

# A Set-theoretic Account of English Crossover Effects

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Lee, Gunsoo. 2001. A Set-theoretic Account of English Crossover Effects. *Korean Journal of English Language and Linguistics* 1-1, 101-117. In English, whether or not wh-movement creates weak crossover effects depends upon the type of wh-phrases that cross over. A bare interrogative like *who* shows a typical weak crossover effect whereas *which N* type (e.g. *which girl*) and partitive type (e.g. *which of these girls*) wh-phrases would show mere weaker and weakest crossover effects, respectively. Previous approaches to English crossover phenomena that resort to a binary notion of specificity or D-linking cannot account for the three-way contrast the three different types of wh-phrases show. To overcome this problem, I argue in this paper that specificity should be a non-binary set-theoretic notion and propose the following subset principle and optimal binding relation: Between two lexical nominal expressions A and B, A is regarded as more specific than B iff the denotation of A comes from a more narrowly defined non-singleton set than B. Between two lexical nominal expressions A and B, if A locally binds B, then the non-singleton set from which the denotation of A comes should be a subset of the set from which the denotation of B comes (i.e. B cannot be more specific than A). The smaller the subset (i.e. the wider the specificity gap between binder and bindee), the more optimal the local binding relation is. A locally binds B iff A is coindexed with B, and A c-commands B, and there is no such C that does not bind A but binds B. Finally, I show that partitivity functions to carve out a smaller subset and thus make partitive wh-phrases more specific than simple *which N* type wh-phrases.

## 1. Introduction

The following ill-formed structure cannot be ruled out by traditional binding conditions B and C. The unacceptability in

the data like (1) has been referred to as "weak crossover effects," in which a *wh*-phrase is extracted across an NP which contains a pronoun coindexed with the extracted element.

- (1) \* Who<sub>i</sub> did his<sub>i</sub> brother bring t<sub>i</sub> to the concert?<sup>1)</sup>

There have been numerous attempts to account for residual data like (1) which Chomsky's binding theory cannot handle, including Lasnik and Stowell (1991) and Mahajan (1991). Previous attempts to rule out weak crossover phenomenon (hereafter *wco*) will be confronted with some problems with regard to the following English data.

- (2) a. \* Who<sub>i</sub> did her<sub>i</sub> father criticize t<sub>i</sub>?  
 b. (?) Which woman<sub>i</sub> did her<sub>i</sub> father criticize t<sub>i</sub>?  
 c. Which of these women<sub>i</sub> did her<sub>i</sub> father criticize t<sub>i</sub>?  
 (3) a. \* Who<sub>i</sub> did his<sub>i</sub> father take t<sub>i</sub> to the concert?  
 b. (?) Which boy<sub>i</sub> did his<sub>i</sub> father take t<sub>i</sub> to the concert?  
 c. Which of these boys<sub>i</sub> did his<sub>i</sub> father take t<sub>i</sub> to the concert?  
 (4) a. \* Who<sub>i</sub> did her<sub>i</sub> mother praise t<sub>i</sub> for good deeds?  
 b. (?) Which girl<sub>i</sub> did her<sub>i</sub> mother praise t<sub>i</sub> for good deeds?  
 c. Which of these girls<sub>i</sub> did her<sub>i</sub> mother praise t<sub>i</sub> for good deeds?  
 (5) a. \* Who<sub>i</sub> did John say her<sub>i</sub> friend came to visit t<sub>i</sub>?  
 b. (?) Which woman<sub>i</sub> did John say her<sub>i</sub> friend came to visit t<sub>i</sub>?

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<sup>1)</sup>I would like to thank the faculty members in the department of Foreign Languages and Literatures at University of Missouri-St. Louis for their judgements on the English data used in this paper. All of the ten native speakers judged (a) type examples of data (2) through (5) to be completely unacceptable, whereas (c) type examples were all judged to be perfectly fine. Three of them regarded (b) type sentences as somewhat marginal while the others considered them as acceptable.

- c. Which of these women<sub>i</sub> did John say her<sub>i</sub> friend came to visit t<sub>i</sub>?

What the above data show is that whether or not wh-movement creates wco effects depends upon the type of wh-phrases that cross over. If a bare interrogative *who* crosses over a pronominal, the result is unacceptability, as can be seen in (a) examples. In case of *which N* type wh-phrases, however, pronominals may all be readily crossed over (no wco effects), as can be seen in (b) and (c) examples.

## 2. Problems with Previous Approaches

Lasnik and Stowell (1991) argue that the A-bar chains lacking in genuine quantifier-variable relations are immune to wco effects. This account may be compatible with Pesetsky (1987) since he argues that D-linked *which N* type wh-phrases may not be considered genuine quantifiers, which could explain the difference between (a) examples and (b)-(c) examples in Lasnik and Stowell's terms. Mahajan (1991) used the notion of specificity to account for the absence of wco effects. If specificity can be equated with D-linking as Enc (1991) argues, then bare interrogatives like *who* would be non-specific whereas *which N* type wh-phrases would be specific.

However, as is shown in the above English data, for many native speakers there are three-way contrasts in wco effects among three different wh-phrases, namely, bare wh-phrases like *who*, *which N* type wh-phrases, and partitive type wh-phrases. Then, It would not be clear how the semantic difference among the three different types of wh-phrases, which triggers the three-way contrast, can be captured by the notion of specificity or D-linking. In the relevant literature, specificity is uniformly viewed as a binary notion which provides only a binary

distinction between a non-specific (non-D-linked) NP (e.g. *who*) and a specific(D-linked) NP (e.g. *which N* type or partitive type wh-phrases). In (4), for example, the contrast between (a) and (b) examples can be accounted for by the notion of D-linking. What is unexplainable is the contrast between (b) and (c) examples, because there would be no differences between *which girl* and *which of these girls* in terms of the binary notion of specificity/D-linking.

Another problem for the specificity approach to the absence of wco effects may be found in the following data.

- (6) \* Every student<sub>i</sub>, her<sub>i</sub> professor accompanied t<sub>i</sub> to the graduation ceremony.
- (7) Every student<sub>i</sub>, Professor Smith accompanied t<sub>i</sub> to the graduation ceremony.

For a number of native speakers, quantifier topicalization like example (7) is acceptable. Then we may claim that example (6) may be ruled out solely by wco effects. According to Enc (1991), universally quantified NPs are specific. Then it is not clear how Mahajan (1991) can explain why *every student*, which is specific/D-linked, triggers wco effects in (6).

### 3. A Set-Theoretic Notion of Specificity

The key to an adequate account for the three-way contrast in data (2) through (5) lies in finding out how the three different types of wh-phrases are semantically different. In this paper I will attempt to provide a relevant semantic characterization of the wh-phrases and propose a theory that accounts for the existence of weaker crossover effects (b-examples above) between weak crossover (a-examples) and Lasnik & Stowell's (1991) weakest crossover (c-examples).

First, let us consider the difference between *which girl* and *who* in (4) in terms of specificity, and the question as to what makes the former specific and the latter non-specific, since it is precisely this difference in specificity between the two that would cause the contrast between the (a) and (b) examples of (4) according to Mahajan (1991). As discussed in section 2, since Mahajan's analysis would fail to adequately account for the three-way contrast found in the foregoing data, I will abandon his binary notion of specificity and argue that specificity should be a non-binary gradational notion by which one nominal expression can be more specific than another nominal expression which can in turn be more specific than another one. Then the above question should be rephrased as what makes *which girl* more specific than *who*.

As a starting point for properly defining specificity, let us first assume that it is the specification of phi-features (person, number, gender) that makes the former more specific than the latter. But, this condition really begs the fundamental questions why and how phi-features play a role in determining the degree of specificity. The answer to these questions, I propose, can be explained if a set theory is employed in defining specificity. For *who*, its denotation may possibly come from the set of human individuals. The denotation of *which girl*, however, may come from a far smaller subset of the set from which the denotation of *who* comes, namely, from the set of girls. Here the question is exactly what kind of features make the set from which the denotation of *which girl* comes smaller than that from which the denotation of *who* comes. There can be numerous features associated with lexical information which function to make the former set smaller than the latter set. I propose that from various lexical features, phi-features can play the most significant role in that function. Such being the case, if *which girl* contains more phi-features and thus can be regarded as more specific

than *who*, we can establish some correlation between the amount of phi-features and a set-theoretic notion of specificity by claiming that the more phi-features a wh-phrase has, the smaller the subset it carves out. Then it would be exactly in this sense that the amount of phi-features plays a role in determining the degree of specificity. That is, if it is the amount of phi-features that makes *which girl* more specific than *who*, we can claim that a nominal expression whose denotation comes from a smaller subset is relatively more specific since the addition of phi-features functions to carve out a smaller subset. Given this reasoning, an account of wco effects can be formulated using this set-theoretic notion.

- (8) Between two lexical nominal expressions A and B, A is regarded as more specific than B iff the denotation of A comes from a more narrowly defined set than B. Between two lexical nominal expressions A and B, if A locally binds B, then the set from which the denotation of A comes should be a subset of the set from which the denotation of B comes (i.e. B cannot be more specific than A).<sup>2</sup> A locally binds B iff A is coindexed with B, and A c-commands B, and there is no such C that does not bind A but binds B.<sup>3</sup>

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<sup>2</sup>The underlying assumption behind this relation is Lasnik's (1991) prohibition against the binding of more referential expressions by less referential ones. He provided Korean and Japanese data in which R-expressions can bind pronouns which in turn can bind anaphors. Binding in reverse order was shown to be impossible, and for him this constitutes the evidence that referential hierarchy among the three nominals is in the order of R-expression > pronoun > anaphor.

<sup>3</sup>The notion of locality in (8) is crucial for allowing the following non-crossover data under the bound variable interpretation of the pronouns.

- (i)  $who_i$   $t_i$  loves  $his_i$  mother  
(ii) Everyone<sub>i</sub>  $t_i$  likes  $his_i$  partner. (after LF-QR)

The above condition states that a representation will be marked \* (unacceptable) if the subset principle in (8) is not obeyed. As one can figure out, condition (8) will correctly account for all the above data in wco configurations I provided, and will also explain the general contrast between (a) and (b) examples of the data in section 1. In (4a) *who* locally binds *her*, but the set from which the denotation of the former comes, namely, the set of human individuals, is not a subset of the set from which the denotation of the latter comes, namely the set of female individuals, and therefore condition (8) is violated in (4a), hence the unacceptability. In the case of (4b), however, the subset condition is satisfied because the set from which the denotation of *which girl* comes, the set of girls, is a subset of the set from which the denotation of *her* comes, the set of female individuals, hence their relative acceptability. Sentence (4c) also satisfies the subset condition in the same manner and thus is correctly predicted to be acceptable.<sup>4)</sup>

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In each of the two sentences above, the two coindexed lexical nominal expressions are not in local binding relations to each other since a c-commanding trace intervenes. Therefore, the unacceptability marking of condition (8) will not apply to the two sentences, and the bound readings are correctly permitted. The proposed notion of locality seems to parallel what Koopman and Sportiche's (1983) bijection principle accounts for.

<sup>4</sup>The subset condition may be strictly enforced, since the three-way contrast, shown among *who*, a *which N* type wh-phrase, and a partitive type wh-phrase in (2) through (5), does not exist in the following data. As one can figure out from the condition in (8), all the sentences below, except (iii)-c, violate the subset principle, hence their unacceptability. In each case, the set from which the denotation of binder comes is not a subset of the set from which the denotation of bindee comes.

- (i) a.\* Who<sub>i</sub> did her<sub>i</sub> friend invite t<sub>i</sub> to lead the discussion?  
 b.\* Which person<sub>i</sub> did her<sub>i</sub> friend invite t<sub>i</sub> to lead the discussion?  
 c.\* Which of these persons<sub>i</sub> did her<sub>i</sub> friend invite t<sub>i</sub> to lead the discussion?

#### 4. Subset Principle as an Account for the Three-way Contrast

Even though condition (8) correctly predicts the general contrast between (a) and (b) examples of data (2) through (5), still the contrast between (b) and (c) examples of the data still remains to be explained.<sup>5)</sup> The answer to this problem may be obtained if we can find some difference between *which N* type wh-phrases and partitive type wh-phrases in terms of the degree of specificity. Some evidence for the assumption that *which N* type and partitive type wh-phrases should be treated differently can come from the following discourse structures.

(9) Speaker A: I went back to the bookstore today. I will buy a novel there tomorrow.

Speaker B: possible question 1: \*What will you buy tomorrow?

possible question 2: Which novel will you buy tomorrow?

possible question 3: \* Which of the novels will you buy tomorrow?

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- (ii) a.\* Who<sub>i</sub> did her<sub>i</sub> friend come to visit t<sub>i</sub>?  
 b.\* Which kid<sub>i</sub> did her<sub>i</sub> friend come to visit t<sub>i</sub>?  
 c.\* Which of these kids<sub>i</sub> did her<sub>i</sub> friend come to visit t<sub>i</sub>?  
 (iii) a.\* Which person<sub>i</sub> did his<sub>i</sub> mother praise t<sub>i</sub>?  
 b.\* Which person<sub>i</sub> did her<sub>i</sub> mother praise t<sub>i</sub>?  
 c. Which people<sub>i</sub> did their<sub>i</sub> mother praise t<sub>i</sub>?

<sup>5)</sup>In view of the contrast between the following two data, the subset condition of (8) may have to be further refined as a proper subset condition.

- (i) \* What<sub>i</sub> does its<sub>i</sub> owner beat t<sub>i</sub> everyday?  
 (ii) (?)Which donkey<sub>i</sub>/Which of these donkeys<sub>i</sub> does its<sub>i</sub> owner beat t<sub>i</sub> everyday?



(10) Speaker A: I went back to the bookstore today. I will buy a novel there tomorrow. There were four interesting novels that I think I will really enjoy reading. They are *The Old Man And The Sea*, *Emily*, *Colour Purple*, and *Scarlet Letter*. I will choose one out of these four.

Speaker B: possible question 1: \* What will you buy tomorrow?

possible question 2: ?? Which novel will you buy tomorrow?

possible question 3: Which of the novels will you buy tomorrow?

In (9), after the utterance of speaker A, question 1 by speaker B sounds very unnatural because it seems out of the related discourse context. Question 3 sounds odd because a specific set of novels was not clearly established in the previous discourse utterance of speaker A. This shows that the answer for partitive *wh*-phrases should always come from a set of entities clearly established in the previous discourse (compare this with the naturalness of question 3 in (10)). Question 2 may be the only well-formed utterance in the discourse context of (9). In (10), speaker B's question 1 sounds very unnatural again for the same reason, namely, that the question sounds completely unconnected to speaker A's utterance. Question 2 seems odd, too, because the question is not really asking for a choice among the four novels specified by speaker A, even though it is clearly indicated by the speaker in (10) that the person will choose one of the four novels he mentioned at the bookstore the next day. Question 2 rather seems to be asking for a choice among any of those novels at that particular bookstore or some other stores. This shows that the answer for *which N* type *wh*-phrases may come from a set much more broadly defined in discourse context than

that for partitive type *wh*-phrases. Using the partitive *wh*-phrase in question 3 of (10) is very natural in the given context because there is a clear establishment of the specific set of novels in speaker A's utterance.

In view of (9) and (10), the difference between *which N* and partitive *wh*-phrases can be that the denotation of the latter comes from a more narrowly defined set than the former. Thus, we can claim that partitivity in *wh*-phrases functions to carve out a smaller subset in comparison with non-partitive *wh*-phrases. As for bare *wh*-phrases like *who* and *what*, it may not be the case that they are completely non-specific. Instead, it may just be that since the membership of the set which a bare *wh*-phrase quantifies over is unknown, the denotation of the answer for bare *wh*-phrases *who* or *what* may come from a much more broadly defined set (the set of humans and the set of non-human entities, respectively) than *which N* and partitive *wh*-phrases.

If partitivity in *wh*-phrases functions to carve out an even smaller subset, then according to the definition of *specificity* in (8), partitive *wh*-phrase *which of these girls* would be more specific than *which N* type *wh*-phrase *which girl*, since the denotation of the former comes from a more narrowly defined set than the latter.<sup>6)</sup> Then, specificity hierarchy among the three

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<sup>6</sup>There may be another difference between *which N* type and partitive type *wh*-phrases. Pesetsky (1987) notes that (D-linked) *which N* type *wh*-phrases may at times be novel. In other words, the answer for them may not come from a contextually defined set established in previous discourse. According to him, this would apparently be a violation of Heim's felicity condition because D-linked *which N* type *wh*-phrases should introduce familiar entities. Pesetsky notes that this apparent violation may be taken care of by Heim's notion of accommodation. In this regard, as for partitive *wh*-phrases, however, they may not need to resort to the accommodation process, because the denotation of partitive *wh*-phrase may always come from a contextually defined set clearly established in previous discourse. This possible difference between the two may be related to my observation

different types of *wh*-phrases can be established as:

(11) *who* < *which girl* < *which of these girls*

Given the hierarchy in (11), we may explain the three-way contrast in English data (2) through (5) with (8) repeated here as (12) after a slight modification.

(12) Between two lexical nominal expressions A and B, A is regarded as more specific than B iff the denotation of A comes from a more narrowly defined set than B. Between two lexical nominal expressions A and B, if A locally binds B, then the set from which the denotation of A comes should be a subset of the set from which the denotation of B comes (i.e. B cannot be more specific than A). The smaller the subset (i.e. the wider the specificity gap between binder and bindee), the more optimal the local binding relation is. A locally binds B iff A is coindexed with B, and A c-commands B, and there is no such C that does not bind A but binds B.

In (2) through (5), the (a) examples are unacceptable due to a violation of the subset principle in (12): wco effects. Between (b) and (c) examples of the data which satisfy the above subset principle, (c) examples (weakest crossover) is better than (b) examples (weaker crossover) because a specificity gap is wider in (c) examples between binder (e.g. *which of these girls*) and bindee (e.g. *her*) than in (b) examples between binder (e.g. *which girl*) and bindee (e.g. *her*). In (4), for instance, the set which the denotation of *which of these girls* comes from would be more

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in (9) and (10) that the denotation of *which novel* comes from a more broadly (or vaguely) defined set than that of *which of the novels*, the denotation of which comes from a clearly defined set of previous discourse.

deeply embedded inside the set which the denotation of *her* comes from, compared to the set which the denotation of *which girl* comes from. The contrast between (b) and (c) examples of the data shows that wh-expressions higher on the specificity hierarchy can more readily bind a given pronominal. So, the latter part of (12) is a generalization that the wider the specificity gap between two lexical nominal expressions A (binder) and B (bindee), the more acceptable the local binding relation becomes.<sup>7</sup>) In other words, at least in wco configurations like (4), for the optimal binding relation, binder (crossing over elements) may have to be maximally specific whereas bindee (crossed over elements) has to remain minimally specific with respect to its binder.

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<sup>7</sup>Another piece of evidence for this generalization comes from the following English Sentences. Native speakers I consulted agree that the most optimal binding relation is between *which of these boys* and *PRO*, a case where the specificity gap is the widest among all binding possibilities shown in (i) and (ii).

- (i) Who<sub>i</sub> did PRO<sub>i</sub>/*\*her*/*\*his*<sub>i</sub> reading this book give pleasure to t<sub>i</sub>?
- (ii) Which boy<sub>i</sub>/*which of these boys*<sub>i</sub> did PRO<sub>i</sub>/*his*<sub>i</sub> reading this book give pleasure to t<sub>i</sub>?

In case the wh-phrases are further modified by a relative clause, the native speakers saw more finely divided gradational effects than what was shown by the three-way contrast of data (2) through (5). They agreed that sentences become gradually better in accordance with condition (12) in the following data, as we move from (a) to (d) examples.

- (iii) a. \* Who<sub>i</sub> did his<sub>i</sub> father take t<sub>i</sub> to the concert?
- b. (?) Which boy<sub>i</sub> did his<sub>i</sub> father take t<sub>i</sub> to the concert?
- c. Which of these boys<sub>i</sub> did his<sub>i</sub> father take t<sub>i</sub> to the concert?
- d. [*Which of these boys that John taught music*]<sub>i</sub> did his<sub>i</sub> father take t<sub>i</sub> to the concert?

## 5. Apparent Problems

Let us finally consider how the subset condition in (12) can deal with wco configurations created by topicalization.

- (13) a. The child<sub>i</sub>, his<sub>i</sub> mother is looking for t<sub>i</sub>.  
 b. Tom<sub>i</sub>, his<sub>i</sub> mother sent t<sub>i</sub> to the catholic school.

In view of the fact that there is no wco effect in (13-a) contra what (12) would predict, it has to be stipulated that (12) should apply only to a non-singleton set, and not to a singleton set (one-membered set) from which the denotation of a definite noun phrase like *the child* or a proper noun like *Tom* comes. Since names and definite noun phrases have independent references, it can be claimed that their denotations come from singleton sets. In other words, for non-quantificational expressions like *the child* and *Tom*, their referents are fixed in the relevant domain of discourse, so the denotation of *Tom* does not come from the set of male individuals, a non-singleton set, but comes from a singleton set, namely, the set of one individual named *Tom*. Likewise, the denotation of *the child* or *that child* does not come from the set of children, a non-singleton set, but from a singleton set, namely the set of one individual referred to by the expression *the child* or *that child*. If (12) does not apply to a singleton set, then the absence of wco effects in (13-a) can be derived, since the subset condition will simply not apply to the data.<sup>8</sup> Or rather we may argue that since a singleton set is

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<sup>8</sup>As can be seen in the following data, (12) can provide a correct prediction for wco configurations created by topicalization of indefinite descriptions. The denotation of an indefinite description would come from a non-singleton set since its referent is not settled in the relevant domain of discourse. Therefore, the subset condition will apply and successfully rule out the data like (i). For quite a few other native speakers, however, topicalization of indefinite descriptions itself is not

the most narrowly defined set, definite expressions are the most specific expressions, along with names, and thus may locally bind relevant pronominals quite freely as in (13).

## 6. Summary

In this paper, I attempted to predict the existence of weak crossover effects by using the non-binary gradational notion of specificity. Therefore I established the relation between weak crossover and referentiality as (8): *Between two lexical nominal expressions A and B, A is regarded as more specific than B iff the denotation of A comes from a more narrowly defined non-singleton set than B. Between two lexical nominal expressions A and B, if A locally binds B, then the non-singleton set from which the denotation of A comes should be a subset of the set from which the denotation of B comes from (i.e. B cannot be more specific than A).*<sup>9</sup> As for the

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even possible. Then, the issue of whether my theory can account for such a case does not arise at all.

- (i) \* A person<sub>i</sub>, her<sub>i</sub> friend criticized t<sub>i</sub> for no obvious reason.
- (ii) A girl<sub>i</sub>, her<sub>i</sub> friend criticized t<sub>i</sub> for no obvious reason.

<sup>9</sup>At this point it must be considered how condition (8) may account for wco effects at LF.

- (i) \* his<sub>i</sub> mother loves every man<sub>i</sub>  
=> LF: [IP [every x]<sub>i</sub> [IP his<sub>i</sub> ----- [x man] ]]
- (ii) \* Its<sub>i</sub> owner opened every box<sub>i</sub>  
=> LF: [IP [every x]<sub>i</sub> [IP its<sub>i</sub> ---- [x box]]]

The above LF structures are postulated in accordance with Chomsky (1995) and Huang (1995), which argue that LF principles of economy allow only every to undergo raising without pied-piping a whole quantifier phrase. Given this, in its LF lexical representation [every x], since the quantifier every, with x inside [every x] being a variable, can in principle quantify over all kinds of entities (animate or inanimate), the denotation of [every x] may come from the most broadly defined set (the set of all entities). However, the denotation of the overt

distinction between weaker crossover and weakest crossover effects reflected in the three-way contrast in the data of section 1, I proposed a generalization: *the wider the specificity gap between two lexical nominal expressions A (binder) and B (bindee), the more acceptable the local binding relation is.*

### References

- Baker, C. L. 1995. *English Syntax*. Cambridge, Mass.: MIT Press.
- Baltin, M. 1982. A landing site theory of movement rules. *Linguistic Inquiry* 13, 1-38.
- Choe, J. W. 1987. LF movement and pied-piping. *Linguistic Inquiry* 18, 348-53.
- Chomsky, N. 1976. Conditions on rules of grammar. *Linguistic Analysis* 2, 303-51.
- Chomsky, N. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.
- Chomsky, N. 1982. *Some Concepts and Consequences of the Theory of Government and Binding*. Cambridge, Mass.: MIT Press.
- Chomsky, N. 1986. *Knowledge of Language: Its Nature, Origin, and Use*. New York: Praeger.
- Chomsky, N. 1995. *The Minimalist Program*. Cambridge, Mass.: MIT Press.
- Chomsky, N. 1998. Minimalist inquiries: the framework. *MIT Occasional Papers in Linguistics*. No. 5. MIT.
- Cinque, G. 1990. *Types of A-bar Dependencies*. Cambridge, Mass.: MIT Press.
- Collins, C. 1997. *Local Economy*. Cambridge, Mass.: MIT Press.
- Enc, M. 1989. Pronouns, licensing and binding. *Natural Language and Linguistic Theory* 7, 51-92
- Enc, M. 1991. The semantics of specificity. *Linguistic Inquiry* 22, 1-25.
- Harbert, W. 1995. Binding theory, control, and pro. In G. Webelhuth, ed., *Government and Binding Theory and the Minimalist Program*.

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pronominals in (i) and (ii), which are locally bound by [every x], may come from a more narrowly defined set than that of [every x], namely, the set of male individuals (for his) and the set of non-human entities (for its). Then, in (i) and (ii), between [every x] and the overt pronominals that are in a local binding relation, the bindee (the overt pronominals) will be more specific than the binder ([every x]) according to condition (8), and the subset condition will be violated. Thus, the unacceptability of (i) and (ii) can be well predicted by condition (8).

Blackwell.

- Higginbotham, J. 1980. Pronouns and bound variables. *Linguistic Inquiry* 11, 679-708.
- Hornstein, N. and A. Weinberg. 1991. The necessity of LF. *The Linguistic Review* 7, 129-67.
- Huang, J. 1995. Logical form. In G. Webelhuth, ed., *Government and Binding Theory and the Minimalist Program*. Blackwell.
- Koopman, H. and D. Sportiche. 1983. Variables and the bijection principle. *The Linguistic Review* 2, 139-60.
- Kuno, S. 1987. *Binding Conditions and Crossover Phenomena*. Harvard University.
- Lasnik, H. 1991. On the necessity of binding conditions. In R. Freidin ed., 7-28.
- Lasnik, H. 1993. *The Minimalist Theory of Syntax: Motivations and Prospects*. Ms. University of Connecticut.
- Lasnik, H. and M. Saito. 1992. *Move a: Conditions on Its Application and Output*. Cambridge, Mass.: MIT Press.
- Lasnik, H. and T. Stowell. 1991. Weakest crossover. *Linguistics Inquiry* 22, 687-720.
- Lee, Y. 1993. *Scrambling as Case-driven Obligatory Movement*. Doctoral dissertation. University of Pennsylvania.
- Li, Y. 1990. X zero-binding and verb incorporation. *Linguistic Inquiry* 21, 399-426.
- Mahajan, A. 1990. *The A/A-bar Distinction and Movement Theory*. Doctoral dissertation. MIT.
- Mahajan, A. 1991. *Operator Movement, Agreement, and Referentiality*. Ms., University of Wisconsin-Madison.
- Manzini, M. R. 1992. *Locality: A Theory and Some of Its Empirical Consequences*. Cambridge, Mass.: MIT Press.
- May, R. 1985. *Logical Form : Its Structure and Derivation*. Cambridge, Mass.: MIT Press.
- Montalbetti, M. 1984. *After Binding*. Doctoral dissertation. MIT.
- Nishigauchi, T. 1984. Control and the thematic domain. *Language* 60, 215-50.
- Pesetsky, D. 1987. Wh-in-situ: movement and unselective binding. In E. Reuland and A. ter Meulen, eds., *The Representation of (In)definiteness*. Cambridge, Mass.: MIT Press.
- Reinhart, T. and E. Reuland. 1993. Reflexivity. *Linguistic Inquiry* 24: 657-720.
- Larson, R. and G. Segal. 1995. *Knowledge of Meaning*. Cambridge, Mass.: MIT Press.
- Rizzi, L. 1990. *Relativized Minimality*. Cambridge, Mass.: MIT Press.
- Travis, L. 1984. *Parameters and Effects of Word Order Variation*. Doctoral



dissertation. MIT.

Webelhuth, G. 1992. *Principles and Parameters of Syntactic Saturation*.  
Oxford University Press.

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