

Null DP and the Maximization Principle: A Study of Intransitive Resultative Constructions

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1. Introduction

One of the main questions in the current syntactic research is whether an XP can move to receive a θ -role. Bošković (1998), Lasnik (1999), Hornstein (2001), and Saito 2001, among others give positive responses to this question. Resultatives such as (1) are particularly interesting in this context.

- (1) a. John hammered the metal flat.
b. The gardener watered the tulips flat.

In these examples, the postverbal DP is an argument of the verb and the adjective. If the DP is a complement of the verb, it is unclear how it receives a θ -role from the adjective because the DP does not locally connect with the adjective. On the other hand, if the DP is within the projection of the adjective, it is not obvious how it is construed as the theme argument of the verb. Based on this observation, Saito (2001) argues that the postverbal DP in (1) moves to VP Spec and receives an additional θ -role. However, intransitive resultatives raise a serious problem to this claim because the ungrammaticality of (2) arguably indicates that the postverbal DP cannot move to *v*P Spec to receive an external θ -role.

- (2) *John drank sick. (as a resultative sentence)

Looking beyond English, we observe that not every language has intransitive resultatives: Icelandic and German allow intransitive resultatives, while French and Spanish do not, for example.

The purpose of this paper is to support Saito's (2001) proposal that an XP can move to receive a θ -role by investigating how the postverbal DP in intransitive resultatives is licensed within the minimalist framework (Chomsky 1995, 2000, and 2001). Assuming that a DP can move to *v*P Spec to receive an external θ -role in principle, I will argue that the V in an unergative VP has a null DP complement as proposed in Pesetsky and Torrego (2004), and that this DP blocks movement of the postverbal DP to receive an external θ -role in intransitive resultatives. The analysis presented in this paper will give an explanation about syntactically different behavior between transitive and intransitive resultatives in a principled manner.

Moreover, I will propose a parameter pertaining to existence of φ -incomplete DPs and suggest that the value of this parameter is involved with the acceptability of intransitive resultatives in natural languages to account for the crosslinguistic difference.

This paper is organized as follows. Section 2 is devoted to presenting the previous researches, focusing on Carrier and Randall (1992) and Saito (2001), which are the bases of the analysis in this paper. Then, we will discuss some problems of their approaches. In Section 3, I propose that a null DP complement exists in the unergative VP and then, we discuss its status. Section 4 presents the syntactic structure of transitive resultatives and intransitive resultatives based on the proposal presented in Section 3 and its supporting evidence, pointing out the difference between transitive resultatives and intransitive resultatives pertaining to gapping and extractions. Analysis of unaccusative resultatives is presented in Section 4.3. Section 5 provides principled explanation of the crosslinguistic variation. Section 6 concludes the paper.

2. Previous Researches

The purpose of this section is to give an overview of the previous researches in resultatives, focusing on Carrier and Randall (1992) and Saito (2001).

2.1. Basic Facts

The grammaticality of the sentences in (3) indicates that the resultative predicate, the adjective *flat*, for instance, is optional in transitive resultatives, because the absence of the resultative predicate in (3b) does not affect the grammaticality of the sentence.

- (3) a. John hammered the metal flat.
b. John hammered the metal.

On the other hand, the paradigm in (4a-b) indicates that the resultative predicate, *sick*, for instance, is not optional in intransitive resultatives, because the omission of the resultative predicate causes the ungrammaticality of (4b).

- (4) a. John drank himself sick.
b. *John drank himself.

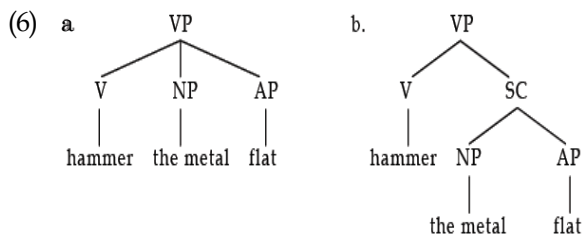
This fact implies that *himself* in (4a) cannot be understood as a subcategorized object of the verb unlike *the metal* in (3a). This DP is not inherently Case-marked but is assigned Case from the verb, since (4b) must be grammatical, if it is assigned inherent Case. This kind of object is called a nonsubcategorized object. Additionally, the paradigm in (5a-b) shows that the resultative predicates can modify only the postverbal DP.

- (5) a. John drank.
- b. *John drank sick. (as a resultative sentence)

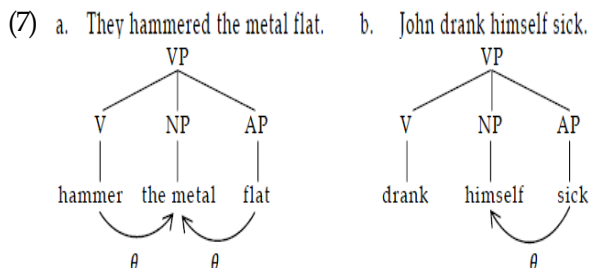
A great deal of researchers, including Kayne (1984), and Hoekstra (1988), among others, has presented analyses to capture these facts within the framework of Government and Binding (Chomsky 1981). The following section will give a brief overview of the most widely accepted work, Carrier and Randall (1992).

2.2. Ternary-Branching Analysis

Carrier and Randall (1992) analyze resultative constructions within the framework of Government and Binding (Chomsky 1981) and argue that the phrase structure of resultative constructions is not assigned a binary structure but a ternary structure. These two structures are illustrated below:



They also argue that the postverbal DP in transitive resultatives receives θ -roles both from the verb and the AP as in (7a), while the one in intransitive resultatives receives a θ -role only from the AP as in (7b).



Specifically, the postverbal DP in transitive resultatives can be assigned a θ -role even if the AP does not exist in (7a). On the other hand, the postverbal DP in intransitive resultatives cannot be assigned a θ -role, if the AP does not exist in (7b). Accordingly, the postverbal DP in (4b) does not have a θ -role. This is a violation of the θ -criterion.

- (8) θ -criterion
Each argument bears one and only one θ -role, and each θ -role is assigned to one and only one argument.
(Chomsky, 1981: 36)

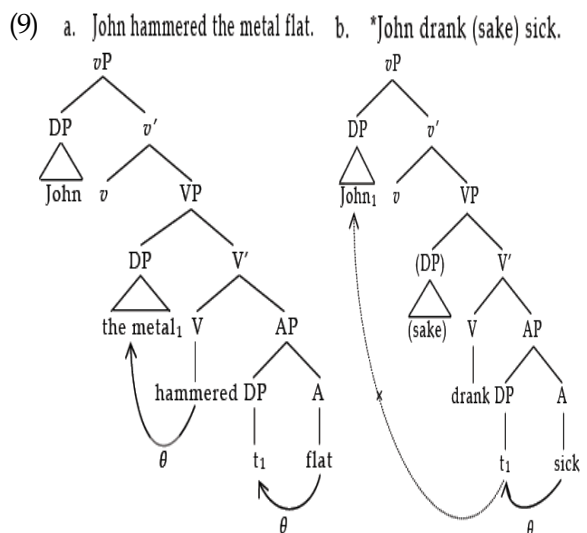
Following the θ -criterion, *John* and *himself* in (4b) should have a θ -role. However, *himself* cannot receive a θ -role, as discussed above and thus, (4b) becomes ungrammatical.

The ungrammaticality of (5b) is also easily explained under the assumption that resultative phrase can be a predicate only of the DP which is in a syntactic sister relation with it. *Himself* and *sick* in (4a) are in the syntactic sister relation as illustrated above, while *John* and *sick* in (5b) are not; hence (5b) cannot be understood as a resultative sentence.

The crucial point in their argument is that the postverbal DP in intransitive resultatives is not θ -marked by the verb unlike the one in transitive resultatives.

2.3. Analysis Based on XP-Movement to Receive a Theta-Role

Following Carrier and Randall's (1992) argument over θ -role assignment in resultatives, Saito (2001) analyzes resultative constructions within the minimalist framework, assigning them binary structure, and argues that the postverbal DP in transitive resultatives merges with the adjective and then moves to VP Spec to receive an internal θ -role as in (9a), while this movement does not occur in intransitive resultatives.



Saito notes that the example in (9b) appears to raise a problem for his analysis, because the ungrammaticality of (9b) indicates that movement to vP Spec to receive an external θ -role is prohibited, while movement to VP Spec to receive an internal θ -role does occur as in (9a).

He points out that the examples in (10) also show that movement to *vP* Spec is banned. The absence of verbs like HIT and BELIEVE in (10) is taken to be evidence that movement into a θ -position is impossible in Chomsky (1995).

- (10) a. *John [_{VP} *t* [HIT *t*]]
 b. *John [_{VP} *t* [BELIEVE [*t* to be intelligent]]]
 (HIT/BELIEVE share the θ -structure of *hit* and *believe* but lack Case features)
 (Chomsky, 1995: 313)

Bošković (1997), on the other hand, argues that (11) is not a simple ECM sentence and that the embedded subject in (11) is θ -marked also by the matrix verb, like the one in (12). The ungrammaticality of (11b) can be explained in terms of the selectional property of the verb *estimate*. This suggests that the embedded subject in (11a) moves to the matrix clause and then, receives an internal θ -role from the matrix verb.

- (11) a. Sue estimated Bill's weight to be 150 lbs.
 b. *Sue estimated Bill to weigh 150 lbs.
 (12) a. Sue estimated Bill's weight.
 b. *Sue estimated Bill.
 (Bošković, 1997: 96)

Saito compares these two arguments and then suggests the following generalization:

- (13) [A]n NP can move to VP Spec and pick up an internal θ -role. On the other hand, [...] an NP cannot move to *vP* Spec and receive an external θ -role.
 (Saito, 2001: 56)

However, the examples in (14) may be problematic to this generalization.

- (14) a. John washed. (= *John washed himself*)
 b. John shaved. (= *John shaved himself*)
 c. John dressed. (= *John dressed himself*)
 (Lasnik, 1999: 125)

Hornstein (2001) argues that these examples indicate that movement to *vP* Spec to receive an external θ -role is possible, as illustrated in (15):

- (15) [_{VP} John₁ wash+*v* [_{VP} *t*_V *t*₁]]

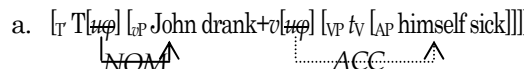
To the extent that Hornstein is correct, we should look elsewhere to account for why (9b) is ungrammatical.

2.4. Analysis based on Case-Valuation

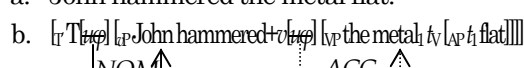
In this section, I examine the ungrammaticality of (9b) based on Case-valuation to get a clue to solve the

problem discussed above. I will take the Case/agreement systems discussed in Chomsky (2000). Chomsky (2000) argues that structural Case of the DP is not a feature of the probe (T, *v*), but it is assigned a value under agreement with the set of the uninterpretable features of the probe and the value depends on the probe: nominative for T, accusative for *v*.

In intransitive resultatives, Case-valuation is executed without movement since the postverbal DP does not receive a θ -role from the verb. *John* is valued nominative Case from T and *himself* is valued accusative Case from *v*, as illustrated in (16).

- (16) John drank himself sick.
 a. [_{TP} T [_u]] [_{VP} John drank+*v* [_u]] [_{VP} *t*_V [_{AP} himself sick]]]


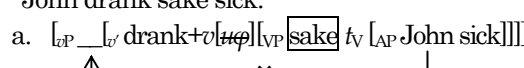
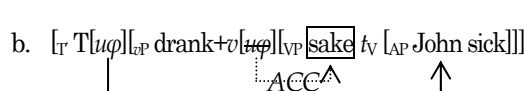
In transitive resultatives, the postverbal DP merges with the adjective and then, moves to VP Spec to receive an internal θ -role from V. This movement is legitimate, since there is no DP between the original position of the postverbal DP and the moved position. Then, the postverbal DP is valued accusative Case from *v* in the moved position, as illustrated in (17).

- (17) a. John hammered the metal flat.
 b. [_{TP} T [_u]] [_{VP} John hammered+*v* [_u]] [_{VP} the metal₁ *t*_V [_{AP} *t*₁ flat]]]


Let us now turn to what derives movement to receive a θ -role. Bošković and Takahashi (1998) argue that θ -roles are formal features and are therefore capable of driving movement. If this is correct, the postverbal DP in intransitive resultatives cannot move to *vP* Spec to receive an external θ -role by the Minimal Link Condition.

- (18) Minimal Link Condition (MLC)¹
 Let P be a probe. Then the goal G is the closest feature that can enter into an agreement relation with P.
 (Collins, 2002: 57)

In (19a), for example, *sake* c-commands *John* and hence, blocks agreement between *v*, the external θ -role assigner and *John*. Therefore, *John* cannot move to *vP* Spec to receive an external θ -role.

- (19) *John drank sake sick.
 a. [_{VP} *t*_V drank+*v* [_u]] [_{VP} sake₁ *t*_V [_{AP} John sick]]]

 b. [_{TP} T [_u]] [_{VP} drank+*v* [_u]] [_{VP} sake₁ *t*_V [_{AP} John sick]]]


Agreement between T and *John* is also blocked by *sake* because of the Defective Intervention Constraint (DIC) and therefore, the φ -set of T cannot be deleted. This gives rise to the crash of the derivation. The DIC is formalized as follows:

- (20) Defective Intervention Constraint
 $\alpha > \beta > \gamma$
 $>$ is c-command, β and γ match the probe α , but β is inactive so that the effects of matching are blocked.

(Chomsky, 2000: 123)

In (21), *John* appears to be able to move to *vP* Spec, because nothing prevents *John* from moving. In this case, agreement of T and *John* is not blocked, either. This derivation seems to be ruled out since the φ -set of *v* remains.

- (21) a. *John drank sick.
 b. $[\text{T } \text{T}[\#\varphi][\text{vP } \text{John}_i \text{ drank} + v[\#\varphi][\text{VP } t_V [\text{AP } t_i \text{ sick}]]]]$

However, the φ -set of *v* also seems to be left in (22) despite their difference in grammaticality.

- (22) a. John drank yesterday.
 b. $[\text{T } \text{T}[\#\varphi][\text{vP } \text{John} \text{ drank} + v[\#\varphi][\text{VP } t_V]] \text{ yesterday}]$

Therefore, we still need to consider why (21) is ungrammatical.

3. Proposals

As mentioned above, intransitive resultatives raise a serious problem for the current argument that an XP can move to receive a θ -role. This section presents my proposals to solve this problem.

In the previous section, I have pointed out that the φ -set of *v* seems to be left both in (21) and (22), repeated here as (23) and (24), despite the different grammaticality of these sentences.

- (23) a. *John drank sick.
 b. $[\text{T } \text{T}[\#\varphi][\text{vP } \text{John}_i \text{ drank} + v[\#\varphi][\text{VP } t_V [\text{AP } t_i \text{ sick}]]]]$

- (24) a. John drank yesterday.
 b. $[\text{T } \text{T}[\#\varphi][\text{vP } \text{John} \text{ drank} + v[\#\varphi][\text{VP } t_V]] \text{ yesterday}]$

Chomsky (2000) imposes the following constraint for an expression to converge.

- (25) [If an expression contains only features interpretable at IL [interface level], it converges at IL.
 (Chomsky, 2000: 95)

Following this constraint, (24) should be ungrammatical as well, contrary to the fact. I propose, then, that the V in an unergative VP has a null DP complement, following the assumption in Pesetsky and Torrego (2004).

- (26) The V in an unergative VP does have a null DP complement, [...]. The null DP may be taken to be an expression whose meaning is provided by the verb.
 (Pesetsky and Torrego, 2004: 512)

Accordingly, the φ -set of *v* in (24) is deleted by agreement with the null DP, as illustrated in (27).

- (27) a. John drank yesterday.
 b. $[\text{T } \text{T}[\#\varphi][\text{vP } \text{John}_i \text{ drank} + v[\#\varphi][\text{VP } t_V \text{ null DP}]] \text{ yesterday}]$

If the V in an unergative VP has a null DP complement, the phrase structure of (23) should be restated as follows:

- (28) a. *John drank sick.
 b. $[\text{T } \text{T}[\#\varphi][\text{vP } \text{John}_i \text{ drank} + v[\#\varphi][\text{VP } t_V \text{ null DP} [\text{AP } t_i \text{ sick}]]]]$

Apparently, there is no crucial difference between (27) and (28) since the φ -set of *v* can be deleted by agreement with the null DP complement in both examples. However, *John* in (28) first merges with the adjective, receiving a θ -role from it, and then moves to *vP* Spec to receive an external θ -role, while the one in (27) originally merges with *v* and receives only an external θ -role. Then, it is quite plausible that the ungrammaticality of (28) results from the fact that movement is executed in the derivation. We will discuss this topic in detail in Section 4.

We still need to consider how *himself* receives accusative Case in (29):

- (29) a. John drank himself sick.
 b. $[\text{T } \text{T}[\#\varphi][\text{vP } \text{John} \text{ drank} + v[\#\varphi][\text{VP } t_V \text{ null DP} [\text{AP } \text{himself} \text{ sick}]]]]$

If the V in an unergative VP has a null DP complement, it might block agreement between *v* and *himself* and therefore, *himself* might be unable to receive accusative Case.

Let us digress into a discussion of English expletive constructions as in (30), in which the associate can receive nominative Case despite the fact that the expletive c-commands the associate.

- (30) a. There is likely to arrive a man.
 b. $[\text{T } \text{T}[\#\varphi] \text{ be likely } [\text{Exp}[\varphi\text{-incomplete}] \text{ to arrive a man}]]$

Regarding this construction, Chomsky (2001) argues that Agree holds of (T, Expl), deleting the person feature of Expl but leaving T intact because Expl is φ -incomplete under the assumption that α must have a complete set of φ -features to delete the uninterpretable features of the paired matching element β . Then, Agree holds between the probe T and the more remote goal *man* by the Maximization Principle, deleting the φ -set of T and the structural feature of *man*.

- (31) Maximization Principle
 Maximize the matching effects.
 (Chomsky, 2001: 15)

On the basis of this analysis, I propose that the null DP complement in an unergative VP is φ -incomplete (lacking a gender or a person feature, or both, but having a θ -feature) in English. If the null DP is φ -incomplete in (29), *himself* can receive accusative Case by the Maximization Principle as well.

Notice that the φ -set of *v* cannot be deleted in (27), if the null DP complement in an unergative VP is always φ -incomplete. In English, there are both φ -complete and φ -incomplete expletives (*it* and *there* respectively) and then, it is quite reasonable that there are both φ -complete and φ -incomplete null DPs in English. If the null DP in (27) is φ -complete, the φ -set of *v* can be deleted without any problem as discussed above. On the other hand, if the null DP in (27) is φ -incomplete, we need to consider how the φ -set of *v* is deleted. Suppose that the φ -set of T (or *v*) can be deleted by an incomplete φ -set of a DP, iff there is no more remote goal. Then, the contrast below should be analyzed without asserting that the φ -set of T cannot be deleted²:

- (32) a. It is likely that John is honest.
 b. *There is likely that John is honest.

However, there is no need for T (or *v*) to agree with a more remote goal by the application of the Maximization Principle, if the φ -set of T (or *v*) can be deleted by an incomplete φ -set of a DP. Therefore, I will take the first view, and assume that the null DP complement is φ -incomplete, iff the verb has a second object.

The φ -incomplete null DP and the expletive *there* is alike in the respect that they are not structurally Case-marked.³ However, there is a crucial difference between them since only the former can receive a θ -role. Rothstein (2004: 82) argues that the verb *drink* has a theme (the liquid consumed) in (29), repeated here as (33), but the subject of the resultative predicate is nevertheless *himself*.

- (33) John drank (null DP) himself sick.

The null DP complement corresponds to this phonologically null theme and contributes to the

sentential meaning, while the expletive *there* does not. It follows, then, that acceptability of a θ -role depends on whether the relevant DP contributes to the sentential meaning.⁴

4. Analysis

In the previous section, we have discussed how the φ -set of *v* is deleted in the sentence based on the unergative verb and how the Case feature of the postverbal DP is valued in intransitive resultatives. The crucial points in my proposals are repeated below:

- (34) a. The V in an unergative VP has a null DP complement.
 b. The null DP complement is φ -incomplete, iff the verb has a second object.

In the following section, we will discuss how the problems pointed out in Section 2 can be solved on these assumptions.

4.1. Intransitive Resultatives

In Section 3, I pointed out that the uninterpretable Case feature of *himself* appears to be unable to be valued in the example below, since the null DP intervenes between *v* and *himself*.

- (35) a. John drank himself sick.
 b.

However, the null DP is φ -incomplete and thus, induces the partial agreement with *v*, deleting only the θ -feature of *v*. Accordingly, the φ -set of *v* remains intact and therefore, Agree holds between the probe *v* and the more remote goal *himself* by the Maximization Principle, deleting the φ -set of *v* and the structural feature of *himself*, as illustrated in (35a).

In the case of the ungrammatical sentence in which the resultative predicate modifies the sentential subject, the null DP agrees with *v*, deleting the θ -feature of *v* and blocks agreement between the θ -feature of *v* and *John* by the MLC, as illustrated in (36a). As a result, movement of *John* to *v*P Spec to receive an external θ -role is ruled out, as shown in (36b). *John* agrees with *v* and therefore, the φ -set of T remains, as depicted in (36c). This causes the crash of the derivation.

- (36) *John drank sick.
 a.
- b.
- c.

Notice that this analysis correctly rules in the movement of *John* to *vP* Spec in (14), repeated here as (39), since *wash* is not an unergative verb so that it does not have a null DP complement.⁵

- (37) $[_{vP} \text{John}_1 \text{ wash}+v [_{VP} t_V t_1]]$

Under this view, each of the phrase structure of resultative constructions is shown as below:

(38) Phrase Structure of Resultatives

- a. transitive resultatives:
 $[_{vP} \text{Subj } v [_{VP} \text{DP } V [_{AP} t_{DP} A]]]$
 b. intransitive resultatives:
 $[_{vP} \text{Subj } v [_{VP} \text{null DP } V [_{AP} \text{DP } A]]]$

Whether the null DP lies in VP Spec or not is the crucial difference between them. In intransitive resultatives, the null DP receives an internal θ -role and thus, the postverbal DP can move neither to VP Spec to receive an internal θ -role nor to *vP* Spec to receive an external θ -role.

4.2. Supporting Evidence

In this section, I will provide evidence of the difference in the phrase structure discussed above. There is a clear-cut difference of the acceptability pertaining to the gapping and extractions. Suppose that a DP cannot move to receive a θ -role, as discussed in Chomsky (1995). Then, under the assumption that only maximal projections are subject to these operations, it is very difficult, if not impossible, to account for this difference since the adjective alone does not form a constituent in both transitive and intransitive resultatives. The analysis in this paper, on the other hand, correctly predicts this difference.

4.2.1. Gapping

As the paradigm in (39) shows, gapping is possible in transitive resultatives, while it is impossible in intransitive resultatives. Let us consider how we can grasp this difference within the framework proposed in this paper.

- (39) a. John hammered a hubcap thin and Mary, flat.
 b. *John sang the baby asleep and Mary, happy.

(39a) derives from (40a) and the AP undergoes rightward movement to acquire a focalized interpretation, adjoining to the *vp* edge, as illustrated in (40b). The *vP* in the second conjunct is deleted, as illustrated in (40c). The final representation is the same as (39a).

- (40) a. $\text{John}_3 [_{vP} t_3 \text{ hammered}+v [_{VP} \text{a hubcap}_1 t_V [_{AP} t_1 \text{ thin}]]]$ and $\text{Mary}_2 [_{vP} t_2 \text{ hammered}+v [_{VP} \text{a hubcap}_1 t_V [_{AP} t_1 \text{ flat}]]]$.
 b. $\text{John}_3 [_{vP} [_{vP} t_3 \text{ hammered}+v [_{VP} \text{a hubcap}_1 t_V t_{AP}]] [_{AP} t_1 \text{ thin}]]$ and $\text{Mary}_2 [_{vP} [_{vP} t_2 \text{ hammered}+v [_{VP} \text{a hubcap}_1 t_V t_{AP}]] [_{AP} t_1 \text{ flat}]]]$.
 c. John hammered a hubcap thin and Mary Δ $[_{AP} t_1 \text{ flat}]$.

On the other hand, (39b) cannot be simply derived from the same operation as the one which occurred in (40). (39b) is derived from not only the deletion of the *vP* in the second conjunction but the deletion of AP Spec, *the baby*, as illustrated in (41c).

- (41) a. $\text{John}_2 [_{vP} t_2 \text{ sang}+v [_{VP} t_V \text{ null DP } [_{AP} \text{the baby asleep}]]]$ and $\text{Mary}_1 [_{vP} t_1 \text{ sang}+v [_{VP} t_V \text{ null DP } [_{AP} \text{the baby happy}]]]$.
 b. $\text{John}_2 [_{vP} [_{vP} t_2 \text{ sang}+v [_{VP} t_V \text{ null DP } t_{AP}]] [_{AP} \text{the baby asleep}]]$ and $\text{Mary}_1 [_{vP} [_{vP} t_1 \text{ sang}+v [_{VP} t_V \text{ null DP } t_{AP}]] [_{AP} \text{the baby happy}]]]$.
 c. *John sang the baby asleep and Mary Δ $[_{AP} \text{the baby happy}]$.

The postverbal DP in intransitive resultatives does not move to VP Spec, as shown above and remains in situ. Thus, the deleted element is inconsistent with the remaining element, if the postverbal DP is deleted. This is the cause of the ungrammaticality of (39b).

4.2.2. Topicalization

We can also find the same contrast pertaining to topicalization; topicalization of the adjective is grammatical in transitive resultatives while not in intransitive resultatives, as indicated in (42):

- (42) a. Thin, John hammered the metal.
 b. *Thin, the joggers ran the pavement.

(42a) derives from the extraction of AP, as illustrated in (43a), while (42b) derives from the extraction of A, as illustrated in (43b):

- (43) a. $[_{AP} t_1 \text{ thin}]$, John hammered the metal₁ t_{AP} .
 b. * $[_A \text{ thin}]$, the joggers ran null DP $[_{AP} \text{the pavement } t_A]$.

Topicalization is sought to be the operation that can apply only with maximal projections and (43b) violates with this restriction.

4.2.3. Thought-Movement

Concerning *thought*-movement, movement of the adjective is allowed in transitive resultatives, while it is not in intransitive resultatives, as the paradigm in (44) shows:

- (44) a. Flat though John hammered the metal, the customer ordered thick one.
 b. *Thin though the joggers ran the pavement, the city is in financial difficulties in road repairing.

The postverbal DP in transitive resultatives moves out of AP to receive an internal θ -role and therefore, AP consists of its trace and the adjectives. In other words, the extracted element in (44a) is not A but AP, as illustrated in (45):

- (45) $[_{AP} t_1 \text{ flat}]$ though John hammered the metal₁
 t_{AP}, \dots

On the other hand, the postverbal DP in intransitive resultatives does not undergo this movement, as discussed above. The AP consists of the postverbal DP and the adjective. This time the extracted element in (44b) is A, as shown in (46).

- (46) * $[_A \text{ thin}]$ though the joggers ran null DP $[_{AP} \text{ the pavement } t_A], \dots$

Suppose that only maximal projections undergo this operation. The contrasts in (44), then, can be easily explained, as discussed above.

4.2.4. Cleft Sentence

As the contrasts in (47) shows, it has been considered that the clefting of DP is possible, while the clefting of AP is impossible.

- (47) a. It was his Nikes that the jogger ran threadbare.
 b. *It was threadbare that the jogger ran his Nikes.

Surprisingly, the clefting of the adjective is, however, possible in transitive resultatives, while it is impossible in intransitive resultatives, as illustrated in (48).

- (48) a. It is white that Peter painted the walls.
 b. *It is thin that the joggers ran the pavement.

Let us consider what causes the contrast in (47). (47a) derives from movement of DP, as shown in (49a), while (47b) derives from movement of nonmaximal projection, A, as illustrated in (49b). This indicates that the clefting can apply only to maximal projections.

- (49) a. It was $[_{DP} \text{ his Nikes}]_1$ that the joggers ran $[_{AP} t_1 \text{ threadbare}]$.
 b. *It was $[_A \text{ threadbare}]$ that the jogger ran $[_{AP} \text{ his Nikes } t_A]$.

If this analysis is correct, then the contrast in (48) will be easily explained. (48a) derives from the clefting of the maximal projection, AP, as illustrated in (50a). On the other hand, (48b) derives from the clefting of the nonmaximal projection, A, as shown in (50b).

- (50) a. It is $[_{AP} t_1 \text{ white}]$ that Peter painted the walls₁ t_{AP}
 b. *It is $[_A \text{ thin}]$ that the joggers ran null DP $[_{AP} \text{ the pavement } t_A]$

These observations support the phrase structure of resultatives presented in this paper.

4.3. Unaccusative Resultatives

In this section, I briefly examine how the analysis in this paper fits unaccusative resultatives such as the example in (51).

- (51) a. The ice froze solid.
 b. The bottle broke open.

In (51a), for instance, *the ice* first merges with the adjective and then moves to VP Spec to receive an internal θ -role, as illustrated in (52). In this derivation, *v* appears to block agreement between T and *the ice* and therefore, it appears that *the ice* is unable to be valued nominative Case.

- (52) $[_T T[u\phi] [_{vP} \text{ froze} + v[u\phi] [_{VP} \text{ the ice } t_V [_{AP} t_1 \text{ solid}]]]]$

Chomsky (2000) argues that *vP* headed by an unaccusative verb is not a phase, because *v* is defective.

- (53) A phase is CP or *vP*, but not TP or a verbal phrase headed by H lacking ϕ -features not entering into Case/agreement checking: neither finite TP nor unaccusative/passive verbal phrase is a phase.

(Chomsky, 2000: 106-107)

Accordingly, Agree holds of (*v*, *the ice*), deleting the ϕ -set of *v* but leaving the Case feature of the DP unvalued and then, the DP again can be the goal of the probe T, deleting the ϕ -set of T and the structural feature of *the ice*, as illustrated in (54).

- (54) $[_T T[u\phi] [_{vP} \text{ froze} + v[u\phi\text{-incomplete}]] [_{VP} \text{ the ice } t_V [_{AP} t_1 \text{ solid}]]]]$
-

Under this view, the phrase structure of unaccusative resultatives is shown below:

- (55) $[_{vP} v[u\phi\text{-defective}]] [_{VP} \text{ DP } V [_{AP} t_{DP} A]]]$

Let us compare (55) with the phrase structure of

transitive resultatives and intransitive resultatives (based on unergative verbs) discussed above:

- (56) a. transitive resultatives:
 $[_{TP} \text{Subj } v [_{VP} \text{DP } V [_{AP} t_{DP} A]]]$
- b. intransitive resultatives:
 $[_{TP} \text{Subj } v [_{VP} V \text{ null DP } [_{AP} \text{DP } A]]]$

Then, it becomes clear that the phrase structure of unaccusative resultatives and transitive resultatives is alike in the respect that AP consists of the trace of the postverbal DP and the adjective. This analysis is supported by the examples below:

- (57) a. Solid, the ice froze.
- b. Solid though the ice froze, John broke it by hand.
- c. It is solid that the ice froze.

All of them indicate that the same result with transitive resultatives can be obtained, when adjectives in unaccusative resultatives undergoes extraction. That is, the extracted elements in these examples is not A but AP.

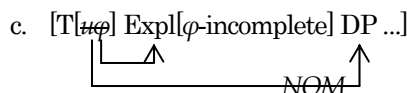
5. Crosslinguistic Variation

In this section, I will discuss how the analysis in this paper can accommodate crosslinguistic variety in a principled manner.

5.1. Expletive Constructions

To begin with, let us consider the crosslinguistic variety pertaining to expletive constructions. The verb in expletive constructions agrees with the postverbal DP in Icelandic and German, as illustrated in (58a) and (58b) respectively. This phenomenon is the same as the one observed in English expletive constructions. This fact means that the expletives are φ -incomplete like the English expletive *there* in these languages. To be specific, expletives in these languages induce partial agreement with T and therefore, Agree holds between the probe T and the more remote goal by the Maximization Principle. Thus, the structural feature of the postverbal DP is valued under agreement with T, as shown in (58c).

- (58) a. Icelandic
*Það eru/*er málfraeðingar í heberginu.*
*Expl are/*is linguists in room.the*
“There are linguists in the room.”
 (Vangsnes, 2002: 57)
- b. German
*Es sind/*ist drei Autos draußen.*
*Expl are/*is three cars outside*
“There are three cars outside.”
 (Vikner, 1995: 181)



On the other hand, the verb agrees not with the postverbal DP but with the expletive in French and Spanish, as shown in (59a) and (59b) respectively. This phenomenon proves that expletives are φ -complete unlike English expletive *there* in these languages. Thus, agreement between T and the expletive deletes the φ -set of T and the structural feature of Expl. The postverbal DP is assigned accusative Case by agreement with *v*. These processes are illustrated in (59c).

- (59) a. French
Il y a des livres sur la table.
Expl there has INDEF-PL books on the table
“There are books on the table.”
 - b. Spanish
 $[_{pro}]$ Hay varios papeles en ese cuaderno.
Expl have several papers in that notebook
“There are several papers in that notebook.”
 (Zagona, 1988: 134)
 - c. $[_{TP} \text{Expl } V + v [\varphi\text{-complete}] \text{DP} \dots]$
-

I propose that the crosslinguistic variety discussed above is due to the parameter pertaining to existence of φ -incomplete DPs. The crosslinguistic variety concerned with this parameter is schematized as follows:

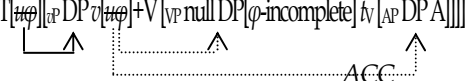
| | | |
|------|----------------------------|---------------------------|
| (60) | | φ -incomplete DPs |
| | English, Icelandic, German | yes |
| | French, Spanish | no |

Native speakers of English, Icelandic, or German have to know agreement systems both in (58c) and (59c) since there are both φ -complete and φ -incomplete DPs in these languages, while those who speak French or Spanish has only to know the agreement system for φ -complete DPs. Suppose that the default value should be simple. It is, then, reasonable to assume that the default value is negative to existence of φ -incomplete DPs. This assumption is supported by the fact that children of three and under in English never use verbs in plural form in expletive constructions regardless of the form of the postverbal DP.⁶

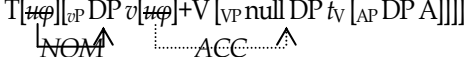
5.2. Intransitive Resultatives

Let us now return to the crosslinguistic variety in the acceptability of intransitive resultatives introduced in Section 1. Icelandic and German, in which intransitive resultatives are acceptable, can be considered to have a φ -incomplete null DP complement

in an unergative VP, since they are languages that have φ -incomplete DPs according to (60). Thus, the null DP induces partial agreement with v , deleting only the θ -feature of v , leaving the φ -set of v intact and Agree holds between the probe v and the more remote goal, the postverbal DP by the Maximization Principle, deleting the φ -set of v and the structural feature of the postverbal DP in the same as English intransitive resultatives. This process is illustrated in (61c).

- (61) a. Icelandic
 Hann oeskradhi sig haasan.
he shouted himself hoarse
 "He shouted himself hoarse."
- b. German
 Die Jogger liefen den Rasen platt.
the joggers run the lawn flat
 "The joggers ran the pavement flat."
- c. $[T \uparrow [\varphi]] [vP DP v [\varphi]] + V [VP \text{null DP} [\varphi\text{-incomplete}] v [AP DP A]]$


By contrast, French and Spanish, in which intransitive resultatives are ungrammatical, do not have φ -incomplete DPs, according to (60).⁷ Thus, the null DP complement in an unergative VP in these languages can be considered to be φ -complete unlike English, Icelandic, and German. This analysis easily gives explanation of the ungrammaticality of (62a) and (62a). Agreement between v and the null DP deletes the φ -set of v and the Case feature of the null DP. In this way, agreement between v and the postverbal DP cannot be induced and then, the Case feature of the postverbal DP remains unvalued, as shown in (62c).

- (62) a. French
 *Ils ont couru le trottoir mince.
they have run the pavement thin
 "They ran the pavement thin."
- b. Spanish
 *Mary corrio sus zapatillas gastadas
Mary ran her trainers threadbare
 "Mary ran her trainers threadbare."
- c. $[T \uparrow [\varphi]] [vP DP v [\varphi]] + V [VP \text{null DP} t_V [AP DP A]]$


Connection between existence of φ -incomplete DPs and the acceptability of intransitive resultatives is schematized as below:

(63)

| | φ -incomplete expletive | φ -incomplete null DP | intransitive resultatives |
|-------------------------------|------------------------------------|----------------------------------|------------------------------|
| English, Icelandic, German | yes | yes | acceptable |
| French, Spanish | no | no | unacceptable |

I conclude, then, that the value of the parameter pertaining to existence of φ -incomplete DPs is involved with the acceptability of intransitive resultatives in natural languages.

6. Concluding Remarks

Carrier and Randall (1992) analyze the resultative constructions within the GB framework (Chomsky 1981) and argue that the phrase structure of resultative construction is assigned a ternary branching. However, the syntactic framework shifted from the GB to the Minimalist Program, and the ternary branching is inadmissible in this framework. As we discussed in section 2.3, Saito (2001) argues that the phrase structure of resultative construction is assigned a binary branching, under the assumption that movement into a θ -position is possible. His analysis provides an explanation of the difference of θ -role assignment in resultatives crosslinguistically. In this argument, however, intransitive resultatives raise a serious problem, since movement of the postverbal DP to vP Spec to receive an external θ -role appears to be prohibited. To solve this problem, he proposes a generalization that the DP is unable to move to receive an external θ -role. However, Hornstein (2001) points out that a DP might be able to move to vP Spec to receive an external θ -role in.

To overcome this problem, I have proposed that the V in an unergative VP has a φ -incomplete null DP complement in English and that this DP blocks movement of the postverbal DP to vP Spec by the Minimal Link Condition. This analysis gives an explanation about syntactically different behavior between transitive resultatives and intransitive resultatives in a principled manner. Moreover, I have suggested that the parametrically determined status of the null DP complement, whether it is φ -complete or φ -incomplete is involved with the acceptability of intransitive resultatives in natural languages.

The analysis presented in this paper allows movement of a DP to vP Spec in principle and therefore, strongly supports the argument that movement into a θ -position is possible.

Endnotes

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inadequacies are of course my own.

¹ In this formulation, “closest feature” means as follows.

- (i) P c-commands G and there is no G' such that P asymmetrically c-commands G' and G' asymmetrically c-commands G.

(Collins, 2002: 57)

See also Chomsky 1995: 297, 2000: 122.

² See Vikner (1995) for a possible approach.

³ I assume that they are not structurally Case-marked since they do not have Case features. Then, Case-marking proves to be a morphological requirement.

⁴ This argument does not mean that there are various null DPs corresponding to each unergative verb in lexicon. Pesetsky and Torrego (2004: 512) argue that a null DP complement may be taken to be an expression whose meaning is provided by the verb. See (26) above.

⁵ The ungrammaticality of the examples in (10), repeated here as (), should be explained as well within the framework in this paper.

- (i) a. *John HIT *t*.
 b. *John BELIEVE *t* to be intelligent.
 (HIT/BELIEVE share the θ -structure of *hit* and *believe* but lack Case features)

There are two possibilities to exclude these examples. One of them is to attribute the selectional property of $v : v$ which lacks a Case feature but assigns θ -roles cannot select VPs formed by HIT/BELIEVE. The other possibility is to attribute the licensing of a trace of movement. Suppose that the trace in (15) behaves like a clitic to be licensed. Then the ungrammaticality of the examples in () can be explained under the assumption that this option is inadmissible in the case of HIT/BELIEVE.

⁶ The discussion here is based on research from corpora such as British National Corpus and CHILDES.

⁷ I assume that unergative verbs merge only with the φ -incomplete null DP when they first merge with a second object. Intransitive resultatives in French and Spanish are ungrammatical not because unergative verbs merge with the φ -complete DP but because they cannot merge with the φ -incomplete null DP. However, I proceed with the following discussion on the premise that unergative verbs can merge with the φ -complete null DP despite the existence of a second object to demonstrate why such Merge should be prohibited.

Selected References

- Bošković, Ž. 1997. *The Syntax of Nonfinite Complementation: An Economy Approach*. Cambridge, Mass.: MIT Press.
- Bošković, Ž., and D. Takahashi. 1998. “Scrambling and Last Resort,” *Linguistic Inquiry* 29, 347-366.
- Carrier, J., and J. Randall. 1992. “The Argument Structure and Syntactic Structure of Resultatives,” *Linguistic Inquiry* 23, 173-234.

- Chomsky, N. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.
- Chomsky, N. 1995. *The Minimalist Program*. Cambridge, Mass.: MIT Press.
- Chomsky, N. 2000. “Minimalist Inquiries: The framework,” in Martin, R. and J. Uriagereka, eds., *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, 89-155. Cambridge, Mass.: MIT Press.
- Chomsky, N. 2001. “Derivation by Phase,” in M. Kenstowicz, ed., *Ken Hale: A Life in Language*, 1-52. Cambridge, Mass.: MIT Press.
- Chomsky, N. 2004. “Beyond Explanatory Adequacy,” in A. Belletti, ed., *Structures and Beyond*, 104-131. Oxford: Oxford University Press.
- Collins, C. 2002. “Eliminating Labels,” in Epstein, S. D., and T. D. Seely, eds., *Derivation and Explanation in the Minimalist Program*, 42-64. Oxford: Blackwell.
- Hoekstra, T. 1988. “Small Clause Results,” *Lingua* 74, 101-139.
- Hornstein, N. 2001. *Move! A Minimalist Theory of Construal*. Oxford: Blackwell.
- Kayne, R. 1984. *The Antisymmetry of Syntax*. Cambridge, Mass.: MIT Press.
- Lasnik, H. 1999. *Minimalist Analysis*. Oxford: Blackwell.
- Legendre, G. 1997. “Secondary Predication and Functional Projections in French,” *Natural Language and Linguistic Theory* 15, 43-87.
- Levin, B. and M. R. Hovav. 1995. *Unaccusativity: At the Syntax-Lexical Semantics Interface*. Cambridge, Mass.: MIT Press.
- MacWhinney, B. (2000). *The CHILDES Project: Tools for Analyzing Talk. Third Edition*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Müller, S. 2002. *Complex Predicates: Verbal Complexes, Resultative Constructions, and Particle Verbs in German*. Stanford, Calif.: CSLI Publications.
- Pesetsky, D., and E. Torrego. 2004. “Tense, Case, and the Nature of Syntactic Categories,” in Guéron, J. and J. Lecarme, eds., *The Syntax of Time*, 495-537. Cambridge, Mass.: MIT Press.
- Rothstein, S. 2004. *Structuring Events: A Study in the Semantics of Lexical Aspect*. Oxford: Blackwell.
- Saito, M. 2001. “Movement and θ -Roles: A Case Study with Resultatives,” in *The Proceedings of the Second Tokyo Conference on Psycholinguistics*, 35-60. Tokyo: Hituzi Syobo.
- Stowell, T. 1981. *Origins of Phrase Structure*. Doctoral dissertation, MIT, Cambridge, Mass.
- Vangsnes, A. Ø. 2002. “Icelandic Expletive Constructions and the Distribution of Subject Types,” in P. Svenonius, ed., *Subjects, Expletives, and the EPP*, 43-70. Oxford: Oxford University Press.
- Vikner, S. 1995. *Verb Movement and Expletive Subject in the Germanic Languages*. Oxford: Oxford University Press.

「空の限定詞句と最大化原理 自動詞結果構文についての一考察」

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Bošković (1998), Lasnik (1999), Hornstein (2001), Saito (2001)らは、意味役割を得るための移動は可能であると主張しているが、(1)の非文法性は、限定詞句が *vP* 指定部へ移動して、外項として意味役割を得ることは不可能であることを示すため、この主張にとって問題になる。

(1) * $[_{vP} \text{John}_1 \text{ drank } [_{AP} t_1 \text{ sick}]]$ (= "John drank and as a result he became sick.")

本論は、自動詞結果構文において、動詞に後続する限定詞句がどのように認可されるかを明らかにすることにより、意味役割を得るための移動は可能であるという主張を支持することを目的とする。

Saito (2001)は結果構文を Chomsky (1995)の極小主義理論の枠組みで分析し、他動詞結果構文では、動詞に後続する限定詞句が形容詞と融合した後、動詞の内項として意味役割を得るために *VP* 指定部へ移動するが、自動詞結果構文では、この移動が起こらないと主張している。Saito は、(1)の非文法性に関して、限定詞句は外項として意味役割を得るために *vP* 指定部へ移動することは出来ないという一般化を提案している。しかし、Hornstein (2001)は、(2)では、限定詞句が *vP* 指定部へ移動し、外項として意味役割を得ると主張しており、この主張が正しければ Saito の一般化は保持されない。従って、(1)の非文法性について、別の分析が必要である。

(2) $[_{vP} \text{John}_1 \text{ washed}+v [_{VP} t_V t_1]]$ (= "John washed himself.")

本論は、Pesetsky and Torrego (2004)に従い、非能格動詞の補部には空の限定詞句が存在することを提案し、自動詞結果構文では、この空の限定詞句が動詞に後続する限定詞句と *v* の ϕ 素性と的一致を妨げるため、動詞に後続する限定詞句の移動が妨げられることを主張する。

また、非能格動詞の補部に空の限定詞句が存在するならば、(3)の *himself* はどのように対格を付与されるのかという問題については、英語の非能格動詞の null DP 補部は性の素性か数の素性を欠く欠陥範疇であると提案する。

(3) $[_{vP} \text{John drank}+v[u\phi] [_{VP} t_V \text{ null DP } [_{AP} \text{himself sick}]]]$

空の限定詞句が欠陥範疇であれば、(3)の *himself* は最大化原理の適用により、対格を得ることが可能である。この分析に従うと、結果構文の構造は(4)のように表される。

(4) a. transitive resultatives: $[_{vP} \text{DP } v [_{VP} \text{DP } V [_{AP} t_{DP} A]]]$

b. intransitive resultatives: $[_{vP} \text{DP } v [_{VP} V \text{ null DP } [_{AP} \text{DP } A]]]$

(4)の構造が正しいことは、空所化や抜き出しなどの移動操作を加えると、他動詞結果構文は文法的だが、自動詞結果構文は非文法的になるという違いがあることから支持される。

更に、自動詞結果構文の容認性に関する言語間の差異は、 ϕ 素性を欠く限定詞句が存在するか否かというパラメータを提案することによって説明することが可能である。自動詞結果構文を容認する言語では、非能格動詞の補部に存在する空の限定詞句が欠陥範疇であるため、最大化原理により、動詞に後続する限定詞句に格が付与されるが、自動詞結果構文を容認しない言語では、非能格動詞の補部に存在する空の限定詞句は欠陥範疇では無いため、*v* の ϕ 素性は空の限定詞句との一致によって消去され、動詞に後続する限定詞句に格が付与されないことから、容認性に差異が生じる。

以上のように、英語の非能格動詞の補部に null DP が存在することを提案し、意味役割を得るための移動は原則的に可能だが、自動詞結果構文においては、動詞に後続する限定詞句の *vP* 指定部への移動が空の限定詞句によって妨げられることを示した。また、他動詞結果構文と自動詞結果構文の統語的な振る舞いの違いは、空の限定詞句の有無に起因する構造的な違いによることを示した。更に、 ϕ 素性を欠く限定詞句の有無に関するパラメータの存在を提案し、自然言語における自動詞結果構文の容認性の違いは、このパラメータによって決定される空の限定詞句の状態に起因することも示した。