

**Syntactic Analysis of Intransitive Resultatives:
Null DP Complement and the Maximization Principle**

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Abstract

Carrier and Randall (1992) analyze the resultative constructions within the GB framework (Chomsky 1981) and argue that the postverbal DP in transitive resultatives as in (1a) receives θ -roles both from the verb and the adjective, while the one in intransitive resultatives as in (2a) receives a θ -role only from the adjective.

- (1) a. John hammered the metal flat. b. [_{vP} John hammered the metal₁ [_{AP} t₁ flat]]
(2) a. John drank himself sick. b. [_{vP} John drank [_{AP} himself sick]]

Following Carrier and Randall (1992), Saito (2001) analyzes these two constructions within the minimalist framework (Chomsky 1995) 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 (1b), while this movement does not occur in intransitive resultatives as in (2b).

Saito notes that the example in (3) appears to raise a problem for his analysis, because the ungrammaticality of (3) indicates that the movement to *vP* Spec to receive an external θ -role is prohibited, while the movement to VP Spec to receive an internal θ -role does occur as in (1b).

- (3) *_{[vP} John₁ drank [_{AP} t₁ sick]] (= “John drank and as a result he became sick.”)
(4) a. *John HIT. (HIT shares the θ -structure of *hit* but lacks Case feature)
 b. [_{vP} John₁ HIT+*v* [_{VP} t_v t₁]]

He points out that the example in (4) also shows that the movement to *vP* Spec is banned and suggests the generalization that a DP cannot move to *vP* Spec to receive an external θ -role. However, the example in (5) shows that this movement is possible. There is a possibility that (4) is simply a lexical gap. Therefore, we should look elsewhere to account for why (3) is ungrammatical.

- (5) a. John washed. (= John washed himself.)
 b. [_{vP} John₁ washed+*v* [_{VP} t_v t₁]]

I propose that the unergative verbs have a null DP complement, following Pesetsky and Torrego (2004). Given Bošković and Takahashi’s (1998) theory that treats the movement for a θ -role as the one derived by a θ -feature, null DP agrees with *v*, deleting the θ -feature of *v* and blocks the agreement between the θ -feature of *v* and *John* by the Minimal Link Condition as illustrated in (6).

(6) [_{vP} drank+v[θ] [_{VP} t_V null DP[u θ] [_{AP} John[u θ] sick]]]

As a result, the movement of *John* to *vP* Spec to receive an external θ -role is ruled out. Notice that the movement of *John* in (5) to *vP* Spec is correctly ruled in, since *wash* is not an unergative verb so that it does not have the null DP complement.

We still need to consider how *himself* receives the accusative Case in (7). If the null DP blocks the agreement between *v* and *John* as shown above, the same case holds for the agreement between *v* and *himself* in (7) and therefore *himself* cannot receive the accusative Case.

(7) [_{vP} John drank+v[u ϕ] [_{VP} t_V null DP [_{AP} himself sick]]]

Notice that in the English expletive construction as in (8), in which the associate can receive the nominative Case in the similar situation with (7).

(8) [T[u ϕ] is likely [Expl to arrive a man]]

Expletive appears to block the agreement between T and the associate in this construction. 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 phi-incomplete and thus Agree holds between the probe T and the more remote goal *man* by the Maximization Principle, deleting the phi-set of T and the structural feature of *man*. Therefore, I propose that the null DP complement in the unergative VP is phi-incomplete (lacking a gender or a person feature, or both, but having a θ -feature) in English. If the null DP is phi-incomplete, *himself* in (7) can receive the accusative Case in the similar way with the associate by the Maximization Principle. Under this view, each of the configurations of the resultative constructions is shown as below.

(9) a. transitive resultatives: [_{vP} Subj *v* [_{VP} DP V [_{AP} t_{DP} A]]]

b. intransitive resultatives: [_{vP} Subj *v* [_{VP} V null DP [_{AP} DP A]]]

As the contrast in (10)-(13) shows, 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. This analysis, on the other hand, correctly predicts this difference: the stranded elements in (10) and the extracted elements in (11)-(13) in transitive resultatives are constituents, while both of the elements in intransitive resultatives are not constituents.

- (10) a. John hammered a hubcap thin and Mary, flat.
 b. *John sang the baby asleep and Mary, happy.
- (11) a. Flat though John hammered the metal, ...
 b. *Thin though the joggers ran the pavement, ...
- (12) a. It is white that Peter painted the walls.
 b. *It is thin that the joggers ran the pavement.
- (13) a. Thin, John hammered the metal.
 b. *Thin, the joggers ran the pavement.

Furthermore, my approach can accommodate crosslinguistic variety in a principled manner. In French expletive constructions, the verb agrees not with the associate but with the expletive as in (14).

- (14) Il y a des livres sur la table. (=“There are books on the table.”)
Expl there has INDEF-PL books on the table

This phenomenon indicates that French expletive *il* is phi-complete unlike English expletive *there*. Suppose that there exists the parameter pertaining to the existence of phi-incomplete DP, and the null DP complement in unergative VP is phi-complete similarly with *il* in French. This assumption will easily explain why intransitive resultatives as in (15) are ungrammatical in French. The agreement between *v* and the null DP deletes the phi-set of *v* and the Case feature of the null DP. Therefore, the agreement between *v* and *le trottoir* in (15) cannot be induced and the Case feature of the DP remains unvalued.

- (15) *Ils ont couru [null DP] le trottoir mince. (=“They ran the pavement thin.”)
they have run the pavement thin

In sum, I propose the existence of the phi-incomplete null DP for English, and then give an explanation about syntactically different behavior between transitive resultatives and intransitive resultatives. Moreover, I suggest that the parameter pertaining to the existence of the phi-incomplete DP and the status of the null DP, whether it is phi-complete or phi-incomplete is involved with the acceptability of intransitive resultatives in natural languages.

Chapter 1. Introduction

One of the main questions in the current syntactic research is whether an XP can move to receive a θ -role. Chomsky (1995) argues that movement into a θ -position violates the θ -criterion, because the moved element bears more than one θ -role. The θ -criterion is formalized as follows:

(1) 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)

Bošković (1998), Lasnik (1999), Hornstein (2001), and Saito (2001), among others, on the other hand, give positive responses to this question. Resultatives such as (2-4) are particularly interesting in this context.

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

- (3) a. The joggers ran the pavement thin.
b. John drank himself sick.

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

The interpretation of (2a) is that John hammered the metal, and as a result of this hammering, the metal became flat. (2b) describes the situation in which the gardener watered the tulips, and as a result of this watering, the tulips became 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. 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 (2) moves to VP Spec and receives an additional θ -role.

The sentences in (2) and (3) are called *transitive resultatives* and *intransitive resultatives* respectively in Carrier and Randall (1992), since those in (2) are based on transitive verbs and those in (3) are based on intransitive verbs. More precisely, the examples in (3) are based on unergative verbs. Resultatives such as (4) should be distinguished from those in (3), since they are based on unaccusative verbs. Henceforth, I will call resultatives based on unergative verbs simply *intransitive resultatives*, following Carrier and Randall (1992), and Rothstein (2004), among others. I will call resultatives based on unaccusative verbs *unaccusative resultatives*.

Resultative predicate in unaccusative resultatives modifies the subject, while the one in transitive resultatives modifies the object. Burzio (1986) argues that the subject of unaccusative verbs originates as an internal argument of the verb and then, moves to the subject position. Accordingly, transitive and unaccusative resultatives are alike in the respect that the verb and the resultative predicate assign θ -roles to the same DP. In this way, both

transitive and unaccusative resultatives are considered to indicate that an XP can move to receive a θ -role, as discussed above. Saito (2001) argues that the postverbal DP in intransitive resultatives does not move to VP Spec unlike the one in transitive resultatives, because it is assigned a θ -role only from the adjective. Saito notes that intransitive resultatives raise a serious problem to his argument that an XP can move to receive a θ -role, because the ungrammaticality of (5) appears to indicate that the postverbal DP cannot move to v P Spec to receive an external θ -role.

(5) *John drank sick.

[with the intended meaning "John drank and as a result he became sick."]

Looking beyond English, we observe that not every language has intransitive resultatives: intransitive resultatives are grammatical in Icelandic and German, as illustrated in (6-7), while they are not in French and Spanish, as shown in (8-9), for example.

(6) Icelandic

a. Hann hljóp sig haltan.

he ran self-ACC limp-ACC

"He ran himself limp."

b. Hann oeskradhi sig haasan.

he shouted himself-ACC hoarse-ACC

"He shouted himself hoarse."

(7) German

- a. Die Jogger liefen den Rasen platt.

the joggers run the lawn flat

“The joggers ran the lawn flat.”

- b. Er arbeitete sich müde.

he worked self tired

“He worked himself tired.”

(Müller, 2002: 211-213)

(8) French

- a. *Je me suis bu malade.

I myself am drunk sick

“I drank myself sick.”

- b. *Ils ont couru le trottoir mince.

they have run the pavement thin

“They ran the pavement thin.”

(9) Spanish

- a. *Mary corrió sus zapatillas gastadas

Mary ran her trainers threadbare

“Mary ran her trainers threadbare.”

Notice that the postverbal DP in (6) is assigned accusative Case. Furthermore, Müller (2002) describes that the postverbal DP in intransitive resultatives in German is also assigned accusative Case. Following these

observations, I assume that the postverbal DP in English intransitive resultatives is assigned accusative Case as well. (Carrier and Randall also argue that the postverbal DP in English intransitive resultatives is assigned Case by the verb.)

The purpose of this thesis is to provide further supporting evidence for the hypothesis 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 and that this DP blocks movement of the postverbal DP to receive an external θ -role in intransitive resultatives. The analysis presented in this thesis 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 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 discussion is organized as follows. Chapter 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 thesis. Then, we will discuss some problems of their researches. The basic insight that emerges from this chapter is that the postverbal DP in intransitive resultatives is not θ -marked by the verb, though it is assigned accusative Case. In Chapter 3, I propose that a null DP complement exists in the unergative VP and then, we discuss its status. Chapter 4 presents the syntactic structure of

transitive resultatives and intransitive resultatives based on the proposal presented in Chapter 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. Chapter 5 provides principled explanation of the crosslinguistic variation. Chapter 6 briefly discusses on depictives and *though*-movement. Chapter 7 concludes the thesis.

Chapter 2. Previous Researches

The purpose of this chapter 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 (10) indicates that the resultative predicate, the adjective *flat*, for instance, is optional in transitive resultatives, because the absence of the resultative predicate in (10b) does not affect the grammaticality of the sentence. This fact indicates that *the metal* in (10a) is a subcategorized object of *hammer*, because it appears to be both θ -marked and Case-marked by the verb.

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

On the other hand, the paradigm in (11a-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 (11b).

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

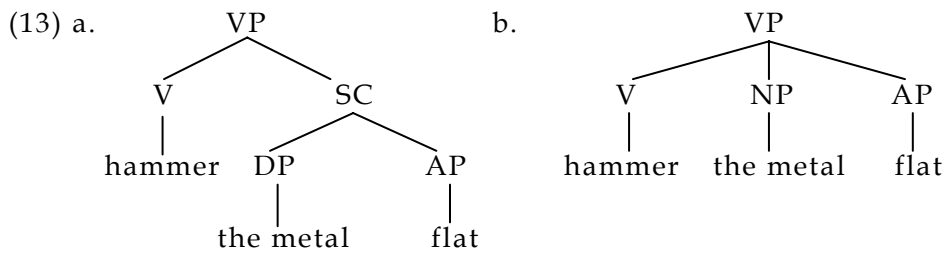
This fact implies that *himself* in (11a) cannot be understood as a subcategorized object of the verb unlike *the metal* in (10a). This DP is not inherently Case-marked but is assigned Case from the verb, since (11b) must be grammatical, if it is assigned inherent Case. This kind of object is called a nonsubcategorized object. Additionally, the paradigm in (12a-b) shows that the resultative predicates can modify only the postverbal DP.

- (12) a. John drank.
b. *John drank sick.
[with the intended meaning “John drank and as a result he became sick.”]

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 one of the most important works, Carrier and Randall (1992).

2.2. Ternary-Branching Analysis—Carrier and Randall (1992)

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:



Their argument is based on the grammatical contrast between the following examples:

- (14) a. New seedlings water flat easily.
 b. *Competition Nikes run threadbare easily.

(Carrier and Randall, 1992: 191)

Middles can be derived from transitive resultatives, while cannot from intransitive resultatives, as illustrated above. Notice that in (15), where the postverbal DP is clearly not an argument of the verb, passives can be derived but middles cannot, as shown below:

- (15) a. Active
 We believe *there* to be three criminals in that drug ring.
 b. Passive
There are believed *t* to be three criminals in that drug ring.
 c. Middle
 **There* believe easily to be three criminals in that drug ring.

(Carrier and Randall, 1992: 190)

Based on these observations, they argue that middles only can be derived from sentences that have a direct internal argument, and that transitive resultatives have a ternary structure, assuming that argumenthood requires sisterhood. They claim that middles provide evidence against the binary branching analysis, since it assigns a binary branching structure to both transitive and intransitive resultatives and thus, neither the postverbal DP in transitive resultatives nor the one in intransitive resultatives is a syntactic sister of the verb.

They also point out that transitive and intransitive resultatives behave alike in the respect that extraction of a subpart of the postverbal DP becomes grammatical, as shown in (16):

- (16) a. the gang that I shot the leaders of dead
b. the Nikes that I ran the soles of threadbare

(Carrier and Randall, 1992: 207)

Extraction of a subpart of the postverbal DP in intransitive resultatives violates the Left Branching Condition (LBC), if they are assigned a binary structure. The LBC is formalized as follows:

(17) The Left Branching Condition

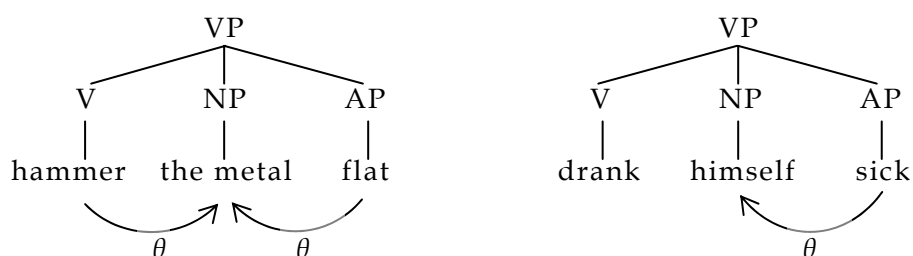
No NP which is the leftmost constituent of a larger NP can be reordered out of this NP by a transformational rule.

(Ross, 1983: 127)

Following the LBC, intransitive resultatives should have a ternary structure as well.

On the basis of these observations, they conclude that the postverbal DP in transitive resultatives receives θ -roles both from the verb and the AP as in (18a), while the one in intransitive resultatives receives a θ -role only from the AP as in (18b).

- (18) a. They hammered the metal flat. b. John drank himself sick.



Specifically, the postverbal DP in transitive resultatives can be assigned a θ -role even if the AP does not exist in (18a). On the other hand, the postverbal DP in intransitive resultatives cannot be assigned a θ -role, if the AP does not exist in (18b). Accordingly, the postverbal DP in (11b), repeated here as (19), does not have a θ -role.

- (19) *John drank himself.

This results in a violation of the θ -criterion so that this sentence is ruled out.

The definition of the θ -criterion is repeated below:

(20) 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, both *John* and *himself* in (19) should have a θ -role. However, *himself* cannot receive a θ -role, as discussed above and thus, (19) becomes ungrammatical.

The paradigm in (11a) and (11b), repeated here as (21a) and (21b) respectively, 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.

(21) a. John drank himself sick.

b. *John drank sick.

[with the intended meaning "John drank and as a result he became sick."]

Himself and *sick* in (21a) are in the syntactic sister relation as discussed above, while *John* and *sick* in (21b) are not. Hence, the latter example cannot be understood as a resultative sentence.

Ternary branching, however, is not admissible within the minimalist framework (Chomsky 1995). It is assumed that language is designed to provide legible information at the interface levels: sensorimotor systems and systems of thought. Therefore, it is considered that language design should

satisfy the minimal design specifications imposed by these interface levels and that the phrase structure which satisfies these specifications is a binary structure.

Binary branching is also empirically motivated.¹ It is a standard assumption that syntactic processes and operations deal with syntactic constituents. Pronominalization is one such process. Consider the sentences in (22) below, for instance:²

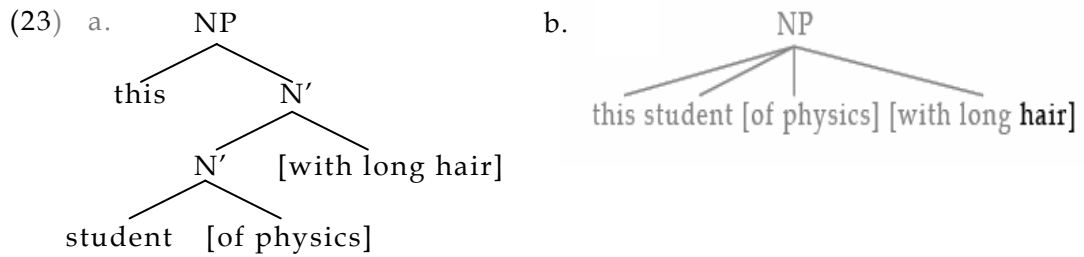
- (22) a. John met this student of [physics] with long hair, and Bill met that one with short hair.
- b. John met this student of [physics] with long hair, and Bill met that one.

(Hornstein, Nunes and Grohmann, 2004: 173)

In English, the pronoun *one* may replace *student of physics* in (22a) and *student of physics with long hair* in (22b). In order to capture the pronominalization facts in (22), there should be a node dominating only *student of physics* and excluding everything else and another node dominating *student of physics with long hair* and excluding everything else. These requirements are met in the binary branching structure, as shown in (23a), but not in the multiple branching structure, as illustrated in (23b).

¹ See Kayne (1984) for relevant discussion.

² The word used in the original paper, *linguistics* is replaced with *physics* to fit in with the tree diagrams in (23). This change has no crucial influence on the analysis in this thesis.



(Hornstein, Nunes and Grohmann, 2004: 173)

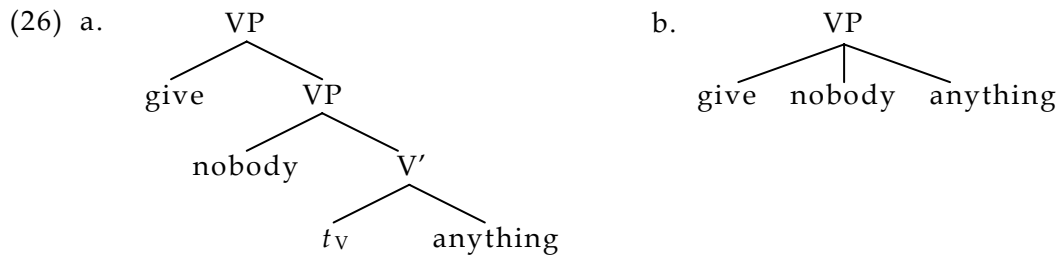
Secondly, let us consider double object constructions. Barss and Lasnik (1986) points out that the indirect object c-commands the direct object since the anaphor in (24b), for instance, should be bound by *the boys* and the negative polarity item *anyone* in (25b) should be licensed by the negative quantifier *nothing*.

- (24) a. Mary showed the boys each other.
 b. *Mary showed each other boys.

- (25) a. John gave nobody anything.
 b. *John gave anyone nothing.

(Hornstein, Nunes, and Grohmann, 2004: 174)

Following Barss and Lasnik (1986), Larson (1988) argues that the phrase structure of double object constructions is assigned a binary branching, as illustrated in (26a), not a ternary branching, as depicted in (26b):



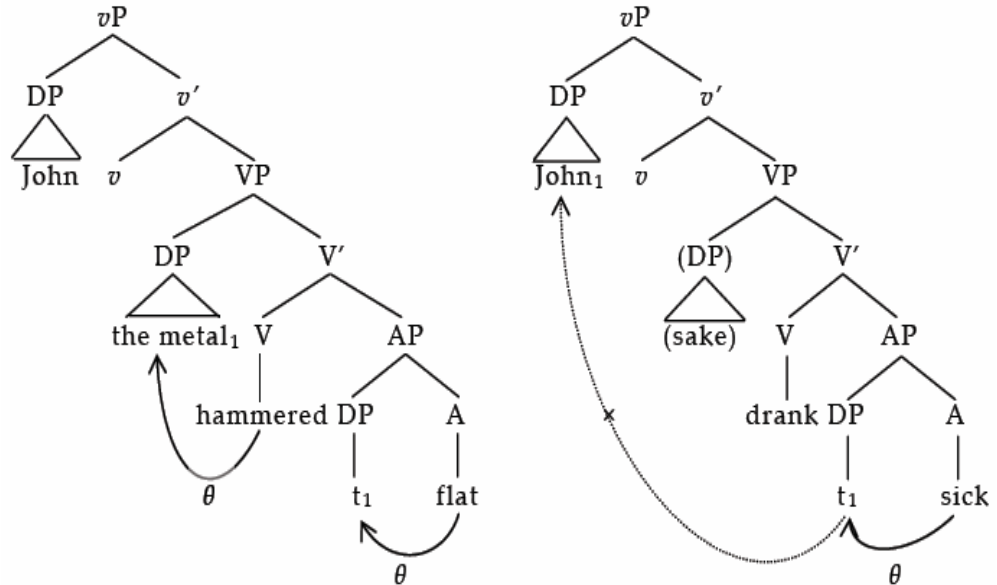
If their VP were to be assigned a ternary branching, neither complement should be more prominent than the other, for they c-command each other. By contrast, if only binary branching is permitted, the contrasts in (24) and (25) can be accounted for. The indirect object c-commands the direct object, while the latter does not c-command the first. Therefore, the anaphor and the negative polarity item are licensed in (26a); hence the contrasts in (24) and (25). Thus, the binary branching analysis is forced both conceptually and empirically within the minimalist framework.

2.3. Analysis Based on XP-Movement to Receive a Theta-Role –Saito (2001)

Saito (2001) analyzes resultative constructions within the minimalist framework (Chomsky 1995), assigning them binary branching³. Following Carrier and Randall’s (1992) argument over θ -role assignment in resultatives, he 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 (27a), while this movement does not occur in intransitive resultatives.

³ The Left Branching Condition is untenable within the minimalist framework and thus the examples in (16) do not raise a problem to this analysis.

- (27) a. John hammered the metal flat. b. *John drank (sake) sick.



Saito notes that the example in (27b) appears to raise a problem for his analysis, because the ungrammaticality of (27b) 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 (27a).

He points out that the examples in (28) also show that movement to *vP* Spec is banned. The absence of verbs like HIT and BELIEVE in (28) is taken to be evidence that movement into a θ -position is impossible in Chomsky (1995).

- (28) 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 (29) is not a simple ECM sentence and that the embedded subject in (29) is θ -marked also by the matrix verb, like the one in (30). The ungrammaticality of (29b) can be explained in terms of the selectional property of the verb *estimate*. This suggests that the embedded subject in (29a) moves to the matrix clause and then, receives an internal θ -role from the matrix verb.

- (29) a. Sue estimated Bill's weight to be 150 lbs.
b. *Sue estimated Bill to weigh 150 lbs.

- (30) a. Sue estimated Bill's weight.
b. *Sue estimated Bill.

(Bošković, 1997: 96)

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

- (31) [A]n NP can move to VP Spec and pick up an internal θ -role. On the other hand, [...] an NP cannot move to *v*P Spec and receive an external θ -role.

(Saito, 2001:56)

However, the examples in (32) may be problematic to this generalization.

- (32) 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 (33):

- (33) a. [_{vP} *v* [_{VP} wash John]]
 \uparrow |
 b. [_{vP} John₁ wash+*v* [_{VP} *t*_V *t*₁]]

To the extent that Hornstein is correct, we should look elsewhere to account for why (27b) is ungrammatical.

2.4. Analysis Based on Case-Valuation

In this section, I examine the ungrammaticality of (27b) 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*, as illustrated in (34).

$$(34) [_{CP} C [_{TP} T[\#\varphi] [_{vP} DP v[\#\varphi] [_{VP} V DP]]]]$$

$$\begin{array}{ccc} \lrcorner & \lrcorner & \lrcorner \\ \text{NOM} & & \text{ACC} \end{array} \wedge$$

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 (35b).

(35) a. John drank himself sick.

$$(35) \text{ b. } [_{T'} T[\#\varphi] [_{vP} \text{John drank}+v[\#\varphi] [_{VP} t_V [_{AP} \text{himself sick}]]]]$$

$$\begin{array}{ccc} \lrcorner & \lrcorner & \lrcorner \\ \text{NOM} & & \text{ACC} \end{array} \wedge$$

In transitive resultatives, the postverbal DP merges with the adjective and then, moves to VP Spec to receive an internal θ -role from V, as shown in (36a). 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 (36b).

(36) John hammered the metal flat.

$$(36) \text{ a. } [_{vP} \text{John hammered}+v[\#\varphi] [_{VP} \text{the metal}_1 t_V [_{AP} t_1 \text{flat}]]]]$$

$$(36) \text{ b. } [_{T'} T[\#\varphi] [_{vP} \text{John hammered}+v[\#\varphi] [_{VP} \text{the metal}_1 t_V [_{AP} t_1 \text{flat}]]]]$$

$$\begin{array}{ccc} \lrcorner & \lrcorner & \lrcorner \\ \text{NOM} & & \text{ACC} \end{array} \wedge$$

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 *v*P Spec to receive an external θ -role by the Minimal Link Condition.

(37) Minimal Link Condition (MLC)⁴

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)

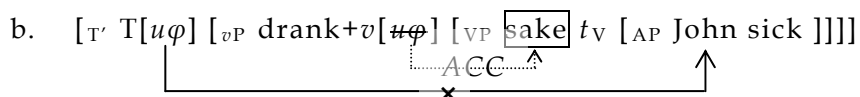
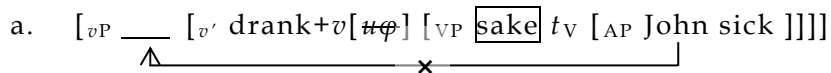
In this formulation, “closest feature” means as follows.

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

(*ibid.*)

In (39a), for example, *sake* c-commands *John* and hence, blocks agreement between *v*, the external θ -role assigner and *John*. Therefore, *John* cannot move to *v*P Spec to receive an external θ -role.

(39) *John drank sake sick.



⁴ See also Chomsky 1995: 297, 2000: 122.

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

(40) Defective Intervention Constraint (DIC)

$$a > \beta > \gamma$$

> is c-command, β and γ match the probe a , but β is inactive so that the effects of matching are blocked.

(Chomsky, 2000: 123)

In (41), *John* appears to be able to move to *vP* Spec since nothing prevents *John* from moving. In this case, agreement of T and *John* is not blocked, either. This derivation seems to be ruled out because the φ -set of *v* remains.

(41) *John drank sick.

a. [_{vP} John₁ drank+v[u φ] [_{VP} t_V [_{AP} t₁ sick]]]

b. [_{T'} T[~~u φ~~] [_{vP} John₁ drank+v[u φ] [_{VP} t_V [_{AP} t₁ sick]]]]
 \downarrow
 NOM \uparrow

However, the φ -set of *v* also seems to be left in (42) despite the grammaticality of this sentence.

(42) a. John drank yesterday.

b. [_{T'} T[~~u φ~~] [_{vP} John₁ drank+v[u φ] [_{VP} t_V]] yesterday]
 \downarrow
 NOM \uparrow

Therefore, we still need to consider why (41) is ungrammatical.

In sum, the fact that the φ -set of T remains proves to be cause of the ungrammaticality of (39), in which the postverbal DP blocks agreement between v and the DP sitting in the AP Spec. This analysis appears to hold for (41), in which nothing prevents movement of the postverbal DP, since the φ -set of v is left in this case. This analysis, however, rules out (42) incorrectly. Therefore, we still need to consider how the φ -set of v is deleted in (42).

Chapter 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, since the postverbal DP in intransitive resultatives cannot move to v P Spec to receive an external θ -role. To provide a solution to this problem, I will propose the existence of a null DP complement in the unergative VP and reconsider the phrase structure of intransitive resultatives.

3.1. Null DP

In the previous chapter, I have pointed out that the φ -set of v seems to be left both in (41) and (42), repeated here as (43) and (44), despite the different grammaticality of these sentences.

(43) a. *John drank sick.

b. [_{T'} T [~~φ~~] [_vP John₁ drank+v [$u\varphi$] [_{VP} t_V [_{AP} t₁ sick]]]]
 \downarrow NOM \uparrow

(44) a. John drank yesterday.

b. [_{T'} T [~~φ~~] [_vP John₁ drank+v [$u\varphi$] [_{VP} t_V]] yesterday]
 \downarrow NOM \uparrow

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

(45) [I]f an expression contains only features interpretable at IL[interface level], it converges at IL.

(Chomsky, 2000: 95)

Following this constraint, (44) should be ungrammatical as well, contrary to the fact. I propose, then, that the V in the unergative VP has a null DP complement, following the assumption in Pesetsky and Torrego (2004).

(46) 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 (43) is deleted by agreement with the null DP, as illustrated in (47).

(47) a. John drank yesterday.

b. [T' T[$\# \varphi$] [_{vP} John₁ drank+v[$\# \varphi$] [_{VP} t_V null DP]] yesterday]
 $\begin{array}{c} \text{L}_{\text{NOM}} \text{ } \wedge \qquad \qquad \qquad \text{ } \wedge \\ \text{ } \qquad \qquad \qquad \text{ } \text{ACC} \end{array}$

If the V in an unergative VP has a null DP complement, the phrase structure of (44) must be restated as follows:

(48) a. *John drank sick.

b. [T' T[$\# \varphi$] [_{vP} John₁ drank+v[$\# \varphi$] [_{VP} t_V null DP [_{AP} t₁ sick]]]]
 $\begin{array}{c} \text{L}_{\text{NOM}} \text{ } \wedge \qquad \qquad \qquad \text{ } \wedge \\ \text{ } \qquad \qquad \qquad \text{ } \end{array}$

Apparently, there is no crucial difference between (47) and (48) because the φ -set of v can be deleted by agreement with the null DP complement in both examples. However, *John* in (48) first merges with the adjective, receiving a θ -role from it, and then moves to v P Spec to receive an external θ -role, while the one in (47) originally merges with v and receives only an external θ -role. Then, it is quite plausible that the ungrammaticality of (48) is derived from the fact that movement is executed in the derivation. We will discuss this topic in detail in Chapter 4.

3.2. Null DP and the Maximization Principle

We still need to consider how *himself* receives accusative Case in (49).

(49) a. John drank himself sick.

b. $[_{T'} T[\#\varphi] [_{vP} \text{John drank} + v[\#\varphi] [_{VP} t_V \text{null DP} [_{AP} \text{himself}$
 $\text{sick}]]]]$

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 (50), in which the associate can receive nominative Case despite the fact that the expletive c-commands the associate.

- (50) a. There is likely to arrive a man.
 b. [T[# φ] be likely [Expl[φ -incomplete] 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 (it must be φ -complete) 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*. The Maximization Principle is formalized as follows:

(51) Maximization Principle

Maximize the matching effects.

(Chomsky, 2001: 15)

On the basis of this analysis, I propose that the null DP complement in the 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 (49), *himself* can receive accusative Case by the Maximization Principle as well. Notice that the φ -set of *v* cannot be deleted in (47), repeated here as (52), if the null DP in the unergative VP is always φ -incomplete.

(52) a. John drank yesterday.

b. $[_{T'} T[\#\varphi] [_{vP} \text{John}_1 \text{drank} + v[\#\varphi] [_{VP} t_V \text{null DP}]] \text{yesterday}]$
 $\quad \quad \quad \begin{array}{c} \lrcorner \text{NOM} \wedge \\ \lrcorner \text{ACC} \wedge \end{array}$

In English, there are both φ -complete and φ -incomplete expletives (*it* and *there* respectively) and therefore, it is quite plausible to assume that there are both φ -complete and φ -incomplete null DPs in English. If the null DP in (52) 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 (52) 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 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 deleted⁵:

(53) 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 DP. Therefore, I will take the first view, and assume that the null DP complement is φ -complete, if the verb does not have a second object. In other words, 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

⁵ See Vikner (1995) for a possible approach.

that they are not structurally Case-marked.⁶ 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 (49), repeated here as (54), but the subject of the resultative predicate is nevertheless *himself*.

(54) John drank (null DP) himself sick.

The null DP complement corresponds to this phonologically null theme which means the liquid consumed. In other words, the null DP complement 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.⁷

3.3. Null DP and an *EPP*-feature

There is one thing to be considered. If the V in an unergative VP has a null DP complement, the grammaticality in (55a) is surprising because this seems to violate the MLC, as illustrated in (55b):

(55) a. The pavement was run thin by the joggers.

b. [_{TP} the pavement₁ T [_{VP} *v*+ran [_{VP} null DP *t*_V [_{AP} *t*₁ thin]]]]

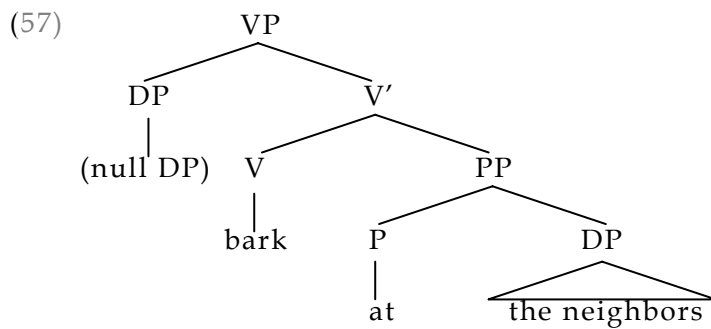
⁶ I assume that they are not structurally Case-marked because they do not have Case features. Then, Case-marking proves to be a morphological requirement.

⁷ 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 (46) above.

Pesetsky and Torrego (2004) suggest the possibility that the null DP might be a first object and the PP a second object in (56):

(56) The dog barked (null DP) at the neighbors.

Furthermore, they assume that the phrase structure of the VP in this sentence might be assigned Larsonian shell; hence the null DP asymmetrically c-commands the second object, as illustrated in (57):



They point out, however, that this assumption cannot explain the grammaticality of (58a), since the null DP is closer to T than *the neighbors*, as shown in (58b).

(58) a. The neighbor was barked at by the dog.

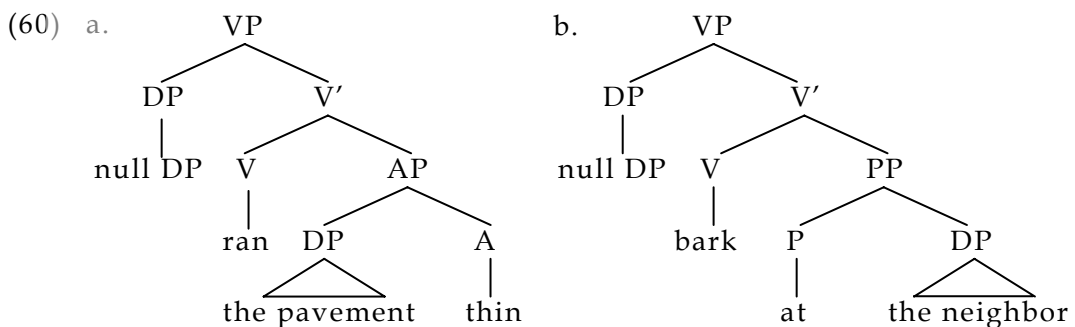
b. [TP The neighbors_{S1} T [_{vP} v+barked [_{VP} null DP t_V [_{PP} at t₁]]]]

Therefore, they conclude that a null DP complement does not exist in (56), repeated here as (59a), while a null DP complement does exist in (59b).

- (59) a. The dog barked at the neighbors.
 b. The dog barked (null DP).

However, this conclusion still needs the stipulation that the φ -set of v can agree with PP. However, they argue that PP is a self-sufficient category: P is a probe and the DP in its complement position is a goal. Therefore, v cannot agree with PP, since the φ -set of P is deleted and the DP becomes defective by agreement with P.⁸

Suppose that a null DP complement also exists in (59a), as illustrated in (56), and an *EPP*-feature cannot be satisfied with a DP that does not have a phonological content. The null DP in (58b), then, is invisible for the *EPP*-feature of T and the closest goal, *the neighbors* satisfies this feature without violating the MLC. The same case holds for (55b). Following the assumption of Pesetsky and Torrego (2004), I argue, then, that the phrase structure of (55) and (56) is assigned Larsonian shell, as shown in (60a) and (60b) respectively.



⁸ Strictly speaking, they argue that a tense phrase exists between v and V and this T assigns accusative Case. They assume that the set of the uninterpretable φ -features on T must agree with the uninterpretable Tense feature on D and that a preposition is an instance of an interpretable Tense feature, not uninterpretable one. They argue that the goal of the φ -set on verbal T must bear uT and therefore, P normally cannot be the goal of T. They suggest that this apparent contradiction is admissible by the selectional property of the verb. However, they consider the question open.

Therefore, the first object asymmetrically c-commands the second object, as discussed in Section 2.2.

Summarizing, the V in an unergative VP has a null DP complement. It is φ -incomplete, iff the verb has a second object. It is also invisible for an *EPP*-feature of the probe and therefore, it cannot be the goal for this feature.

Chapter 4. Analysis

In the previous chapter, 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:

- (61) 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 Chapter 2 can be solved on these assumptions.

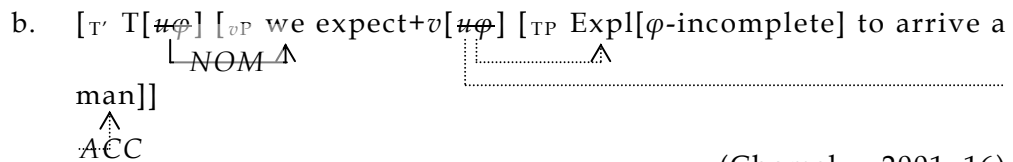
4.1. Intransitive Resultatives

In Section 3.2, I pointed out that the uninterpretable Case feature of *himself* appears to be unvalued in the example below, since the null DP intervenes between v and *himself*.

- (62) a. John drank himself sick.
b. $[T' T[+\varphi] [_{vP} \text{John drank}+v[+\varphi] [_{VP} t_V \text{null DP}[\varphi\text{-incomplete}] [_{AP} \text{himself sick}]]]]$

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 (62b).⁹ This process is parallel to the one in the example below:

(63) a. We expect there to arrive a man.



(Chomsky, 2001: 16)

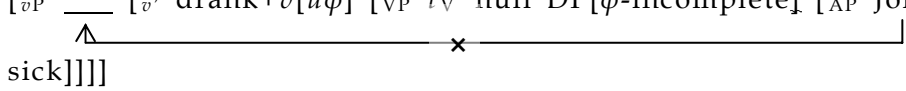
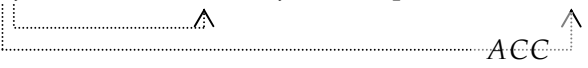
In (63), Agree holds of (v , Expl), deleting the person feature of Expl but leaving v intact because Expl is φ -incomplete and therefore, Agree holds between the probe v and the more remote goal *man* by the Maximization Principle, deleting the φ -set of v and the structural feature of *man*. This supports the analysis in (62) as reasonable.

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 (64a). As a result, movement of *John* to vP Spec to receive an external θ -role is ruled out, as shown in (64b). *John* agrees with v

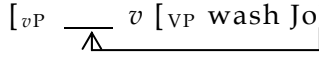
⁹ This analysis implies that the null DP bears a θ -role, though it does not bear Case. Notice that the null DP has the same property with the inherently Case-marked DP which is considered to require a θ -role, though it is not structurally Case-marked in Chomsky (1986). This indicates that the null DP might have inherent Case. See Lasnik (1999) for the analysis of inherent Case within the minimalist framework.

and therefore, the φ -set of T remains, as depicted in (64c). This causes the crash of the derivation.

(64) *John drank sick.

- a. [_{vP} drank+v[θ] [_{VP} t_V null DP[u θ] [_{AP} John[u θ] sick]]]
- b. [_{vP} [_{v'} drank+v[u φ] [_{VP} t_V null DP[φ -incomplete] [_{AP} John sick]]]]

- c. [_{T'} T[u φ] [_{vP} drank+v[~~u φ~~] [_{VP} t_V null DP[φ -incomplete] [_{AP} John sick]]]]


Notice that this analysis correctly rules in the movement of *John* to *vP* Spec in (33), repeated here as (65), since *wash* is not an unergative verb so that it does not have a null DP complement.¹⁰

- (65) a. [_{vP} v [_{VP} wash John]]

- b. [_{vP} John₁ wash+v [_{VP} t_V t₁]]

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

¹⁰ The ungrammaticality of the examples in (28), repeated here as (), should be explained as well within the framework in this thesis.

- (i) a. *John HIT *t*. (= John hit himself.)
 b. *John BELIEVE *t* to be intelligent. (= John believes himself 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 the trace of movement. Suppose that the trace in (65) 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.

(66) Structure of Resultatives

- a. transitive resultatives: $[_{vP} \text{Subj } v [_{VP} \text{DP } V [_{AP} \text{t}_{DP} A]]]$
- 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 between transitive and intransitive resultatives 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 presented in this thesis, on the other hand, correctly predicts this difference.

4.2.1. Gapping

As the paradigm in (67) 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 thesis.

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

(67a) derives from (68a) and the AP undergoes rightward movement to acquire a focalized interpretation, adjoining to the *vP* edge, as illustrated in (68b). The *vP* in the second conjunct is deleted because it is identical with the *vP* in the first conjunct, as illustrated in (68c). The final representation is the same as (67a).

- (68) a. John₃ [_{vP} t₃ hammered+v [_{VP} a hubcap₁ t_V [_{AP} t₁ thin]]] and Mary₂ [_{vP} t₂ hammered+v [_{VP} a hubcap₁ t_V [_{AP} t₁ flat]]].
 b. John₃ [_{vP} [_{vP} t₃ hammered+v [_{VP} a hubcap₁ t_V t_{AP}]]][_{AP} t₁ thin]] and Mary₂ [_{vP} [_{vP} t₂ hammered+v [_{VP} a hubcap₁ t_V t_{AP}]]][_{AP} t₁ flat]].
 c. John hammered a hubcap thin and Mary Δ [_{AP} t₁ flat].

On the other hand, (67b) cannot be simply derived from the same operation as the one which occurred in (68). (67b) 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 (69c).

- (69) a. John₂ [_{vP} t₂ sang+v [_{VP} t_V null DP [_{AP} the baby asleep]]] and Mary₁ [_{vP} t₁ sang+v [_{VP} t_V null DP [_{AP} the baby happy]]].
- b. John₂ [_{vP} [_{vP} t₂ sang+v [_{VP} t_V null DP t_{AP}]][_{AP} the baby asleep]]and Mary₁ [_{vP} [_{vP} t₁ sang+v [_{VP} t_V null DP t_{AP}]][_{AP} the baby happy]].
- c. *John sang the baby asleep and Mary Δ [_{AP} ~~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 (67b).¹¹

4.2.2. Topicalization

We can also find the same contrast pertaining to topicalization;

¹¹ Pseudo-gapping is worse than gapping and the judgment is wide-ranging as in ().

- (i) a. ?(*) John hammered the iron thin and Mary did flat.
 b. * John ran his spiked shoes threadbare and Peter did dusty.

If the AP can move to the *vP* edge as mentioned above, (a) should be grammatical the same as in (67a). I assume *did* can substitute the whole *vP* and thus, the AP is redundant in the example above since it lies in the *vP* edge. The same holds of the pseudo-cleft sentence as shown below.

- (ii) a. *What John did thin was to hammer the metal.
 b. *What the joggers did thin was to run the pavement.

I assume that the redundancy of the AP also causes the ungrammaticality of the example below.

- (iii) a. *What John did the metal was to hammer flat.
 b. *What the joggers did the pavement was to run thin.

topicalization of the adjective is grammatical in transitive resultatives while not in intransitive resultatives, as indicated in (70)¹²:

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

(70a) derives from the extraction of AP, as illustrated in (71), while (70b) derives from the extraction of A, as illustrated in (72):

- (71) a. , John hammered the metal₁ [_{AP} t₁ thin]
b. [_{AP} t₁ thin], John hammered the metal₁ t_{AP}.

- (72) a. , the joggers ran null DP [_{AP} the pavement thin].
b. * [_A thin], the joggers ran null DP [_{AP} the pavement t_A].

Topicalization is sought to be the operation that can apply only with maximal projections and (72) violates with this restriction.

¹² David Pesetsky (personal communication) points out to me that the (70a) is marginally grammatical and it improves if one imagines a context that justifies viewing *thin* as a topic, e.g. by putting focus elsewhere:

- (i) Thin, John hammered the METAL.
(Everything else he just hammered a little bit. Thin you should never hammer metal like this -- only copper.)

This means that *the metal* should move to the *vP* edge to get the focus interpretation, though I leave this matter open for future research.

4.2.3. *Though-Movement*

Concerning *though*-movement, movement of the adjective is allowed in transitive resultatives, while it is not in intransitive resultatives, as the paradigm in (73) shows.

- (73) 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 as illustrated in (74a). In other words, the extracted element in (73a) is not A but AP, as shown in (74b).

- (74) a. though John hammered the metal₁ [_{AP} t₁ flat], ...
- b. [_{AP} t₁ flat] though John hammered the metal₁ t_{AP}, ...

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, as illustrated in (75a). This time the extracted element in (73b) is A, as shown in (75b).

- (75) a. ___ though the joggers ran null DP [_{AP} the pavement thin], ...
 b. * [_A thin] though the joggers ran null DP [_{AP} the pavement *t*_A], ...

Suppose that only maximal projections undergo this operation. The contrasts in (73), then, can be easily explained, as discussed above.

4.2.4. Cleft Sentence

As the contrasts in (76-77) shows, it has been considered that the clefting of DP is possible, while the clefting of AP is impossible.¹³

- (76) a. It was a steak that John cooked black.
 b. It was his Nikes that the jogger ran threadbare.

- (77) a. *It was crazy that Mary drove John.
 b. *It is eccentric that Mary considers John.

Surprisingly, the clefting of the adjective is, however, possible in transitive resultatives, while it is impossible in intransitive resultatives, as illustrated in (78).

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

¹³ This point was suggested to me by Janet H. Randall (personal communication).

Let us consider what causes the contrast between (76) and (77). (76) derives from movement of DP, as shown in (79a), while (77) derives from movement of nonmaximal projection, A, as illustrated in (79b). This indicates that the clefting can apply only to maximal projections.

- (79) a. It was [_{DP} his Nikes]₁ that the joggers ran [_{AP} t₁ threadbare].
 b. *It is [_A eccentric] that Mary considers [_{AP} John t_A].

If this analysis is correct, then the contrast in (78) will be easily explained. (78a) derives from the clefting of the maximal projection, AP, as illustrated in (80). On the other hand, (78b) derives from the clefting of the nonmaximal projection, A, as shown in (81).

- (80) a. It is ___ that Peter painted the walls₁ [_{AP} t₁ white]
 b. It is [_{AP} t₁ white] that Peter painted the walls₁ t_{AP}

- (81) a. It is ___ that the joggers ran null DP [_{AP} [_{DP} the pavement][_A thin]]
 b. *It is [_A thin] that the joggers ran null DP [_{AP} the pavement t_A]

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

4.3. Unaccusative Resultatives

In this section, I briefly examine how the analysis in this thesis fits unaccusative resultatives such as the examples in (82).

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

In (82a), for instance, *the ice* first merges with the adjective and then moves to VP Spec to receive an internal θ -role, as illustrated in (83). In this derivation, *v* appears to block agreement between T and *the ice* and therefore, it appears that *the ice* cannot be valued nominative Case.

- (83) [_{T'} T[u ϕ] [_{vP} froze+v[u ϕ] [_{VP} the ice t_V [_{AP} t₁ solid]]]]

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

- (84) 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 (85).

(85) [_{T'} T [~~$u\varphi$~~] [_{vP} froze+v [~~$u\varphi$~~ -incomplete] [_{VP} the ice t_V [_{AP} t_1 solid]]]]

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

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

Let us compare (86) with the phrase structure of transitive resultatives and intransitive resultatives (based on unergative verbs) discussed above:

(87) Phrase Structure of Resultatives

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

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

- (88) 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.

To sum up, the postverbal DP cannot move to VP Spec only in intransitive resultatives, since the null DP complement in the unergative VP blocks the movement. This fact causes the syntactically different behavior between transitive and unaccusative resultatives and intransitive resultatives: the stranded elements in gapping and the extracted elements in topicalization, *though*-movement, and clefting in transitive and unaccusative resultatives are constituents, while both of the elements in intransitive resultatives are not constituents.

Chapter 5. Crosslinguistic Variation

In this section, I will discuss how the analysis in this thesis can accommodate crosslinguistic variety, introduced in Chapter 1, 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 (89a) and (90a) 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 (89b) and (90b).

(89) Icelandic

a. Það eru/*er málfræðingar í heberginu.

*Expl are/*is linguists in room.the*

“There are linguists in the room.”

(Vangsnes, 2002: 57)

- b. [T[$\# \varphi$] Expl[φ -incomplete] eru málfræðingar í heberginu]
-

(90) German

- a. Es sind/*ist drei Autos draußen.

*Expl are/*is three cars outside*

“There are three cars outside.”

(Vikner, 1995: 181)

- b. [T[$\# \varphi$] Expl[φ -incomplete] sind drei Autos draußen]
-

On the other hand, the verb agrees not with the postverbal DP but with the expletive in French and Spanish, as shown in (91a) and (92a) 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 (91b) and (92b).

(91) French

- a. Il y a des livres sur la table.

Expl there has INDEF-PL books on the table

“There are books on the table.”

- b. [T[$\# \varphi$] Expl y a+v[$\# \varphi$] des livres sur la table]
-

(92) Spanish

a. [pro] Hay varios papeles en ese cuaderno.

Expl have several papers in that notebook

“There are several papers in that notebook.”

(Zagona, 1988: 134)

b. [T[$\neq\phi$] Expl Hay+v[$\neq\phi$] various papeles en ese cuaderno]

NOM \wedge

ACC \wedge

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:

(93)

	ϕ -incomplete DPs
English, Icelandic, German	yes
French, Spanish	no

Native speakers of English, Icelandic, or German must know more complicated agreement system than those who speak French or Spanish, since the first set of languages has both ϕ -complete and ϕ -incomplete DPs, while the second one has only ϕ -complete DPs. Specifically, the former has to know that the ϕ -set of v in expletive constructions first agrees with the expletive and then agrees with the postverbal DP, and has to alternately use the verb in the singular and plural form to suit the form of the postverbal DP. The latter, on the other hand, has only to use the verb in the singular form in expletive constructions, since the ϕ -set of v agrees only with the expletive.

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.¹⁴

5.2. Intransitive Resultatives

Let us now return to the crosslinguistic variety in the acceptability of intransitive resultatives that I pointed out in Chapter 1. Icelandic and German, in which intransitive resultatives are acceptable, can be considered to have a φ -incomplete null DP complement in the unergative VP, since they are languages that have φ -incomplete DPs according to (93). 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 (94b) and (95b).

(94) Icelandic

a. Hann oeskradhi sig haasan.

he shouted himself hoarse

“He shouted himself hoarse.”

¹⁴ The argument here is based on research from corpora such as British National Corpus and CHILDES.

- b. [_T T[# ϕ] [_{vP} Hann oeskradhi+v[# ϕ] [_{VP} t_V null DP[ϕ -incomplete] [_{AP} sig haasan]]]]
- └───┬───┘
NOM ^
- └───┬───┘
 ^
- ^
ACC

(95) German

- a. Die Jogger liefen den Rasen platt.

the joggers run the lawn flat

“The joggers ran the pavement flat.”

- b. [_T T[# ϕ] [_{vP} Die Jogger liefen+v[# ϕ] [_{VP} t_V null DP[ϕ -incomplete] [_{AP} Rasen platt]]]]
- └───┬───┘
NOM ^
- └───┬───┘
 ^
- ^
ACC

By contrast, French and Spanish, in which intransitive resultatives are ungrammatical, do not have ϕ -incomplete DPs, according to (93).¹⁵ Thus, the null DP complement in the unergative VP in these languages can be considered to be ϕ -complete unlike English, Icelandic, and German. This analysis easily gives an explanation of the ungrammaticality of (96a) and (97a). 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 DP remains unvalued,

¹⁵ 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 null 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.

as shown in (96b) and (97b).¹⁶

(96) French

a. *Ils ont couru le trottoir mince.

they have run the pavement thin

“They ran the pavement thin.”

b. [TP T[#φ] [_{vP} ils[ont couru+v[#φ] [_{VP} t_V null DP [_{AP} le trottoir mince]]]]

(97) Spanish

a. *Mary corrió sus zapatillas gastadas

Mary ran her trainers threadbare

“Mary ran her trainers threadbare.”

b. [TP T[#φ] [_{vP} Mary[corrió+v[#φ] [_{VP} t_V null DP [_{AP} sus zapatillas gastadas]]]]

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

¹⁶ French allows transitive resultatives, as illustrated in (), while Spanish does not, as shown in ().

- (i) Pierre a peint les murs en blanc.
Pierre has painted the pictures in white
 “Pieere painted the pictures white.”

(Legendre, 1997: 47)

- (ii) *John pateó la puerta abierta.
John kicked the door open
 “John kicked the door open.”

Thus, only the status of the null DP might not cause the unacceptability of (97a). I will leave this matter open for future research.

(98)

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

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.

In summary, I have proposed a parameter pertaining to existence of φ -incomplete DPs and have suggested that the value of this parameter is involved with the acceptability of intransitive resultatives in natural languages. English, Icelandic, and German, in which intransitive resultatives are acceptable, have φ -incomplete DPs and thus, the postverbal DP can be assigned accusative Case by the Maximization Principle. On the other hand, French and German, in which intransitive resultatives are unacceptable, does not have φ -incomplete DPs and thus, the postverbal DP cannot be assigned accusative Case.

Chapter 6. Remaining Issues

This chapter will deal with two remaining issues: depictives and *though*-movement.

6.1. Depictives

In this section, we will discuss how depictives such as (99) should be analyzed, because both resultatives and depictives are categorized as secondary predicates.

- (99) a. John left angry.
b. Bill ate the meat raw.

(McNulty, 1988: 1)

The AP in (99a) describes the state of subject at the time when the action denoted by the verb occurs. The AP in (99b), on the other hand, describes the state of object at the time when the action denoted by the verb occurs. Regarding depictives, McNulty (1988) argues that the DP is assigned a θ -role from the AP which is predicated of it. Therefore, resultatives and depictives are alike in the respect that both of them assign θ -roles to their modifying DPs. Based on this argument, some researchers, including Rothstein (2004), have argued that secondary predicates are a unitary phenomenon. However, they show syntactically different behavior. Most obvious difference between them is result of long-distance extraction. Long-distance extraction of

depictives is ungrammatical, as illustrated in (100):

- (100) a. *How raw do you wonder whether John ate the meat?
b. *How angry does Mary wonder whether John left?

(Carrier and Randall, 1992: 185)

Long-distance extraction of resultatives, on the other hand, is not completely ungrammatical, as shown in (101):

- (101) a. ?How flat do you wonder whether they hammered the metal?
b. ?How threadbare do you wonder whether they should run their sneakers?

(*ibid.*)

Carrier and Randall (1992) point out that resultative predicates behave like internal arguments unlike adjuncts. Let us consider the following examples:

- (102) a. ?Which boys do you wonder whether to punish?
b. ?Which guests do you wonder which dishes to serve?

- (103) a. *How do you wonder whether to punish?
b. *How do you wonder which boys to punish?

(*ibid.*)

In (102), the extracted element is an internal argument of the verb and thus, its

trace is lexically governed by the verb. In (103), on the other hand, the extracted element is not an argument and thus, its trace is not lexically governed by the verb. Moreover, the trace is not governed by its antecedent, because the *wh*-phrase in the intermediate CP Spec blocks the government from the *wh*-phrase in the matrix sentence. Therefore, the examples in (103) violate both the Subjacency Condition¹⁷ and the Empty Category Principle (ECP)¹⁸, while the examples in (102) only violate the Subjacency Condition. From these observations, they argue that the adjective in depictives is an adjunct, while the one in resultatives is an argument of the verb. However, the ECP account seems untenable under the minimalist assumptions. Then, we should ask how the contrast in (100) and (101) can be explained within the minimalist framework.

Suppose that adjunct is inserted after the structure has been built, as discussed in Lebeaux (1988). Then, the derivation in (100a) should proceed as follows:

- (104) a. [_{VP} John ate the meat]
 b. [_{CP} whether C [_{TP} John ate ... [how raw]]]

¹⁷ The Subjacency Condition is formalized as follows:

- (i) Subjacency Condition
 A cyclic rule cannot move a phrase from position Y to position X (or conversely) in ...X...[_α...[_β...Y...]]...X..., where *α* and *β* are cyclic nodes.
 (Chomsky, 1977: 673)

In this formulation, cyclic nodes are considered to be NP and IP. Both in (102) and (103), the extracted elements move across two cyclic nodes, the embedded IP and the matrix IP.

¹⁸ The ECP is formalized as follows:

- (i) [_α e] must be properly governed.
 (Chomsky, 1981: 250)

- c. [CP ___ C do you wonder [CP whether C [TP ... [how raw]]]]
-

In (104a), the *vP* in the embedded sentence is formed. After the embedded CP is formed, *how raw* is inserted into the derivation, as shown in (104b). Therefore, agreement between matrix C and *how raw* violates the PIC, as illustrated in (104c). On the other hand, *how flat* in (101a) enters into the derivation from the beginning, as illustrated in (105a). Then, it moves to CP Spec in the embedded sentence through the *vP* edge. Therefore, movement of *how flat* to CP Spec in the matrix sentence does not violate the PIC.

- (105) a. [*vP* they hammered the metal [how flat]]
 b. [*vP* [how flat]₁ [*vP* they hammered the metal *t*₁]]
 c. [CP whether [CP [how flat]₁ C [TP they hammered ...]]]
 d. [CP [how flat]₁ C do you wonder [CP whether [CP *t*₁ [TP ...]]]]

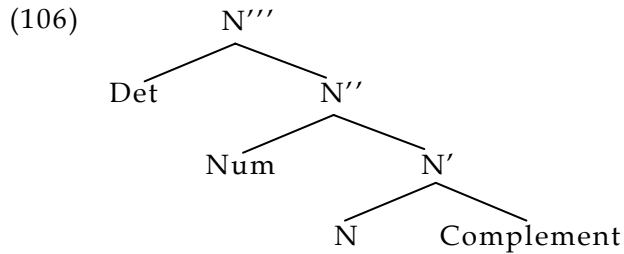
However, it is still open to discussion how depictives can assign a θ -role to the subject of the predication, if θ -role assignment is executed under Merge.¹⁹

6.2. *Though*-Movement

Another question is about *though*-movement. Assuming the structure of NP in (106), which is proposed in Jackendoff (1977), Culicover (1982) analyses the contrast in (107) within the X'-theory and argues that this operation can be

¹⁹ One might suppose that depictives assign a θ -role to PRO and that PRO is controlled by the relevant DP. However, we still need to investigate how PRO is licensed and how it relates with its controller.

applied only to the bar-level category.



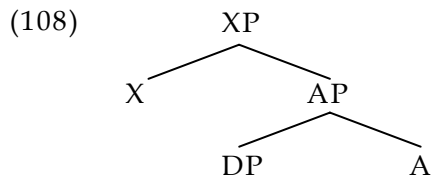
- (107) a. [_{N'} Genius] though John is, he can't tie his shoe laces.
b. *[[_{N'''} A [_{N''} [_N genius]]] though John is, he can't tie his shoe laces.
(cf. *Though John is genius, he can't tie his shoe laces.)

(Culicover, 1982: 2)

However, the X'-bar theory is not adopted in the minimalist framework. Within the minimalist framework, N''' corresponds to DP and N corresponds to NP. If only maximal projections are subject to this operation, as assumed in Section 4.2., not only NP but DP must be able to undergo this operation, contrary to the fact.

The assumption adopted in Section 4.2 was based on the fact that not A but AP can undergo *though*-movement. Suppose that a functional category XP exists in the higher position of AP, as illustrated in (108)²⁰:

²⁰ Hale and Keyser (2002) also assume that adjectival small clauses are headed by functional categories.



Then, the element which undergoes this operation is not functional categories but lexical categories in all the grammatical cases. That is, only lexical projections appear to be able to undergo *though*-movement. This analysis is supported by the fact that *vP* cannot undergo this operation, as shown in (109):

(109) *_{vP} *t*₁ running down the stairs] though John₁ was, they made no attempt at silence.

(Culicover, 1982: 3)

Interestingly, *though*-movement of PPs is not completely unacceptable, as illustrated in (110):

- (110) a. ?_{PP} [On the table] though the book was, I couldn't find it.
 b. *?_{PP} [In June] though the concert was, we decided to buy the tickets now.

(*ibid.* : 2)

Hale and Keyser (2002) argue that prepositions share an important characteristic of the functional categories, while they constitute a lexical

category. Then, we can explain the grammaticality of the examples in (110), as follows: *though*-movement of PP is partially acceptable, since PP has both properties of a lexical category and a functional category.

The analysis presented in this section can provide an explanation of the syntactically different behavior toward *though*-movement among categories. However, we need to consider the structure of XP more precisely. This is still open to discussion as well.

Chapter 7. Concluding Remarks

Carrier and Randall (1992) analyze the resultative constructions within the GB framework (Chomsky 1981) and argue that the phrase structure of resultative constructions is assigned a ternary branching. However, the syntactic framework shifted from the GB to the Minimalist Program, and the ternary branching is not admissible 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 in θ -role assignment in resultative constructions cross-linguistically. In this argument, however, intransitive resultatives raise a serious problem, since movement of the postverbal DP to v P Spec to receive an external θ -role appears to be prohibited. To solve this problem, he proposes a generalization that a DP cannot move to receive an external θ -role. However, Hornstein (2001) argues that a DP might be able to move to v P Spec to receive an external θ -role.

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 v P 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. Specifically, 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 presented in this thesis, on the other hand, correctly predicts this difference: the stranded elements in gapping and the extracted elements in extractions in transitive resultatives are constituents, while both of the elements in intransitive resultatives are not constituents.

Moreover, I have proposed a parameter pertaining to existence of φ -incomplete DPs and 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. English, Icelandic, and German, in which intransitive resultatives are acceptable, have φ -incomplete DPs and thus, the postverbal DP can be assigned accusative Case by the application of the Maximization Principle. On the other hand, French and Spanish, in which intransitive resultatives are unacceptable, do not have φ -incomplete DPs and thus, the postverbal DP cannot be assigned accusative Case.

The analysis presented in this thesis allows movement of a DP to v P Spec to receive an external θ -role in principle and therefore, strongly supports the argument that an XP can move to receive a θ -role.

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