Tsukuba English Studies (1991) vol.10, 213-237

Wh-extraction of Secondary Predicates: Some Theoretical Implications*

Hidehito Hoshi

0. Introduction

In this paper I will discuss the syntactic behaviour of secondary predicates and explain some contrasts found in the grammaticality of wh-extraction of secondary predicates.

Following Roberts (1988a), I assume here that secondary predicates are classified into three types.[1] Consider the following sentences:

(1) a. John$_i$ left the room angry$_i$. (circumstantial)
b. John ate the meat$_i$ rare$_i$. (depictive)
c. John hammered the metal$_i$ flat$_i$. (resultative)

In (1a) the NP *John* and the VP *left the room* make a primary predication relation and the VP assigns the primary θ-role to the NP. Likewise, the NP *John* and the AP *angry* are in a secondary predication relation and the AP assigns a secondary θ-role to the NP. In (1b) the verb *ate* assigns the primary θ-role to the NP *the meat* and the AP *rare* assigns a secondary θ-role to the NP *meat*. In (1c) the verb *hammered* assigns the primary θ-role to the NP *the metal* and the AP *flat* assigns a secondary θ-role to the NP *the metal*.[2]

There is some reason to distinguish the three types of secondary predicates in terms of their syntactic behaviour. Consider the following sentences:[3]

(2) a. *How angry did John leave the room?
b. How rare did John eat the meat?
c. How flat did John hammer the metal?

(3) a. Angry, John left the room.

b. *Rare, John ate the meat.
c. *Flat, John hammered the metal.

In (2a) wh-extraction of the circumstantial predicate *angry* is impossible, but both the depictive predicate *rare* and the resultative predicate *flat* can be extracted (= 2b, c, respectively). On the other hand, in (3a), though topicalization of *angry* is grammatical, neither *rare* nor *flat* can be topicalized. Thus we need distinguish circumstantial predicates from depictive and resultative predicates.

Consider another pair of examples where we need distinguish depictive predicates from resultative predicates:

(4) a. John ate the fish raw and Tom did so rare.
b. *John painted the house red and Tom did so blue.

Therefore, it is reasonable to assume that secondary predicates can be classified into the three types in terms of their syntactic behaviour.

This paper is organized as follows: In section 1, I will determine the position of each secondary predicate in the X'-hierarchy, using syntactic tests such as *do-so* test and VP-Preposing. In section 2, I will show the data about wh-extraction of secondary predicates and explain the differences in grammaticality by the notion of an "absolute barrier", arguing against Rizzi's (1990) analysis. In section 3, I will show independent evidence for my proposal and give a counter-example to Nakajima (1991). Some conclusions will be provided in section 4.

1. Position of Secondary Predicates

1.1 VP-Constituency of Secondary Predicates

In this section I will claim, following Andrew (1982) and Roberts (1988a), that secondary predicates are dominated by VP, based on some syntactic tests, such as VP-Preposing, *Though*-Movement, and Pseudo-clefting.[4]

First of all, consider the VP-Preposing. It is well known that

the whole VP can be preposed to a sentence-initial position and that no parts of VP may be stranded:

(5) circumstantial:
  a. John wanted to leave the room angry and [leave the room angry] he did.
  b. *John wanted to leave the room angry and [leave the room] he did angry.

(6) depictive:
  a. John wanted to eat the fish raw and [eat the fish raw] he did.
  b. *John wanted to eat the fish raw and [eat the fish] he did raw.

(7) resultative:
  a. John wanted to hammer the metal flat and [hammer the metal flat] he did.
  b. *John wanted to hammer the metal flat and [hammer the metal] he did flat.

Therefore, from the above facts, we can conclude that secondary predicates are in VP.

The same conclusion can be drawn from the examples involving *Though*-Movement and Pseudo-clefting. Consider the following sentences:

Though-Movement

(8) circumstantial:
  a. Leave the room angry though John may.....
  b. *Leave the room though John may angry.....

(9) depictive:
  a. Eat the fish raw though John may.....
  b. *Eat the fish though John may raw.....

(10) resultative:

a. Hammer the metal flat though John may.....

b. *Hammer the metal though John may flat.....

Pseudo-clefting

(11) circumstantial:

a. What John did was leave the room angry.

b. *What John did angry was leave the room.

(12) depictive:

a. What John did was eat the fish raw.

b. *What John did raw was eat the fish.

(13) resultative:

a. What John did was hammer the metal flat.

b. *What John did flat was hammer the metal.

Though-Movement allows only a VP-constituent to move to the sentence initial position. In Pseudo-cleftings, the constituent of VP can be the predicate of Pseudo-cleft construction and none of the elements of VP can occur within the subject NP. Therefore, the ungrammaticality of (b) sentences in (8)-(13) indicates that secondary predicates are affiliated to VP.

1.2 Position of three types of Secondary Predicates in VP

In section 1.1, I have argued that secondary predicates are in VP, based on some syntactic VP-constituent tests. In this subsection, I will further discuss the precise position of secondary predicates in VP. The question to be adressed is whether the three types of secondary predicates occur in the same position in VP or not. I will conclude that each type of predicate is affiliated to a different position in VP.

First, consider the position of resultative predicates, using the *do-so* test of Jackendoff (1977):

(14) a. Joe bought a book on Tuesday, but Sim did so on Friday.
b. *Joe put a book on the table, but Sim did so on the chair.

Jackendoff (1977) argues that *do so* may be substituted for a constituent of V'. Thus, the ungrammaticality of (14b) indicates that the prepositional phrase *on the chair* is a part of the V'. I will assume that the above observation is correct and that the *do-so* test serves as a diagnostic for determining positions of the three types of secondary predicates. The *do-so* test provides the following contrasts:

(15) a. John left the room angry and Tom did so happy.
b. John ate the meat raw and Tom did so rare.
c. *John painted the house red and Tom did so blue.

The grammaticality of (15a) and (15b) shows that both circumstantial predicates and depictive predicates are outside of V'. On the other hand, the ungrammaticality of (15c) is parallel to that of (14b), which shows that the resultative predicate *blue* is in V'.

The facts observed just above imply that resultative predicates have a closer relationship to given verbs than circumstantial and depictive predicates have. Rothstein (1983) claims, giving the following Icelandic data, that the ability to form a compound of verbs and adjectives indicates that the relation between them is strong syntactically and semantically:

(16) Eg hvit-þroði fötin
I white-washed the clothes
'I washed the clothes white.'
(Rothstein (1983:37))

Interestingly enough, in English as well, morphologically complex words formed with resultative predicates seem to exist:

(17) a. John hammered-flat the metal.
b.??John painted-blue the house.
c.??John boiled-red the lobsters.

On the other hand, it is totally impossible to form complex words with depictive predicates:

(18) a. *John ate-raw the fish.
b. *John ate-rare the meat.
c. *John drank-flat the beer.

(17) and (18) indicate that resultative predicates are strongly connected with given verbs.

Next, let us examine the exact positions of circumstantial and depictive predicates. Consider the following sentences:

(19) a. John left the room angry quickly.
b. John left the room quickly angry.

Quickly in both sentences is a manner adverb. The circumstantial predicate *angry* can be licensed wherever the manner adverb may be. However, this is not the case with depictive predicates. Consider the following sentences:

(20) a. John ate the fish raw quickly.
b. *John ate the fish quickly raw.

The manner adverb *quickly* cannot intervene between the depictive predicate *raw* and its host NP. This seems to show that circumstantial predicates differ from depictive predicates in the position of the X'-hierarchy in VP. Compare the following sentences:

(21) a. John ate the fish raw angry.
b. *John ate the fish angry raw.

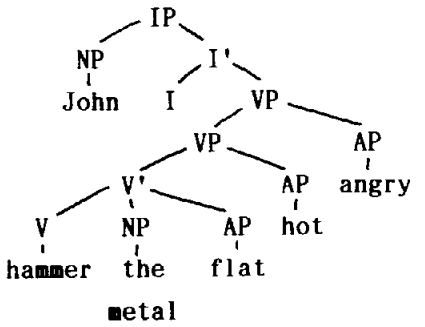
In (21b) the circumstantial predicate must occur at the right side of the depictive predicate. It can be thus concluded that circumstantial predicates are structually higher than depictive predicates in VP.

Furthermore, consider sentences where the three types of secondary predicates cooccur (in the sentences below, *flat* is resultative and *hot* is depictive). The data is discussed by McNulty (1988):

(22) a. John hammered the metal flat hot angry.
b. *John hammered the metal flat angry hot.
c. *John hammered the metal hot flat angry.
d. *John hammered the metal hot angry flat.
e. *John hammered the metal angry flat hot.
f. *John hammered the metal angry hot flat.

The only possible string is (22a). The grammaticality of (22a) also indicates that resultative predicates have a strong relationship to given verbs. On the other hand, the ungrammaticality of (22b) confirms that circumstantial predicates must be structually higher than depictive predicates. Therefore, we can conclude that the exact positions of the three types of secondary predicates can be represented as below:

(23)



In the next section we will discuss data concerning wh-extraction of secondary predicates and explain the differences in grammaticality, based on the above configuration.

2. Wh-extraction of Secondary Predicates

2.1 Rizzi's (1990) analysis

Let us introduce Rizzi's (1990) analysis of wh-extraction of secondary predicates. Consider the following sentences:

(24) a. *How angry did you telephone?
b. *How raw did you eat the meat?

Rizzi observes that circumstantial and depictive predicates cannot be wh-questioned and ascribes the ungrammaticality of (24) to the Empty Category Principle (ECP) violation. Rizzi assumes that the ECP is defined conjunctivly as follows:[5]

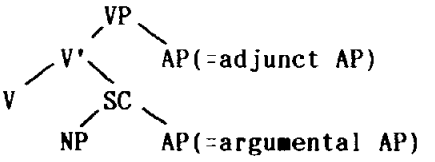
(25) ECP: A nonpronominal empty category must be
(i) properly head-governed (Formal Licensing)
(ii) antecedent-governed or Theta-governed (Identification).

Rizzi (1990:31) makes clear what *properly head-government* means in the first clause of the above definition: head-government within the immediate projection of the head. Rizzi claims that the secondary predicates in (24) are adjuncts and that the traces left behind by wh-movement cannot be properly head-governed, yielding the ungrammaticality of the sentences in (24) as desired. Furthermore, Rizzi contrasts the secondary predicates like those in (24) with the predicates in what he calls selected Small Clauses, which can be questioned:

(26) a. How flat did she hammer the metal?
b. How intelligent do you consider John?
c. How happy would she make him?
d. How angry did he seem?

From the above facts Rizzi argues that the adjunct APs are sisters of V' and the selected Small Clauses are sisters of V:

(27)



Rizzi concludes that the traces of APs in selected Small Clauses are properly head-governed within the immediate projection of the head V and antecedent-governed by the wh-element in the spec of C, satisfying the requirement of the ECP and that the traces of adjunct APs, on the other hand, are not properly head-governed, because they are not within the immediate projection of V. In this way the unextractability of circumstantial and depictive predicates is explained in the framework of Rizzi (1990).

2.2 Againt Rizzi's (1990) analysis

However, there is a crucial point in the above data which Rizzi overlooks; it is possible to extract some depictive predicates in an appropriate context. Consider the following sentences:

(28) a. How rare did you eat the meat?
b. How flat did you drink the beer?

In (28), though the depictive predicates are extracted, the sentences are grammatical unlike (24b). I claim here that the unextractability of the depictive predicate in (24b) is due not to the ECP violation but to some semantic or pragmatic factor. That is, the sequence of *How* and *raw* in (26b) seems to be incompatible for some semantic or pragmatic reason. Notice that the adjective *raw* can never be used to show its degree. This is indicated by the fact that no comparative and superlative forms of *raw* exist:

(29) raw-*rawer-*rawest

I claim that (24b) is ungrammatical for the same reason that (30b) is ungrammatical. Consider the following data:

(30) a. The meat was raw.
b. *How raw was the meat?

(30b) is ungrammatical because the sequence of *How* and *raw* is semantically or pragmatically ill-formed. On the other hand, comparative and superlative forms of *rare* and *flat* exist:

(31) a. rare-rarer-rarest
b. flat-flatter-flattest

Rare and *flat* can be used to show their degrees. They seems to be compatible with *how*. In fact, extraction of depictive predicates such as *rare* and *flat* is well-formed:

(32) a. The meat was rare.
b. How rare was the meat?

(33) a. The beer was flat.
b. How flat was the beer?

Therefore, we can conclude that the ungrammaticality of (24b) is not due to the violation of the ECP proposed by Rizzi (1990).

A further problem with Rizzi's analysis is that Rizzi treats resultative predicates as Small Clauses. Consider the following sentences:

(34) a. John hammered the metal flat.
b. John hammered the metal.

(35) a. John considered [$_{SC}$ Mary intelligent].
b. *John considered [$_{SC}$ Mary].

It seems that resultative predicates and APs in Small Clauses are different in nature. In (34b) the resultative predicate is optional, but the AP in the Small Clause in (35b) is obligatory. This

difference may be related to the problem of whether verbs take a proposition or not. That is, in (35) the reason why the predicate *intelligent* in the Small Clause is obligatory seems to be that the verb *consider* must take a proposition; "Mary is (was) intelligent". On the other hand, in (34), the verb *hammer* does not take a proposition, and the predicate *metal* need not be obligatory. This fact would not be captured by the structure in (27).

The other fact that suggests the difference between resultative predicates and APs in selected Small Clauses involves topicalization. Consider the following sentences:[6]

(36) a. Intelligent, John considered Mary.
b. *Flat, John hammered the metal.

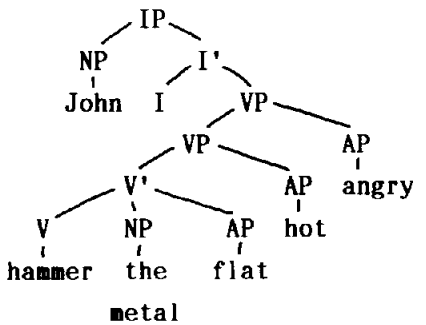
Thus these facts suggest that we must distinguish resultative predicates from APs in Small Clauses.[7]

Summerizing, the following paradigm of wh-extraction of secondary predicates remains to be explained:

(37) a. *How angry did John leave the room? (circumstantial)
b. How rare did John eat the meat? (depictive)
c. How flat did John hammer the metal? (resultative)

In the next subsection, I will provide an account for the contrasts in (37), assuming that the position of secondary predicates is like (23), repeated here as (38):

(38)



2.3 "Absolute Barrier"

I will assume the following hypothesis in order to account for the differences in grammaticality in wh-extraction of secondary predicates:

(39) In an adjunction structure, $[_X \ldots [_X \ldots]]$ (where X is a maximal projection), the top segment of the maximal projection is "absolute barrier".[8]

Absolute means that barrierhood cannot be avoided by any means. Thus it follows that syntactic adjunction is of no use to avoid the barrierhood in the above structure. I will further assume that whether the adjunction structure is created by syntactic movement or base-generation, the hypothesis (39) applies.

First of all, consider the rough D-structure representations of the three types of secondary predicates:

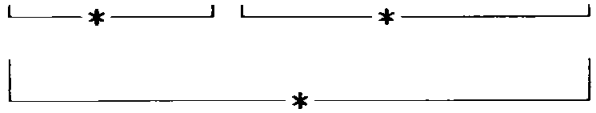
(40) a. $[_{IP}$ John $[_{VP}[_{VP}[_{V'}$ left the room]] angry]]
b. $[_{IP}$ John $[_{VP}[_{V'}$ ate the meat] rare]]
c. $[_{IP}$ John $[_{VP}[_{V'}$ hammered the metal flat]]]

(39) predicts the correct results of wh-extraction of the three types of secondary predicates. Consider the following sentences involving wh-movement of the secondary predicates:

(41) a. *How angry did John leave the room? (=37a)
b. How rare did John eat the meat? (=37b)
c. How flat did John hammer the metal? (=37c)

The two ways of derivation of (41a) are illustrated as (42a,b):

(42) $[_{CP}$ How angry $[_{IP}[_{VP}$ t' $[_{VP}[_{VP}[_{V'}$ leave the room]]t]]]]



In (42a) neither the original trace nor the intermediate trace can be antecedent-governed because the top of the stacked VPs is an absolute barrier irrespective of whether it is created by syntactic movement or base-generation. In (42b), if the wh-element *How angry* moves from its original position to the spec of C at one swoop, the trace left behind by wh-movement also cannot be antecedent-governed. Thus neither derivation is excluded due to the absolute barrier.

I will assume the following disjunctive definition of the ECP:

(43) ECP:
A nonpronominal empty category must be antecedent-governed or θ-governed.[9]
(cf. Chomsky (1981), (1986b, sec.5), Lasnik and Saito (1984), (forthcoming))

The trace of the circumstantial predicate *angry* cannot be antecedent-governed because the absolute barrier (the top of the stacked VPs) blocks antecedent-government. θ-government also cannot be satisfied. Since the predicative AP *angry* is not an argument, it can not receive any θ-roles; hence the ECP violation as expected.

On the other hand, the derivation of (41b) and (41c) can be illustrated in (44) and (45) respectively:

(44) $[_{CP}$ How rare $[_{IP}\ldots[_{VP}[_{V'}$ eat the meat]t]]]
(45) $[_{CP}$ How flat $[_{IP}\ldots[_{VP}[_{V'}$ hammer the metal t]]]]

Here, I will assume, following Lasnik and Saito (forthcoming), that VP is not a barrier.[10] In (44) the original trace of the depictive predicate *rare* is antecedent-governed by the wh-element in spec of C. Though the trace cannot be θ-governed by the verb, it is antecedent governed and the requirement of the ECP is satisfied. The same argument holds of (45). The trace of *flat* left by wh-movement is

antecedent-governed, though not θ-governed, and the ECP is satisfied.

Next, let us examine another piece of evidence which supports the hypothesis in (39). Consider the following sentences involving topicalization:

(46) a. John put this book on the table.
b. This book, John put on the table.

The S-structure of (46b) can be represented roughly as follows:

(47) $[_{IP}$ This book $[_{IP}$ John $[_{VP}$ put t on the table]]]

Following Lasnik and Saito (forthcoming), I will assume that topicalization is an operation in which a moved element adjoins to IP. If this is correct, we can predict that the additional topicalization is ill-formed because in (47) the top of the stacked IPs is an absolute barrier. Consider the following sentence and its S-structure:

(48) a.??On the table, this book, John put.
b. $[_{IP}$ On the table $[_{IP}$ this book $[_{IP}$ John $[_{VP}$ put t t]]]]

(cf. Lasnik and Saito (forthcoming))

In (48) the argumental PP *on the table* is selected by the verb *put* and thus the trace left by topicalization is θ-governed, hence the ECP violation is not involved in this case. However, as the slight deviation of (48a) shows, movement of the PP *on the table* seems to violate Subjacency because the IP created by adjunction is a barrier to the movement of the topicalized element.[11]

Consider another example which supports the analysis discussed so far. We can eleborate on the argument for the existence of absolute barriers based on the syntactic behaviour of subject-oriented adverbs:

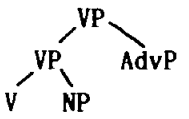
(49) a. John climbed the wall deliberately.
b. John sank the boat voluntarily.

It has been assumed that these adverbs have a semantic relationship with the subject or the agent of the sentence in which they occur. Zubizarreta (1982) argues that the relationship between the adverb and its subject has to do with θ-role assignment. Zubizarreta claims that sentences in (49), where she assumes that each adverb assigns the Agentive θ-role to its subject NP, are paraphrased as follows:

(50) a. It was deliberate of John to climb the wall.
b. It was voluntary of John to sink the boat.

It seems that these adverbs have the same property as circumstantial predicates do. That is, both subject-oriented adverbs and circumstantial predicates seem to assign Agentive θ-roles to their host NPs. Thus I will assume that the position of subject-oriented adverbs in the X'-hierarchy is as follows:

(51)



The above configuration of subject-oriented adverbs is identical with that of circumstantial predicates, where the base-generated VP-adjunction structure is formed. Therefore, we predict that wh-extraction of subject-oriented adverbs is impossible like that of circumstantial predicates because the top of the stacked VPs is an absolute barrier to government. This prediction is borne out:

(52) a. *How deliberately did John climb the wall?
b. *How voluntarily did John sink the boat?
(cf. Roberts (1988b))

On the other hand, a manner adverb such as *cleverly* can be extracted.

Consider the following sentences:

(53) a. John cleverly [read the book].
b. John [read the book cleverly].
c. How cleverly did John read the book?
(Chomsky 1986b:83)

Though *cleverly* in (53a) is a subject-oriented adverb, in (53b) *cleverly* is a manner adverb. The interpretation of *cleverly* in (53c) is that of (53b), not (53a), however. That is, *cleverly* in (53c) is a manner adverb and cannot be interpreted as a subject-oriented adverb.

Summerizing, in this section we have observed that circumstantial predicates differ from depictive and resultative predicates in wh-extraction, and we have provided an account for the facts discussed above, presenting the notion of an "absolute barrier". In the next section, I will provide independent evidence for my proposal and show that it is not ad hoc, but rather plausible.

3. Independent Evidence[12]

3.1 Extraposition

It has been assumed in much of the literature that extraposition from subject involves adjunction to IP and extraposition from object involves adjunction to VP. If this view is correct, we can predict that in a sentence containing a circumstantial predicate, extraposition from the object over the circumstantial predicate will be prohibited. Since the top of the stacked VPs is an absolute barrier in a construction with a circumstantial predicate, the trace left by extraposition cannot be antecedent-governed or θ-governed. Consider the following sentences noted by Nakajima (1991):

(54) a. *John drove [the car t] happy [which was presented to him by his parents].
b. John ate [the fish t] raw [which he bought at Legal

Seafoods].

If the trace left by extraposition is subject to the ECP, our prediction seems to be correct. That is, antecedent government is blocked by an absolute barrier in a circumstantial predicate construction, hence ungrammaticality of (54a), though extraposition over a depictive predicate is fully grammatical. The derivation of (54a) is illustrated as (55) below:

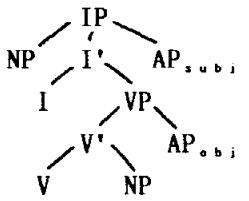
(55) $[_{IP}$ John $[_{VP}[_{VP}[_{VP}[_{V'}$ drove the car t]] happy][which was presented to him by his parents]]] └———*———┘

In this way we can explain the contrast between (54a) and (54b), based on the hypothesis that circumstantial predicates form absolute barriers in a base-generated VP-adjunction structure.

3.2 Against Nakajima's (1991) analysis

In this subsection we will compare our analysis with Nakajima's (1991) and present an argument for the former. Nakajima (1991) concludes that circumstantial predicates (subject-predicates in his term) are in IP, while depictive predicates and resultative predicates (object-predicate) are in VP, assuming that the predication relation requires mutual m-command. Nakajima assigns secondary predicates the following configuration:

(56)



(Nakajima 1991:283)

In order to explain the contrasts in (54), Nakajima argues that the landing site of extraposition is relevant to grammaticality. In the case of extraposition out of the object NP, as we have seen, it is assumed that the landing site is VP. So this accounts for the

ungrammaticality of (54a) straightforwardly; the landing site must be VP, but the object NP moves across VP to IP if Nakajima's assumption that subj-predicates are in IP is correct.

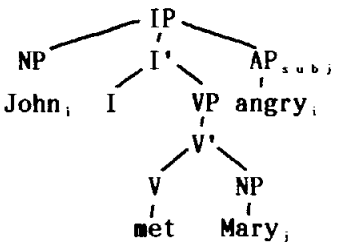
However, consider the following sentences:

(57) a. John$_i$ met Mary$_j$ angry$_i$.

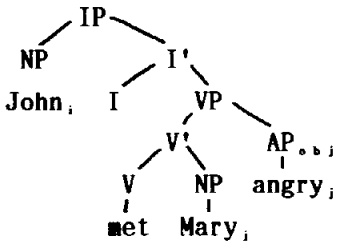
b. John$_i$ met Mary$_j$ angry$_j$.[13]

Adapting Nakajima's analysis to (57a,b), we have the following structure of (58a,b) respectively:

(58) a.



b.



If the above structures are valid, Nakajima's prediction would be that extraposition from object in (58b) is possible, while that in (58a) is impossible. However, these predictions are not borne out. Consider the following sentences:

(59) a. *John$_i$ met [the man$_j$ t] angry$_i$ [who was wearing a funny hat]. (=58a)

b. *John$_i$ met [the man$_j$ t] angry$_j$ [who was wearing a funny hat]. (=58b)

Thus, Nakajima incorrectly predicts that a sentence like (59b) is grammatical, though (59a) is correctly ruled out in Nakajima's system.

By adopting the notion of "absolute barrier", however, we can explain the ungrammaticality of (59a,b); the absolute barrier prevents the trace from being antecedent-governed and the trace also cannot be θ-governed, hence the ECP violation. Consider the S-structure of (59a) and (59b), respectively:

(60) a. $[_{IP}$ John$_i$ $[_{VP}[_{VP}[_{V'}$ met the man$_j$ t]]angry$_i$] [who
*
was wearing a funny hat].

b. $[_{IP}$ John$_i$ $[_{VP}[_{VP}[_{V'}$ met the man$_j$ t]]angry$_j$] [who
*
was wearing a funny hat].

Therefore, our explanation is empirically preferred to Nakajima's analysis.

4. Conclusion

The basic goal of this paper has been the investigation of the differences in the position of the three types of secondary predicates in the X'-hierarchy and the different satatus in wh-extraction of each type of secondary predicates. Our proposal, based on the differences in the position of each predicate, is that an "absolute barrier" blocks antecedent-government of the trace left by wh-movement of circumstantial predicates, hence an ECP violation results.

Notes

*An earlier version of this paper was originally presented at the 47th Tsukuba English Linguistic Colloquium held on January 27, 1991. I am grateful to the audience there for discussions. I am

especially thankful to Minoru Nakau, Shosuke Haraguchi, Yukio Hirose, Koichi Takezawa, Ryuichi Washio, Nobuhiro Kaga, Yoshio Endo, Shinsuke Homma, Daisuke Inagaki, Keiko Miyagawa, Masaharu Shimada, Yuji Takano, Kazue Takeda, Mika Okuyama, and Mikinari Matsuoka for their valuable comments and suggestions on my rough idea. I am also indebted to Roger Martin, who provided English data in the text as well as useful comments and suggestions. Finally my thanks also go to Ronald Craig, who patiently acted as an informant.

[1] Some linguists, such as McNulty, Nakajima, and Rothstein, classify secondary predicates into two types: subject-predicates and object-predicates. But, following Roberts (1988a), I will assume that secondary predicates should be classified into three types. See the discussion below.

[2] "Secondary" means that predication relation depends on a primary predicate such as VP. That is, if primary predicates are eliminated in (1), the sentences become ungrammatical:

(i) *John angry.
(ii) *The meat rare.
(iii) *The hammer flat.

On the other hand, elimination of secondary predicates does not affect the grammaticality:

(iv) John left the room.
(v) John ate the meat.
(vi) John hammered the metal.

[3] In this paper I will not attempt to explain the data about topicalization of secondary predicates. The difference in grammaticality may be ascribed to the fact that the wh-element moves to the spec of C, while the topicalized element adjoins to IP, as Lasnik and Saito (forthcoming) observes. I will leave this matter to future research.

[4] Nakajima (1991) argues that secondary predicates which modify subject NP are in IP. This view is shared with Demonte (1988), Rothstein (1983), and Williams (1980).

[5] There are two conceptual arguments against θ-government. One problem is that θ-government is a kind of head-government, so in (25), both (i) and (ii) require some sort of head-government. The other problem is that adopting a disjunctive formulation means that the nature of a generalization is not understood. See Rizzi (1990).

[6] I will not attempt to account for the contrast here.

[7] Roberts (1988b) claims that there is a reason to distinguish resultative predicates from APs in Small Clauses in terms of tense. Roberts argues that resultative predicates are interpreted as temporally dependent on the tense of the main predicate, but this does not hold of APs in Small Clauses. See Roberts (1988b).

[8] The notion of "absolute barrier" should be reduced to some Principle. I will leave this issue to further investigation.

[9] Chomsky (1986b) suggests that only antecedent-government is relevant to the ECP. For discussion of the ECP see Chomsky (1986b), Rizzi (1990) and references cited therein.

[10] Antecedent-government and Barrier are defined as follows, adopting the definition in Lasnik and Saito (forthcoming):

(i) α is a barrier for β if
  a. α is a maximal projection,
  b. α is not L-marked, and
  c. α dominates β.

(ii) α antecedent governs β if
  a. α binds β, and
  b. β is subjacent to α.

We define Subjacency as in (iii) and (iv):

(iii) β is subjacent to α if for every γ, γ a barrier for β, the maximal projection immediately dominating γ

dominates α.

(iv) X can move from position α to position β only if α is subjacent to β. (the Subjacency Condition)

[11] Furthermore, there is another piece of evidence which supports our analysis. Consider the following sentence:

(i) John ate the fish angry.

Since an absolute barrier is involved in a construction with a circumstantial predicate, we predict that wh-extraction of the object NP *the fish* results in the Subjacency violation. Consider:

(ii)??What did John eat angry?

(ii) is not a fully acceptable sentence. It contrasts with the sentence involving wh-extraction of object NP in a construction with a depictive or a resultative predicate where no absolute barriers exist:

(iii) What did John eat raw?
(iv) What did John hammer flat?

However, there is a problematic case where extraction of complement over an absolute barrier is fully grammatical:

(v) Who did you leave the room angry at?

I will leave this problem unresolved here.

[12] I am grateful to Yoshio Endo for bringing this argument to my attention.

[13] I claim that in (57b) *angry* is a circumstantial predicate, though it modifies the object NP. There is some syntactic evidence for this view. Consider the following sentences:

(i) *John ate the meat quickly rare.
(ii) John met Mary$_i$ quickly angry$_i$.

In (i) *the meat* and *rare* cannot be in predication relation because the manner adverb *quickly* intervenes between them and is an obstacle to the predication relation. However, in (ii), the predication relation between *Mary* and *angry* can be obtained, though *quickly* intervenes between them. Thus, this fact seems to suggest that *angry* in (57b), though modifying the object NP *Mary*, is a circumstantial predicate.

Consider another piece of evidence:

(iii) John ate the meat rare.
(iv) John met Mary$_i$ angry$_i$.

If the predicate *angry* in (iv) which modifies the object NP were a depictive predicate, wh-extraction of *angry* would be fully grammatical. But, in fact, it is out:

(v) How rare did John eat the meat?
(vi) *How angry$_i$ did John meet Mary$_i$?

Though wh-extraction of *rare*, which is predicated of the object NP, is possible, wh-extraction of *angry*, which is also predicated of the object NP, is impossible. The ungrammaticality of (vi) suggests that an absolute barrier is involved in the sentence with *angry* which modifies the object NP. Therefore, we can conclude that a secondary predicate like *angry* is a circumstantial predicate even if it refers to object NP.

References

Andrew, A.D. (1982) "A Note on the Constituent Structure of Adverbials and Auxiliaries," *Linguistic Inquiry* 13, 313-317.
Browning, M.A. (1989) "ECP≠CED," *Linguistic Inquiry* 20, 481-491.

Chomsky, N. (1981) *Lectures on Government and Binding.* Foris.

----------. (1986a) *Knowledge of Language: Its Nature, Origin and Use.* Praeger.

----------. (1986b) *Barriers.* MIT Press.

----------. (1989) "Some Notes on the Economy of Derivation and Representations," *MIT Working Papers* 10, 43-74.

Demonte, V. (1988) "Remarks on Secondary Predicates: C-command, Extraction and Reanalysis," *The Linguistic Review* 6, 1-29.

Hornstein, N. and D. Lightfoot. (1987) "Predication and PRO," *Language* 63, 23-52.

Jackendoff, R. (1972) *Semantic Interpretation in Generative Grammar.* MIT Press.

----------. (1977) *X'-Syntax: A Study of Phrase Structure.* MIT Press.

Lasnik, H. and M. Saito. (1984) "On the Nature of Proper Government," *Linguistic Inquiry* 15, 235-289.

---------. (forthcoming) *Move-α: Conditions on its Application and Output.* MIT Press.

Levin, B. and T. Rapoport. (1988) "Lexical Subordination," *Chicago Linguistic Society* 24, 275-289.

McNulty, E.M. (1988) *The Syntax of Adjunct Predicates.* Doctoral dissertation, University of Connecticut.

Nakajima, H. (1989) "Bounding of Rightward Movements," *Linguistic Inquiry* 20, 328-334.

----------. (1991) "Secondary Predication", *The Linguistic Review* 7, 275-309.

Rizzi, L. (1990) *Relativized Minimality.* MIT Press.

Roberts, I. (1985) *The Representation of Implicit and Dethematized Subjects.* Doctoral dissertation, USC.

----------. (1988a) "Predicative APs," *Linguistic Inquiry* 19, 703-710.

----------. (1988b) "Thematic Minimality," *Rivisita di grammatica generativa* 13, 111-137.

Rothstein, D. (1983) *The Syntactic Forms of Predication.* Doctoral dissertation, MIT.

Stowell, T. (1987) "Small Clause Restructuring," Ms., UCLA.

Tiedeman, R. (1990) "An S-Structure/LF Asymmetry in Subject Extraction," *Linguistic Inquiry* 21, 661-667.

Williams, E. (1980) "Predication," *Linguistic Inquiry* 11, 203-238.

Zubizarreta, M.L. (1982) *On the Relationship of the Lexicon to Syntax.* Doctoral dissertation, MIT.

Doctoral Program in Literature and Linguistics
University of Tsukuba