The unaccusative hypothesis
and noun classification*

NATSUKO TSUJIMURA

Abstract

The unaccusative hypothesis of Perlmutter (1978) and Burzio (1981, 1986) claims that intransitive verbs are not homogeneous; rather, they are divided into two classes: unergative and unaccusative. This paper argues that the unaccusative hypothesis can be extended to the category of noun. Evidence supporting this claim comes from the resultative construction and accusative-case assignment in Japanese. The analysis presented here has the following theoretical implications. First, the nature of accusative-case assignment observed with unaccusative nouns provides strong support for Burzio's generalization (1981, 1986). Second, the data considered in this paper are insightfully analyzed within the theory of incorporation developed in Baker (1986, 1988).

Introduction

Since the pioneering work of Perlmutter (1978), the unaccusative hypothesis has been examined in various languages. The unaccusative hypothesis serves to reveal unique syntactic properties specific to the verbs of the unaccusative class. In this paper, I will investigate the unaccusative status of the Japanese nouns of Chinese origin, namely, Sino-Japanese compounds. I will claim that some Sino-Japanese compound nouns should be analyzed as unaccusative so as to explain their syntactic behavior.

Identifying Sino-Japanese compound nouns as unaccusative is by no means so obvious: unaccusative verbs of Japanese origin often display special morphological affixation, whereas there is nothing striking about the morphology of Sino-Japanese compounds with respect to unaccusativity. Here, I will investigate a syntactic diagnostic test for unaccusativity, namely, the resultative construction, and will show that it is relevant in identifying some Sino-Japanese compound nouns as unaccusative.

Linguistics 28 (1990), 929–957 0024-3949/90/0028-0929 $2.00 © Walter de Gruyter
Sino-Japanese compounds are typically used with the 'light' verb *suru* 'do' in the sense of Grimshaw and Mester (1988). A complex expression comprising a Sino-Japanese compound and *suru* normally displays two syntactic manifestations. One is that a Sino-Japanese compound noun is 'incorporated' into the verb *suru*, functioning as a complex predicate itself. The theory of incorporation is well developed in Baker (1986, 1988), who claims that processes involving change in grammatical function can be explained by the movement of a lexical category, namely, $X^0$ movement. It is this theory that I will adopt for the analysis of the syntactic behavior observed with unaccusative nouns. Adopting Baker's theory, we find the following situation: a Sino-Japanese noun undergoes $X^0$ movement (in the sense of X-bar theory) and adjoins to a $V^0$, namely *suru*. The result of this $X^0$ movement is a complex predicate. This type of manifestation is instantiated by (1)–(2), where BENKYOO 'studying' and DENWA 'telephone' are the noun heads which have moved to the position adjoined to the verb head, *suru*, and, as a result, BENKYOO *suru* 'study' and DENWA *suru* 'telephone' are complex predicates of the sentences.

(1) John-ga nihongo-o BENKYOO suru.
   John-Nom Japanese-Acc study
   'John studies Japanese.'

(2) John-ga Mary-ni DENWA suru.
   John-Nom Mary-Dat telephone
   'John telephones Mary.'

The other type of syntactic manifestation is that a Sino-Japanese compound noun does not undergo head movement and instead appears in accusative case, serving as a direct object of the verb *suru*. This is shown in (3)–(4).

(3) John-ga (nihongo-no) BENKYOO-o suru.
   John-Nom (Japanese-Gen) study-Acc suru
   'John studies (Japanese).'

(4) John-ga Mary-ni DENWA-o suru.
   John-Nom Mary-Dat telephone-Acc suru
   'John telephones Mary.'

In (3)–(4), the compound nouns BENKYOO and DENWA are suffixed by the accusative case marker -o. The sentences with an incorporated noun, as in (1)–(2), and those without any such noun, as in (3)–(4), are semantically and thematically parallel.

In what follows below, I will show that not all Sino-Japanese compound nouns exhibit the alternation of (1)–(2) vs. (3)–(4), and it is exactly the
Sino-Japanese compound nouns of the unaccusative class that lack such an alternation. The recognition of unaccusativity in some Sino-Japanese compound nouns coupled with their case-marking properties provides a substantial piece of evidence for Burzio's generalization (1981, 1986), which states that if a verb does not have the ability to assign a theta role to its subject, then it also lacks the ability to assign accusative case to its object. Moreover, I will show that the alternations observed in (1)–(2) and (3)–(4) are nicely accommodated by the theory of incorporation developed in Baker (1986, 1988), given the process of argument transfer proposed in Grimshaw and Mester (1988) and Burzio's generalization. The conclusion drawn here that some nouns should be identified as unaccusative has also been suggested independently by Miyagawa (1989), who reached the same conclusion on the basis of numeral-quantifier expressions in Japanese. I will point out, however, that this is not surprising because the two phenomena from which the conclusion is drawn — numeral quantifier and resultative construction — can both be considered as instances of predication, given a theory of predication such as Williams (1980) and Rothstein (1985).

1. Resultatives

The resultative construction is described in Halliday (1967: 63) as an attribute which results from a process. Simpson (1983) also discusses the resulative construction in English, which is illustrated in (5).8

(5) a. I painted the car yellow.
   b. I painted the car a pale shade of yellow.
   c. I cooked the meat to a cinder.
   d. The boxer knocked John out.

In (5) the italicized expression is called a resultative attribute and describes the state of an argument resulting from the action denoted by the verb. For example, (5a) means ‘I painted the car, and because I painted the car, the car became yellow’. Simpson observes that the resultative phrases are always predicated of the object function in English. Thus, in the above examples, the object of the verb (that is, the car in [5a] and [5b], the meat in [5c], and John in [5d]) is the argument whose state is described as resulting from the action. In other words, the object of the verb is the controller of the resultative attribute.

What about resultative expressions with intransitive verbs or passives? Consider the intransitive and passive examples with resultative attributes in (6)–(7).
(6)  a. The ice cream froze solid.
    b. The butter melted to a liquid.
    c. The vase broke into little pieces.

(7)  a. The car was painted red.
    b. The ice cream was frozen solid.

In (6) the subjects are the arguments of which the resultative expressions are predicated. Thus, in (6a), for example, the ice cream, which is the subject of the sentence, froze, and as a result, the ice cream became solid. The situation is the same for passive constructions. In (7a) the car was painted and as a result it became red. Therefore, the sentences in (6) and (7) seem to suggest that the controller of a resultative attribute is the subject when the verb is intransitive or passive.

Simpson, however, goes on to say that we can still maintain the generalization in English, that the controller of a resultative attribute is always the object function, because the subjects of the sentences in (6) and (7) are in fact underlingingly objects. For the verbs such as in (7), the thematic identity between the object of a causative verb and the subject of an inchoative verb can be observed in the contrast in (8)–(10).

(8)  a. I froze the ice cream solid.
    b. The ice cream froze solid.

(9)  a. I melted the butter to a liquid.
    b. The butter melted to a liquid.

(10) a. I broke the vase into pieces.
    b. The vase broke into pieces.

Throughout the causative/inchoative pairs in (8)–(10), the object of the causative verb (that is, the [a] sentences) is consistently the subject of the inchoative verb (that is, the [b] sentences). Different theoretical frameworks approach this phenomenon in a similar manner: in relational grammar, the (b) sentences involve unaccusative verbs and are derived by the advancement from 2 to 1; in the government and binding theory, Keyser and Roeper (1984), for example, claim that 'move alpha' moves the underlying object of the unaccusative verb to subject position, thus deriving surface sentences like the (b) sentences in (8)–(10). Hence, they all agree in assuming that the (a) sentences and the (b) sentences are derived from the same underlying structure. This point is stated by Baker (1988) as a principle of grammar which he refers to as the 'uniformity-of-theta-assignment hypothesis' (UTAH):

(11) The uniformity-of-theta-assignment hypothesis:
    Identical thematic relationships between items are represented by
identical relationships between those items at the level of D-structure.

In the discussion hereafter, I will also assume the UTAH.

Passive sentences such as (7) are analyzed in the same manner. An active sentence and its passive counterpart express an identical thematic relationship. The UTAH, thus, says that the two must share the same D-structure representation. The surface structure of (7), then, would be derived by the movement of the object to the subject position in the government and binding framework. Hence, the cases in neither (6) nor (7) would constitute a counterexample against the generalization that the controller of a resultative attribute is always the object. The statement in (12) is the syntactic generalization that Simpson claims to hold for resultatives in English.\(^9\)

(12) The controller of a resultative attribute must be an OBJECT, whether that OBJECT is a surface OBJECT, as in transitive verbs, or an underlying OBJECT, as in passives and intransitive verbs of the unaccusative class. ...

Let us now examine if the generalization in (12) also holds for Japanese verbs of Japanese origin or, to put it more precisely, the verbs with Japanese verbal morphology. First, consider the resultative construction with a transitive verb.

(13) a. Kuruma-o *akaku* nutta.
   car-Acc red painted
   ‘(I) painted the car red.’

b. Hanmaa-de kinzoku-o *hiraku* utta.
   hammer-with metal-Acc flat hit
   ‘(I) hit the metal flat with a hammer.’

c. Syatu-o *kireini* aratta.
   shirt-Acc clean washed
   ‘(I) washed the shirt clean.’

d. Pan-o *makkuroni* kogasita.
   bread-Acc black burned
   ‘I burned the bread black.’

e. Hanako-wa kami-o *nagaku* nobasita.
   Hanako-Top hair-Acc long lengthened
   ‘Hanako grew her hair long.’

The italicized expressions are resultative attributes. Resultatives can be an AP (as in [13a], [13b], [13e]),\(^{10}\) a NP (as in [13c], [13d]),\(^{11}\) or a PP. In all the examples above, the resultative attributes are predicated of the
accusative (-o-marked) nominal. (13c), for instance, does not mean that I washed the shirt, and because I washed it, I became clean. Instead, it means that I washed the shirt, and because I washed it, THE SHIRT became clean. The same situation holds for all the examples in (13). Thus, as far as transitive verbs are concerned, the controller of a resultative attribute is the object in Japanese.

Second, we will look at intransitive verbs in the resultative construction.

(14) a. Hanako-no kami-ga nagaku nobita.
   Hanako-Gen hair-Nom long lengthened
   ‘Hanako’s hair grew long.’

   b. Pan-ga makkuroni kogeta.
   bread-Nom black burned
   ‘The bread burned black.’

   c. Hune-ga suityuu hukaku sizunda.
   ship-Nom in water deep sank
   ‘The ship sank deep in water.’

The italicized resultative attributes in (14) are consistently predicated of the nominals marked with the nominative-case particle -ga, namely the subject of the sentence. In (14a), for example, it is Hanako’s hair that became long as a result of the growth of the hair. Thus, on the basis of the intransitive examples in (14), it appears that the controller of the resultative with an intransitive verb is its subject. The situation is, however, exactly parallel to the English case, namely, (8)–(10) above. The contrast between (14) and (15) illustrates the unaccusative status of the verbs in (14).

(15) a. Hanako-wa kami-o nagaku nobasita.
   Hanako-Top hair-Acc long lengthened
   ‘Hanako let her hair grow long.’

   b. Taroo-wa pan-o makkuroni kogasita.
   Taroo-Top bread-Acc black burned
   ‘Taroo burned the bread black.’

   c. Sobietogun-wa hune-o suityuu hukaku sizumeta.
   Russian-Top ship-Acc in water deep sank
   ‘The Russians sank the ship deep in water.’

In (15) the same set of nominals as in (14) is the controller of the resultative attribute, and therefore they are thematically identical. The UTAH in (11) requires that the sentences in (14) and the corresponding ones in (15) should have identical D-structure representations. This leads to the conclusion that the subjects in (14) are all underlying objects at D structure. This situation is reminiscent of the English examples discussed
above. Although the causative/inchoative pairs in Japanese (for example, nobasu in [15a] vs. nobiru in [14a]) are unlike English in that they are not morphologically identical, they do share the same verbal root. That is, a causative suffix or an inchoative suffix is affixed to the verbal root to derive a surface form. Below is the list of the paradigm of such doublets.\textsuperscript{12}

\begin{center}
\begin{tabular}{lll}
  \hline
  \textbf{causative} & \textbf{inchoative} & \\
  taosu & taoreru & \textquoteleft fall\textquoteright \\
  kesu & kieru & \textquoteleft turn off\textquoteright \\
  tukeru & tuku & \textquoteleft attach, turn on\textquoteright \\
  dasu & deru & \textquoteleft come out\textquoteright \\
  simeru & simaru & \textquoteleft close\textquoteright \\
  akeru & aku & \textquoteleft open\textquoteright \\
  \hline
\end{tabular}
\end{center}

The causative verbs in (16) all demonstrate the same argument array as in (15), while the inchoative verbs pattern in the identical manner to (14) with respect to their argument and case particles with which they are accompanied. It follows from the UTAH, then, that the subjects of inchoative verbs such as those in (16) are the objects of their causative counterpart.

The parallelism between (8)–(10) in English and (14)–(15) in Japanese strongly suggests that the inchoative verbs in (14) as well as those in (16) should be considered as belonging to the unaccusative class. Thus, we can claim that the subjects of the intransitive verbs (namely, unaccusative verbs) in (14) are, in fact, underlyingly objects. Such a claim, then, leads us to the conclusion that the object, surface or underlying, is the controller of a resultative attribute in Japanese. Hence, the generalization in (12) is borne out not only in English but also in Japanese.

Assuming that the generalization in (12) is a relevant condition on the resultative construction in Japanese, let us now consider Sino-Japanese complex predicates particularly with respect to the resultative construction. To begin with, (17) below illustrates a transitive Sino-Japanese complex predicate (that is, a Sino-Japanese compound noun plus the verb suru) with a resultative attribute.\textsuperscript{13}

\begin{enumerate}
  \item Taroo-ga densen-o mapputatuni SETUDAN sita.
    \begin{tabular}{ll}
      suru-past & Taroo cut the electric wire into two.
    \end{tabular}

  \item Hanako-ga garasu-o konagonani HAKAI sita.
    \begin{tabular}{ll}
      suru-past & Hanako broke the glass into pieces.
    \end{tabular}
\end{enumerate}
The country improved that desolate land into a beautiful plain.'

Next, observe the following set of examples, where the Sino-Japanese complex predicates are all intransitive.

(18) a. Taroo-wa otona ni/ookiku SEITYOO sita.
Taroo-Top adult to/big growth suru-past
'Taroo grew into an adult/big.'

b. Hune-ga suityuu hukaku TINBOTU sita.
ship-Nom in water deep submersion suru-past
'The ship sank deep in water.'

c. Saiboo-ga nibai ni KAKUDAI sita.
cell-Nom double to enlargement suru-past
'The cell doubled.'

d. Gizyutu-ga sensinkoku-nami ni technology-Nom advanced countries-average to KOOZYOO sita.
improvement suru-past
'The technology improved to the level of the average advanced countries.'

e. Uti-ga makkuro ni ZENSYOO sita.
house-Nom black to burning suru-past
'The house got burned black.'

The Sino-Japanese complex predicates of this class include the following:

(19) GYOOKO suru ‘solidify’
HUTTOO suru ‘boil’
ZYOOSYOO suru ‘go up’
KAKOO suru ‘go down’
EKIKA suru ‘liquefy’
KIKA suru ‘evaporate’
KAIMETU suru ‘be demolished’
The unaccusative hypothesis

SYUKUSYOO suru ‘reduce’
KANSOO suru ‘dry’
KYUUZOO suru ‘increase suddenly’
GERAKU suru ‘decline’
KOOTYOO suru ‘redden’
SYUUSYUKU suru ‘shrink’
SYOOSIN suru ‘be promoted’
ZOORYOO suru ‘increase in quantity’

In each case of resultative constructions involving complex predicates in (18) as well as with the verbs in (19), the controller of the resultative attribute is the subject of the sentence. Thus, the resultative attribute describes the state of the subject of the sentence.

The previous discussion on verbs of Japanese origin and transitive complex predicates composing Sino-Japanese compounds has confirmed that the generalization of (12) holds for Japanese. The discrepancy of such a conclusion and the apparent subject controllerhood in (18), then, can only be solved if the surface subjects in (18) are the underlying objects at D structure. This would clearly show that the complex predicates in (18) are unaccusative. However, we cannot attribute this unaccusative nature of the complex predicates to the verb suru simply because the identical verb also appears in (17) but the sentences do not display unaccusativity. The only possibility, then, is to consider the Sino-Japanese compound nouns in (18), but not those in (17), as being of the unaccusative type. Given that (12) is relevant to Japanese, an unaccusative analysis of the Sino-Japanese nouns in (18) and (19) can explain the mismatch between (17) and (18) regarding the controllerhood of a resultative attribute.14

It is important to note here, however, that the unaccusative status of the complex predicates (and the nouns) in (18)–(19) is not predicted at all by their morphological manifestations. Recall that as far as inchoative verbs are concerned, they are fairly easy to recognize, in both English and Japanese, due to the fact that there is morphological identity or similarity between the causative and the inchoative counterparts. In English, thus, the morphologically identical verb is used both as causative and as inchoative, and the difference is readily identified by the syntactic distribution of the verb’s arguments. We have discussed such pairs in (8)–(10), which I repeat below.

(8) a. I froze the ice cream (solid).
   b. The ice cream froze (solid).
(9) a. I melted the butter (to a liquid).
   b. The butter melted (to a liquid).
The situation with the Japanese native verbs is almost parallel to the English cases exemplified by (8)–(10). In Japanese native verbs, the causative verb and its inchoative counterpart are not identical as in English, but they are morphologically related. This can be seen in the contrast in (20)–(22), which are repeated from (15) and (16) above.

(20) a. Hanako-wa kami-o \((\text{nagaku})\) nobasita.
Hanako-Top hair-Acc (long) (let) grow
'Hanako let her hair grow (long).'
b. Hanako-no kami-ga \((\text{nagaku})\) nobita.
Hanako-Gen hair-Nom (long) grew
'Hanako's hair grew (long).'

(21) a. Taroo-wa pan-o \((\text{makkuro ni})\) kogasita.
Taroo-Top bread-Acc (black to) burned
'Taroo burned the bread black.'
b. Pan-ga \((\text{makkuro ni})\) kogeta.
bread-Nom (black to) burned
'The bread burned black.'

(22) a. Sobietogun-wa hune-o \((\text{suityuu hukaku})\) sizumeta.
Soviet-Top ship-Acc (in water deep) sank
'The Soviets sank the ship deep in water.'
b. Hune-ga \((\text{suityuu hukaku})\) sizunda.
ship-Nom (in water deep) sank
'The ship sank deep in water.'

Throughout the examples, the (a) sentence is thematically identical\(^{15}\) to the (b) sentence. The UTAH requires that the (a) sentence and the (b) sentence have an identical D-structure representation. It indicates that the subject of the inchoative verb (that is, of the unaccusative class) is underlingly the object. The Japanese native verbs of the unaccusative class, therefore, can readily be recognized on morphological grounds.

Such a morphological strategy, on the other hand, cannot be adopted for Sino-Japanese complex predicates in recognizing their unaccusative status. We do not find any Sino-Japanese complex predicates which would constitute a causative/inchoative pair parallel to (20)–(22). Thus, the argument- and case-particle distribution in (18) is the only possible array for those Sino-Japanese complex predicates. If we were forced to create a sentence which would serve as a causative counterpart of each sentence in (18), we would have to use the morphologically productive means of forming a causative, namely, the affixation of the suffix \(-\text{(s)ase}\).
The examples of such a suffixation to the Sino-Japanese complex predicates in (18b) and (18c), for instance, are demonstrated in (23) and (24), respectively.

(23) Sobietogun-ga hune-o suityuu hukaku TINBOTU Soviets-Nom ship-Acc in water deep submersion saseta.
    suru-Causative-past
   ‘The Soviets made the ship sink deep in water.’

(24) Kagakusya-ga saiboo-o nibai ni KAKUDAI scientist-Nom cell-Acc double to enlargement saseta.
    suru-Causative-past
   ‘The scientist made the cell double the size.’

Hence, given the assumption that the controller of a resultative attribute is always the object, whether surface or underlying, in Japanese, the surface-subject controllerhood in a resultative construction forms strong evidence that the Sino-Japanese complex predicates in (18) (and those in [19]) and ultimately the Sino-Japanese compound nouns composing them should be analyzed as belonging to the unaccusative class.

2. Accusative-case assignment

The argument that some Sino-Japanese complex predicates such as those in (18)–(19) belong to the unaccusative class is further supported when we investigate accusative-case assignment of those complex predicates. Recall that Sino-Japanese complex predicates consist of two parts, a Sino-Japanese compound noun and suru, and that the Sino-Japanese compound noun can serve as the object of the verb suru. For example, the Sino-Japanese complex predicates in (1)–(2), where the Sino-Japanese compound noun is incorporated into the verb suru, are independent predicates, while the examples in (3)–(4) illustrate that the Sino-Japanese compound nouns can be the object of the verb suru. (25)–(28) illustrate such a contrast.

   Japanese-Acc studying suru
   ‘(I) study Japanese.’

   b. Nihongo-no BENKYOO-o suru.
   Japanese-Gen studying-Acc suru
   ‘(I) study Japanese.’
In (25)–(28), the (a) sentences involve the Sino-Japanese complex predicate, whereas the (b) sentences show that the Sino-Japanese compound noun functions as the object of the verb *saru*, as is apparent by its having the accusative-case particle -*o*. Hence, the contrasts in (25)–(28) suggest that the verb *saru* assigns accusative case. This has also been argued by Grimshaw and Mester (1988).

Interestingly, however, were *saru* to assign accusative case to the Sino-Japanese compound nouns in (18)–(19), an extremely awkward sentence would result (see Dubinsky 1985; Miyagawa 1989). That is, the Sino-Japanese compound nouns involved in (18)–(19) have a strong tendency always to be incorporated into the verb *saru*. (29)–(31) demonstrate this point.

(29) ??Saiboo-ga KAKUDAI-o sita.
    cell-Nom enlargement-Acc *saru*-past
    'The cell enlarged.'

(30) ??Gizyutu-ga KOOZYOO-o sita.
    technology-Nom improvement-Acc *saru*-past
    'The technology improved.'

(31) ??Ti-ga GYOOKO-o sita.
    blood-Nom solidifcation-Acc *saru*-past
    'Blood solidified.'

Although the native speakers’ judgments range from acceptable to ungrammatical, a crucial point here is that even those who accept
(29)–(31) with hesitation feel that there is a clear distinction between the (b) sentences in (25)–(28) and (29)–(31).

Furthermore, the contrast between the (b) sentences in (25)–(28) and (29)–(31) in terms of accusative-case assignment is more clearly observed when the Sino-Japanese compound case particle is scrambled. Although the scrambled sentences involving the verbs in (25)–(28) do not necessarily derive perfect sentences, the contrast is quite sharp between the Sino-Japanese complex predicates in (26)–(28) and those in (18)–(19), as (32)–(33) show.

(32) a. Scrambled version of (26b):
DENWA-o kinoo tomodati-ni sita.
television-Acc yesterday friend-to suru-past

b. Scrambled version of (27b):
KEIKOKU-o keikan-ga hitobito-ni sita.
warning-Acc policeman-Nom people-to suru-past

c. Scrambled version of (28b):
?Kyonen RYOKOO-o imooto-ga yooroppa-e
last year travel-Acc younger sister-Nom Europe-to
sita.
suru-past

(33) a. Scrambled version of (29):
*KAKUDAI-o saiboo-ga sita.
enlargement-Acc cell-Nom suru-past

b. Scrambled version of (30):
*KOOZYOO-o gizyutu-ga sita.
improvement-Acc technology-Nom suru-past

c. Scrambled version of (31):
*GYOOKO-o ti-ga sita.
solidification-Acc blood-Nom suru-past

What the data above suggest is that the verb suru does not have the ability to assign accusative case to the Sino-Japanese compound nouns in (18)–(19) when they are not incorporated.

Why, then, is it that the verb suru is unable to assign accusative case when accompanied by the Sino-Japanese compound nouns in (18)–(19) but is able to assign accusative case to the ones involved in (1)–(2), for instance? The question remains unsolved as long as we consider the Sino-Japanese complex predicates in (1)–(2) and those in (18)–(19) to be homogeneous. Instead, I claim that this particular property of the Sino-Japanese complex predicates in (18)–(19) should be attributed to the unaccusative status of those nouns, that is, the conclusion we have reached on the basis of the resultative construction above.
In order to account for the contrast between the Sino-Japanese complex predicates in (1)-(2) and those of the unaccusative class as in (18)-(19), it is crucial to refer to Burzio’s generalization (Burzio 1986) and the process of argument transfer proposed by Grimshaw and Mester (1988). First, Burzio’s generalization is schematized as in (34).

(34) \(-\theta_s \rightarrow -A\)

What (34) states is that if a given verb does not assign a theta role to its subject slot, then it will not assign accusative case to its object.

Second, argument transfer is a process that transfers the arguments of an argument-taking noun, such as a Sino-Japanese compound, to the light verb *suru*, which has an empty argument structure. The light verb after transfer bears theta-assigning ability. Another property of the light verb is to assign accusative case. An instance of argument transfer is illustrated in (35)-(36).

(35) Keisatu-ga hitobito-ni [tunami-ga kuru]-to
    police-Nom people-to high wave-Nom come-COMP
    KEIKOKU-o sita.
    warning-Acc *suru*-past
    ‘The police warned the people that a high wave was coming.’

(36) a. KEIKOKU (Agent (Goal, Theme))
    b. *suru* ( ) <ACC>
    c. KEIKOKU ( ) + *suru* (Agent (Goal, Theme)) <ACC>

In (36), *suru*, which originally has an empty argument structure, gets the arguments of the noun KEIKOKU transferred to its own argument structure, and thus it acquires theta-assigning ability. At the same time, the light verb bears accusative-case-assigning ability, and this is why KEIKOKU in (35) receives the accusative marker -o.

Given Burzio’s generalization and argument transfer, let us examine how they apply to unaccusative cases. The Sino-Japanese complex predicates of the unaccusative class such as in (18)-(19) take an object complement in their argument structure. It is this underlying object that plays a role as the controller of a resultative attribute. The Sino-Japanese compound noun composing the complex predicate assigns theme role to the object, but it does not assign any role to its subject. Suppose that argument transfer occurs in the present situation. Grimshaw and Mester claim that the subject argument must always be transferred to the light verb. With an unaccusative noun as in (18)-(19), there is no subject argument to transfer. In such a case, as I have suggested in Tsujimura (1990), what is involved in the transfer is that the light verb *suru* inherits the noun’s inability to assign a subject theta role. Then, Burzio’s general-
The unaccusative hypothesis

The unaccusative hypothesis comes into play: since the light verb cannot assign a theta role to the subject by inheritance, it cannot assign accusative case. This is why the sentences in (29)–(31) should be ruled out.

On the other hand, the verb in (1), for instance, takes both subject and object complements, assigning agent and theme roles to the respective complements. The light verb inherits the ability to assign a subject theta role, and it follows that *suru* should be able to assign accusative case, as in (3). Case assignment of the Sino-Japanese complex predicates, as we have seen in this section, therefore, provides additional evidence for the unaccusative status of the Sino-Japanese nouns in (18)–(19) and also for Burzio's generalization. Furthermore, the process of argument transfer plays an important role in accounting for the accusative-case-assignment behavior of the light verb *suru*.

3. Semantic properties

In this section, I will give another piece of evidence on semantic grounds for the unaccusative status of the Sino-Japanese complex predicates and, in effect, for that of the Sino-Japanese compound nouns in (18)–(19). Recall that the Sino-Japanese complex predicates which I claim are unaccusative are always intransive and have no morphologically identical or related transitive verbs or complex expressions which would constitute causative/inchoative pairs like Japanese native verbs such as in (16). However, many of the Sino-Japanese complex predicates in (18)–(19) find their synonyms in causative/inchoative pairs belonging to the Japanese native verbs. When a Sino-Japanese complex predicate in (18)–(19) and its synonym of the Japanese native class are compared with regard to their meanings, it is always the inchoative counterpart (which is itself an unaccusative verb) of the pair that corresponds to the Sino-Japanese verb. For example, the complex predicate *SEITYOO suru* 'grow' in (18a) has its synonymous verb of Japanese origin, namely, *sodatu*. *Sodatu* is an inchoative verb whose causative counterpart is *sodateru*. As can easily be seen, *sodatu* and *sodateru* are morphologically related. I list more examples of this relationship between the Sino-Japanese complex predicates in question and causative/inchoative pairs of Japanese origin in (37). (In parentheses are the transitive counterparts of the synonyms.)

(37) **Sino-Japanese verbs**

<table>
<thead>
<tr>
<th>Sino-Japanese verbs</th>
<th>Synonym — inchoative</th>
</tr>
</thead>
<tbody>
<tr>
<td>TINBOTU suru 'sink'</td>
<td>sizumu (sizumeru)</td>
</tr>
<tr>
<td>KAKUDAI suru 'enlarge'</td>
<td>hirogaru (hirogeru)</td>
</tr>
</tbody>
</table>
N. Tsujimura

(37) clearly demonstrates that there is tight semantic correlation between the inchoative verbs of Japanese origin and the Sino-Japanese complex predicates in (18)–(19). Since the inchoative verbs in (37) are unaccusative, their synonymous Sino-Japanese complex predicates may be so analyzed as well.

4. Theoretical implication

4.1. Burzio's generalization and incorporation

In the previous sections, I have shown that the resultative construction in Japanese illuminates the fact that some Sino-Japanese complex predicates act as unaccusative. I have claimed that their unaccusativity is inherent to the Sino-Japanese compound noun which participates in the formation of the complex predicate. Accusative-case assignment observed with the complex predicates has confirmed the conclusion. We have also seen that the arguments presented here substantially support Burzio's generalization and argument transfer. In this section, I will demonstrate the interaction of the theory of incorporation along the lines of Baker (1986, 1988) and Burzio's generalization, which coupled with the notion of argument transfer provides an explanation for the presence and absence of the alternation between (1)–(2) and (3)–(4) observed above.

Interestingly enough, investigating the relationship between types of nouns and accusative-case assignment leads us to the classification of nouns and of complex predicates parallel to that of verbs. First, BENKYOO suru belongs to the transitive type since the noun BENKYOO is transitive. With a transitive noun, there are two options with respect to accusative-case assignment. The two options were introduced earlier in (1) and (3), which I repeat as (38) and (39), respectively.

(38) John-ga nihongo-o BENKYOO sita.
    John-Nom Japanese-Acc study suru-past
    'John studied Japanese.'
(39) John-ga nihongo-no BENKYOO-o sita.
   John-Nom Japanese-Gen studying-Acc suru-past
   ‘John studied Japanese.’

In (38), the complex predicate assigns accusative case to the actual theme, nihongo ‘Japanese’, while in (39) the verb suru assigns it to the noun BENKYOO ‘studying’. Both sentences are ‘thematically’ equivalent in the sense of Baker (1988). According to Baker, such sentences should be derived from an identical D structure. This is stated by the UTAH in (11), which I repeat as (40) below.

(40) The uniformity-of-theta-assignment hypothesis (UTAH):
   Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D structure.

The D structure for (38) and (39) would be like (41).

(41)

If the noun head BENKYOO does not incorporate, as in (39), (41) is both the D and the S structure for (38). BENKYOO is transitive, and the subject argument must be transferred to the argument structure of the light verb, given Grimshaw and Mester’s assumption discussed previously. Burzio’s generalization, then, predicts that suru can assign accusative case since, after the transfer, the light verb bears the ability of assigning a theta role to the subject. Only one accusative case is available in Japanese, and it is assigned to the NP of which BENKYOO is the head. On the other hand, the specifier of the N, nihongo, also needs case to satisfy the case filter.\(^{19}\) Suru cannot assign the structural case to it since it is already used up. The only possibility is an inherent case assigned by the head BENKYOO under government. Thus, the noun nihongo is assigned genitive case by the noun head BENKYOO, while the NP
nihongo-no BENKYOO gets accusative case from the verb suru, as outlined above. The derived sentence is (39).

When the noun BENKYOO incorporates into the verb suru by $X^e$ movement, as in (38), the S structure would look like (42).

\[
(42) \quad \text{IP} \\
\quad \text{John} \text{VP} \\text{I} \\
\quad \text{NP}^* \text{V past} \\
\quad \text{nihongo t, BENKYOO_i suru}
\]

The noun head BENKYOO undergoes $X^e$ movement to the position adjoined to the V. The trace left behind by this movement is properly (antecedent) governed, thereby not violating the empty-category principle: BENKYOO c-commands the trace, and there is no barrier between the noun and its trace.\(^{20}\) However, how can the NP$^+$ receive case in this situation? The noun BENKYOO cannot directly assign case to the NP$^+$ now that it is incorporated into the verb, nor can its trace assign case to it. Baker (1988) gives an elegant explanation for possessor-stranding cases in Southern Tiwa, which takes a structure similar to (42) above. His explanation goes as follows: the NP$^+$ can get case from the complex predicate if we assume that the NP$^*$ needs no case. (For the supporting evidence, see Baker 1988.) Baker states this result as the government-transparency corollary (GTC).

\[
(43) \quad \text{The government-transparency corollary (GTC):} \\
\quad \text{A lexical category which has an item incorporated into it governs} \\
\quad \text{everything which the incorporated item governed in its original} \\
\quad \text{structural position.}
\]

The N head BENKYOO governs its specifier nihongo prior to its movement, and thus, the V dominating BENKYOO and suru governs NP$^+$. As a result of argument transfer and Burzio’s generalization, suru is eligible to assign accusative case. Hence, NP$^+$ receives accusative case from the complex predicate under government. Therefore, both S structures, (41) and (42), are acceptable for a transitive-noun-plus-suru combination.

Second, just as there are unergative verbs, nouns can also be classified as unergative. AISEKI ‘table-sharing’ is one such noun. The unergative
noun AISEKI is expected to have only an external argument, and thus, accusative-case assignment would not be predicted. However, AISEKI displays an interesting distribution.

(44) John-ga Bill-to AISEKI-o sita.
    John-Nom Bill-with table-sharing-Acc suru-past
    'John shared a table with Bill.'

(45) John-ga Bill-to AISEKI sita.
    John-Nom Bill-with table-sharing suru-past
    'John shared a table with Bill.'

Burzio (1986) claims that an unergative verb such as laugh can assign accusative case to its object if such an object NP is available. This is why laugh can appear with an object as in John laughed a big laugh. For the same reason, we can claim that an unergative noun such as AISEKI has potential ability to involve case assignment but, in the case of (44) and (45), does not have a thematic object to which the accusative case is assigned. In the absence of such a thematic object, the accusative case can optionally be assigned to the noun AISEKI, as in (44).

This account is, again, consistent with the incorporation analysis by Baker. The UTAH claims that (44) and (45) should have an identical D structure since they are thematically parallel. The D structure for both sentences would be as in (46).

(46)  

\[
\begin{array}{c}
\text{IP} \\
\text{NP} \\
\text{John} \\
\text{VP} \\
\text{NP} \\
\text{AISEKI} \\
\text{suru}
\end{array}
\]

In (46), the [NP, VP] is not assigned any theta role because AISEKI is not a thematic object. If incorporation does not occur, as in (44), (46) is also the S structure. AISEKI, as an unergative noun, bears the theta-role-assigning ability to the subject argument, and this is the ability that is transferred to suru when the subject argument is transferred by argument transfer. Then, by Burzio's generalization, suru can assign accusative case to the noun.

The noun AISEKI is also free to incorporate as long as the trace left behind by the X° movement is properly governed. The S structure after the incorporation is in (47).
The trace is properly governed by its antecedent, satisfying the ECP. This explains why unergative nouns are also associated with the alternation of (44)–(45) just as with a transitive noun.

Third, an unaccusative noun, such as SYOOSIN ‘promotion’, on the other hand, cannot receive accusative case at all, as was discussed in section 2. It is because the noun SYOOSIN is the unaccusative type, and suru inherits the inability to assign a theta role to the subject argument. It follows from Burzio’s generalization that suru cannot assign accusative case. Hence the noun SYOOSIN must always be incorporated into suru and is expected to appear only as a complex predicate.

(48) John-ga katyoo-ni SYOOSIN sita.
    John-Nom division manager-to promotion suru-past
    ‘John obtained a promotion to division manager.’
(49) *John-ga katyoo-ni SYOOSIN-o sita.
    John-Nom division manager-to promotion-Acc suru-past

(50) represents the D structure for (48) and (49).

(50)
Since SYOOSIN is an unaccusative noun and takes only an internal argument, John is in VP-internal position in its D structure. The verb suru, as a result of argument transfer from the unaccusative noun SYOOSIN and Burzio's generalization, does not have ability to assign accusative case. After John moves to subject position in order to receive case, an ungrammatical sentence derives because SYOOSIN cannot get any case from the light verb. This is the situation involved in (49). Furthermore, if SYOOSIN could assign genitive case to John, the structure could not be saved, because there is no case to be assigned to the NP of which SYOOSIN is the head. The incorporation of SYOOSIN alone does not derive a grammatical sentence, either. The incorporation of SYOOSIN to the verb suru would strand John in its original position, but since the verb does not have the ability to assign any case to it, John would violate the case filter, and the sentence would be ungrammatical. Thus, both John and SYOOSIN must move to the subject position and the position adjoined to the verb, respectively. The S structure after such movements, then, would look like (51).

(51)

Both traces are properly governed by the antecedents and do not violate the ECP. John in the subject position receives nominative case, while the incorporated noun SYOOSIN does not receive any case. Thus, (51) properly represents (48) and case theory accounts for such a structure.

In sum, Burzio's generalization and argument transfer together with the theory of incorporation proposed by Baker (1988) explain case-assignment properties of the verb suru accompanied by different types of nouns. The fact that the complex predicates of the unaccusative class display only incorporated structure is explained straightforwardly by Burzio's generalization and argument transfer, given the theory of incorporation in the framework of GB.
4.2. Predication

Before we end the discussion, I would like to compare the unaccusative analysis presented above with Miyagawa’s (1989), both of which reach the same conclusion on the basis of two seemingly independent phenomena. The evidence for the analysis was given from the resultative construction in Japanese here, while Miyagawa’s analysis is based on numeral quantifiers (NQs). They appear to be separate phenomena, but I will point out that, in fact, they both follow from principles of predication.

Miyagawa (1989) claims that the syntactic behavior of NQs provides evidence for the unaccusative status of Sino-Japanese compounds such as in (18)–(19). In Japanese when objects are counted, the number is always accompanied by certain classifiers which would indicate internal properties of the objects. For example, to count people, -nin is suffixed to the numeral, while to count long cylindrical objects, -hon is used with the numeral.

(52) Gakusei-ga go-nin kita.
    student-Nom five-cl came
    ‘Five students came.’

(53) John-ga enpitu-o ni-hon katta.
    John-Nom pencil-Acc two-cl bought
    ‘John bought two pencils.’

Miyagawa (1988a, 1988b, 1989) argues that a noun and its NQ enter into a predication relation, and that a mutual c-command must hold between the two. In (54)–(55), the NQs are in a mutual c-command relation with the subject and with the object, respectively, as the structures in (b) indicate.

(54) a. Kodomo-ga san-nin waratta.
    child-Nom three-cl laughed
    ‘Three kids laughed’ (Miyagawa’s [4]).

   b. [IP NP san-nin [VP ... ]]

(55) a. Hanako-ga empitu-o ni-hon katta.
    Hanako-Nom pencil-Acc two-cl bought
    ‘Hanako bought two pencils.’

   b. [IP NP [VP [V NP ni-hon ... ]]]

The mutual c-command requirement between a NP and its NQ accounts for the ungrammatical status of the sentences in (56)–(57).

(56) *Gakusei-ga [VP hon-o san-nin katta].
    students-Nom books-Acc three-cl bought
    ‘Three students bought books’ (Miyagawa’s [9]).
The unaccusative hypothesis

(57) *[NP tomodati-no ie]-ga san-nin yaketa.
    friends-Gen house-Nom three-cl burned down
    ‘The houses of three friends burned down’ (Miyagawa’s [10]).

In (56), the NQ san-nin is predicated of the subject NP gakusei, but they are not in a mutual c-command relation since the NQ is internal to the VP and does not c-command the subject. The NQ and the NP tomodati in (57) also fail to enter into the mutual c-command relation because the NP does not c-command the NQ.

Given the mutual c-command requirement for the predication relationship between a NP and its NQ, the following sentence should be ruled out.

(58) Doa-ga [VP kono kagi de huta-tu aita].
    door-Nom this key with two-cl opened
    ‘Two doors opened with this key’ (Miyagawa’s [12]).

The subject NP doa is outside the VP, while the NQ huta-tu is internal to it. Since the latter does not c-command the former, the sentence should be eliminated, contrary to fact. Miyagawa argues that the grammatical status of (58), in spite of the prediction, should be attributed to the unaccusativity of the verb. Being an unaccusative verb, aita takes only an internal argument at D structure, which would be moved to the subject position for case-theoretical reason. Thus, a simplified structure which indicates such a relation is illustrated in (59).

(59) Doa-r-ga [VP ... ti NQ ... ]

In (59), the trace left behind by the NP movement of doa can enter into the mutual c-command relation with the NQ, and the structure is allowed. Then, the behavior of NQs provides another test for unaccusativity of verbs.

Miyagawa further extends his analysis to nouns and shows that the Sino-Japanese-compounds-plus-suru construction with a NQ also exhibits an instance of the mutual c-command requirement. Contrast the following.

(60) *Gakusei-ga [VP BENKYOO-o san-nin sita].
    students-Nom studying.Acc three-cl suru-past
    ‘Three students studied’ (Miyagawa’s [30]).

(61) Tokkyuu-ga [VP Uenoeki-ni go-dai super express-Nom Ueno station-at five-cl TOOTYAKU-sita].
    arrival-suru-past
    ‘Five super express trains arrived at Ueno station’ (Miyagawa’s [28]).
In (60), *gakusei* and *san-nin* are supposed to enter into a mutual c-command relation, but it fails because the NQ does not c-command the subject NP. (61) appears to be structurally identical to (60); nevertheless, the sentence is well formed. Miyagawa claims that the noun TOOTY-AKU is an unaccusative noun, and thus, the surface subject *tokkyuu* has its underlying position internal to the VP, just like (59). Since the trace and the NQ c-command each other, the sentence is grammatical. Thus, the predication analysis of NQ, according to Miyagawa, extends to nouns as well as verbs.

The line of argument that Miyagawa provides for the behavior of NQs is easily applied to the resultative construction which I have discussed in section 1 above. The various works on resultatives (for example Simpson 1983; Rothstein 1985; Williams 1980; Kegl and Fellbaum 1988; Hoekstra 1989; among others) all agree that resultative constructions are types of secondary predication. In the present discussion, I follow Kegl and Fellbaum (1988) in assuming that resultative predicates are adjoined to VP. Then, the structure of a resultative construction in Japanese would look like (62), regardless of the type of verb or complex predicate.

(62)  
\[
\begin{array}{c}
\text{IP} \\
\text{NP} & \text{I'} \\
\text{VP} & \text{I} \\
\text{XP} & \text{VP} \\
\text{NP}^* & \text{V}
\end{array}
\]

With a transitive verb or a transitive complex predicate, the resultative phrase XP is predicated of NP*, and the XP and the NP* c-command each other. Thus, the predication relation between the two is always well justified. If the V or the complex predicate is of the unaccusative type, the NP* moves to subject position by NP movement, leaving a trace. It is this trace with which the XP has a predication relation. Again, the XP and the NP* c-command each other, satisfying the requirement for predication. Both NQ and resultatives in Japanese can be subsumed by the theory of predication. Therefore, it is not surprising that such phenomena display parallel syntactic behavior sensitive to the type of verb and complex predicate.
5. Conclusion

I have demonstrated that the resultative construction in Japanese, together with numeral quantifiers discussed by Miyagawa (1989), provide evidence for unaccusativity in nouns. The three-way classification is relevant to account for accusative-case-assignment properties. Crucially it is the property of the noun that contributes to the determination of accusative-case distribution. The theory of incorporation proposed by Baker (1988), together with argument transfer and Burzio's generalization, also account for the alternation between incorporated and unincorporated complex predicates. Finally, the fact that the resultative-construction phenomena discussed above and the numeral-quantifier phenomena demonstrated by Miyagawa (1989) point to the same conclusion is by no means surprising as long as we consider them as instances of the predication relation.

Received 12 July 1989
Revised version received
21 March 1990

Notes

* I am indebted to Beth Levin and two anonymous reviewers of Linguistics for their helpful discussions and comments on earlier versions of this paper. Correspondence address: Department of East Asian Languages, Goodbody Hall, Indiana University, Bloomington, IN 47405, USA.

1. Sino-Japanese compounds have been called verbal nouns in the literature (Miller 1967; Martin 1975; Kageyama 1982; Miyagawa 1988a; among others) because they function as nouns when they appear independently in a sentence, but they can also be verbalized when incorporated into the verb suru.

2. There is a dispute as to whether unaccusativity should be accounted for in semantic terms or in syntactic terms (see Rosen 1984; Van Valin 1987; Napoli 1988; Chierchia 1988; and Levin and Rappaport 1989; among others). In this paper I agree, in principle, with Levin and Rappaport (1989), who claim that 'unaccusativity is syntactically represented but semantically determined', and will focus on the syntactic representation of unaccusative categories.

3. A number of diagnostic tests for unaccusativity have been discussed in the literature. Among them are ne cliticization and auxiliary selection in Italian (Burzio 1981, 1986) and impersonal passives in Dutch (Perlmutter 1978).

4. Also see Jespersen (1954) and Cattell (1984) for light verbs in general.

5. An incorporation analysis of Sino-Japanese compounds was proposed in Kageyama (1982) as well, but the present work differs crucially from Kageyama's in that I will claim that the phenomena we are dealing with follow from a set of universal principles within the government and binding framework.
6. I will not focus on a subtle difference in meaning, if there is any, between the two sets of sentences.

7. The status of a Sino-Japanese compound as noun is clear for the following two reasons. First, it never takes the verbal conjugation pattern. For example, the -TE/DE ending for the gerund and the -ΤΑ/DA ending for the past tense never appear on a Sino-Japanese compound unless it is verbalized by the suffixation of suru. Second, there is a certain environment in which a Sino-Japanese compound noun can take the sentential case pattern, as in (i).

(i) Taroo-ga eigo-o BENKYOO-tyuu. ...
Taroo-Nom English-Acc studying-while
‘While Taroo is studying English, …’

Even though the Sino-Japanese compound BENKYOO displays a sentential case array, it is obvious that its function in (i) is not as a verb but rather as a noun, because the morpheme -tyuu is suffixed only to nouns, and it is this morpheme which partially triggers the sentential case pattern. For details of this matter, see lida (1987) and Tsujimura (1989).

8. A reviewer points out that sentences with particles like (5d) are problematic since a syntactically parallel sentence The boxer called John up, for instance, does not mean ‘John is up because he was called’. This apparent problem should be attributed to a semantic property of resultatives. That is, verbs that take resultative attributes are restricted to verbs of contact or change of location and verbs of change of state (Simpson 1983; Carrier and Randall 1988). The verb call does not belong to either class, and thus, the particle cannot be interpreted as a resultative attribute.

9. The term ‘OBJECT’ in (12) refers to the grammatical function OBJECT in the sense of lexical-functional grammar, which Simpson’s analysis is based on. In the current approach, the term is equivalent to object NP that is normally conceived as bearing theme role. This may be contradicted by so-called ‘intransitive resultatives’ such as Joggers ran the pavement thin, in which the postverbal NP is not an argument of the verb and, thus, does not bear any theta role. A possible solution to this problem, however, has been proposed by Carrier and Randall (1988) by applying a lexical rule to lexical conceptual structure advanced by Hale and Keyser (1986). For the detailed discussion, see Carrier and Randall (1988).

10. The resultative attributes in these sentences may be called (adjective-based) adverbials. Thus, a literal translation of (13a), for instance, is ‘(I) painted the car redly’. The question of whether these attributes are categorically adjectives or adverbs, however, does not have crucial bearing on the issues that are discussed in this paper.

11. I am not certain whether kireini in (13c) and makkuroni in (13d) are NPs. Traditionally, kirei and makkuro are categorized as ‘adjectival verbs’. In Jorden (1987), however, they are termed nominals. I will not pursue this distinction here, since the issue does not hinder the claim that is made in this paper.

12. The causative/inchoative pairs in Japanese are explored in detail in Jacobsen (1982). There are about a dozen pairs of causative/inchoative suffixes. Which verbal root goes with which suffix seems to be a lexical property of the verbal root.

13. In the examples in (17), sita is roughly a past-tense version of the verb suru. In traditional descriptive work, the morphophonology that relates suru with sita is considered irregular.

14. Simpson (1983) notes that Warlpiri, an aboriginal language in Central Australia, demonstrates a resultative attribute predicated of a transitive subject, as illustrated in (i).
The unaccusative hypothesis

(i) Puluku-rlu kapu-lu marna nga-rni
bullocks-Ergative Future-3pl grass-Absolutive eat-NPST
kuntukuntu-karda.
fat-Translative
'The bullocks will eat themselves fat on the grass.'

The italicized part is a resultative attribute and is predicated of the subject puluku 'bullocks'. This may appear to weaken our generalization of the controllerhood, but there is a crucial difference between (i) and (18). It is clear that the controller of the resultative attribute in (i) is the agent or instigator of the action denoted by the verb. By contrast, none of the controllers of the resultative attributes in (18) bears the agent role. Thus, I conclude that (i) does not undermine the generalization concerning controllerhood.

15. By 'thematicallly identical' I mean that the same thematic relation holding between kami and nobasita in (20a), for example, also holds between kami and nobita in (20b).
Thus, referring to a specific theta-role type is not relevant here.

16. Older speakers tend to reject (29)–(31) entirely, while many younger speakers accept them with occasional hesitation. When the subject of the sentence is animate, the sentence seems to improve slightly. Yet, such a phenomenon is different from the agentivity requirement on the subject because the subject in such a case is not the agent; rather, the subject carries the theme role.

17. Grimshaw and Mester claim that argument structure is hierarchically structured, and that argument transfer occurs in a top-to-bottom fashion.

18. It has been controversial whether a noun can assign an external argument. For example, Rappaport (1983) assumes that a derived nominal inherits the argument structure that the corresponding verb has, granting the noun's ability to assign an external argument; while Grimshaw (1986, 1988) claims that the possessive NP in nominals is an adjunct, questioning the nominal's external-argument-assignment ability.

19. The case filter is contingent on the visibility condition on LF in Chomsky (1986).

(i) The visibility condition:
An NP position which is the head of a chain (that is, the position of a moved category) can only bear a theta index if it receives case.

20. The empty-category principle (ECP) and the definitions of government, c-command, and barrier are stated below (taken from Baker 1988):

Empty-category principle:
- Traces must be properly governed.
- A properly governs B if A governs B, and A and B are coindexed.

Government:
A governs B iff A c-commands B and there is no category C such that C is a barrier between A and B.

C-command:
A c-commands B iff A does not dominate B and for every maximal projection C, if C dominates A then C dominates B.

Barrier:
Let D be the smallest maximal projection containing A. Then C is a barrier between A and B if and only if C is a maximal projection that contains B and excludes A, and either
956  N. Tsujimura

(i)  C is not selected, or
(ii)  the head of C is distinct from the head of D and selects some WP equal to or containing B.

21.  Baker claims that the nouns which undergo incorporation are consistently the theme. It is worth noting here, however, that the Sino-Japanese compounds such as BEN-KYOO, AISEKI, and SYOOSIN do not seem to be a canonical theme in what is presented above since they do not have strong thematic relation to the verb suru as usually observed with an object noun in relation to a transitive verb like iaberu 'eat'. The compound nouns are more like derived nominals in English.

References
