

Theta-Marking in Resultative Constructions

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Kim, Myungae. 2004. *Theta-Marking in Resultative Constructions*. *The Linguistic Association of Korea Journal*, 12(4), 251-269. English APs are classified into two types such as depictive predicates and resultative predicates. This paper examines depictive and resultative constructions in English. In section 2 of this paper, I will examine the characteristics of depictives and resultatives. In section 3, I will discuss the two competing analyses, and in particular, the Ternary Analysis by Carrier and Randall (1992) and I will show their problems. And I will propose the Hybrid 2 Analysis for the transitive and intransitive resultatives. In section 4, I will apply the Complex Verb Analysis to resultatives, by using the definition of government of Kitagawa (1986).

Key words: resultative, depictive, head movement

1. Introduction

We can see sequence...V (NP) AP in different English constructions, three of them are illustrated in (1):

- (1) a. John left the room happy. (subjective depictive)
- b. John drank the beer flat. (objective depictive)
- c. John hammered the metal flat. (resultative)

In (1a), the AP, which is called as a secondary adjective predicate, is predicated of the subject, and the AP in (1b, c) is predicated of the object. Depictives can be predicated of a subject or object, while resultatives can never be predicated of a subject.

Ian Roberts (1988) suggested that the APs in (1a-c) are all in VP by using a test of VP-constituency:

(2) VP Fronting

- a. John wanted to leave the room happy-and leave the room.
- a'. *John wanted to leave the room-and leave the room he did happy.
- b. John wanted to drink the beer flat-and drink the beer flat he did.
- b'. *John wanted to drink the beer flat-and drink the beer he did flat.
- c. John wanted to hammer the metal flat-and hammer it flat he did.
- c'. *John wanted to hammer the metal flat-and hammer it he did flat.

(3) Though Movement

- a. Leave the room happy though John may...
- a'. *Leave the room though John may happy...
- b. Drink the beer flat though John may...
- b'. *Drink the beer though John may flat...
- c. Hammer the metal flat though John may...
- c'. *Hammer the metal though John may flat...

(4) Pseudoclefts

- a. What John did was leave the room happy.
- a'. *What John did happy was leave the room.
- b. What John did was drink the beer flat.
- b'. *What John did flat was drink the beer.
- c. What John did was hammer the metal flat.
- c'. *What John did flat was hammer the metal.

These examples indicate that all these APs are in VP, since they are obligatorily affected by the rules that affect VP as a constituent, as Ian Roberts (1988) argued. Following Ian Robert's (1988), we will consider both depictives and resultatives to be in the VP.

This present paper is mainly concerned with the resultative constructions. The resultative construction describes the state resulting from the action or event denoted by the main verb. For example, sentence (5) is interpreted as 'John caused the metal to be/ become flat by hammering it'.

(5) John hammered the metal flat.

There has been a condition on the resultative constructions. The condition is that resultative secondary predicates are predicated of direct objects. Transitives and unaccusatives pattern one way, while unergatives require a reflexive, as shown in (6), (7):

(6) a. The gardner watered the tulips flat.

b. The river froze solid.

(7) a.* John laughed hoarse.

b. John laughed himself hoarse.

This is referred to by Levin and Rappaport (1995) as the Direct Object Restriction (DOR). Thus it cannot be predicted of the subject. As shown in (6), (7), the resultative predicates such as *flat*, *solid*, *hoarse* are predicated of the object.

In (6b), we can see unaccusative intransitive verbs. The DOR condition on the resultative construction is also held in unaccusative intransitive verb constructions:

(8) a. The river froze solid. (=6b)

b. The bottle broke open.

c. The gate swung shut.

d. The curtain rolled open on the court of the Caesars.

(Levin and Rappaport 1995:39)

Since the unaccusative verbs have an underlying object, the resultative phrases in (8) can be predicated of the underlying object or the surface

subject.

In (9), we have unergative constructions.

- (9) a. *John laughed hoarse. (=7a)
 b. *We yelled hoarse.
 c. John laughed himself hoarse. (=7b)
 d. We yelled ourselves hoarse.

The unergative verbs do not have an underlying object, but only an underlying subject. Under the DOR, the ungrammaticality of (9a, b) follows. The NP John is not the object but the subject of the main verb. If the unergative verbs in (9) have the so-called 'fake reflexives', the constructions become grammatical, as shown in (9c, d).

2. Depictive and Resultative Construction

In this section, we will examine the characteristics of depictive and resultative constructions.

2.1. Depictive Construction

Rothstein (1983) distinguished between primary and secondary predication, where she identified the former as clausal predication, and the latter as the predication of adjuncts.¹⁾

The definition of primary predication is given in (10):

- (10) a. α is a primary predicate of β , iff α is predicated of β , and α and β c-command each other, and β is not theta-marked outside the predication relation with α .
 b. If α is a primary predicate of β , then α and β form an instance of primary predication.

1) In Rothstein (2001), she refines the distinction between primary and secondary predication, but the original insight that they are different kinds of occurrences of the syntactic predication relation still holds.

According to this definition, either sentences (IPs) of small clauses are instances of primary predication, and they will form constituents.

Secondary predication identified in Rothstein (1983) is divided into two kinds in Rothstein (2001). One kind is where a predicate is absorbed into another predicate and the highest predicate enters into a primary predication relation with the subject.

(11) John [[drove the car [drunk]_{AP}]_{VP}]_{I'}

Drunk in (11) is absorbed into *drove the car*, and *drove the car drunk* is absorbed into the *I'*, and the whole *I'* is directly predicated of the subject.

The other kind is secondary predication illustrated in (12):

- (12) a. Mary ate the carrot raw.
 b. They elected Jane president.
 c. She drinks her coffee black and bitter.

The adjunct predicate as in (12)²⁾ is directly predicated of the object without being absorbed, and the subject and predicate do not form a constituent.

Secondary predication is defined as follows:

- (13) a. α is a secondary predicate of β iff α is predicated of β and α and β c-command each other and β is theta-marked by a head not contained in α .
 b. If α is a secondary predicate of β , then α and β form an instance of secondary predication.

The most obvious difference is that an instance of primary predication

2) The secondary predicates we are discussing are termed 'depictives' in Halliday (1967) and they express the state that their subject is in when the assertion of the main predicate holds. 'John ate the carrot raw' can be paraphrased as 'John ate the carrots and the carrots were raw when he ate them'

forms a constituent, while an instance of secondary predication doesn't, as shown in (14):

- (14) a. I thought [that problem difficult]_{SC}.
 b. Mary [drank [her coffee][very strong]_{AP}]_{VP}.

The subject of the embedded predicate as in (14a) is not theta-marked by the main verb, while in (14b), it is theta-marked in secondary predication. As a result, *very strong* is an adjunct and if it were dropped, the remaining sentence will be grammatical, while it will not in (15a).

- (15) a. *I thought that problem.
 b. Mary drank her coffee.

Stowell (1991a) argued that adverbs modify main verbs within the constituent they occur in, and that in sentences with secondary predicates, adverbs following the accusative object behave as if the secondary predicates isn't there and modify the governing verb.

- (16) a. Mary eats carrots repeatedly raw.
 b. They consider him sincerely upset.

In (16a), the adverb modifies the main verb, but not in (16b). So from the evidence of syntactic distribution of adverbial modifiers, we can see secondary predicates are part of the VP.

Kayne (1984) shows that subjects of secondary predicates behave like objects with regard to the extractions they permit, while subjects of small clauses behave like subjects, as shown in (17):

- (17) a. Who_i did you meet the sister of t_i drunk?
 b. *Who_i do you consider the sister of t_i very smart?

Also, an NP with secondary predicate can be conjoined with a bare

NP complement as a complement of a verb, unlike small clause complements.

- (18) a. Bill drinks coffee and tea iced.
 b. Bill drinks coffee and he drinks tea iced.
 (19) a. *I considered the problem and the solution wrong.
 b. I considered the problem, and I considered the solution wrong.

We agree with Rothstein's (2001) assumption that these constructions predicate the adjunct directly of its subject without the intervention of a PRO. So we assume a structure like (20a) rather than (20b):

- (20) a. John [[eats carrots raw]_{V'}]_{VP}.
 b. John [[eats carrots]_{V'} [PRO raw]]_{VP}.

The structure in (20a) makes AP a sister of the NP object and thus they c-command each other.

Rothstein (2001) has provided several pieces of evidence that secondary predicates are generated under V'.

First, while secondary predicates can occur after an instrumental PP of an adverb, it is preferable to place them before.

- (21) a. John eats carrots raw with his fingers.
 b. ?John eats carrots with his fingers raw.

If (21a) is preferred over (21b), this is evidence that the predicate is generated at the argument level.³⁾

Next, 'Though-movement' preferably applies to the largest constituent, although it is marginally possible to apply it to a V; while pseudoclefting can apply to any constituent which is a V' or larger.

3) According to Bresnan (1982), instrumental modifiers are arguments introduced by a lexical rule of 'instrumentalization', though they are not subcategorized by the verb.

- (22) a. Eat carrots raw though John does...
 b. *Eat carrots though John does raw...
 c. What John does is eat carrots raw.
 d. *What John does raw is eat carrots.

From these examples, we propose these secondary adjunct predicates are obligatorily within the V' constituent, in a position where they c-command their subjects, and where their subjects c-command them. As we have examined, the constraint that a verb assigns an internal theta-role to a syntactic sister and the mutual c-command constraint on predication together guarantee that a secondary predicate and its subject cannot form a constraint.

We will consider the resultative construction more closely in the next subsection.

2.2. Resultative Construction

We have examined 'depictive' predicates so far, which hold of their subject at the time that the event given by the matrix verb is going on. They can be predicated of the subject or object of the main verb, while resultative predicates can only be predicated of a direct object as shown below:

- (23) a. Mary painted the house red.
 b. Jane sang the baby asleep.
 c. He shouted himself hoarse.
 d. The house_i was painted t_i red.

A direct object is a structural concept, defined as 'NP governed by V' but not a thematic concept. In (23c, d), the subject of resultative construction is governed by an intransitive verb which assigns it no theta-role.

Another major difference between resultative and depictive constructions is that resultative constructions do not have to be predicated of a

thematic argument of the verbal head, while depictive constructions must be predicated of a thematic argument. In (23b), resultative is predicated of a non-thematic argument, while in (23c), 'fake reflexive' is used as a subject of the resultative and it is assigned the external theta-role of the predicate. Let us look at another example:

- (24) a. I cooked the carrots dry.
 b. John rode the horse exhausted.

Sentence (24a) is ambiguous between a depictive reading (I cooked the carrots when they were dry) and a resultative reading (I cooked the carrots until they were dry), and the same is for (24b). However, (25a) with a fake reflexive, can only have a resultative reading. 'John cried until he was sick'. And (25b) can only mean that 'Jane sang and as a result the baby was asleep'.

- (25) a. John cried himself sick.
 b. Jane sang the baby asleep.

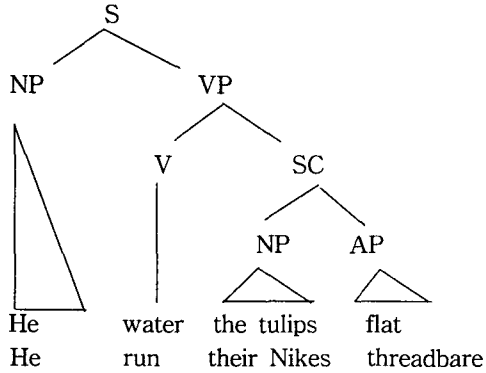
In the next section, we will examine the structure of resultative constructions more closely.

3. Structure of Resultative Constructions

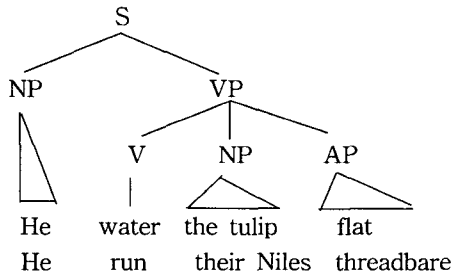
3.1. Two Analyses

According to Carrier and Randall (1992), there are three competing analyses of the syntactic structure of English Resultative Constructions: the Binary Small Clause Analysis (Kayne (1985), Hoekstra (1988)), the Ternary Analysis (Schein (1982), Rothstein (1983), Carrier and Randall (1992)), and the Hybrid Analysis (Sato (1987)). For the purpose of our discussion, we are concerned with the following two analyses:

(26) a. The Binary Small Clause (SC) Analysis



b. The Ternary Analysis



Let us first consider the Binary SC Analysis. The Binary SC Analysis in (26a) assumes that postverbal NP and the resultative phrase form a small clause. Like the Ternary Analysis, the relationship between the resultative phrase and NP is predication: the postverbal NP is the subject of the resultative predicate. The problem in this view is evidence that in transitive resultative, the postverbal NP can undergo passivization, middle formation, and adjectival passive formation, as showed in Carrier and Randall (1992).

In this view, the postverbal NP of transitive resultative, *the tulips* in (26a), is not a sister of the verb, thus it is not an argument. Since it is not an argument, it cannot receive a theta-role as pointed out by

Carrier and Randall (1992). Rather, if the verb assigns a theta role at all, it can assign a theta role to the entire SC constituent.

According to this analysis, we would obtain the following argument structure:

	Basic verb	Resultative verb
(27) a.	water: agent [<u>theme</u>]	agent [r-event]
b.	run: agent	agent [r-event]

As we can see, both transitive and intransitive resultatives have the same argument structure.

As Carrier and Randall (1992) point out, that would be a problem of a Binary SC Analysis, since resultatives inherit the argument structure of their non-resultatives.

Now let us consider the Ternary Analysis. Both the Binary SC and the Ternary Analysis assume that transitive and intransitive resultatives have the same syntactic structures, *flat* and *threadbare* in (26b), are theta-marked by a main verb and they are arguments of the verb. And for transitive resultative, not intransitive, the postverbal NP is also an argument of verb. Following the assumption that argumenthood requires sisterhood (Chomsky (1986)), Carrier and Randall(1992) claim that verb, postverbal NP, and the resultative phrase are sisters within a ternary-branching VP. According to Carrier and Randall (1992), the argument structure will add one theta-role, r(esultative)-state for each one:

	Basic verb	Resultative verb
(28) a.	water: agent [<u>theme</u>]	agent [r-event]
b.	run: agent	agent [r-event]

Under this analysis, *the tulips* in (26b) is still an argument of a verb unlike the Binary SC Analysis. In (28a), *water* has one internal argument, *a theme*, which is the direct internal argument. It means it receives its theta role directly from the verb. Because direct

theta-marking requires mutual c-command,, this argument must be identified with an underlying NP that is a sister of the verb.

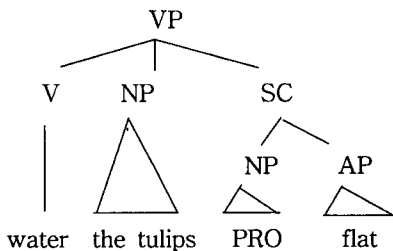
Under the Ternary Analysis, there is no problem with argumenthood of the postverbal NP, unlike the Binary SC Analysis, since it is a sister of the verb and therefore is an argument of the verb.

We claim that this analysis has one problem with regards to the status of the postverbal NP in intransitive resultative. Although the postverbal NP is a sister of main verb, it is not theta-marked by the verb, therefore it is not a direct argument. With regards to this issue, Carrier and Randall (1992) argue that the relationship between argument structure and syntactic structure is asymmetric, although the argument of a verb must be its syntactic sister, a sister of verb is not necessarily its argument. Though Carrier and Randall(1992) have attempted to account for the problem related to argumenthood of resultative, they do not seem to provide a neat explanation for that. So we will propose another approach with regards to that issue in the next section.

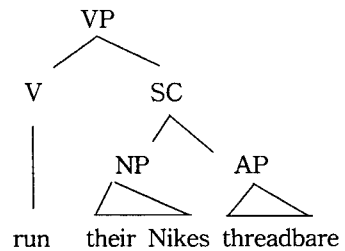
3.2. Hybrid Analysis

Besides the Ternary Analysis and the Binary SC Analysis, there is another analysis, the Hybrid SC Analysis. Although it gives intransitive resultative a binary branching VP, it gives transitive resultative ternary branching VP. Let us consider its syntactic structure:

(29) a. Transitive resultative



b. Intransitive resultative



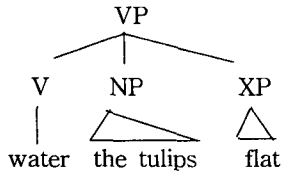
This analysis tries to show that the subject and its predicate form a constituent. The Hybrid SC Analysis claims that the resultative phrase is not a sister of the verb and not its argument.

This analysis has some problems, as Carrier and Randall (1992) point out. In intransitive resultative, the postverbal NP is a subject of small clause. This postverbal NP needs to be assigned Case from the main verb. Therefore, in order to get a Case, the Sc should not be the maximal projection for government. If we assume that the SC is not a maximal projection in transitive resultatives, PRO is governed as in (29a). Thus we need two kinds of definition of barrierhood of the small clause for government.

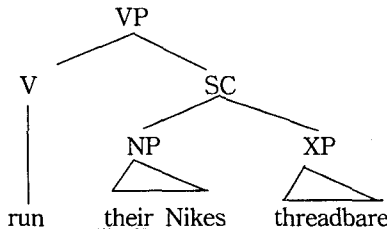
As we have examined, the grammatical status of the postverbal NP in intransitive resultatives is different from that of the postverbal NP in transitive resultatives: although it is the sister of the main verb, it is not assigned a theta-role and therefore, not a direct argument.

Therefore, in this paper, we propose another Hybrid Analysis, which we call Hybrid 2 Analysis following Yamada (1987). This analysis gives transitive resultatives the Ternary Analysis, and intransitive resultatives the Binary SC Analysis:

(30) a. The Hybrid 2: Transitive resultatives



b. The Hybrid 2: Intransitive resultatives



In this analysis, only intransitive resultatives have SC structure, so we can assume that SC is not a barrier for government, which allows the postverbal NP to be assigned a Case from the main verb.

Of course, as pointed out by Carrier and Randall (1992), this analysis also has some problems: a) with relation to the extraction of the subpart of a left branch, both transitive and intransitive resultatives behave identically, b) it cannot deal with the selection of the resultative XP.

Many researchers have assumed that in the case of intransitive resultatives, the postverbal NP is not an argument of the verb, while the postverbal NP of transitive resultatives is an argument (Levin and Rappaport (1995), Jackendoff (1990) among others). Carrier and Randall (1992) explicitly argue this point. They observe that some processes that are taken to apply only to direct internal argument do not apply to intransitive resultatives, while they do apply to regular resultative expressions. In particular, they argue that adjectival passive formation and middle formation apply to direct internal arguments, and they are said to apply to transitive resultatives:

- (31) Adjectival Passive Formation from transitive
 - a. the hammered-flat metal
 - b. the smashed-open safe
- (32) Adjectival Passive Formation from intransitive
 - a. *the driven bald-tires
 - b. *the danced-thin soles
- (33) Middle Formation from transitive
 - a. the metal hammers
 - b. The corn waters flat easily
- (34) Middle Formation from intransitive
 - a. *Those tires drive bald easily
 - b. *He talks blue in the face easily

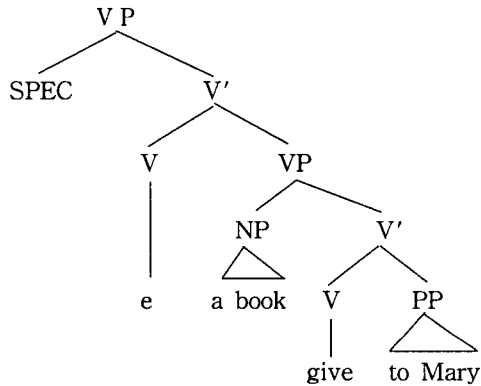
Therefore, as we proposed, if we could assign Ternary Analysis for transitives and Binary SC Analysis for intransitives, we can capture the difference between argument structure and syntactic structure,

especially in an intransitive verb.

4. Double Object Constraint

In this section, we will analyze the resultative constructions under the Larson's (1988) Complex Verb Analysis. According to this analysis, the verb and its indirect object form a constituent, as we shown in (35):

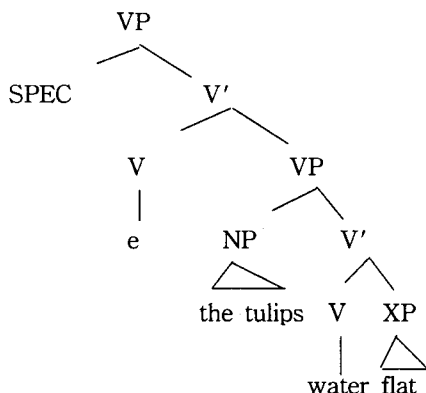
- (35) a. John gave a book to Mary.
b.



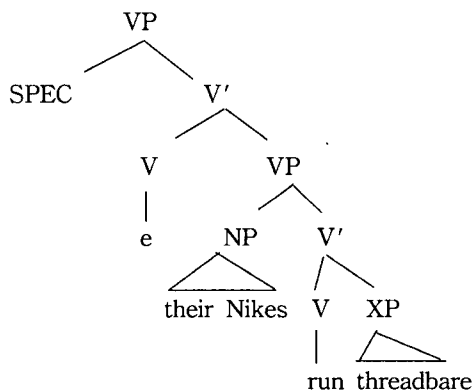
In this analysis, a direct object *a book* is not a sister of the verb, and does not satisfy the c-command requirement for government. Therefore, *a book* isn't assigned a theta-role by *give*. So Larson (1988) weakens the structural definition of internal argumenthood: the direct object of NP receives its theta-role compositionally from V', the complex verb *give to Mary*.

Carrier and Randall (1992) apply this Complex Verb Analysis to resultatives as shown in (36):

(36) a.



b.



Carrier and Randall (1992) point out that in (36a), *water* assigns a theta-role to *flat* directly, and the complex verb *water flat* assigns a theta-role to *the tulips*. In the same way, in (36b), *run* assigns a theta-role to *threadbare* directly and complex verb *run threadbare* assigns a theta-role to *their Nikes*.

Such an analysis of complex verbs was rejected by Carrier and Randall (1992). First, they argued that the resultative XP and the verb inside the complex V' should each assign a theta-role, rather than by the whole V', by the problem mentioned by Carrier and Randall (1992). Second, such analysis would allow theta-role to percolate up to the V' not only from the head to the V', but from the nonhead.

To solve the problem in this paper we will apply the definition of Kitagawa's (1986) government to resultative constructions.

- (37) A *governs* B (i) A does not dominate B
 (ii) every C dominating A also dominates B, where
 C=maximal node
 (iii) no barrier intervenes between C and B
 A *head-governs* B if A is a non-maximal projection in government.
 A *max-governs* B if A is a maximal projection in government.

Following the definition of government of Kitagawa (1986), we could account for the theta-role assignment in resultatives. In (36a), *the tulips* is the subject of the lower VP and therefore, the head of V' *water* can assign a theta-role to NP *the tulips* by a head government. Also, under max-government, NP *the tulips* can receive a theta-role from XP *flat*. The same will be possible for intransitive resultatives.

5. Conclusions

We have observed that a clear contrast between transitive resultative and intransitive resultative with regards to theta-marking of postverbal NP by the main verb. It is evident that the intransitive resultative is not an argument of the verb, while the postverbal NP of the transitive resultative is an argument. Therefore, in this paper, we have proposed the Hybrid 2 Analysis following Yamada(1987) to capture the difference in these resultatives. In this analysis, only intransitive resultatives have SC structure, so we can assume that SC is not a barrier for government, which allows the postverbal NP to be assigned a Case from the main verb. We have claimed that by this analysis, we can capture the difference between argument structure and syntactic structure, in particular, in intransitive resultatives.

Also we have analysed the resultative constructions under Larson's (1988) Complex Verb Analysis. By applying the definition of Kitagawa's (1986) government to resultatives, the problem of theta-role

assignment pointed out by Carrier and Randall (1992) might be explained.

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