

# Constraints on Movement: A Barrier-based Approach\*

Eiji KAJIWARA

## 1. Introduction

Within the framework of the principles-and-parameters model, Chomsky (1986) advances a barrier-based theory for movement. As a consequence, the Subjacency Condition, which constrains movement, is defined in terms of the notion of barrier. Since this influential work, the barrier-based theory has been supported by a number of linguists.<sup>1</sup> Furthermore, this type of approach has opened new ways to investigate movement phenomena.

One of the main goals of the barrier-based theory is to provide a unified treatment of movement phenomena. In Kajiwara (1994, 1995), I propose a barrier approach to movement, formulating barriers based on the notion of H-marking, a certain structure and the Shortest Movement Condition (SMC).<sup>2</sup> The intuitive ideas of extraction from certain configurations are organized as follows:

- (1) a. Extraction from a noncomplement position is not possible. A barrier in terms of H-marking is postulated if an element is extracted from this position.
- b. Extraction from a complement position is possible. A structural barrier is postulated if an element cannot be extracted from this position.
- c. Extraction across a potential landing site is not possible. An SMC barrier is postulated if an element is extracted across this position.

I will incorporate these ideas into the definition of barrier and develop the barrier-based theory and consider various movement phenomena within the

framework of the principles-and-parameters model.<sup>3</sup>

The organization of this paper is as follows. Section 2 is a brief examination of Kajiwara (1994, 1995). In Section 3, I will redefine the notion of barrier and incorporate a tensed IP barrier and a structural barrier into it, considering the asymmetry of tenseless and tensed *wh*-islands and extraction from a noun-complement of the Complex Noun Phrase Condition (CNPC) and a complement of a non-bridge verb. In Section 4, I will show how the barrier theory proposed in Section 3 can deal with extraction from Spec positions and topicalization.

## 2. Non-H-marked Barriers and SMC Barriers

After criticizing Chomsky's (1986) barrier theory,<sup>4</sup> Kajiwara (1994, 1995) proposes that the notion of barrier is defined in terms of the notion of H-marking and the SMC, as in (2):

### (2) Barrier

- $\gamma$  is a barrier for  $\beta$  iff  $\gamma$  is a maximal projection,  $\gamma$  dominates  $\beta$ , and (a) or (b):
- a.  $\gamma$  is not H-marked
  - b. the Spec or head of  $\gamma$  cannot serve as a landing site for  $\beta$

For convenience, I will call a barrier defined by (2a) a non-H-marked barrier and a barrier defined by (2b) an SMC barrier. It should be noted that a non-H-marked barrier reflects the idea mentioned in (1a), whereas an SMC barrier reflects the idea mentioned in (1c). Then, the notion of H-marking is defined as follows:

### (3) H-marking<sup>5</sup>

- $a$  H-marks  $\beta$  iff  $\beta$  is a complement of  $a$

The definitions given in (2) and (3) show that IP and VP can never become barriers since they are H-marked by C and I, respectively.

Essentially following Lasnik and Saito (1992), the Subjacency Condition is



barrier theory.<sup>8</sup> In (6d), the embedded CP Spec, where *what*<sub>i</sub> has already moved, cannot serve as a possible landing sites for *to whom*<sub>i</sub> and it becomes an SMC barrier. Thus, the movement crosses a barrier, and a Subjacency violation results, which accounts for the ungrammaticality of examples (5d).<sup>9</sup>

The brief examination in this section shows that the theory on the basis of non-H-marked barriers and SMC barriers can deal with various island violations. In the next section, I will make theoretical and empirical refinements on this barrier theory and propose four types of barriers in order to provide a principled account of some other movement phenomena.

### 3. Refinements of the Barrier Theory

#### 3.1 H-marking

The notion of H-marking by definition distinguishes complements from noncomplements. The former is always H-marked, whereas the latter is not. Thus, noncomplements become barriers when extraction takes place from them. Although the notion of H-marking determines non-H-marked barriers, we can simplify the definition of barrier without using this notion. The important point to note here is that non-H-marked maximal projections are equivalent to noncomplements. It is therefore possible to substitute the notion of noncomplement for the notion of H-marking, as follows:

(7) Noncomplements are barriers<sup>10</sup>

If we adopt (7) instead of (2a), we can dispense with the notion of H-marking to define non-H-marked barriers. Furthermore, the notion of noncomplement is now widely accepted in the recent Generative Grammar, including the Minimalist Program. It follows that the adoption of (7) is a theoretical refinement on the barrier theory.

#### 3.2 Tenseless and Tensed IP Asymmetry

It is a well-known fact that extraction from a tenseless *wh*-island is possible, whereas extraction from a tensed tenseless *wh*-island is not, as shown in the

following:<sup>11</sup>

- (8) a. to whom<sub>j</sub> did you wonder what<sub>i</sub> to give t<sub>i</sub> t<sub>j</sub>  
 b. \*?to whom<sub>j</sub> did you wonder what<sub>i</sub> they gave t<sub>i</sub> t<sub>j</sub>
- (9) a. ?which man<sub>i</sub> do you wonder when<sub>j</sub> to meet t<sub>i</sub> t<sub>j</sub>  
 b. ?\*which man<sub>i</sub> do you wonder when<sub>j</sub> John will meet t<sub>i</sub> t<sub>j</sub>
- (10) a. ?which problem<sub>i</sub> do you wonder how<sub>j</sub> to solve t<sub>i</sub> t<sub>j</sub>  
 b. ??which problem<sub>i</sub> do you wonder how<sub>j</sub> John could solve t<sub>i</sub> t<sub>j</sub>
- (11) a. what<sub>i</sub> do you wonder how<sub>j</sub> to repair t<sub>i</sub> t<sub>j</sub>  
 b. \*what<sub>i</sub> do you wonder how<sub>j</sub> Mary repaired t<sub>i</sub> t<sub>j</sub>
- (12) a. which car<sub>i</sub> did you tell John how to fix t<sub>i</sub>  
 b. \*which car<sub>i</sub> did you tell John how Bill fixed t<sub>i</sub>
- (13) a. ?what<sub>i</sub> did you wonder whether to fix t<sub>i</sub>  
 b. \*what<sub>i</sub> did you wonder whether he fixed t<sub>i</sub>
- (14) a. to whom<sub>i</sub> did they know when<sub>j</sub> to give their present t<sub>i</sub> t<sub>j</sub>  
 b. \*to whom<sub>i</sub> did they know when<sub>j</sub> they gave their present t<sub>i</sub> t<sub>j</sub>

The contrast in acceptability between (a) and (b) sentences in (8)–(14) shows that many native speakers will interpret (a) sentences as acceptable, though the acceptability of (a) sentences may vary among them.<sup>12</sup>

This grammatical judgment may cast doubt on the plausibility of the analysis based on SMC barriers, which treats both (a) and (b) sentences in the same way. To illustrate this, let us consider example (8a-b). They are assigned structures such as (15a-b), respectively:

- (15) a. [<sub>CP</sub> to whom<sub>j</sub> did [<sub>IP</sub> you wonder [<sub>CP</sub> what<sub>i</sub> [<sub>IP</sub> PRO to give t<sub>i</sub> t<sub>j</sub>]]]]

#

- b. [<sub>CP</sub> to whom<sub>j</sub> did [<sub>IP</sub> you wonder [<sub>CP</sub> what<sub>i</sub> [<sub>IP</sub> they gave t<sub>i</sub> t<sub>j</sub>]]]]  
#

In (15a-b), the presence of *what<sub>i</sub>* in the embedded CP Spec prevents *to whom<sub>j</sub>* from landing at this position, which becomes an SMC barrier. This yields a Subjacency violation. Thus, (15a-b) are ill-formed structures, and (8a) is predicted to be as ungrammatical as (8b) and (5a-d), contrary to the judgment of many native speakers.

The discussion so far may indicate that an SMC barrier is too strong in the case of a tenseless *wh*-island, whereas it is too weak in the case of a tensed *wh*-island. To allow extraction of an argument from a tenseless *wh*-island, it is necessary to weaken the SMC barrier to the extent that crossing one SMC barrier causes a mild Subjacency violation at worst. If this is on the right track, the ungrammaticality of the following example remains unexplained.

- (16) a. \**who<sub>i</sub>* did John see Mary's picture of t<sub>i</sub>  
b. [<sub>CP</sub> who<sub>i</sub> did [<sub>IP</sub> John see [<sub>DP</sub> Mary<sub>j</sub> [<sub>D</sub> AGR [<sub>NP</sub> t<sub>j</sub> [<sub>N</sub> picture [<sub>PP</sub> of t<sub>i</sub>]]]]]]]]  
#

This example makes it clear that extraction from a specific DP is not possible. In (16b), the DP, whose Spec cannot serve as a potential landing site for *who<sub>i</sub>*, becomes an SMC barrier. One SMC barrier is crossed, violating the Subjacency condition.<sup>13</sup> If one SMC barrier is not enough to cause a Subjacency violation, it is impossible to rule out example (16a).

A simple way of overcoming this inconsistency is to adopt (17) as a condition for a *wh*-island:<sup>14</sup>

- (17) An SMC barrier in a *wh*-island is weakened to the extent that it causes a mild Subjacency violation at worst

Since this condition is applicable only to *wh*-islands, one SMC barrier is enough to rule out (16b), where extraction of *who<sub>i</sub>* from the specific DP crosses one SMC barrier. This violates the Subjacency condition, which accounts for the



Though the embedded CP Spec becomes an SMC barrier, its barrierhood is so weakened in accordance with (17) that crossing only this weakened SMC barrier does not cause a Subjacency violation. Thus (20a) is well-formed, and example (8a) is predicted to be grammatical or marginal for some native speakers. In addition to this weakened SMC barrier, the embedded IP in (20b) accordingly becomes a tensed IP barrier, because the embedded CP immediately dominating it is also a barrier. This correctly predicts that (20b) is an ill-formed structure, and the ungrammaticality of (8b) is thus explained.

It follows that the analysis based on SMC barriers and tensed IP barriers, together with condition for *wh*-movement (17), can account for the difference in acceptability between tenseless and tensed *wh*-island constructions as well as the specificity phenomena.

### 3.3 Structural Barrier

There are some constructions where extraction from complement positions is not possible. Typical cases are extraction from a noun-complement of the CNPC and extraction from a complement position of a non-bridge verb, with examples such as (21a-b), respectively:

- (21) a. \**what*<sub>i</sub> did John believe the claim that Mary saw *t*<sub>i</sub>  
 b. \**what*<sub>i</sub> did John whisper that Mary saw *t*<sub>i</sub>

- (22) a. John believed the claim \*(that) Mary saw a ghost  
 b. John whispered \*(that) Mary saw a ghost

These examples indicate that CP complements of noun-complements and non-bridge verbs permit neither extraction from them nor syntactic deletion of the complementizer *that* within them. In (21), the *wh*-movement does not cross a noncomplement barrier nor an SMC barrier. This wrongly predicts that (21a-b) are grammatical. To avoid this wrong result and to provide a unified treatment of examples (21a-b), a structural barrier, which reflects the idea mentioned in (1b), is postulated in Kajiwara (1994:51):



examples:<sup>17</sup>

- (26) a. ?which book<sub>i</sub> did you hear a request (for him) to read t<sub>i</sub>  
 b. ?\*which book<sub>i</sub> did you hear a request that he should read t<sub>i</sub>

- (27) a. ?what<sub>i</sub> did you announce a plan to buy t<sub>i</sub>  
 b. ??what<sub>i</sub> did you announce a plan that you would buy t<sub>i</sub>

As these examples indicate, extraction from a tenseless noun complement is possible, whereas extraction from a tensed noun complement is not possible. Let us observe the following structures of example (26a-b):

- (28) a. [<sub>CP</sub> which book<sub>i</sub> did [<sub>IP</sub> you hear [<sub>DP</sub> a request [<sub>CP</sub> t<sub>i</sub> [<sub>C</sub> for [<sub>IP</sub> him to read t<sub>i</sub>]]]]]]]  
 b. [<sub>CP</sub> which book<sub>i</sub> did [<sub>IP</sub> you hear [<sub>DP</sub> a request [<sub>CP</sub> t<sub>i</sub> [<sub>C</sub> that [<sub>IP</sub> he should read t<sub>i</sub>]]]]]]]  
 #

No barrier intervenes in (28a), where each movement of *which book<sub>i</sub>* satisfies the SMC and 0-subjacency. There is no violation of the Subjacency condition, and therefore the acceptability of (26a) results. In (28b), on the other hand, the same explanation of (25a-b) holds: the embedded CP becomes a barrier since it is a complement and its head cannot be deleted. Hence, one complement CP barrier is crossed, resulting in a Subjacency violation. The ill-formed structure of (28b) correctly predicts that (26b) is unacceptable.

This observation has shown that if we adopt the proposed barrier approach, the contrast in acceptability between (a) and (b) sentences in (26) and (27) can be attributed to the presence of a complement CP barrier.<sup>18</sup> In the next section, I will give further evidence in support of the barrier theory advanced in this section, applying it to some other constructions such as extraction from Spec positions and topicalization.

## 4. Further Evidence

### 4.1 Extraction from Spec Positions

Let us first consider the case of extraction from CP Spec positions. A typical example is (29a), and its structure is (29b):

- (29) a. \*who<sub>i</sub> do you wonder [which album of t<sub>i</sub>] John bought t<sub>i</sub>  
 b. [<sub>CP</sub> who<sub>i</sub> do [<sub>IP</sub> you wonder [<sub>CP</sub> [<sub>DP</sub> which album of t<sub>i</sub>] [<sub>IP</sub> John bought t<sub>i</sub>]]]]  
 #

In (29b), the DP *which album of t<sub>i</sub>* occupies the embedded CP Spec. Since this DP is not a complement, it becomes a noncomplement barrier. When extraction from this DP takes place, one barrier is crossed. This is a Subjacency violation, and the ungrammaticality of (29a) results.

The same situation holds with respect to extraction from a subject position of an Exceptional Case-marking (ECM) construction. On the basis of the assumption that ECM verbs select infinitive IP complements, a typical example like (30a) is assigned a structure like (30b):

- (30) a. \*which book<sub>i</sub> did you believe the first chapter of t<sub>i</sub> to be true  
 b. [<sub>CP</sub> which book<sub>i</sub> did [<sub>IP</sub> you believe [<sub>IP</sub> [<sub>DP</sub> the first chapter of t<sub>i</sub>] to be true]]]  
 #

Though the embedded IP is a complement, extraction from its Spec position is not possible. The ECM subject DP, which is not a complement, becomes a noncomplement barrier, and *which book<sub>i</sub>* is not allowed to move from its original position to the matrix CP Spec across this barrier. Thus, a Subjacency violation arises and the ungrammaticality of (30a) is explained. Furthermore, the contrast in grammaticality between examples (30a) and (31a) provides additional support for the proposed analysis.

- (31) a. which book<sub>i</sub> did you read the first chapter of t<sub>i</sub> to them  
 b. [<sub>CP</sub> which book<sub>i</sub> did [<sub>IP</sub> you read [<sub>DP</sub> the first chapter of t<sub>i</sub>] to them]]

This example shows that extraction from the object DP is possible. Unlike the subject DP, the object DP is a complement and does not count as a barrier.

Thus the movement of *which book<sub>i</sub>* in (31b) satisfies the Subjacency condition, resulting in the grammaticality of (31a).

Let us next consider the case of extraction from subject positions of Small Clauses (SC). A typical example is (32a), which is assumed to be assigned a structure like (32b):<sup>19</sup>

- (32) a. \**who<sub>i</sub>* do you consider the rumor about *t<sub>i</sub>* true  
 b. [<sub>CP</sub> *who<sub>i</sub>* do [<sub>IP</sub> you consider [<sub>IP</sub> [<sub>DP</sub> the rumor about *t<sub>i</sub>*]  $\emptyset$  true]]]  
 #

In (32b), the subject DP, which is not a complement, is a noncomplement barrier to the movement of *who<sub>i</sub>*. This is a Subjacency violation, rendering example (32a) ungrammatical.<sup>20</sup> Hence, the ungrammaticality of examples (30a) and (32a) shows that extraction from subject positions in ECM and SC constructions counts as a case of Subject Condition violations.

It follows from the above discussion that the present barrier theory can provide a unified explanation of extraction from CP Spec positions and subject positions in ECM and SC constructions.<sup>21</sup>

## 4.2 Topicalization<sup>22</sup>

In this section, I will demonstrate how the proposed barrier approach can account for cases of topicalization. In this paper, I assume the IP-adjunction analysis of topicalization: the final landing site for a topicalized phrase is created by adjoining to IP. I also assume that topicalization involves an A'-movement. With respect to an adjunction structure, I follow Lasnik and Saito's (1992:87) assumption that "adjunction creates a separate maximal projection."

With this much as background, let us first consider a typical example like (33a) and its typical structure like (33b):

- (33) a. *John<sub>i</sub>*, I don't like *t<sub>i</sub>*  
 b. [<sub>IP1</sub> *John<sub>i</sub>*, [<sub>IP2</sub> I don't like *t<sub>i</sub>*]]

In (33b), a topicalized phrase *John<sub>i</sub>* adjoins to the IP2. Essentially following





#### 4. Conclusion

To summarize, I have advanced an alternative barrier theory and proposed tensed IP barriers and complement CP barriers in addition to noncomplement barriers and SMC barriers. It has been indicated that the suggested approach can account for a wide range of data in *wh*-movement. In particular, the present analysis can account for the asymmetries of extraction from tenseless and tensed *wh*-islands and noun-complements. This analysis has also been shown to be applicable to extraction from CP Spec positions, subject positions of ECM and SC constructions, and topicalization. Together these considerations can constitute strong support for the present barrier theory.

Given the preceding discussion, it follows that there are four types of barriers to movement and that barrier theory should be revised along the lines suggested in this paper to account for movement phenomena.

#### Notes

- \* I would like to record my deepest gratitude to Jun Sasaki and Yuji Kumagai, whose criticisms and suggestions contributed substantially to the final version of this paper. I am also greatly indebted to Mark Tankosich, Peter Skaer, Carol Rinnert, and Christopher Schreiner for their help in judging puzzling data. My special thanks are due to John Wild for acting as an informant and for suggesting stylistic improvements. Needless to say, responsibility for the present contents is entirely my own.
1. These include Chomsky (1986), Nakajima (1987), Takano (1988), Gibson (1989), Cinque (1990), Chomsky and Lasnik (1991), Coopmans and Stevenson (1991), Lasnik and Saito (1992), Manzini (1988, 1992), and Müller and Sternefeld (1993).
  2. Chomsky and Lasnik (1991:58) first state this economy condition, as in (i):  
(i) Minimize chain links  
See also Chomsky (1989, 1992, 1995) and Jonas and Bobaljik (1993) for relevant discussion.
  3. I will not advance a barrier-based approach to movement within the framework of the Minimalist Program proposed by Chomsky (1995).
  4. See Hasegawa (1986), Cinque (1990), Lasnik and Saito (1992), Manzini (1992), Kuno and Takami (1993), and Kajiwara (1994) for relevant discussion.
  5. The notion of H-marking, whose definition I take from Nakajima (1987) and Takano (1988), was first proposed by Chomsky.
  6. The definition in (4) differs from Lasnik and Saito's (1992) in that the latter states that an element can cross one barrier only when its landing site is within the maximal projection immediately dominating the barrier.
  7. Example (5d) is from Nakamura (1994: 160).
  8. To void barrierhood, *wh* $\alpha$  in (5a–c) cannot adjoin to the maximal projection, which is a

barrier to it, because an adjoined position cannot serve as a potential landing site for it. There is another possible way of banning this type of adjunction, which is the revised version of the Adjunction Principle proposed by Kajiwara (1994: 49):

(i) (Revised) Adjunction Principle

Adjunction is allowed iff it creates a final landing site for movement

Following this principle, intermediate adjunction to the maximal projection is not possible, whether it is argument or nonargument.

9. See also Nakamura (1994) for relevant discussion.
10. Chomsky and Lasnik (1991:50) assume “a barrier to be an XP that is not a complement.” See also Takahashi (1994) for relevant discussion.
11. Examples (8a-b) are cited by Cinque (1990: 52) from Chomsky (1986:36). Examples (9a-b), (10a-b), (11a-b), (12a-b), and (13a-b) are from Heageman (1991:492), Rizzi (1990:73, 4), Manzini (1992:51), Gibson (1989:131), and Coopmans and Stevenson (1991:359), respectively.
12. Browning (1991:550) assumes that extraction from both tenseless and tensed *wh*-island is not possible, as shown in (i):
  - (i) a. \*who<sub>i</sub> did Max know what<sub>j</sub> to give t<sub>i</sub> t<sub>j</sub>
  - b. \*who<sub>i</sub> did Max know what<sub>j</sub> Mary gave t<sub>i</sub> t<sub>j</sub>
13. See Fiengo and Higginbotham (1981) and Kajiwara (1995) for detailed discussion of specificity phenomena.
14. I assume that those who disallow extraction from a tenseless *wh*-island do not follow this condition.
15. Gibson (1989:139) defines the notion of barrier, as in (i):
  - (i) Barrier
    - $\gamma$  is a barrier for  $\beta$ , iff  $\gamma$  excludes  $\alpha$ , dominates  $\beta$ , and (a), (b) or (c):
    - a.  $\gamma$  is a maximal projection that dominates  $\delta$ ,  $\delta$  a blocking category for  $\beta$ ;
    - b.  $\gamma$  is a blocking category for  $\beta$ , where  $\gamma$  is not degenerate and (for Subjacency only)  $\gamma$  is a maximal projection
    - c.  $\gamma$  is a tensed IP and the first maximal projection dominating  $\gamma$  is a barrier for  $\alpha$ ,  $\beta$
 He (1989:136) also defines the relevant notions, as in (ii) and (iii):
  - (ii) Degeneracy
 

A node is said to be degenerate if its head neither independently assigns a thematic role to an argument, nor receives and retains a thematic role
  - (iii) Blocking Category (BC)
    - $\gamma$  is a blocking category (BC) for  $\beta$  iff  $\gamma$  dominates  $\beta$  and (a) or (b):
    - a.  $\gamma$  is a maximal projection that is not L-marked;
    - b.  $\gamma$  is an immediate projection  $\delta$ , a zero-level category that has sufficient agreement features and is distinct from  $\beta$ , where  $\delta$  is not degenerate
16. Following Lasnik and Saito (1984, 1992), I assume that the complementizer *that* can be deleted at LF. I also assume that since the complementizer *that* of complements of non-bridge verbs and noun-complements has semantic content, it cannot be deleted at LF. The complementizer *that* of complements of bridge verbs, on the other hand, does not have semantic content, and it must be deleted at LF.
17. Examples (26) and (27) are from Coopmans and Stevenson (1991:359) and Takahashi (1994:75), respectively.
18. Coopmans and Stevenson (1991) and Takahashi (1994) assume that the tenseless/tensed distinction affects the contrast in acceptability between (a) and (b) sentences in (26) and (27).

19. I tentatively assume that a structure of an SC is IP whose head is an empty category  $\emptyset$ . See also Hornstein and Lightfoot (1987) for relevant discussion.

20. In addition to SCs, verbs like *consider* can take ECM or *that*-clause complements. The ungrammaticality of examples (ia-ib) can be explained in the same way as that of (30a) and (32a).

(i) a. \*who<sub>i</sub> do you consider [<sub>IP</sub> [<sub>DP</sub> the rumor about t<sub>i</sub>] to be true]

#

b. \*who<sub>i</sub> do you consider that [<sub>IP</sub> [<sub>DP</sub> the rumor about t<sub>i</sub>] is true]]

#

In (ia-b), one noncomplement barrier is crossed. A Subjacency violation results, and these examples are marked ungrammatical.

21. Extraction from embedded CP Spec positions and subject positions in ECM and SC constructions is possible if we adopt the extended version of L-marking, as in (i):

(i) L-marking (Chomsky 1986:24)

Where  $a$  is a lexical category,  $a$  L-marks  $\beta$  iff  $\beta$  agrees with the head of  $\gamma$  that is  $\theta$ -governed by  $a$

Chomsky and Lasnik (1991:51) also assume that “XP is not a barrier if it is the complement of a head H or the specifier of the complement of H.” I will not adopt these assumptions to provide a unified account of the ungrammaticality of examples (29a), (30a), and (32a).

22. With respect to analyses of topicalization, see also Chomsky (1977), Rochemont (1989), Rochemont and Culicover (1990), Authier (1992), Lasnik and Saito (1992), Müller and Sternefeld (1993), Nakamura (1994), and Sasaki (1996).

23. Chomsky (1995:292) assumes that “[d]eclarative C is one of the force indicators and therefore must be present for interpretation at C-I interface” and that “it never appears overtly.”

24. See also Rochemont and Culicover (1990) for relevant discussion.

25. Lasnik and Saito’s (1992:102) definition of barrier as in (i) allows them to assume that extraction from a topicalized phrase does not cause a Subjacency violation:

(i) Barrier

$\gamma$  is a barrier for  $\beta$  if

a.  $\gamma$  is a maximal projection,

b.  $\gamma$  is not an A’-binder,

c.  $\gamma$  is not L-marked, and

d.  $\gamma$  dominates  $\beta$

Since a topicalized phrase is an A’-binder, it cannot be a barrier. See also Rochemont and Culicover (1990) for relevant discussion.

26. The following examples are problematic:

(i) a. \*who<sub>i</sub> did you give [<sub>DP</sub> friends of t<sub>i</sub>] books

b. \*who<sub>i</sub> did you give [<sub>DP</sub> pictures of t<sub>i</sub>] to Mary

c. \*who<sub>i</sub> did you give books to [<sub>DP</sub> friends of t<sub>i</sub>]

d. \*what<sub>t</sub> did you read books about [<sub>DP</sub> pictures of t<sub>i</sub>]

e. who<sub>i</sub> is it time [<sub>CP</sub> for John to visit t<sub>i</sub>]

In (ia-d), since the object DP is a complement, extraction from it is predicted to be possible. This prediction, however, is not empirically borne out. In (ie), on the other hand, though the extraposed CP becomes a noncomplement barrier, extraction from it is indeed possible. The grammaticality of (ie) thus remains unexplained. See also Bach and Horn (1976), Cinque

(1990), and Kuno and Takami (1993) for relevant discussion.

Though these examples will render the proposed barrier theory inadequate to movement phenomena, I will leave them for future research.

## References

- Authier, J.-M. 1992. "Iterated CPs and Embedded Topicalization," *Linguistic Inquiry* 23, 329–336.
- Bach, E. and G. Horn. 1976. "Remarks on Conditions on Transformations," *Linguistic Inquiry* 7, 265–299.
- Browning, M. 1991. "Bounding Conditions on Representation," *Linguistic Inquiry* 22, 541–562.
- Chomsky, N. 1977. "On Wh-Movement," in P. Culicover, T. Wasow, and A. Akmajian, eds., *Formal Syntax*, 71–132. New York: Academic Press.
- . 1986. *Barriers*. Cambridge, Mass.: MIT Press.
- . 1989. "Some Notes on Economy of Derivation and Representation," *MIT Working Papers in Linguistics* 10, 43–74.
- . 1992. "A Minimalist Program for Linguistic Theory," *MIT Occasional Papers in Linguistics* 1.
- . 1995. "Categories and Transformations," *The Minimalist Program*, 219–394. Cambridge, Mass.: MIT Press.
- Chomsky, N. and H. Lasnik. 1991. "Principles and Parameters Theory," to appear in J. Jacobs, A. von Stechow, W. Stemefeld, and T. Vennemann, eds., *Syntax: an International Handbook of Contemporary Research*. Berlin: Walter de Gruyter.
- Cinque, G. 1990. *Types of A'-Dependencies*. Cambridge, Mass.: MIT Press.
- Coopmans, P. and S. Steveson. 1991. "How Extraction from Finite and Infinitival Complements: A Surprising Asymmetry," *Linguistic Inquiry* 22, 359–367.
- Fiengo, R. and J. Higginbotham. 1981. "Opacity and NP," *Linguistic Analysis* 7, 395–421.
- Gibson, E. 1989. "Subjacency and the Minimality Condition," *Proceedings of the Annual Meeting of the North Eastern Linguistic Society* 19, 127–141.
- Haegeman, L. 1991. *Introduction to Government and Binding Theory*. Oxford: Basil Blackwell.
- Hasegawa, K. 1986. "Kyoukai riron to shite no *Barriers* hihan (Critique of *Barriers* as Bounding theory)," *Gengo (Language)* 12, 84–94.
- Hornstein, N. and D. Lightfoot. 1987. "Predication and PRO," *Language* 63, 23–52.
- Jonas, D. and J. Bobaljik. 1993. "Spec for Subjects: The Role of TP in Icelandic," *MIT Working Papers in Linguistics* 18, 59–98.
- Kajiwarara, E. 1994. "Two Types of Barriers for Movement," *Oubei Bunka Kenkyu (Studies in European and American Culture)* 1, 43–58. (Graduate School of Social Sciences, Hiroshima University)
- . 1995. "The DP Analysis and Barriers," *Oubei Bunka Kenkyu (Studies in European and American Culture)* 2, 57–68. (Graduate School of Social Sciences, Hiroshima University)
- Kuno, S. and K. Takami. 1993. *Grammar and Discourse Principles: Functional Syntax and GB Theory*. Chicago: The University of Chicago Press.
- Lasnik, H. and M. Saito. 1984. "On the Nature of Proper Government," *Linguistic Inquiry* 15, 235–289.
- . 1992. *Move a: Conditions on its Application and Output*. Cambridge, Mass.: MIT

- Press.
- Manzini, M. 1988. "Constituent Structure and Locality," in A. Cardinaletti, G. Cinque, and G. Giusti, eds., *Constituent Structure: Papers from the XI GLOW Conference*, 157–201. Dordrecht: Foris.
- . 1992. *Locality: A Theory and Some of Its Empirical Consequences*. Cambridge, Mass.: MIT Press.
- Müller, G. and W. Sternefeld. 1993. "Improper Movement and Unambiguous Binding." *Linguistic Inquiry* 24, 461–507.
- Nakajima, H. 1987. "Barrier riron no shin tenbou (New Prospects for Barrier Theory) (1)–(2)," *Eigo Seinen (The Rising Generation)* 133, 65–67; 117–119.
- Nakamura, M. 1994. "Topicalization, Neg-Preposing, and Locative Preposing." in M. Nakamura, ed., *Current Topics in English and Japanese*. Tokyo: Hitsuzi Syobo.
- Rizzi, L. 1990. *Relativized Minimality*. Cambridge, Mass.: MIT Press.
- Rochemont, M. 1989. "Topic Islands and the Subjacency Parameter," *Canadian Journal of Linguistics* 34, 145–170.
- Rochemont, M. and P. Culicover. 1990. *English Focus Constructions and the Theory of Grammar*. Cambridge: Cambridge University Press.
- Sasaki, J. 1996. "An Analysis of TOPICALIZATION," *NIDABA* 25, 157–166.
- Takano, Y. 1988. "Extraction from Noun Phrases: Some Consequences of the DP Hypothesis and the Theory of Barrier," *Tsukuba English Studies* 7, 159–186.
- Takahashi, D. 1994. *Minimality of Movement*, Doctoral dissertation, University of Connecticut.