha-o watashi-wa hoshi-i.
   hot tea ACC I TOP want
   “I want hot tea.”
D2. Masao-no -koto -o Tomoe-wa niku-i.
   GEN thing ACC TOP hate
   “Tomoe hates Masao.”
D3. Ryoko-no -koto -o Hideo-wa koishi-i.
   GEN thing ACC TOP feel lovely
   “Hideo feels Ryoko lovely.”
D4. Misaki-no -koto-o Hiroyuki-wa itooshi-i.
   GEN thing ACC TOP love
   “Hiroyuki loves Misaki.”
D5. Kenta-no -koto-o Tatsuro-wa urayamashi-i.
   GEN thing ACC TOP envy
   “Tatsuro envies Kenta.”
   GEN thing ACC TOP jealous
   “Shota is jealous of Kazuya.”
   GEN thing ACC TOP ashamed
   “Natsuko is ashamed of Kyosuke.”
   GEN thing ACC TOP proud
   “Chiaki is proud of Naoki.”

(5) Structure (11c)
   NOM hot tea NOM want COMP NOM guessed
   “Misa guessed that I wanted hot tea.”
E2. Hitomi-ga Takehiko-no -koto-ga niku-i to Shiori-ga
   NOM GEN thing NOM hate COMP NOM
   tsutaete-kureta.
   informed
   “Shiori informed that Hitomi tates Takehiko.”
E3. Takashi-ga Yuki-no -koto-ga koishi-i to
   NOM GEN thing NOM feel lovely COMP
   Harumi-ga kanzuita.
   NOM smelled out
“Harumi smelled out that Takashi feels Yuki lovely.”

E4. Yoshitaka-ga Eri-no -koto-ga itooshi-i to Nobuo-ga
    NOM GEN thing NOM love COMP NOM
    katatte-kureta.
told
   “Nobuo told that Yoshitaka loves Eri.”

E5. Yoohei-ga Jooji-no -koto-ga urayamashi-i to
    NOM GEN thing NOM envy COMP
    Ryoota-ga sasshita.
    NOM guessed
   “Ryota guessed that Yohei envies Joji.”

E6. Masashi-ga Keesuke-no -koto-ga netamashi-i to
    NOM GEN thing NOM jealous COMP
    Masakazu-ga oshiete-kureta.
    NOM told
   “Masakazu told that Masashi is jealous of Keisuke.”

E7. Makoto-ga Ami-no -koto-ga hazukashi-i to
    NOM GEN thing NOM ashamed COMP
    Shingo-ga kanzuita.
    NOM smelled out
   “Shingo smelled out that Makoto is ashamed of Ami.”

E8. Shizuka-ga Shuuji-no -koto-ga hokorashi-i to
    NOM GEN thing NOM proud COMP
    Nana-ga katatte-kureta.
    NOM told
   “Nana told that Shizuka is proud of Shuji.”

(6) Structure (11d)

    I NOM hot tea ACC want COMP NOM guessed
   “Misa guessed that I wanted hot tea.”

F2. Hitomi-ga Takehiko-no -koto-o niku-i to
    NOM GEN thing ACC hate COMP
    Shiori-ga oshiete-kureta.
    NOM told
   “Shiori told that Hitomi hates Takehiko.”

F3. Takashi-ga Yuki-no -koto-o koishi-i to
    NOM GEN thing ACC feel lovely COMP
“Harumi smelled out that Takashi feels Yuki lovely.”

Nobuo told that Yoshitaka loves Eri.

“Nobuo told that Yoshitaka loves Eri.”

Ryota guessed that Yohei is envies Joji.

“Ryota guessed that Yohei is envies Joji.”

Masakazu told that Masashi is jealous of Keisuke.

“Masakazu told that Masashi is jealous of Keisuke.”

Shingo told that Makoto is ashamed of Ami.

“Shingo told that Makoto is ashamed of Ami.”

Nana told that Shizuka is proud of Shuji.

“Nana told that Shizuka is proud of Shuji.”

Misa knows the reason why I want hot tea.

“Misa knows the reason why I want hot tea.”

Shiori told that Takehiko hates reason

Shiori-ta告诉我他在想什么。
NOM asked
“Shiori asked the reason why Hitomi hates Takehiko.”

G3. Takashi-ga Yuki-no -koto -ga koishi-i riyuu -o
    NOM GEN thing NOM feel lovely reason ACC
Harumi-ga oshiete-kureta.
    NOM told
“Harumi told the reason why Takashi feels Yuki lovely.”

G4. Yoshitaka-ga Eri-no -koto -ga itooshi-i wake -o
    NOM GEN thing NOM love reason ACC
Nobuo-ga hanashite-kureta.
    NOM told
“Nobuo told the reason why Yoshitaka loves Eri.”

G5. Yoohei-ga Jooji-no -koto -ga urayamashi-i jijoo -o
    NOM GEN thing NOM envy reason ACC
Ryoota-ga shitteiru.
    NOM know
“Ryota knows the reason why Yohei envies Joji.”

G6. Masashi-ga Keesuke-no -koto -ga netamashi-i genin -o
    NOM GEN thing NOM jealous reason ACC
Masakazu-ga kiitekita.
    NOM asked
“Masakazu asked the reason why Masashi is jealous of Keisuke.”

G7. Makoto-ga Ami-no -koto -ga hazukashi-i riyuu -o
    NOM GEN thing NOM ashamed reason ACC
Shingo-ga oshiete-kureta.
    NOM told
“Shingo told the reason why Makoto is ashamed of Ami.”

G8. Shizuka-ga Shuuji-no -koto -ga hokorashi-i wake -o
    NOM GEN thing NOM proud reason ACC
Nana-ga hanashite-kureta.
    NOM told
“Nana told the reason why Shizuka is proud of Shuji.”

(8) Structure (11f)
H1. Watashi-ga atsui ocha-o hoshi-i jijoo -o Misa-ga
    I NOM hot tea ACC want reason ACC NOM
    shitte-iru.
    know
“Misa knows the reason why I want hot tea.”

H2. Hitomi-ga Takehiko-no -koto -o niku-i genin -o
    NOM GEN thing ACC hate reason ACC

    Shiori-ga kiitekita.
    NOM asked

    “Shiori asked the reason why Hitomi hates Takehiko.”

H3. Takashi-ga Yuki-no -koto -o koishi-i riyu-o
    NOM GEN thing ACC feel lovely reason ACC

    Harumi-ga oshiete-kureta.
    NOM told

    “Harumi told the reason why Takashi feels Yuki lovely.”

H4. Yoshitaka-ga Eri-no -koto-o itooshi-i wake -o
    NOM GEN thing ACC love reason ACC

    Nobuo-ga hanashite-kureta.
    NOM told

    “Nobuo told the reason why Yoshitaka loves Eri.”

H5. Yoohe-ga Jooji-no -koto-o urayamashi-i jijoo -o
    NOM GEN thing ACC envy reason ACC

    Ryota-ga shitteiru.
    NOM know

    “Ryota knows the reason why Yohei envies Joji.”

H6. Masashi-ga Keesuke-no -koto-o netamashi-i genin -o
    NOM GEN thing ACC jealous reason ACC

    Masakazu-ga kiitekita.
    NOM asked

    “Masakazu asked the reason why Masashi is jealous of Keisuke.”

H7. Makoto-ga Ami-no -koto-o hazukashi-i riyuu -o
    NOM GEN thing ACC ashamed reason ACC

    Shingo-ga oshiete-kureta.
    NOM told

    “Shingo told the reason why Makoto is ashamed of Ami.”

H8. Shizuka-ga Shuuji-no -koto -o hokorashi-i wake -o
    NOM GEN thing ACC proud reason ACC

    Nana-ga hanashite-kureta.
    NOM told

    “Nana told the reason why Shizuka is proud of Shuji.”

Notes
We would like to thank the audience of the TCP 2009, Jessica Dunton, Roger Martin, Kazumi Matsuoka, Edson T. Miyamoto, Masaki Sano, and Akira Watanabe for their helpful comments on an earlier version of this paper.

1 This paper is a drastically revised version of Ito (2008).

2 A t-Test is a test to examine whether there is a difference in the average value between the given two groups.

3 All the examples used in this study are listed in Appendix.

4 In principle, a transitive adjective takes a first or second person subject, and when the subject is a third person, the predicate changes its category from adjective to verb. For example, hoshii “want” becomes hoshigaru “want” for a third person subject. However, some transitive adjectives do not sound unnatural with a third person subject, and such transitive adjectives were used in this study.

5 Masaki Sano and Akira Watanabe (personal communication) point out that (ia) improves even with clause-internal scrambling, which moves the accusative object across an adverb, as shown in (ib).

(i) a. *Watashi-wa ima sugu atsui ocha-o hoshi-i.
    I TOP now soon hot tea ACC want
    “I want hot tea right away.”

   b. Watashi-wa atsui ocha-o ima sugu t hoshi-i.
    I TOP hot tea ACC now soon want
    “I want hot tea right away.”

The contrast between (ia) and (ib) does not directly follow from the suggestion made in the text, because C/N is irrelevant in the preadverbial position in (ib). There is a possibility that v may enter into the improvement in (ib). We will leave this issue for future research.

6 Akira Watanabe (personal communication) points out that the transitive adjectives shown in (12), reproduced as (i), have the corresponding transitive verbs shown in (ii), and this seems closely related to the licensing of the accusative case in the TAC.

(i) a. hoshi-i “want”
    b. niku-i “hate”
    c. koishi-i “love”
    d. itooshi-i “love”
    e. urayamashi-i “envious”
    f. netamashi-i “jealous”
    g. hokorashi-i “proud”
    h. hazukashi-i “ashamed”

(ii) a. hossur-u “want”
    b. nikum-u “hate”
c. koisur-u “love”  
d. itooshim-u “love”  
e. urayam-u “envious”  
f. netam-u “jealous”  
g. hokor-u “proud”  
h. hazukashimer-u “humiliate”  

There is a possibility that transitive adjectives somehow retain the ability to assign accusative case, just as their transitive verb counterparts, which is realized in certain restricted contexts in the TAC. We will leave this issue for future research.

References

Texts
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