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Syntax of the Resultatives in Japanese*
From the viewpoint of Reverse Agree

YAMAGUCHI Masashi**

1. Introduction
This paper focuses on the syntactic structure of the resultative construction in Japanese, the examples of which are shown in (1). Each example is interpreted as follows: The subject caused the object to be in the state designated by the adjective by painting or wiping.

(1) a. Taro-ga [DP kabe-o], [AP aka-ku], nut-ta.
    Taro-NOM wall-ACC red-KU paint-PAST
    ‘Taro painted the wall red.’

b. Hanako-ga [DP tukue-o], [AP pikapika-ni], huita.
    Hanako-NOM desk-ACC shiny-NI wipe-PAST
    ‘Hanako wiped the desk shiny.’

The construction in Japanese has been frequently analyzed in the syntactic field, and most of the proposals are based on those of the English resultative construction. In English, the resultative predicates are analyzed as arguments of the verbs, and that is true if we think of English. However, in this paper, I argue that the resultative predicates in Japanese are adjuncts, and I propose a functional head that constitutes the resultative predicates by taking a predicative phrase as its complement, and it is a realization of the verbal aspect head Asp(ect). For the

* This paper is the revised version of the presentation in the 148th meeting of the Linguistic Society of Japan. I would like to thank all the audience in the meeting. All the deficiencies are of course mine.
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1 For the details of the possibility of scrambling adjuncts in Japanese, see Tanaka (2014).
Agreement operation, I assume Reverse Agree (Zeijlstra 2012), schematized in Section 3.1, and through this phenomenon, I give one argument in favor of Reverse Agree.

This paper is organized as follows. Section 2 discusses previous researches in English, and shows that the analyses in English cannot capture the nature of the Japanese resultative constructions. Section 3 presents a new proposal, and Section 4 concludes this paper, and provides one potential argument for my position.

2. Previous Analysis

In this section, I review previous analyses in English and show that they cannot be applied to Japanese resultative constructions.

2.1. Carrier and Randall (1992)

Carrier and Randall pay attention to argumenthood of the resultative predicates, and argue that the resultative predicates in English are arguments from the following data.

(2) a. *[Which boys] do you wonder whether to punish t, ?
   b. *[How], do you wonder whether to punish these boys t, ?
      (Carrier and Randall 1992: 185)

(3) a. *[How shiny] do you wonder which gems to polish t, ?
   b. *[How hoarse], do you wonder whether they sang themselves?
      (ibid.)

If we extract an argument of the verbs from a WH-island, we have a marginal result, as shown in (2 a). On the other hand, as shown in (2 b) we have an ungrammatical result in the case of an adjunct. If we extract resultative predicates from WH-islands, as in (3), we have the same grammaticality as the case of an argument in (2 a). Therefore, resultative predicates in English are considered to be arguments of the verb. With the result seen above, Carrier and Randall propose the structure illustrated in (4).
(4) a. John watered the tulips flat.
   b. 
   
   \[ \text{VP} \]
   
   \[ \text{V} \quad \text{NP} \quad \text{AP} \]
   
   \[ \text{water} \quad \text{the tulips} \quad \text{flat} \]

   (ibid.: 223)

The predication relationship between the resultative predicate *flat* and its subject *the tulips* is established via mutual m-command.

Carrier and Randall is one of the most notable literatures of the resultative construction, and I review one more recent literature in the minimalist framework.

2.2. *Asada (2012)*

This is one of the latest literatures of the English resultative construction in the syntactic field, and Asada argues against a complex predicate analysis for secondary predication, and proposes that in the resultative construction, a small clause of the type Pred(icate)P (cf. Bowers 1993) is directly selected by the matrix V. She also claims that the predication relation is established via Spec-head Agreement (Chomsky 1995).

(5) a. John painted the wall red.
   b. 
   
   \[ \text{vP} \]
   
   \[ \text{John} \quad v' \quad v \]
   
   \[ \text{v} \quad \text{VP} \quad \text{PredP} \]
   
   \[ \text{paint} \quad \text{the wall} \quad \text{Pred} \quad \text{red} \]

   (Asada 2012: 60)

The NP *the wall* is interpreted as the resultee of the event that the re-
sultative predicate *red* describes in the PredP via Spec-head Agreement, that is, the DP *the wall* c-commands the AP *red*. She extends this structure to Japanese, and argues that this structure can capture the syntactic behavior of the Japanese resultative construction.

Although details and assumptions differ, recent proposals for the resultative construction in the syntactic field take a similar view: the resultative predicate and its subject are in a small clause with a functional head.

### 2.3. A Problematic Point

Both analyses are able to capture the nature of the English resultative construction, but they have a problem in the case of Japanese. English resultative predicates are treated as arguments of verbs in their analyses as we have observed in (3). In the literature, resultative predicates in Japanese are also considered to be arguments of the verbs, which follows analyses of the English resultative construction. However, I argue that they are adjuncts. I provide some pieces of evidence below.

First, although there are some semantic restrictions, more than one resultative predicate can be piled up in one sentence, that is, multiple resultative predicates can be used in Japanese.

(6) a. Taroo-ga pankizi-o massugu-ni taira-ni nobasi-ta.
   Taroo-NOM pancake-ACC straight-NI flat-NI spread-PAST
   (LIT.) ‘Taro spread the pancake straight flat.’

b. Hakako-ga teeburu-o kirei-ni pikapika-ni hui-ta.
   Hanako-NOM table-ACC clean-NI shiny-NI wipe-PAST
   (LIT.) ‘Hanako wiped the table clean shiny.’

If the resultative predicates are the arguments of the verbs, we cannot use more than one resultative predicate in one sentence, as the English translations in (6) indicate.

Second, the resultative predicates show relatively unrestricted dis-
tributions just like adjuncts. Take (7) for example.

(7) a. (Kinoo) Taroo-ga (kinoo) tukue-o (kinoo) kat-ta. 
yesterday Taroo-NOM desk-ACC buy-PAST
‘Yesterday Taroo bought a desk.’
b. (Aka-ku) Taroo-ga (aka-ku) kabe-o (aka-ku) nut-ta. 
red-KU Taroo-NOM wall-ACC paint-PAST
‘Red Taroo (red) painted the wall (red).’
c. (Pikapika-ni) Taroo-ga (pikapika-ni) tukue-o (pikapika-ni) hui-ta. 
shiny-NI Taroo-NOM desk-ACC wipe-PAST
‘Shiny Taroo wiped the desk shiny.’

The resultative predicates show the same distribution as adjuncts, such as kinoo ‘yesterday,’ as explained in (7). As (7 b, c) illustrate, the resultative predicates aka-ku and pikapika-ni can appear in relatively free positions.

Third, adjuncts cannot be scrambled from the negative islands, as shown in (8), while arguments can, as in (9).

(8) a. John-ga [kessite yuka-o subayaku migaka-nakat-ta].
John-NOM never floor-ACC quickly polish-NEG-PAST
‘John never polished the floor quickly.’
b. ??John-ga subayaku [kessite yuka-o migaka-nakat-ta].
c. ??Subayaku John-ga [kessite yuka-o migaka-nakat-ta].

(cf. Tanaka 2014)

(9) a. John-ga [kessite hon-o yoma-nakat-ta].
John-NOM never book-ACC read-NEG-PAST
‘John never read books.’
b. John-ga hon-o [kessite yoma-nakat-ta]
c. Hon-o John-ga [kessite yoma-nakat-ta]

When we extract the resultative predicates from negative islands, they behave like adjuncts, as shown in (10).
(10) a. John-ga [kessite kabe-o aka-ku nura-nakat-ta].
    John-NOM never wall-ACC red-KU paint-NEG-PAST
    ‘John never painted the wall red.’
    b. ??John-ga aka-ku [kessite kabe-o nura-nakat-ta.]
    c. ??Aka-ku John-ga [kessite kabe-o nura-nakat-ta.]

For the three reasons I presented above, it seems reasonable to suppose that resultative predicates in Japanese are adjuncts, not arguments. This fact cannot be captured in the analyses in the previous studies, so another analysis should be proposed.

3. Proposal

In this section, I present a new analysis of the resultative construction in Japanese. First, I provide an assumption to be employed in my analysis in the next subsection, and turn to the main proposal.

3.1 Assumption

In my analysis, I assume Reverse Agree as the Agreement operation (Zeijlstra 2012). The definition is shown below.

(11) Reverse Agree
    α can Agree β iff;
    (a) α carries at least one uninterpretable feature and β carries a
        matching interpretable feature,
    (b) β c-commands α, and
    (c) β is the closest goal to α.                  (Zeijlstra 2012: 17)

This is different from Chomsky’s (2000) version of Agree. In Chomsky’s version, the Goal, the element with the interpretable feature, needs to be in the sister domain of the Probe, the one with the uninterpretable feature. That is, the Probe must c-command the Goal, as schematized in (12 a). On the other hand, Reverse Agree requires the Probe to be in the sister domain of the Goal; the Goal must c-command
the Probe. This is illustrated in (12 b).

(12) a. Chomsky-type Agree  
   b. Reverse Agree

With this assumption, I present my proposal in the following section.

3.2 The structure of the resultative predicate

I propose that a functional head should constitute the resultative predicate by taking a predicative phrase as its complement, and that it is a realization of the verbal aspect head Asp(ect) (henceforth, Asp^P). The head Asp^P carries Boundedness feature, which is an uninterpretable feature to restrict the selection of the resultative predicates. The resultative predicate is selected as a complement of Asp^P, and it carries the interpretable counterpart of Boundedness feature. The interpretable Boundedness feature Agrees with the uninterpretable Boundedness feature.

The question we might ask is what kind of predicates are allowed to carry the Boundedness feature. In English, I assume that closed-scale predicates (Wechsler 2005), which can be modified by adverbs such as completely, carry such a feature, and that this kind of predicate can be resultative predicates.

(13) a. completely full/empty/straight/dry (closed-scale predicates)  
   b. ??completely long/wide/short/cool (open-scale predicates)  

(14) a. John wiped the table dry.  
   b. *John lengthened the rope long.

However, in Japanese, this issue is more complicated because the resultative construction in Japanese accepts “open-scale predicates” as
the resultative predicates, as shown in (15 b).

(15) a. ??kanzenni utukusiki-ku
    ‘completely beautiful’
    b. Zizyuu-ga ohimesama-o totemo o-utukusiki-ku sodate-ta.
    chamberlain-NOM princess-ACC very HON-beautiful-KU raise-PAST
    ‘The chamberlain raised the princess very beautiful.’
    (Takamine 2007: 107)

In this paper, I adopt Uegaki’s (2014) proposal that predicates whose standards are equal to, or surpass the contextual standards can be resultative predicates. In other words, when the degree of beautifulness that the resultative predicate in (15 b) expresses is higher than the contextual standard of the degree beautifulness, the sentence can be interpreted correctly, and is judged as grammatical.

Finally, I argue that the resultative predicate carries $\phi$-features, which should be valued via Agreement with the resultee NPs. Evidence for the Agreement relation is provided from Italian in (16). In (16), the resultative predicate must be inflected into the masculine and singular form because the resultee NP l’armadio is masculine and singular. I argue that this is a cross-linguistic phenomenon, and, of course, applicable to Japanese.

(16) Ho dippinto l’armadio troppo scuro.
    have-1.SG paint-PP the closet-M.SG too dark-M.SG
    ‘I painted the closet too dark.’
    (Napoli 1992: 85)

To summarize my proposal, the structure of the resultative predicate is presented in (17).

(17) \[ \text{Asp}^P \]

\[ \text{AP} \]

\[ \text{[iB]} \]

\[ \text{[uφ]} \]

\[ \text{Asp}^{R} \]

\[ \text{[uB]} \]

In the next subsection, I present the structure of the resultative con-
struction in Japanese, using (17).

3.3 The structure

First of all, I would like to observe where resultative predicates are located in syntactic structures. In order to look into this problem, I use VP-fronting as a constituent test. Resultative predicates cannot be stranded by VP-fronting, as illustrated in (18) and (19).

(18) a. \[\text{vp-kabe-o aka-ku nuri-sae}] \\
\quad \text{wall-ACC red-KU paint-even} \\
\quad \text{Taroo-ga si-ta.} \\
\quad \text{Taroo-NOM do-PAST} \\
\quad \text{‘Even paint the wall red, Taro did.’}

b. \[^*\text{vp-kabe-o nuri-sae}] \\
\quad \text{wall-ACC paint-even} \\
\quad \text{Taroo-ga akaku-ku si-ta.} \\
\quad \text{Taroo-NOM red do-PAST}

(19) a. \[\text{vp-tukue-o pikapika-ni huki-sae}] \\
\quad \text{desk-ACC shiny-NI wipe-even} \\
\quad \text{Hanako-ga sita.} \\
\quad \text{Hanako-NOM do-PAST} \\
\quad \text{‘Even wipe the table shiny, Hanako did.’}

b. \[^*\text{vp-tukue-o huki-sae}] \\
\quad \text{desk-ACC wipe-even} \\
\quad \text{Hanako-ga pikapika-ni sita.} \\
\quad \text{Hanako-NOM shiny-NI do-PAST}

The resultative predicates \textit{aka-ku} and \textit{pikapika-ni} must be pied-piped with the VP; otherwise, it leads to ungrammaticality, as (18 b) and (19 b) show. From the data above, we can conclude that the resultative predicates are located in the VP.

We have observed that the resultative predicates are adjuncts, and at the same time, they are located in VP. With these facts in mind, the syntactic structure of the resultative construction in Japanese should be analyzed as in (20).
(20) a. Taroo-ga kabe-o aka-ku nut-ta. (= (1 a))

b. \[
\begin{array}{c}
\text{DP} \\
\text{Taro-ga} \\
\text{VP} \\
\text{v'} \\
\text{v} \\
\text{VP} \\
\text{DP} \\
\text{kabe-o} \\
[i\phi] \\
\text{nutta} \\
\text{AP} \\
\text{aka-ku} \\
[iB] \\
\text{Asp}_R \text{P} \\
\text{Asp}_R \\
\end{array}
\]

The DP *kabe-o* c-commands the resultative AP *aka-ku* once it is raised to Spec, VP, and the uninterpretable \(\phi\)-feature of the resultative predicate is valued via Reverse Agree, and then the predication between the DP and the AP is established there. As for this movement, Zeijlstra (2012: 24) notes that motivation for *Move* of the proposal under *Reverse Agree* is inherited from Bošković’s (2007) proposal; *Move* can be motivated in order to reverse c-command relations between possible probes and goals. For this reason, the DP cyclically raises to Spec, VP and to Spec, vP where the DP is valued its Case-feature.

3.4 Implication

The structure presented in (20) can derive some implications. In this paper, I focus on the fact that the resultative predicate cannot be predicated of an DP in a PP. This is illustrated in (21). The resultative predicate *aka-ku* can be predicated of the DP *kabe-o*, but, the predicational relationship between the predicate *aka-ku* and the DP inside PP *kabe* cannot be established.

(21) a. Taroo-ga penki-de [DP kabe-o] [AP aka-ku] nut-ta.
Taroo-NOM paint-with wall-ACC red-KU pain-PAST
‘Taro painted the wall red with paint.’
   Taro-NOM paint-ACC wall-to red-KU paint-PAST
   ‘Taro painted with the wall red.’

First, we must make sure that *kabe-ni is a PP. To confirm this, I adopt quantifier floating (Miyagawa 1988) as a testing format. Miyagawa argues that DPs inside PPs cannot be modified by numeral quantifiers from outside of the PP, but argument dative DPs can, as shown in (22) and (23) respectively.

(22) a. Taroo-ga [huta-tu-no kooen-de] hasit-ta.
    Taro-NOM two-CL-GEN park-in run-PAST
    ‘Taro ran in the two parks.’

b. *Taro-ga kooen-de huta-tu hasit-ta.
   Taro-NOM park-in two-CL run-PAST

    Taro-NOM three-CL-GEN student-DAT meet-PAST
    ‘Taro met three students.’

b. Taroo-ga seeto-ni san-nin at-ta.
   Taro-NOM student-DAT three-CL meet-PAST

The numeral quantifiers cannot modify the DPs in the PP from its outside, as shown in (22 b). If we apply the test on (21 b), the same result can be obtained.

    Taro-NOM paint-ACC wall-to two-CL red-KU paint-PAST
    ‘Taro painted with the two walls red.’

Thus, we can conclude that *kabe-ni is a PP. Then, we turn to our own main concern: Resultative predicates cannot be predicated of DPs in PPs. I have argued that resultative predicates are adjoined to VP, and resultee DPs move to Spec, VP, where they establish the predication relation via Reverse Agree. However, the resultee DP cannot move
out of the PP because the Case feature of the DP is already valued by P, so there is no reason for the DP to move.

(25)

Therefore, the uninterpretable $\phi$-feature cannot be valued, which leads to the violation of the Principle of Full Interpretation.

(26) The Principle of Full Interpretation

A principle of representational economy that requires that all the features of the pair be legible at the level of interfaces.

(Horsntein et al. 2005: 15)

The violation of this principle results in ungrammaticality.

4. Conclusion

In this paper, I proposed that the resultative predicates in Japanese are adjuncts, and are adjoined to VP, and that the resultative predicates carry uninterpretable $\phi$-features that are valued via Reverse Agree. I also proposed a functional head that semantically selects a resultative predicate. Before I end this paper, I show a supporting evidence for my proposal from a cross-linguistic perspective.

In Warlpiri, resultative predicates are considered to be adjuncts. The relevant examples are shown below.

(27) a. puluku-rlu kapu-lu marna nga-rni kuntukuntu-karda
     bullocks-ERG FUT-3PL grass(ABS) eat-NPAST fat-TRSL
     ‘The bullocks will eat themselves fat on the grass.’
b. karli  ka  jarnti-rni  mata-karda
boomerang(ABS)  PRES  trim-NPAST  tired-TRSL
‘He is making the boomerang and gets tired.’
(Shim and den Dikken 2007: 4)

In the examples above, the resultative predicates are italicized, and
the resultee is bold-faced. As (27b) shows, the resultee need not be
overt. This is one of the differences between Warlpiri and English.
Simpson claims that in Warlpiri the subject of adjuncts also does not
need to be overt. She argues that this is a piece of evidence that
Warlpiri resultative predicates are adjuncts. Shim and den Dikken
argues that Korean resultative predicates are also adjuncts. These facts
support my analysis cross-linguistically.

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