1. Introduction

Since the pioneering work by Perlmutter (1978), the Unaccusative Hypothesis has been examined in various languages. The Unaccusative Hypothesis serves to reveal unique syntactic behaviors 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 or Verbal Nouns. I will claim that some Sino-Japanese compound nouns should be analyzed as unaccusative and their \( \theta \)-role and case properties follow from Burzio's Generalization (Burzio (1981), (1986)) and Argument Transfer proposed in Grimshaw & Mester (1988).

Sino-Japanese compounds are typically used with the "light" verb \textit{suru} 'do' in the sense of Grimshaw & Mester (1988). A complex expression comprising a Sino-Japanese compound and \textit{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. This is instantiated by (1-2).

(1) John-ga nihongo-o BENKYOO-suru
    John-Nom Japanese-Acc studying-do
    'John studies Japanese'

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

The other type of syntactic manifestation is that a Sino-Japanese compound appears with accusative case. This is shown in (3-4).

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

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

However, not all Sino-Japanese compound nouns exhibit both patterns. For example, SYOOSIN 'promotion' displays only the pattern of (1-2), disallowing that of (3-4), as is shown in (5).

(5) a. John-ga butyoo-ni SYOOSIN-sita
    John-Nom section chief-to promotion-did
    'John obtained a promotion to section chief'

   b. *John-ga butyoo-ni SYOOSIN-o sita
      John-Nom section chief-to promotion-Acc did
      'John obtained a promotion to section chief'

Miyagawa (1989a) explains the ungrammaticality of (5b) as follows. Based on the syntactic behavior of numeral quantifiers, he claims that the noun SYOOSIN is unaccusative, and accordingly, bears a Q-role for the internal argument, which is the sole argument of the noun. Thus, the noun fails to bear a G-role for its subject. However, if the light verb *suru* were to assign accusative case to the noun as in (5b), it would clearly be a violation of Burzio's Generalization. Burzio's Generalization, as is shown in (6), states...
that if a given verb does not assign a \( Q \)-role to its subject, then it will not assign accusative case to its object.

(6) \(-Q_A \rightarrow -A\)

The complex predicates comprising a noun and \textit{suru} which exhibit the configuration of the type in (5a) but not (5b) include those in (7).

(7) \textbf{SEITYOO-suru} 'grow' \hspace{1cm} \textbf{KOOZYOO-suru} 'improve'
\textbf{KAKUDAII-suru} 'enlarge' \hspace{1cm} \textbf{ZYOSYYOO-suru} 'go up'
\textbf{TINBOTU-suru} 'submerge' \hspace{1cm} \textbf{GYOOKO-suru} 'solidify'
\textbf{SYUKUSYYOO-suru} 'reduce' \hspace{1cm} \textbf{KANSOO-suru} 'dry'
\textbf{ZENSYOO-suru} 'burn down'

While Miyagawa's argument for the unaccusative analysis of some nouns comes from numeral quantifier, in this paper I will demonstrate that one can independently reach the same conclusion as Miyagawa's by investigating the resultative construction in Japanese. I will further show that the \( Q \)-role assignment and case assignment properties of the complex predicates in (7) follow from Burzio's Generalization and Argument Transfer proposed in Grimshaw & Mester (1988).

2. Resultatives

The resultative construction is described in Halliday (1967) as an attribute that results from a process. Simpson (1983) extensively discusses the resultative construction in English. The sentences in (8) are from Simpson.

(8) 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 (8) the underlined expression is called a resultative attribute. As the examples suggest, resultative attributes can be an adjective, as in (8a), an NP, as in (8b), a PP, as in (8c), or a particle, as in (8d). A resultative attribute describes the state of an argument resulting from the action denoted by the verb. For example, (8a) 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 in English. Thus, in the examples in (8),
the object of the verb is the argument whose state is described as resulting from the action.

It then appears that intransitive verbs and passives constitute counterexamples to the generalization that a resultative attribute must be predicated of the object. Consider the intransitive and passive examples with resultative attributes in (9-10).

(9) a. The ice cream froze solid.
    b. The butter melted to a liquid.
    c. The vase broke into little pieces.

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

In (9) the subjects are the arguments of which the resultative expressions are predicated. In (9a), 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 (10a) the car was painted and as a result, it became red. Therefore, the sentences in (9) and (10) 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 (9) and (10) are underlyingly objects. For the verbs such as in (9), the thematic identity between the object of a causative verb and the subject of an inchoative verb can be observed in the contrast in (11-13).

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

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

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

Throughout the examples, the theme argument of the (a) sentences is the object while it is the subject in the (b) sentences. Nevertheless, it is this theme argument that the resultative attribute
In order to account for such a regularity, we can say that the (a) sentence and (b) sentence are derived from the same underlying structure. This point is stated by Baker (1988) as a principle of grammar under the name of the Uniformity of Theta Assignment Hypothesis (UTAH).

(14) The Uniformity of Theta Assignment Hypothesis (UTAH)

Identical thematic relationships between items are represented by identical relationships between those items at the level of D-structure.

According to the UTAH, then, the subject of the (b) sentences in (11-13) should be represented as the object at D-structure.

Furthermore, the underlying objects of the (b) sentences of (11-13) can clearly be contrasted with the subject of unergative verbs in regard to resultatives. Consider the examples in (15).

(15) a. *I danced tired.
    b. *I laughed tired.
    c. *I walked tired.

(15a), for instance, does not mean that I danced, and as a result, I got tired. The underlined resultatives, thus, cannot be interpreted as being predicated with the subject. Notice that they sharply contrast with the (b) sentences of (11-13), where such a predication relation holds. Hence, if the surface subject in the (b) sentences in (11-13) is identified as the underlying object, neither case in (9-10) would constitute a counterexample against the generalization that the controller of a resultative attribute is always the object. The statement of (16) is the syntactic generalization that Simpson claims to hold for resultatives in English.

---

1 One may claim that the generalization should be stated in terms of thematic roles. That is, the controller of a resultative attribute is the theme argument (cf. L. Levin et al. (1988)). However, see Rappaport & B. Levin (1989) for the argument against such a treatment of resultatives.
(16) 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 passive and intransitive verbs of the Unaccusative class.

Let us now examine if the generalization in (16) also holds for Japanese verbs of Japanese origin. First, consider the resultative construction with a transitive verb. The examples are shown in (17).

(17) a. Kuruma-o akaku nutta
    car-Acc red painted
    '(I) painted the car red'

b. Hanmaa-de kinzoku-o hirataku 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-ga kami-o nagaku nobasita
    Hanako-Nom hair-Acc long lengthened
    'Hanako grew her hair long'

The underlined expressions are resultative attributes. In all the examples in (17), the resultative attributes are predicated of the object, which is marked with the accusative case -o. 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 (17). 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.
Unaccusative Nouns and Resultatives in Japanese / 341

(18) 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 the water'

The underlined resultative attributes in (18) are consistently predicated of the nominals marked with the nominative case -ga, namely, the subject of the sentence. In (18a), 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 (18), 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 in (11-13). The contrast between (18) and (19) illustrates the underlying object status of the subject in (18).

(19) a. Hanako-ga kami-o nagaku nobasita
Hanako-Nom hair-Acc long lengthened
'Hanako grew her hair long'

b. Taroo-ga pan-o makkuroni kogasita
Taroo-Nom bread-Acc black burned
'Taroo burned the bread black'

c. Sobietogun-ga hune-o suityuu hukaku sizumeta
Russian-Nom ship-Acc in water deep sank
'The Russians sank the ship deep in the water'

In (19), the same set of nouns as in (18) is the controller of the resultative attribute: Hanako's hair in the (a) sentences, the bread in the (b) sentences, and the ship in the (c) sentences are the arguments of which the resultatives are predicated even though the controllers are represented as the subject in (18) whereas they are the object in (19). The causative/inchoative pairs like (18-19) are not morphologically identical in Japanese, as they are in English. However, the forms in each pair are morphologically related, as (20)
shows. They are parallel to English in that the subject of the
inchoative verb is the object of the causative counterpart.

(20)  | causative | inchoative |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>taosu</td>
<td>taoreru</td>
<td>'fall'</td>
</tr>
<tr>
<td>kesu</td>
<td>kieru</td>
<td>'turn off'</td>
</tr>
<tr>
<td>tukeru</td>
<td>tuku</td>
<td>'attach, turn on'</td>
</tr>
<tr>
<td>dasu</td>
<td>deru</td>
<td>'come out'</td>
</tr>
<tr>
<td>simeru</td>
<td>simaru</td>
<td>'close'</td>
</tr>
<tr>
<td>akeru</td>
<td>aku</td>
<td>'open'</td>
</tr>
</tbody>
</table>

The causative verbs in (20) all demonstrate the same argument array in (19), while the inchoative verbs pattern in the manner identical to (18) with respect to the type of arguments and case marking on them. Given the UTAD in (14), the (a) sentence and (b) sentence of (18) should be derived by the same D-structure representation. The parallelism between (11-13) in English and (18-19) in Japanese, strongly suggests that the inchoative verbs in (18) as well as those in (20) should be considered as belonging to the unaccusative class. This is tantamount to saying that the subjects of the intransitive verbs in (18) are, in fact, underlyingly objects. Such a view, then, leads to the conclusion that the object, surface or underlying, is the controller of a resultative attribute in Japanese. Hence, the generalization in (16) is borne out not only in English but in Japanese.

Given such a conclusion, let us now consider Sino-Japanese complex predicates particularly with respect to the resultative construction. First of all, (21) illustrates a transitive Sino-Japanese complex predicate with a resultative attribute.

(21) a. Taroo-ga densen-o mapputatuni SETUDAN-sita
Taroo-Nom electric wire-Acc into two cutting-did
'Taroo cut the electric wire into two'

b. Hanako-ga garasu-o konagonani HAKAI-sita
Hanako-Nom glass-Acc into pieces destruction-did
' Hanako broke the glass into pieces'
c. Kokka-ga sono arehateta toti-o urukusii heiyani
   country-Nom that desolate land-Acc beautiful to plain
   KAITAKU-sita
   improvement-did
   'The country improved that desolate land into a
   beautiful plain'

The Sino-Japanese complex predicates in (21) are all transitive. As predicted by the generalization in (16), the underlined resultative attribute is predicated of the object, which is marked by the accusative case -Q. Thus, (21a), for example, means that as a result of Taro’s cutting the electric wire, the wire became two pieces, rather than Taro becoming two persons.

Next, observe the examples in (22), where the Sino-Japanese complex predicates are all intransitive.

(22) a. Taroo-ga otona ni/ookiku SEITYO-sita
   Taroo-Nom adult to/big growth-did
   'Taroo grew into an adult/big (person)'

b. Hune-ga suityu hukaku TINBOTU-sita
   ship-Nom in water deep submersion-did
   'The ship sank deep in the water'

c. Saiboo-ga nibai ni KAKUDAI-sita
   cell-Nom double to enlargement-did
   'The cell doubled in size'

d. Giyutu-ga sensinkoku-nami ni
   technology-Nom advanced countries-average to
   KOOZYO-sita
   improvement-did
   'The technology improved to the level of the average
   advanced countries'

e. Uti-ga makkuro ni ZENSYO-sita
   house-Nom black to burning down-did
   'The house got burned black'

In every case in (22), the controller of the resultative attribute is the subject of the sentence (i.e., the ga marked arguments). The resultative attribute describes the state of the subject of the
sentence, casting some doubts on the generalization in (if Japanese.

This set of data, however, sharply contrasts with the sentence in (23).

(23) a. *John-ga kurokutani SANPO-sita
   John-Nom dead tired taking a walk-did
   "*John took a walk tired"

b. *Mary-ga kanasiku BISYOO-sita
   Mary-Nom sad smiling-did
   "*Mary smiled sad"

The underlined phrases cannot be construed as resultative attributes predicated of the subject. That is, (23a) cannot mean that John took a walk, and as a result, he got dead tired. Likewise in (23b), the resultative interpretation is not obtained: it cannot mean that Mary became sad as a result of smiling.

Notice that both sets of complex predicates (i.e., (22) and (23)) are used intransitively, but the resultative construction illustrates a distinct difference between the two. The subjects of the sentences in (22) serve as the controller of the resultative whereas the subjects of the sentences in (23) do not. As we have discussed in the English case in (9) vs. (15), the Japanese data from the resultative construction suggest that the subjects of the sentences in (22) are underlyingly the objects while the subjects of the examples in (23) are always the subjects. This conclusion, together with Miyagawa's (1989a) independent syntactic evidence, substantially supports the view that the nominals in (22) as well as those in (7) are unaccusative.

3. Case Assignment and Argument Transfer

Given that the Sino-Japanese compound nouns in (7) are analyzed as unaccusatives, I now take up the issue as to how the configuration of (3b) is disallowed with unaccusative nouns. I mentioned at the beginning of the paper that the explanation comes from Burtis's Generalization and the notion of Argument Transfer proposed in Grimshaw & Mester (1988). But, before discussing the 0-role and Case properties of unaccusative nouns, let me briefly summarize Grimshaw & Mester's proposal, as it will be of relevance to our analysis.
Grimshaw & Mester deal with the interesting issue of θ-marking in regard to the complex expression of a noun followed by the verb suru in Japanese. A representative example of what they discuss is in (24), in which KEIKOKU ‘warning’ is a Sino-Japanese compound noun. As was briefly mentioned earlier in the discussion on the sentences in (1-4), Sino-Japanese compound nouns can display two types of configurations. Similarly, the noun KEIKOKU can be assigned accusative case by suru as in (24a), or it can be incorporated into the verb suru as in (24b), forming a complex predicate.

(24) a. John-wa murabito-ni ookami-ga kuru-to KEIKOKU-o suta
John-Top villager-to wolf-Nom come-Comp warning-Acc
'did
'John warned the villagers that the wolf was coming'

b. John-wa murabito-ni ookami-ga kuru-to KEIKOKU-sita
John-Top villager-to wolf-Nom come-Comp warning-did
'John warned the villagers that the wolf was coming'

Grimshaw & Mester identify the verb suru in (24a) as a “light verb”, and claim that the light verb has an empty argument structure in its lexical entry. When the light verb cooccurs with a nominal which has argument structure, the θ-role of the nominal can be transferred to the light verb, whereby the verb acquires θ-marking ability. They call such a process “Argument Transfer”. Another property of the light verb suru is that it assigns accusative case to the nominal. The lexical entry of suru is in (25).

(25) suru, V; ( ) <acc>

The empty space in the parentheses indicates that the verb’s argument structure is empty, and <acc> shows the verb’s ability to assign accusative case.

Grimshaw & Mester further discuss three crucial generalizations pertinent to Argument Transfer. Of the three generalizations, the following two are relevant to our discussion. They are: (i) At least one argument apart from the subject must be transferred; and (ii) The subject argument must always be transferred. Assuming that argument structure is hierarchically organized, external arguments being external and internal arguments being internal, Transfer occurs in a top-down fashion. It follows that if an internal argument is
transferred, then, the external argument is transferred as well.

Argument Transfer involved in the formation of (24a) is illustrated in (26).

(26) a. KEIKOKU (Agent (Goal (Theme)))
   b. suru ( ) <acc>
   c. KEIKOKU ( ) + suru (Agent (Goal (Theme))) <acc>

Since the internal arguments (i.e., Goal and Theme) are transferred, it follows that the external argument (Agent) is also transferred to the argument structure of suru. Suru now has the ability to assign the θ-role to the Agent, Goal, and Theme arguments in addition to having accusative case assigning ability. Not all the noun arguments need to be transferred to the argument structure of the light verb. (27), for example, illustrates the case in which only Agent and Goal are transferred while Theme remains in the noun's argument structure.

(27) John-wa murabito-ni ookami-ga kuru-to-no KEIKOKU:
  John-Top villager-to wolf-Nom come-Comp-Gen warning-ace
  did

a. KEIKOKU (Agent (Goal (Theme)))
   b. suru ( ) <acc>
   c. KEIKOKU (Theme) + suru (Agent (Goal)) <acc>

Suru gets Agent and Goal transferred but not Theme, and thus it has the ability to assign θ-roles only to the Agent and Goal arguments, while a θ-role is assigned to the theme argument by the noun.

Let us now see how Argument Transfer works in the case of unaccusative nouns such as SYOOSIN 'promotion'. Given the unaccusative status of the nominals, the Transfer involved with an unaccusative noun is schematized in (28).

(28) a. SYOOSIN (Theme)
   b. suru ( ) <acc>
   c. SYOOSIN ( ) + suru (Theme) <acc>

Since SYOOSIN is unaccusative, it takes only an internal argument. Recall the generalization relevant to Argument Transfer mentioned.
earlier. That is, at least one internal argument must be transferred. The only argument available for Transfer in (28) is the sole argument of SYOOSIN, i.e., Theme. It should also be remembered that when the light verb gets a noun’s internal argument transferred, it also has the external argument transferred as a consequence of the top-down fashion of Transfer. However, in the case of (28), the external argument cannot be transferred simply because the nominal does not have one in its argument structure. I claim that, in this case, the light verb inherits the inability of assigning subject θ-role from the nominal. Then, Burzio’s Generalization, as is schematized in (6), comes into play and explains why the light verb should also be incapable of assigning accusative case. This is why the configuration of the sentence in (5b) is ungrammatical. Hence, this analysis provides evidence that Burzio’s Generalization as well as Argument Transfer play an important role in explaining the θ-role and case properties of unaccusative nouns.

I would like to point out that the investigation of the relationship between noun types and accusative case assignment leads to the classification of nouns and of complex predicates parallel to that of verbs. For example, KEIKOKU-suru ‘warn’ in (24) belongs to the transitive type since the noun KEIKOKU is transitive. With a transitive noun, the external argument necessarily gets transferred due to the generalization pertinent to Argument Transfer. This means that suru inherits the ability to assign the subject θ-role from the noun. It follows from Burzio’s Generalization, then, that the verb can also have the ability of assigning accusative case. The result is (24a).

An unergative noun, exemplified by AISEKI ‘table-sharing’, is expected to have only an external argument. The external argument must be transferred to the argument structure of suru, and at the same time, the subject θ-role assigning ability is also inherited. According to Burzio’s Generalization, accusative assignment should be possible. This is borne out, as can be seen in (29).

(29) a. John-wa Bill-to AISEKI-o sita
    John-Top Bill-with table-sharing-Acc did
    ‘John shared a table with Bill’

b. John-wa Bill-to AISEKI-sita
    John-Top Bill-with table-sharing-did
Burzio (1986) claims that unergative verbs 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 in John laughed a big laugh. We can see the parallel situation in nouns like AISERI in (29a). It is a consequence of Burzio's Generalization that unergative nouns receive accusative case.

An unaccusative noun, such as SYOOSIN 'promotion', on the other hand, cannot involve accusative case assignment at all. As schematized in (28), suru receives the sole argument of the noun, i.e., Theme, by Argument Transfer. As unaccusative, SYOOSIN does not bear the ability to assign the subject θ-role. It is this inability that the verb also inherits from the unaccusative noun as a consequence of Argument Transfer. According to Burzio's Generalization, if the verb cannot assign the subject θ-role, then it cannot assign accusative case.

4. Summary

Since Perlmutter's work on unaccusativity, there have been a number of diagnostic tests for unaccusativity. The resultative construction is one such test, as is discussed in Simpson (1983). Various diagnostic tests have also been proposed for unaccusativity in Japanese (cf. Miyagawa (1989b)). In this paper I have argued that the resultative construction can identify unaccusative verbs in Japanese. I have then shown that the unaccusativity is not limited to verbs, but it can be observed in nouns as well. The resultative construction with Sino-Japanese compound nouns has illuminated such a possibility.

The identification of some Sino-Japanese compounds as unaccusative has an important implication to the theory of Argument Transfer proposed by Grimshaw & Mester (1989). In the light verb construction with an unaccusative noun, the Theme argument is the sole argument of the noun. When the noun's sole argument is transferred to the argument structure of the light verb suru, the noun's inability to assign a θ-role is also transferred to the light verb. Then, Burzio's Generalization explains why the light verb cannot assign accusative case to the noun: Since the light verb does not have the ability to assign a θ-role to its subject, it lacks the ability to assign accusative case as well.
References


