

Secondary strong crossover in Hindi and the typology of movement*

Rajesh Bhatt & Stefan Keine

University of Massachusetts Amherst & University of Southern California

1. Introduction

In this paper, we investigate asymmetries between A- and \bar{A} -movement with respect to weak crossover (WCO), Condition C connectivity, and secondary strong crossover (SSCO) through the lens of scrambling in Hindi. We show that scrambling does not neatly align with either A- or \bar{A} -movement in these domains but instead exhibits mixed properties, which shed new light on the fine structure of movement type asymmetries.

In English, A- and \bar{A} -movement differ in regard to WCO, Condition C connectivity, and SSCO. First, A-movement is not subject to WCO, whereas \bar{A} -movement is (Postal 1971, Wasow 1972), as shown in (1). Second, A-movement does not display Condition C connectivity (Chomsky 1993, Sauerland 1998, Fox 1999, Takahashi and Hulsey 2009), whereas \bar{A} -movement does, at least with arguments and possessors (Lebeaux 1988, 2000), as illustrated in (2). Third, English A-movement does not display sensitivity to SSCO with quantificational DPs, while \bar{A} -movement does (see Postal 1993 and Safir 1999 for discussion of SSCO). In (3a), the possessor *every boy* inside the A-moved DP can bind the pronoun *him*, which is crossed by the A-movement step. By contrast, in (3b), the possessor *whose* inside an \bar{A} -moved DP cannot bind the pronoun *he*, which is crossed by \bar{A} -movement.

(1) *Weak crossover (WCO)*

- a. **Every boy**₁ seems to **his**₁ mother [___₁ to be intelligent] *A-movement*
b. ***Which boy**₁ did **his**₁ mother say [___₁ is intelligent]? *\bar{A} -movement*

(2) *Condition C connectivity*

- a. [**John's**₁ mother]₂ seems to **him**₁ [___₂ to be intelligent] *A-movement*
b. * [**John's**₁ mother]₂ **he**₁ thinks [___₂ is intelligent] *\bar{A} -movement*

*We thank audiences at FASAL 8 (Wichita State University) and NELS 49 (Cornell). In particular, we thank Veneeta Dayal, Ashwini Deo, Bilge Palaz, Martin Salzmann, Giorgos Spathas, and Gary Thoms for comments and data. Thanks are also due to the editors Maggie Baird, Duygu Göksu, and Jonathan Pesetsky for their patience.

(3) *Secondary strong crossover (SSCO)*

- a. [**Every boy**'s₁ mother]₂ seems to **him**₁ [____₂ to be intelligent] *A-movement*
- b. *[**Whose**₁ mother]₂ does **he**₁ think [____₂ is intelligent]? *\bar{A} -movement*

In this paper, we document and analyze the apparently paradoxical behavior of Hindi scrambling with respect to these properties. On the one hand, we show that scrambling patterns like English A-movement in not being subject to WCO. On the other hand, scrambling displays SSCO and Condition C connectivity and in this respect behaves like English \bar{A} -movement. We then propose that this mixed behavior of scrambling can be derived if scrambling is \bar{A} -movement of an already case-marked DP. We suggest that while WCO tracks the A/ \bar{A} -distinction, SSCO and Condition C connectivity do not; the latter correlate with case (building on Takahashi and Hulsey 2009). Scrambling thus sheds new light on the fine structure of movement type asymmetries.

2. A scrambling puzzle

In this section, we investigate the crossover properties of local (i.e., clausebounded) scrambling in Hindi. For ease of reference, we will simply refer to this movement as “scrambling.” We should note that this is a bit of an oversimplification as Hindi also allows long-distance scrambling. The latter type of scrambling behaves like English \bar{A} -movement with respect to the properties we investigate here, and we will therefore put it aside in what follows.

A standard generalization about local scrambling in Hindi is that that it is not subject to WCO (Mahajan 1990, *et seq.*). As illustrated in (4), a scrambled object may bind a pronoun inside a DP crossed by scrambling (the subject in (4), though not limited to subjects). In this respect, scrambling clearly behaves like English A-movement (1a).

(4) *Local scrambling is not subject to WCO*

- [**har larke-ko**]₁ [**us-kii** behin-ne] ____₁ ḍāāṭaa
 every boy-ACC he-GEN sister-ERG scolded
 ‘For every boy *x*, *x*’s sister scolded *x*.’

Next, we argue that scrambling is subject to SSCO. First, Hindi allows a possessor inside a DP to bind a pronoun c-commanded by the container DP (“inverse linking,” see May 1977). In (5), the possessor *har larke-kii* ‘every boy-GEN’ inside the subject may bind the object pronoun *us-ko* ‘him.’¹

¹One might wonder whether (5) might not involve inverse binding as such, but extraction of the possessor out of the subject DP and subsequent binding of the pronoun under c-command. However, there is good reason to not pursue such an analysis. While Hindi in principle allows possessor raising, possessor extraction is not possible out of ergative subjects, as demonstrated in (i):

Secondary strong crossover in Hindi

(5) *Binding by possessor*

[**har** **laṛke-kii**₁ behin-ne] **us-ko**₁ ḍāāṭaa
 every boy-GEN sister-ERG he-ACC scolded
 ‘For every boy *x*, *x*’s sister scolded *x*.’

Second, a possessor contained inside a scrambled DP can bind a pronoun inside a DP that is crossed by scrambling, as (6) shows. Here, the possessor *har laṛke-kii* ‘every boy-GEN’ inside the scrambled object can bind the pronoun *us-ke* ‘he-GEN’ inside the subject.²

(6) *Binding by possessor inside scrambled DP*

[**har** **laṛke-kii**₁ behin-ko]₂ [**us-ke**₁ dost-ne] ___₂ ḍāāṭaa
 every boy-GEN sister-ACC he-GEN friend-ERG scolded
 ‘For every boy *x*, *x*’s friend scolded *x*’s sister.’

Third, a possessor contained inside a scrambled DP may *not* bind a pronoun that is crossed by movement if this pronoun c-commands the launching site. This is demonstrated in (7), where the possessor *har laṛke-kii* ‘every boy-GEN’ inside the scrambled object cannot bind the subject *us-ne* ‘he-ERG’ (the structure is grammatical without binding).

(7) *No binding by possessor if pronoun c-commands trace*

*[**har** **laṛke-kii**₁ behin-ko]₂ **us-ne**₁ ___₂ ḍāāṭaa
 every boy-GEN sister-ACC he-ERG scolded
 ‘For every boy *x*, *x* scolded *x*’s sister.’

(7) constitutes a SSCO configuration similar to (3b). The ungrammaticality of (7) thus indicates that Hindi scrambling is subject to SSCO, like English \bar{A} -movement.

This constellation of facts gives rise to an interesting analytical puzzle. We know from (4) and (6) that scrambling is not subject to WCO, meaning that a scrambled DP can bind

- (i) a. kal [Ram-kii behin-ne] us-ko ḍāāṭaa
 yesterday Ram-GEN sister-ERG him-ACC scolded
 ‘Yesterday, Ram’s sister scolded him.’
 b. *Ram-kii₁ kal [___₁ behin-ne] us-ko ḍāāṭaa
 Ram-GEN yesterday sister-ERG him-ACC scolded

Because (5) involves binding by a possessor inside an ergative subject, a possessor-raising analysis is unavailable.

²Like ergative subjects (see fn. 1), *ko*-marked objects disallow possessor extraction out of them, as shown in (i). Because in (6) the possessor is inside a *ko*-marked object, the structure cannot involve raising of the possessor.

- (i) a. us-ne [Ram-kii behin-ko] ḍāāṭaa
 s/he-ERG Ram-GEN sister-ACC scolded
 ‘S/he₁ scolded Ram’s₂ sister.’
 b. *Ram-kii₁ us-ne [___₁ behin-ko] ḍāāṭaa
 Ram-GEN s/he-ERG sister-ACC scolded

a pronoun from its landing site. We furthermore know from (5) that possessors may bind outside their host DP in the absence of movement. Why then is such possessor binding impossible if the constellation is produced by movement, as in (7)? Note that the trace in (7) is not coindexed with the subject pronoun. As a result, the ungrammaticality of (7) cannot be attributed to a Condition B or Condition C effect with respect to the trace.

Another way of framing the problem is that scrambling can feed inverse linking (i.e., binding by a possessor inside the scrambled DP) only if the bound pronoun does not c-command the launching site (see (6) vs. (7)). No such restriction holds in the absence of scrambling (see (5)). This suggests that we are dealing with a constraint on scrambling.

Finally, we show that like English \bar{A} -movement, Hindi scrambling is subject to Condition C connectivity with possessors. (8a) demonstrates that, unsurprisingly, a coindexed subject creates a Condition C violation for a possessor R-expression inside the object. (8b) shows that scrambling of the object over the subject does not obviate this Condition C violation.

- (8) a. ***us-ne**₁ [**Sita-ke**₁ bhaaii-ko] dāāṭaa
 she-ERG Sita-GEN brother-ACC scolded
 ‘She₁ scolded Sita’s₁ brother.’
- b. *[**Sita-ke**₁ bhaaii-ko]₂ **us-ne**₁ ___₂ dāāṭaa
 Sita-GEN brother-ACC she-ERG scolded
 ‘Sita’s₁ brother, she₁ scolded.’

To summarize, Hindi scrambling does not align with English A- or \bar{A} -movement with respect to the above properties. As shown in (9), scrambling patterns like \bar{A} -movement in that it is not subject to WCO. On the other hand, scrambling behaves like \bar{A} -movement in that it is subject to SSCO and Condition C connectivity with possessors.

(9)

	English A-movement	Hindi scrambling	English \bar{A} -movement
WCO	N	N	Y
SSCO	N	Y	Y
possessor Condition C connectivity	N	Y	Y

This conclusion raises a number of questions. First, it harks back to the long-standing issue of how scrambling relates to the A/ \bar{A} -distinction (see, among many others, Webelhuth 1989, Mahajan 1990, Dayal 1994, as well as the overview discussion and references in Grewendorf and Sternefeld 1990 and Corver and van Riemsdijk 1994). Second, it raises the question whether scrambling constitutes a third primitive type of movement, in addition to the standard A/ \bar{A} -dichotomy, or whether this specific constellation of properties can be derived from other, independent properties of scrambling.

3. Proposal

In this section, we propose that the mixed properties of Hindi scrambling with respect to the properties above correlate at least partially with another important property of scrambling: the fact that it does not interact with case assignment. We then propose that once this connection is recognized, the properties of scrambling with respect to SSCO and Condition C connectivity follow without further ado from Takahashi and Hulsey's (2009) account of Wholesale Late Merger.

Hindi scrambling differs from English A-movement in that it is independent of case: scrambling never affects the case of the moving element, and it does not discriminate among DPs based on their case feature (Keine 2018). Thus, scrambling can target objects regardless of the case they bear, and it does not change the case of the scrambled DP. This is shown for direct objects that bear the differential-object marker *-ko* in (10) and for objects in instrumental case in (11).

- (10) a. Sita-ne Ram- $\{ko/*se/*kaa/*\emptyset\}$ dekhaa
 Sita-ERG Ram- $\{ACC/*INSTR/*GEN/*\emptyset\}$ saw
 'Sita saw Ram.'
- b. Ram- $\{ko/*se/*kaa/*\emptyset\}_1$ Sita-ne $__1$ dekhaa
 Ram- $\{ACC/*INSTR/*GEN/*\emptyset\}$ Sita-ERG saw
 'Sita saw Ram.'
- (11) a. Pratap Sita- $\{se/*ko/*kaa/*\emptyset\}$ milaa hai
 Pratap Sita- $\{INSTR/*ACC/*GEN/*\emptyset\}$ met AUX
 'Pratap has met Sita.'
- b. Sita- $\{se/*ko/*kaa/*\emptyset\}_1$ Pratap $__1$ milaa hai
 Sita- $\{INSTR/*ACC/*GEN/*\emptyset\}$ Pratap met AUX
 'Pratap has met Sita.'

This case connectivity indicates that scrambling does not feed case assignment, hence that scrambling targets DPs whose case is already valued prior to scrambling (see Keine 2018 for additional arguments for this conclusion). In this respect, scrambling behaves like \bar{A} -movement and unlike A-movement.

We propose that the independence of scrambling and case provides the key to understanding the mixed properties of scrambling in regard to WCO, SSCO, and Condition C connectivity. Specifically, we propose (12).

- (12) (Hindi) scrambling constitutes A-movement of an already case-marked DP.

In other words, we propose that scrambling is A-movement (in the technical sense) that takes place after case has been assigned to a DP and that it is this combination of properties that underlies the apparently paradoxical properties of scrambling with respect to the A/\bar{A} -distinction. We discuss both sets of properties in turn.

3.1 Weak crossover

In order to derive the WCO facts, we assume that A-movement can feed pronominal binding from its landing site, while \bar{A} -movement cannot. For the sake of concreteness, we follow Sauerland (1998, 2004) and Ruys (2000) in assuming that A-movement allows λ -abstraction over an individual-type variable, while \bar{A} -movement leaves behind a choice-function variable in its launching site and therefore requires λ -abstraction over a choice-functions variable (type $\langle\langle e, t \rangle, e\rangle$). Assuming furthermore that pronouns are invariably of type e , it follows that only A-movement has the right semantic properties to yield pronominal binding. Consequently, \bar{A} -movement is subject to WCO, whereas A-movement is not.

If scrambling is an instance of A-movement (by (12)), it has access to abstraction over an e -type variable and it is hence not subject to WCO. The resulting structure for (4) (repeated here as (13)) is as shown in (14).

- (13) [har laṛke-ko]₁ [us-kii₁ behin-ne] ___₁ ḍāãṭaa
 every boy-ACC he-GEN sister-ERG scolded
 ‘For every boy x , x ’s sister scolded x .’

- (14) [har laṛke-ko] λx . [[x ’s behin-ne] x ḍāãṭaa] \rightarrow *no WCO*

3.2 Strong crossover and Condition C connectivity

Next, we turn to the behavior of scrambling with respect to SSCO and Condition C connectivity. We show that Takahashi and Hulsey’s (2009) account of Condition C connectivity, combined with (12) immediately derives the result that scrambling behaves like \bar{A} -movement with respect to these properties.

Let us first consider Condition C connectivity. As we already saw on the basis of (2), repeated in (15), English A-movement does not display Condition C connectivity with possessors, while \bar{A} -movement does.

- (15) a. [**John**’s₁ mother]₂ seems to **him**₁ [___₂ to be intelligent] *A-movement*
 b. * [**John**’s₁ mother]₂ **he**₁ thinks [___₂ is intelligent] *\bar{A} -movement*

Takahashi and Hulsey (2009) propose, building on work by Lebeaux (1988, 2000), that Condition C connectivity results from the presence of the R-expression inside the copy left by movement. Simplifying somewhat, they assume that \bar{A} -movement leaves behind a copy of the moved DP. If this DP contains an R-expression that is coindexed with a c-commanding pronoun, a Condition C violation arises, as schematized in (16).³

³Takahashi and Hulsey (2009) follow the seminal proposal in Lebeaux (1988, 2000) that adjuncts may be late-merged into an \bar{A} -moved DP. This allows for Condition C obviation with R-expressions in relative clauses. On the assumption that possessors cannot be late-merged (Safir 1999), this possibility is not relevant for the cases we discuss here, and we will hence abstract away from it.

Secondary strong crossover in Hindi

- (16) *Takahashi and Hulsey's (2009) analysis of English \bar{A} -movement:*
 [DP-GEN₁ ...] ... pron₁ ... ⟨ [DP-GEN₁ ...] ⟩ → *Condition C connectivity*

To account for the observation that A-movement is not subject to Condition C connectivity, Takahashi and Hulsey (2009) furthermore propose that English A-movement has the option of late-merging the NP restrictor (so-called *Wholesale Late Merger*, WLM). In this case, the launching site of the movement only contains a D head, as schematized in (17). Because the launching as a result does not contain an R-expression coindexed with the pronoun, Condition C violation is not violated in (17). More generally, after Trace Conversion, the D head in the launching site is not different from a pronoun in the relevant respects, and it is hence not subject to Condition C for principled reasons.

- (17) *Takahashi and Hulsey's (2009) analysis of English A-movement:*
 [DP-GEN₁ ...] ... pron₁ ... ⟨ D ⟩ → *no Condition C connectivity*

To ensure that Condition C is obviated with possessors only under A-movement, the WLM derivation in (17) must only be available to A-movement. Takahashi and Hulsey (2009) do not stipulate this restriction as such, but attribute it to case. Concretely, they assume that the NP restrictor is subject to the Case Filter, and as a result, the NP restrictor must be merged prior to the DP reaching a position in which its case is assigned. Because English A-movement feeds case assignment, it has access to a WLM derivation. By contrast, \bar{A} -movement does not feed case assignment, and so WLM into an \bar{A} -moved DP would violate the Case Filter.⁴ This yields the desired result that only A-movement obviates Condition C violations with possessors.

Takahashi and Hulsey's (2009) account gives rise to an interesting prediction. Because the availability of WLM is regulated by case, not by the A/ \bar{A} -distinction as such, we expect that *any* movement of a DP that does not feed case assignment (i.e., any movement that targets a DP with an already-valued case feature) should give rise to SSCO. Recall now our proposal in (12) that scrambling is A-movement of an already case-marked DP. Takahashi and Hulsey's (2009) account predicts that in this case, the NP restrictor must be merged before scrambling applies (or else the Case Filter would be violated), just as in the case of \bar{A} -movement. The obligatory presence of the NP restrictor then immediately results in Condition C connectivity with possessors. This contrast between English A-movement on the one hand and English \bar{A} -movement and Hindi scrambling on the other is schematized in (18) and (19), respectively.

- (18) *English A-movement: no Condition C connectivity; no (S)SCO*
 [[DP-GEN₁ ...] ... pron₁ ... ⟨ D ⟩]
 └──────────────────┘
 ↑
 case assigned → NP merger

⁴Also see Takahashi and Hulsey (2009) for evidence that \bar{A} -movement can make use of WLM when case is not an issue.

- (19) *Scrambling/ \bar{A} -movement: Condition C connectivity; (S)SCO*
 [[DP-GEN₁ ...] ... pron₁ ... $\underbrace{\langle [\text{DP-GEN}_1 \dots] \rangle}_{\text{case assigned} \rightarrow \text{NP merger}}$]

So far, we have derived that scrambling exhibits Condition C connectivity. Let us now turn to SSCO. Based on (7), repeated here as (20), we saw that scrambling is subject to SSCO, like English \bar{A} -movement and unlike English A-movement. To derive this restriction, we treat quantified DPs as R-expressions. WLM being unavailable, (20) involves the structure in (21). The coindexed pronoun *c*-commands *har larke-kii* ‘every boy-GEN,’ resulting in a Condition C violation analogous to (19).

- (20) * [**har larke-kii**₁ behin-ko]₂ **us-ne**₁ —₂ ḍāāṭaa
 every boy-GEN sister-ACC he-ERG scolded
 ‘For every boy *x*, *x* scolded *x*’s sister.’

- (21) * [har larke-kii₁ behin-ko] **us-ne**₁ $\langle [\text{har larke-kii}_1 \text{ behin-ko}] \rangle$ ḍāāṭaa
 → *Condition C violation*

Our account thus converts the standard treatment of (S)SCO (i.e., that \bar{A} -traces are variables) into a copy-theoretic framework. It retains the insight that (S)SCO is due to Condition C, but not because \bar{A} -movement leaves behind a special kind of trace (a variable), but rather because of the status and internal complexity of the copies involved.

To summarize, our proposal that scrambling involves A-movement of a case-marked DP, combined with the choice-function account of WCO and Takahashi and Hulsey’s (2009) account of WLM, derives the mixed behavior of scrambling with respect to the diagnostics above. Because scrambling is A-movement and hence has access to λ -abstraction over an *e*-type variable, it behaves like English A-movement with respect to WCO. But because scrambling targets case-marked DPs, the copy it leaves behind necessarily contains an NP restrictor, giving rise to Condition C connectivity and SSCO, and in this respect it behaves like English \bar{A} -movement.

4. Consequences and outlook

We have investigated an apparently paradoxical constellation of properties of Hindi scrambling relative to the A/ \bar{A} -distinction: scrambling behaves like A-movement in not being subject to WCO, but like \bar{A} -movement in being subject to Condition C connectivity and (S)SCO. Our analysis does not treat scrambling as a third primitive type of movement with an arbitrary set of properties. Rather, we have explored the possibility that WCO on the one hand and SSCO and Condition C connectivity on the other are conditioned by independent properties of a movement type, which happen to largely correlate in English. The difference between A- and \bar{A} -movement directly conditions whether a movement type is subject to WCO or not by means of the type of variable they can abstract over. By contrast, we have argued that SSCO and Condition C connectivity are independent of the A/ \bar{A} -distinction as such, but conditioned by case: building on Takahashi and Hulsey (2009), movement gives

Secondary strong crossover in Hindi

rise to SSCO and Condition C connectivity if it applies to case-marked DPs. This is the case for English \bar{A} -movement, and Hindi scrambling demonstrates that it can also be the case for A-movement.

Our account thus suggests that A/ \bar{A} -properties do not necessarily come and go as a cluster, but that they are to some extent independent of each other, correlating with distinct syntactic aspects of a movement type, and giving rise to mixed behavior, as summarized in (22). Once this more fine-grained view of the properties of movement types is adopted, it is possible to integrate these properties of scrambling into existing accounts of the A/ \bar{A} -distinction without having to enrich our inventory of primitive movement types.

(22)

	<i>English</i> <i>A-movement</i>	<i>Hindi</i> <i>scrambling</i>	<i>English</i> \bar{A} -movement	<i>Scrambling'?</i>
variable in launching site	<i>e</i>	<i>e</i>	$\langle\langle e, t \rangle, e\rangle$	$\langle\langle e, t \rangle, e\rangle$
WCO	N	N	Y	Y
(S)SCO	N	Y	Y	N
possessor Condition C connectivity	N	Y	Y	N
feeds case	Y	N	N	Y

As it stands, our account gives rise to the expectation that there might also be a fourth movement type (*scrambling'* in (22)): \bar{A} -movement that does feed case assignment is predicted to not allow binding from the landing site, but it should show Condition C obviation with respect to the launching site. In these respects, this hypothetical movement type would constitute the mirror image of scrambling. Whether a movement type with this constellation of properties exists is an open question.

Finally, our results have implications for the controversial status of scrambling with respect to the A/ \bar{A} -distinction. Broadly speaking, there are two lines of approaches, with important implications for the typology of movement types: On the one hand, Webelhuth (1989) and Dayal (1994) argue that scrambling targets a mixed position that simultaneously has A- and \bar{A} -properties. On the other hand, Mahajan (1990) argues that scrambling can be either A- or \bar{A} -movement (but not simultaneously both), and that surface scrambling configurations are ambiguous as to the movement type involved. From one perspective, the evidence here argues for treating scrambling as a third type of movement that cannot be reduced to either English A- or \bar{A} -movement, thus providing support for Webelhuth's and Dayal's position. However, by recognizing that WCO and (S)SCO correlate with different aspects of a movement type, we obtain a more fine-grained typology of movement that obviates the need to postulate a new type of movement as a theoretical primitive.

References

- Chomsky, Noam. 1993. A minimalist program for linguistic theory. In *The view from Building 20*, ed. Ken Hale and Samuel Jay Keyser, 1–52. Cambridge, MA: MIT Press.
- Corver, Norbert, and Henk van Riemsdijk. 1994. Introduction: Approaches to and properties of scrambling. In *Studies on scrambling: Movement and non-movement approaches to free word-order phenomena*, ed. Norbert Corver and Henk van Riemsdijk, 1–15. Berlin: de Gruyter.
- Dayal, Veneeta Srivastav. 1994. Binding facts in Hindi and the scrambling phenomenon. In *Theoretical perspectives on word order in South Asian languages*, ed. Miriam Butt, Tracy Holloway King, and Gillian Ramchand, 237–262. Stanford: CSLI.
- Fox, Danny. 1999. Reconstruction, binding theory, and the interpretation of chains. *Linguistic Inquiry* 30:157–196.
- Grewendorf, Günther, and Wolfgang Sternefeld. 1990. Scrambling theories. In *Scrambling and barriers*, ed. Günther Grewendorf and Wolfgang Sternefeld, 3–37. Amsterdam: John Benjamins.
- Keine, Stefan. 2018. Case vs. positions in the locality of A-movement. *Glossa* 3:138.
- Lebeaux, David. 1988. Language acquisition and the form of the grammar. Doctoral dissertation, University of Massachusetts, Amherst, MA.
- Lebeaux, David. 2000. *Language acquisition and the form of the grammar*. Amsterdam: John Benjamins.
- Mahajan, Anoop. 1990. The A/A-bar distinction and movement theory. Doctoral dissertation, MIT, Cambridge, MA.
- May, Robert. 1977. The grammar of quantification. Doctoral dissertation, MIT, Cambridge, MA.
- Postal, Paul. 1971. *Cross-over phenomena*. New York: Holt, Rinehart and Winston.
- Postal, Paul. 1993. Remarks on weak crossover effects. *Linguistic Inquiry* 24:539–556.
- Ruys, Eddy. 2000. Weak crossover as a scope phenomenon. *Linguistic Inquiry* 31:513–539.
- Safir, Ken. 1999. Vehicle change and reconstruction in \bar{A} -chains. *Linguistic Inquiry* 30:587–620.
- Sauerland, Uli. 1998. On the making and meaning of chains. Doctoral dissertation, MIT, Cambridge, MA.
- Sauerland, Uli. 2004. The interpretation of traces. *Natural Language Semantics* 12:63–127.
- Takahashi, Shoichi, and Sarah Hulsey. 2009. Wholesale late merger: Beyond the A/ \bar{A} distinction. *Linguistic Inquiry* 40:387–426.
- Wasow, Thomas. 1972. Anaphoric relations in English. Doctoral dissertation, MIT, Cambridge, MA.
- Webelhuth, Gert. 1989. Syntactic saturation phenomena and the modern Germanic language. Doctoral dissertation, University of Massachusetts, Amherst.

Rajesh Bhatt, Stefan Keine
bhatt@linguist.umass.edu, keine@usc.edu