Not all reconstruction effects are syntactic

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August 2023

Abstract: This paper argues that not all reconstruction effects can be reduced to a syntactic mechanism that selectively interprets copies at LF. The argument is based on the novel observation that some but not all reconstruction effects induce Condition C connectivity in Hindi-Urdu. We contend that Hindi-Urdu requires the hybrid approach to reconstruction developed on independent grounds by Lechner (1998, 2013, 2019), where both copy neglect (a syntactic mechanism) and higher-type traces (a semantic mechanism) are available as independent interpretive mechanisms. We show that the interaction of these two modes of reconstruction derives the intricate reconstruction facts in Hindi-Urdu.

Keywords: reconstruction · Hindi-Urdu · scrambling · movement · syntax–semantics interface

1 Introduction

Moved elements exhibit RECONSTRUCTION EFFECTS—or more neutrally *connectivity effects*—with their premovement positions (see Sportiche 2017 for a recent overview). That is, moved elements may display behavior that we would expect them to display if they had not undergone movement. For example, the A-moved subject in (1) may take scope either above or below the intensional operator *is likely*. The narrow-scope interpretation in (1b) corresponds to the launching site of movement and thereby the scope that the element would have received if it had not moved.

(1) [Someone from California]$_1$ is likely [___$_1$ to win the lottery].

a. *Surface scope* (someone ≫ likely)
There is a (particular) person from California who is likely to win the lottery.

b. *Reconstructed scope* (likely ≫ someone)
It is likely that there is a person from California who will win the lottery.

There are two main lines of approach to reconstruction effects in the literature. The predominant approach since the advent of the Copy Theory of Movement (Chomsky 1993, 1995) is that reconstruction effects are the result of interpreting only the lower copy of the moved element at LF, as schematized in (2b). Assuming the relevant syntactic and semantic constraints apply at LF, then they will only apply to the lower copy. It will thus appear as if the element had not undergone movement, yielding reconstruction effects. Adopting the terminology in Sportiche (2016), we will refer to this procedure as HIGHER-COPY NEGLECT.[1]

(2) a. *Interpret higher copy ⇝ Surface scope (1a)*
[**someone from CA**]$_1$ is likely [~~[someone from CA]$_1$~~ to win the lottery]

b. *Interpret lower copy ⇝ Reconstructed scope (1b)*
~~[someone from CA]$_1$~~ is likely [[**someone from CA**]$_1$ to win the lottery]

Analyses of reconstruction effects in the copy-theoretic approach have been developed by May (1977, 1985), Cinque (1990), Chomsky (1993, 1995), Heycock (1995), Hornstein (1995), Romero (1997, 1998), Lechner (1998, 2013, 2019), Sauerland (1998, 2004), Fox (1999), Sportiche (2016), and Poole (2017, to appear), amongst many others.

The second line of approach is in terms of HIGHER-TYPE TRACES. This approach extends the standard analysis of the surface reading (which both approaches assume): interpret the moved element in its landing site and replace the launching site with a variable that is bound by a λ-operator inserted immediately below the landing site (Beck 1996, Heim and Kratzer 1998, Sauerland 1998). We will refer to these λ-bound variables as TRACES. (For the sake of

[1] The early literature on reconstruction effects commonly attributed them to *LF Lowering*, whereby the element is literally moved back into its launching site at LF (e.g. Chomsky 1976, May 1977, 1985, Cinque 1990). Such an approach shares with the copy-theoretic approach the key idea that the moved element is evaluated in its launching site at LF. In light of the prevalence of the copy-theoretic view of movement and the ban on downwards movement, we subsume this approach under the copy-theoretic approach to reconstruction.

simplicity, we set aside Trace Conversion and represent traces as simplex variables, though nothing crucial hinges on this choice; see section 7.4 for discussion.) On the surface reading, the trace is of semantic type e, as sketched in the simplified derivation in (3).

(3) *Surface-scope derivation of (1)*

LF: [someone from CA $]_1$ [λ_1 [is likely [t_1 to win the lottery]]]

a. $[\![\text{someone from CA}]\!]^g = \lambda P_{\langle e,t\rangle}\ .\ \exists x\,[x \text{ is from CA} \wedge P(x)]$

b. $[\![t_1 \text{ to win the lottery}]\!]^g = g(1)$ wins the lottery

c. $[\![\lambda_1 \text{ [is likely [} t_1 \text{ to win the lottery]]}]\!]^g = \lambda y_e\ .\ \textsc{is-likely}(y \text{ wins the lottery})$

d. $[\![(3)]\!] = [\![\text{someone from CA}]\!]^g([\![\lambda_1 \text{ [is likely [} t_1 \text{ to win the lottery]]}]\!]^g)$
$= \exists x\,[x \text{ is from CA} \wedge [\lambda y_e\ .\ \textsc{is-likely}(y \text{ wins the lottery})](x)]$
$= \exists x\,[x \text{ is from CA} \wedge \textsc{is-likely}(x \text{ wins the lottery})]$

On the higher-type-traces approach, traces may also be of higher semantic types, which can in turn be used to achieve various kinds of reconstruction effects. For example, a trace of the semantic type of a generalized quantifier ($\langle et,t\rangle$) yields scope reconstruction (Cresti 1995, Rullmann 1995), as schematized in (4) (again, simplified). The crucial step of the derivation to note is when the moved element combines with the λ-abstraction created by movement (4d). With an ordinary type-e trace, the moved quantificational element takes as argument the λ-abstraction (3d). However, with a type-$\langle et,t\rangle$ trace, it is vice versa: the λ-abstraction takes as argument the moved quantificational element (4d).

(4) *Reconstructed-scope derivation of (1) with higher-type traces*

LF: [someone from CA $]_1$ [λ_1 [is likely [t_1 to win the lottery]]]

a. $[\![\text{someone from CA}]\!]^g = \lambda P_{\langle e,t\rangle}\ .\ \exists x\,[x \text{ is from CA} \wedge P(x)]$

b. $[\![t_1 \text{ to win the lottery}]\!]^g = [g(1)](\lambda z_e\ .\ z \text{ wins the lottery})$

c. $[\![\lambda_1 \text{ [is likely [} t_1 \text{ to win the lottery]]}]\!]^g$
$= \lambda \mathcal{Q}_{\langle et,t\rangle}\ .\ \textsc{is-likely}(\mathcal{Q}(\lambda z_e\ .\ z \text{ wins the lottery}))$

d. $[\![(4)]\!] = [\![\lambda_1 \text{ [is likely [} t_1 \text{ to win the lottery]]}]\!]^g([\![\text{someone from CA}]\!]^g)$
$= \textsc{is-likely}\big([\lambda P_{\langle e,t\rangle}\ .\ \exists x\,[x \text{ is from CA} \wedge P(x)]](\lambda z_e\ .\ z \text{ wins the lottery})\big)$
$= \textsc{is-likely}(\exists x\,[x \text{ is from CA} \wedge [\lambda z_e\ .\ z \text{ wins the lottery}](x)])$
$= \textsc{is-likely}(\exists x\,[x \text{ is from CA} \wedge x \text{ wins the lottery}])$

Higher-type traces have been extended to account for other types of reconstruction effects, such as pronominal-binding reconstruction (e.g. Engdahl 1980, 1986, Jacobson 1999, 2004; though see Heim 2019) and referential-opacity reconstruction (e.g. Sharvit 1998; though see Romero 1998:108–114), though the specific semantic type of the trace will be different. Analyses of reconstruction effects in this line of approach have been developed by von Stechow (1991), Chierchia (1995), Cresti (1995), Rullmann (1995), Lechner (1998, 2013, 2019), Sharvit (1998), Sternefeld (2001), and Ruys (2015), amongst others.

In what follows, we will use the term 'reconstruction' in a purely descriptive manner. 'α reconstructs for β' should be understood as 'α is evaluated for β in its premovement position', without any implication about how that evaluation is achieved.

The two approaches can be characterized in terms of where in the grammar they situate reconstruction effects. Higher-copy neglect manipulates the LF, a syntactic level of representation, and thus is a *syntactic* procedure. Higher-type traces, on the other hand, manipulate the semantic type of the trace, not the LF, and thus constitute a purely *semantic* procedure.[2] However, to account for each type of reconstruction effect, the two approaches ultimately generate the same truth conditions. As such, they are mostly indistinguishable on these metrics alone. Thus, it is necessary to look elsewhere to empirically distinguish them. In their seminal work, Romero (1997, 1998) and Fox (1999) contend that the two approaches can be teased apart using Condition C. In particular, they argue that scope reconstruction correlates with Condition C connectivity: when a moved element reconstructs for scope, it is evaluated for Condition C in the position to which it scopally reconstructs (see also Heycock 1995). (This correlation will be discussed in greater detail in section 2.) This state of affairs follows straightforwardly from higher-copy neglect: the moved element is evaluated for Condition C in its launching site because that is where it is located at LF. However, it does not immediately follow from the higher-type-traces approach, which places the moved element in the same position at LF regardless of whether it reconstructs for scope or not.

In this paper, we argue that not all reconstruction effects can be reduced to neglecting copies. The argument is based on a detailed empirical investigation of reconstruction in Hindi-Urdu (henceforth, Hindi), where we make the novel observation that not all reconstruction effects induce Condition C connectivity in Hindi. In particular, scope reconstruction does *not* correlate with Condition C, unlike what Romero and Fox claim for English. However, neither is it the case that all reconstruction effects are independent from Condition C in Hindi: Condition C connectivity does in fact correlate with reconstruction for referential opacity—that is, when the moved element is interpreted opaquely with respect to an intensional operator that it crosses (also claimed for English in the "lost" paper of Sharvit 1998).[3] This state of affairs does not follow from an all-or-nothing approach to reconstruction, like the higher-copy-neglect approach. Rather, we argue that Hindi requires the hybrid approach to reconstruction developed on independent grounds by Lechner (1998, 2013, 2019), where both higher-copy neglect and higher-type traces are available as independent interpretive

[2] The literature often refers to the two approaches as "syntactic reconstruction" (SynR) and "semantic reconstruction" (SemR) (e.g. Romero 1998, Fox 1999). We instead refer to the approaches directly in terms of the mechanisms themselves for three main reasons. First, based on our experience presenting this paper, these terms have the potential to be misunderstood as SynR being for "syntactic" properties, like binding, and SemR being for "semantic" properties, like scope—when in fact they are both designed to account for the same phenomena. Second, the term 'SemR' is sometimes applied to connectivity effects exhibited by base-generation dependencies, which does not involve higher-type traces (or even variables) at all (see e.g. Cecchetto 2001). Third, as mentioned in the main text, we use the term 'reconstruction' purely descriptively. Therefore, to keep the terminology as clear and unambiguous as possible, we refer directly to the mechanisms behind the two approaches, which are ultimately what make predictions.

[3] Sharvit 1998 is unpublished and, unfortunately, not available (Sharvit, p.c.). Our understanding of the paper's contents relies solely on various citations of it in the literature, in particular Romero (1998:96–100, 110-112).

mechanisms. Crucially, higher-copy neglect induces Condition C connectivity, but higher-type traces do not. We show that the interaction of these two independent mechanisms derives the intricate reconstruction facts in Hindi. This more fine-grained approach to reconstruction importantly entails that *some but not all* reconstruction effects are syntactic.

The argumentation proceeds as follows: We begin in section 2 by discussing the relationship between reconstruction effects and Condition C connectivity as it stands in the literature, which we frame in terms of two competing empirical generalizations. We then turn our attention to Hindi in section 3. We argue that Hindi (long) scrambling adjudicates between these competing generalizations, in particular showing that reconstruction for referential opacity, but not reconstruction for scope correlates with Condition C connectivity. Section 4 develops an analysis of Hindi scrambling under Lechner's (1998, 2013, 2019) hybrid model of reconstruction and discusses the necessary restrictions that must be imposed on higher-type traces under this model. This analysis is then extended in section 5 to reconstruction for pronominal binding and weak crossover in Hindi. In section 6, we zoom out to consider the typology of traces and reconstruction predicted under our proposal. Section 7 concludes by discussing several implications and open questions.

2 Scope, referential opacity, and Condition C

As mentioned in the introduction, higher-copy neglect and higher-type traces both generate the same truth conditions to account for each type of reconstruction effect. Thus, the two approaches cannot be distinguished merely on their basis to *produce* certain reconstruction effects. However, there is a key difference between the two approaches: where the moved element is located at LF. With higher-copy neglect, the moved element is evaluated in its launching site at LF, but with higher-type traces, it is evaluated in its landing site. The insight of the previous literature has been to use Condition C (i.e. R-expressions must be free; Chomsky 1981). Condition C is standardly taken to be evaluated at LF (Lebeaux 1988, 1990, 2000, 2009, Chomsky 1995), and so it can be used as a means to independently detect the location of the moved element at LF in the presence of reconstruction effects (Heycock 1995, Romero 1997, 1998, Sharvit 1998, Fox 1999, Sternefeld 2001, Lechner 2013, 2019, Ruys 2015).[4] Higher-copy neglect predicts that reconstruction effects should cooccur with Condition C connectivity at the launching site of movement, because this is the position of the moved element at LF (5). Conversely, higher-type traces predict that reconstruction

[4] The status of Condition C connectivity is somewhat controversial. First, binding-theoretic connectivity is observed in pseudoclefts and other copular sentences (Ross 1972, Higgins 1979), where crucially the relevant elements do not stand in a c-command relationship on the surface, and so do not fall under the purview of the classical binding conditions. This is shown for Condition C in (i.a). One influential family of analyses reconciles this discrepancy by positing ellipsis in the postcopular element, as schematized in (i.b) (e.g. Ross 1972, den Dikken et al. 2000, Schlenker 2003). However, there are competing analyses that instead attempt to derive the connectivity from more general (typically, nonsyntactic) constraints on reference (e.g. Jacobson 1994, Heycock and Kroch 1999, Sharvit 1999, 2011, Cecchetto 2000, 2001).

effects should *not* cooccur with Condition C connectivity (unless further assumptions are made), because the moved element instead occupies its landing site at LF (6).[5]

(5) *Higher-copy neglect and Condition C*

$*\cancel{[_{\text{DP}} \ldots \text{R-exp}_1 \ldots]_2} \ldots \textbf{pron}_1 \ldots [_{\text{DP}} \ldots \textbf{R-exp}_1 \ldots]_2 \ldots$ *Condition C violation*

(6) *Higher-type traces and Condition C*

$\checkmark[_{\text{DP}} \ldots \textbf{R-exp}_1 \ldots]_2 \; [\; \lambda\mathcal{Q}_{\langle et,t\rangle} \; [\ldots \textbf{pron}_1 \ldots \mathcal{Q} \ldots] \;]$ *No Condition C violation*

In short, under higher-copy neglect, reconstruction effects should be sensitive to Condition C, but under higher-type traces, they should not be.

The crucial configuration for testing these predictions involves "Lebeaux" effects. It is well-known that $\overline{\text{A}}$-movement may obviate Condition C violations incurred in the absence of movement if the offending R-expression is embedded inside a relative clause (van Riemsdijk and Williams 1981, Lebeaux 1988, 1990, 2000, 2009), as illustrated in (7).

(7) a. ***She**$_1$ liked the picture that **Alex**$_1$ took.

b. [Which picture [$_{\text{RC}}$ that **Alex**$_1$ took]]$_2$ did **she**$_1$ like ___$_2$?

The crucial property of (7b) is that the moved element would incur a Condition C violation in its base position—parallel to (7a)—, but not in its surface position. Thus, (7b) demonstrates that a moved DP can be evaluated in its landing site for Condition C; otherwise (7b) would be ungrammatical.[6] For investigating the relationship between reconstruction effects and Condition C connectivity, the test configuration has the general form of (8), where a DP with a relative clause that contains an R-expression is moved over both a scope-bearing operator and a pronoun coindexed with the R-expression.

(i) a. *What she$_1$ liked was Alex$_1$'s book.

b. LF: what she$_1$ liked was ~~she$_1$ liked~~ Alex$_1$'s book.

In the interest of not going too far afield and because pseudoclefts do not involve reconstruction—as there is no movement—, we set the issue of pseudoclefts aside in this paper.

Second, recent experimental studies on Condition C connectivity with $\overline{\text{A}}$-movement have found mixed results (Adger et al. 2017, Bruening and Al Khalaf 2019, Stockwell et al. 2021, 2022, Salzmann et al. to appear). We note though that Stockwell et al. (2021, 2022) find support precisely for the classical picture that $\overline{\text{A}}$-movement exhibits obligatory Condition C connectivity, but only for arguments. Be that as it may, in this paper, we examine a state of affairs quite different from these experimental studies. We look at configurations where, all else being equal, Condition C connectivity is known (and widely accepted) *not* to hold. We then ask whether Condition C connectivity *exceptionally* surfaces in the presence of certain reconstruction effects. The existing experimental studies do not control for the interpretation of the movement dependency and so cannot detect such correlations (for a similar point, see Poole to appear:52–53). For related discussion regarding Trace Conversion, see section 7.4.

[5] We use λ-operator–variable notation in schematic LFs, like (6), to conveniently indicate the semantic type of the variable that the trace position will ultimately be translated into. Underlyingly, the LF does not actually contain these semantic objects, but rather contains a copied index and a trace (or lower copy).

[6] Something needs to be said about why the R-expression in the lower copy does not invariably trigger a Condition C violation. See section 7.4 for discussion.

(8) *Schematic test configuration*

$$[_{\text{DP}} \ldots [_{\text{RC}} \ldots \textbf{R-exp}_1 \ldots]\,]_2 \ldots \textbf{pron}_1 \ldots \text{Op} \ldots \underline{\quad}_2 \ldots$$

In this configuration, a reconstruction effect that correlates with Condition C connectivity should be blocked in (8) because it would yield a Condition C violation; that is, Op $\gg$ DP should be impossible. By contrast, a reconstruction effect that does not correlate with Condition C connectivity should be permitted in (8) because Condition C is not a factor; that is, Op $\gg$ DP should be possible.

Empirical investigations of these predictions have produced conflicting results. From the literature, we extrapolate two competing generalizations, which we discuss in sections 2.1 and 2.2 respectively. Section 2.3 summarizes the state of affairs, setting the stage for our own investigation of Hindi in section 3.

2.1 Quantifier–Condition C correlation

The first proposed generalization comes from Romero (1997, 1998) and Fox (1999), who argue that if a moved element reconstructs into its launching site for quantificational scope, then it is evaluated in its launching site for Condition C (see also Heycock 1995).[7] Thus, scope reconstruction is blocked in configurations like (8). This is encapsulated in the generalization in (9), which we will refer to as 'Q→C'.

(9) *Quantifier–Condition C correlation (Q→C)*
Reconstruction for quantificational scope correlates with Condition C connectivity.
[Romero 1997, 1998, Fox 1999]

Their argument is based on sentences like (10). In (10), the *wh*-element contains an R-expression that is coindexed with the matrix subject; the movement step crosses the matrix subject, in addition to the attitude predicate *want*. (10) thus instantiates the schema in (8). (For reasons of space, we assume familiarity with the ambiguity *how many* gives rise to when it moves over another scope-bearing element.[8]) Crucially, Romero and Fox report that (10) is unambiguous. It only has the surface-scope reading in (10a), where it is assumed that there is a set of particular pictures that John wants the editor to publish, and the question is asking how many such pictures there are. The sentence is claimed to lack the reconstructed-scope reading in (10b), where the question is asking about the quantity of pictures that John wants the editor to publish, without having any particular pictures in mind.

[7] Fox (1999) also shows that reconstruction for pronominal binding correlates with Condition C connectivity, which we discuss in section 5.1.

[8] See Kroch (1989), Cinque (1990), Cresti (1995), Rullmann (1995), and Frampton (1999), amongst many others.

(10) [How many pictures [$_{\text{RC}}$ that **John**$_2$ took in Sarajevo]]$_1$ does **he**$_2$ *want* the editor to publish ___$_1$ in the Sunday Special? [Romero 1998:96]

a. *Surface-scope reading* (many ≫ want)
✓For what number n: There are n-many particular pictures x that John took in Sarajevo such that John wants the editor to publish x.

b. *Reconstructed-scope reading* (want ≫ many)
*For what number n: John wants the editors to publish in the Sunday Special (any) n-many pictures that John took in Sarajevo.

Compare (10) to (11), where the R-expression and the pronoun are swapped, so that binding connectivity would not induce a Condition C violation. In this case, scope reconstruction is possible, and the sentence is ambiguous.

(11) *Swapping the R-expression and the pronoun* (✓surface, ✓reconstructed)
[How many pictures [$_{\text{RC}}$ that **he**$_2$ took in Sarajevo]]$_1$ does **John**$_2$ *want* the editor to publish ___$_1$ in the Sunday Special? [Romero 1998:96]

Romero and Fox argue that the contrast between (10) and (11) shows that scope reconstruction correlates with Condition C connectivity. That is, reconstructing for scope is impossible in (10) because it would give rise to a Condition C violation and possible in (11) because Condition C is not at stake. This conclusion supports the empirical generalization Q→C. They present converging evidence for Q→C from A-movement and other $\overline{\text{A}}$-movement configurations.

Romero and Fox take Q→C as evidence in favor of higher-copy neglect and against the availability of higher-type traces. As discussed above, higher-copy neglect inherently predicts that reconstruction effects are sensitive to Condition C (see (5)), and thereby derives Q→C for free. All else being equal, on a higher-type-trace account, there is no expectation that Condition C should be able to influence the availability of a reconstructed-scope reading (see (6))—contrary to Q→C. To illustrate this point, the LFs for the reconstructed-scope reading of (10) under high-copy neglect and higher-type traces are included below in (12) and (13) respectively.[9] Crucially, (12), but not (13), places the R-expression in the moved element inside the c-command domain of the coindexed pronoun, thereby yielding a Condition C violation.

(12) *Reconstructed-scope reading of (10) with higher-copy neglect*
*~~[how many pictures that John$_1$ took in Sarajevo]~~ **he**$_1$ wants [the editor to publish [how many pictures that **John**$_1$ took in Sarajevo] in the Sunday special] ⇝ *Violates Condition C*

[9] For the sake of simplicity, we set aside the semantics of constituent questions, which we assume is (in principle) orthogonal to the LF position of the moved *wh*-phrase (see e.g. Reinhart 1997, Romero 1998, Beck 2006, Beck and Kim 2006). Nothing critical hinges on this assumption.

(13) *Reconstructed-scope reading of (10) with higher-type traces*
✓[how many pictures that **John**$_1$ took in Sarajevo] [$\lambda\mathcal{Q}_{\langle et,t\rangle}$ [**he**$_1$ wants [the editor to publish $\mathcal{Q}$ in the Sunday special]]] $\rightsquigarrow$ *Does not violate Condition C*

Accordingly, Romero and Fox conclude that data like (10) support a purely syntactic approach to reconstruction, in which reconstruction effects result exclusively from neglecting a higher copy (see also Sportiche 2016, Poole 2017, to appear).

The conclusion that Q→C favors higher-copy neglect has been called into question by Sternefeld (2001) and Ruys (2015). They propose enriched versions of higher-type-trace accounts that are able to derive Q→C: Sternefeld (2001) by placing Condition C into the semantics and Ruys (2015) by imposing a general constraint on the availability of higher-type traces. We discuss these accounts in section 4.1.

2.2 Intensionality–Condition C correlation

The second proposed generalization comes from Sharvit (1998) and Lechner (2013, 2019). They argue that scope reconstruction does *not* generally correlate with Condition C connectivity, contra Q→C. At the same time, they argue that reconstruction effects are also not entirely dissociated from Condition C. Instead, rather than scope reconstruction, what Condition C connectivity correlates with is reconstruction for referential opacity (i.e. the moved element being interpreted opaquely with respect to an intensional operator that it crosses over). We will refer to this competing generalization as 'I→C', given in (14).

(14) *Intensionality–Condition C correlation (I→C)*
Condition C connectivity correlates with reconstruction for referential opacity, not with reconstruction for quantificational scope. [Sharvit 1998, Lechner 2013, 2019]

The crucial piece of evidence for I→C comes from the paradigm in (15), which Romero (1998:97) and Lechner (2013:175, 2019:120) attribute to Sharvit (1998) (see fn. 3). The sentence in (15) instantiates the test schema in (8) above, but in addition to quantifier scope, it manipulates referential opacity. The three a priori possible readings in (15) are conditioned by whether or not the moved DP reconstructs for quantifier scope and for referential opacity.[10]

(15) [How many students [$_{\text{RC}}$ who hate **Anton**$_1$]]$_2$ does **he**$_1$ *hope* [___$_2$ will buy him$_1$ a beer]? [Sharvit 1998]

a. *Surface scope, transparent* (*no reconstruction*)
✓For what number n: There are n-many x that are students who hate Anton $\underline{\text{in } w_0}$ and in all of Anton's bouletic alternatives w' in w_0, x will buy him a beer $\underline{\text{in } w'}$.

[10] One potentially problematic aspect of Sharvit's (1998) example in (15) is that the crucially absent opaque reading in (15c) is pragmatically dispreferred, as it ascribes to Anton the belief that there are students who hate him, but who will nonetheless buy him a beer. This could make one skeptical about the empirical validity of I→C. In section 3.3, we have endeavored to construct sentences that are parallel to (15), but which do not pragmatically favor the transparent reading of the moved element, removing this potential confound.

b. *Reconstructed scope, transparent* (*reconstruction for scope*)
✓For what number n: In all of Anton's bouletic alternatives w' in w_0, there are n-many x that are students who hate Anton $\underline{\text{in } w_0}$ and will buy him a beer in w'.

c. *Reconstructed scope, opaque* (*reconstruction for scope and opacity*)
*For what number n: In all of Anton's bouletic alternatives w' in w_0, there are n-many x that are students who hate Anton $\underline{\text{in } w'}$ and will buy him a beer in w'.

Setting aside the first reading (surface-scope, transparent), which requires no reconstruction, let us step through the other two logically possible readings of (15). The second reading (15b) involves the quantificational force of *how many* taking scope below *hope*, but the restrictor NP being interpreted transparent to *hope*; this is the so-called "third reading" in the *de re*/*de dicto* literature (Fodor 1970). On this reading, the question is asking about the quantity of individuals who Anton hopes will buy him a beer, without having any particular individuals in mind. These individuals are students who hate Anton in the actual world—potentially unbeknownst to him. This reading requires reconstruction for scope, but not for referential opacity. According to Q→C, this reading should be unavailable because it involves scope reconstruction and thus should induce Condition C connectivity. The fact that (15b) is a possible interpretation of (15) presents a challenge for Q→C.

Crucially absent is the reading in (15c), where the quantificational force of *how many* takes scope below *hope* and the restrictor NP is interpreted opaque to *hope*. This reading is like the second reading in that the question is asking about the quantity of individuals who Anton hopes will buy him a beer, without having any particular individuals in mind. However, unlike the second reading, these individuals are students who hate Anton in *Anton's bouletic alternatives*. That is, they may not be students who hate Anton in the actual world. This reading would involve reconstruction for both scope and referential opacity.

Sharvit (1998) and Lechner (2013, 2019) conclude from (15) that what correlates with Condition C connectivity—and thus may be blocked by a Condition C violation—is not scope reconstruction, but referential-opacity reconstruction (as in (15c)). An example analogous to (15) is mentioned in passing by von Fintel and Heim (2011:114–115), also attributed to Sharvit (1998). Lechner (2013, 2019) provides converging evidence from A-movement in (16). In (16), assuming that *his actual height* must be read transparent to *seem* (i.e. in the actual world), the A-moved element *his/John's height* must be interpreted opaque to *seem* in order to avoid a contradiction. If both elements were interpreted transparently, then they would be the same value and so neither could exceed the other. Lechner claims that the noncontradictory reading is available in (16a), but not (16b), where Condition C is at stake.

(16) a. [**His**$_2$ height]$_1$ seemed to **him**$_2$ [___$_1$ to exceed his$_2$ actual height].

b. #[**John's**$_2$ height]$_1$ seemed to **him**$_2$ [___$_1$ to exceed his$_2$ actual height].
[Lechner 2019:116]

This conclusion stands in opposition to Q→C. Sharvit (1998) and Lechner (2013, 2019) therefore reject Q→C and conclude that the correct generalization is I→C. Lechner (2013,

2019) further argues, based on I→C, that an account of reconstruction effects that is confined to higher-copy neglect (e.g. Romero 1998 and Fox 1999) is empirically insufficient. He instead proposes a hybrid theory of reconstruction; we will argue for and extend this hybrid theory of reconstruction in section 4.

2.3 Interim summary

We are faced with a conundrum. The two generalizations, Q→C and I→C, are mutually incompatible, because they make contradictory statements about which types of reconstruction effects correlate with Condition C connectivity. Despite their incompatibility, these two generalizations have not, to our knowledge, been contrasted directly.[11] This state of affairs has repercussions for the proper analytical treatment of reconstruction effects. As noted above, Q→C has been taken to support higher-copy neglect (Romero 1997, 1998, Fox 1999) and I→C to support a hybrid model (Lechner 2013, 2019). In light of the uncertainties about whether Q→C or I→C is the correct empirical generalization, it thus stands to reason that a proper evaluation of the analytical consequences requires a better understanding of the empirical relationship between reconstruction effects and Condition C connectivity.

Admittedly, one might take the English paradigm in (15) as definitive evidence against Q→C and in favor of I→C. Although this paper will ultimately vindicate that conclusion, we believe that based on the already available data, it would be a premature conclusion. First, the data motivating I→C are scant: essentially three sentences, two of which are from an unavailable manuscript (see fn. 3). Second, the crucial contrasts—(15b) vs. (15c) and (16a) vs. (16b)—are subtle judgements. Thus, as von Fintel and Heim (2011:115) and Ruys (2015:479n27) also mention, the data behind I→C need further research. This stands in contrast to the clearer and more systematic data of Romero (1997, 1998) and Fox (1999).

In what follows, we attempt to develop a better understanding of the empirical patterns that are at stake with reconstruction effects. We take up this task by investigating the reconstruction profile of long scrambling in Hindi. For language-internal reasons (namely, the surface-scope reading being absent), the judgements in Hindi are sharper than the relevant judgements in English, and thus the predictions of Q→C and I→C come apart in a particularly clear and clean way. We will argue that this investigation provides striking support for I→C and against Q→C as a crosslinguistic generalization about reconstruction effects. In addition to contributing to our understanding of the empirical issues involved, this conclusion also has a number of general implications for theories of reconstruction. In particular, we will argue that the Hindi evidence provides novel support for Lechner's (1998, 2013, 2019) hybrid theory of reconstruction, which encompasses both higher-copy neglect and higher-type traces as independent and complementary mechanisms of reconstruction.

[11] Ruys (2015:479n27) notes this conflict and speculates that the judgements underlying Q→C and I→C might "reflect a disagreement on intuitions". We return to this point in section 6.

3 Long-distance scrambling in Hindi

This section investigates the reconstruction profile of long-distance scrambling in Hindi. We show that long-distance scrambling obligatorily reconstructs for scope (§3.1). This property provides an exceptionally clear window into the relationship between Condition C and reconstruction effects, which we explore. We demonstrate that scope reconstruction is not constrained by Condition C connectivity in Hindi (§3.2), which indicates that Q→C is not a universally valid constraint on reconstruction. We then show that there is nonetheless a correlation between Condition C and reconstruction for referential opacity in Hindi (§3.3), supporting the validity of I→C.

Unless indicated otherwise, the data reported in this paper come from working with two primary consultants, with crucial judgements confirmed by one additional consultant. All three of the consultants are native speakers of Hindi and are linguists. Undoubtedly, our consultants being linguists simplified data collection. In particular, we relied on them to make judgements regarding (i) the scope relation between a universal quantifier and an existential quantifier and (ii) coreference between two DPs—without any context or specialized elicitation method. Both of these kinds of judgements, we take to be run-of-the-mill tasks for linguists.

It is worth explicitly pointing out that we are interested in the entailment relations that Q→C and I→C embody, and that several preconditions must be satisfied to test these entailments: (i) the language must have vanilla Condition C effects, (ii) the movement type must allow for scope reconstruction, and (iii) the movement type must allow for referential-opacity reconstruction. For example, a movement type that does not reconstruct for referential opacity does not bear on the relationship between referential opacity and Condition C. Furthermore, to control for potential interspeaker variation, it is important to ensure that these preconditions hold for *individual* speakers. For example, if Speaker A allows for scope reconstruction for a given movement type and Speaker B does not, then it is only Speaker A's judgements that bear on whether scope reconstruction correlates with Condition C connectivity. (Technically, Speaker A and Speaker B have different movement types.) These preconditions hold for long-distance scrambling for our Hindi consultants, as will be shown in what follows.

3.1 Setting the stage: The scope of scrambling

It has been well-known since Gurtu (1985, 1992), Déprez (1989), and Mahajan (1990, 1994) that scrambling in Hindi is not a uniform phenomenon (see also Gambhir 1981, Dayal 1994a, Kidwai 2000, Keine 2016, 2019, 2020). We will distinguish between LOCAL SCRAMBLING, which *does not* cross a finite-clause boundary, and LONG-DISTANCE SCRAMBLING (LDS), which *does* cross a finite-clause boundary. One classical difference between the two scrambling types is with respect to weak crossover: LDS is subject to weak crossover, whereas local scrambling is not (Mahajan 1990, Gurtu 1992; see also section 5.2). In this section, we use the terms "local scrambling" and "long(-distance) scrambling" as convenient descriptive labels without committing to an analysis of the distinction, which we defer until section 4.

Keine (2016, 2019) notes that local scrambling and LDS in Hindi differ in their ability to extend quantifier scope. Like many other SOV languages with flexible word order (see e.g. Frey 1993 and Krifka 1998 for German), the scopal relations between two DPs are generally fixed in the base order, as shown in (17a) and (17c).[12,13] When a DP is locally scrambled over the subject, that DP may take scope in its landing site (Mahajan 1997:199–200, 2017:426–428), as shown in (17b) and (17d). Scope reconstruction is also possible, as (18) illustrates.

(17) *Local scrambling may extend scope*

a. *kisii* *shikshak-ne* **har** **laṛkii-ko** dekhaa
some teacher-ERG every girl-ACC saw
'Some teacher saw every girl.' ($\exists \gg \forall$; $*\forall \gg \exists$)

b. **har** **laṛkii-ko**$_1$ *kisii* *shikshak-ne* ___$_1$ dekhaa
every girl-ACC some teacher-ERG saw
'Every girl, some teacher saw.' ($\forall \gg \exists$)

c. Sita-ne *kisii* *laṛkii-ko* **har** **kathaa**$_1$ sunaayii
Sita-ERG some girl-DAT every story told
'Sita told every story to some girl.' ($\exists \gg \forall$; $*\forall \gg \exists$)

d. **har** **kathaa**$_1$ Sita-ne *kisii* *laṛkii-ko* ___$_1$ sunaayii
every story Sita-ERG some girl-DAT told
'Every story, Sita told to some girl.' ($\forall \gg \exists$)

(18) *Local scrambling may reconstruct for scope*

a. *sab* **tiin** **ciizẽ** khariidẽge
everyone three things will.buy
'Everyone will buy three things.' ($\forall \gg 3$)

b. **tiin** **ciizẽ**$_1$ *sab* ___$_1$ khariidẽge
three things everyone will.buy
'Everyone will buy three things.' ($3 \gg \forall$; $\forall \gg 3$)
[Mahajan 1997:199]

This ability to extend scope is confined to local scrambling. Crucially, LDS (i.e. scrambling out of a finite clause) does *not* extend the scope options of the moved element.[14] In other

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[12] See Anand and Nevins (2006) for some potential qualifications not directly relevant for our present purposes.

[13] We use the following abbreviations in the glosses: ACC – accusative; AUX – auxiliary; COMP – complementizer; DAT – dative; ERG – ergative; F – feminine; GEN – genitive; INF – infinitive; INSTR – instrumental; NOM – nominative; PL – plural; REL – relative pronoun; SBJV – subjunctive; SELF – reflexive;

[14] The additional consultant with whom we confirmed judgements accepts the surface-scope reading in (19). Crucially, the connectivity facts to be discussed below hold for this speaker as well: scope reconstruction does not induce Condition C connectivity, but referential-opacity reconstruction does. In other words, this speaker has an additional surface-scope reading, but otherwise patterns like the other speakers. (As expected, the surface-scope readings are not sensitive to Condition C for this speaker.) This pattern of judgements is

words, scope reconstruction is obligatory, or at least is strongly preferred. In (19), the embedded object is moved over the matrix subject, but it may not take scope over either the matrix subject (19a) or the matrix object (19b).[15,16]

(19) *Long-distance scrambling obligatorily reconstructs for scope*

a. **har laṛkii-ko**$_1$ *kisii shikshak-ne* socaa [$_{CP}$ ki Sita-ne ___$_1$ dekhaa]
every girl-ACC some teacher-ERG thought that Sita-ERG saw
'Every girl, some teacher thought that Sita saw.' ($\exists \gg \forall$; $*\forall \gg \exists$)

b. **har kitaab**$_1$ Ram-ne *kisii laṛkii-se* kahaa [$_{CP}$ ki Mina-ne kal
every book Ram-ERG some girl-INSTR told that Mina-ERG yesterday
___$_1$ bec dii]
sell give
'Every book, Ram told some girl that Mina sold yesterday.' ($\exists \gg \forall$; $*\forall \gg \exists$)

Note that local scrambling may feed LDS (Mahajan 1990:38–47); only the movement step that crosses the finite-clause boundary constitutes LDS. This possibility predicts that a long-scrambled DP may take scope over elements within the *embedded* clause, because it

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thus fully compatible with the conclusions that will be reached here. For the sake of simplicity, the main text presents the pattern of judgements of our primary consultants, for whom scope reconstruction is obligatory. See fn. 23 for additional discussion.

15 One could imagine an account of (19) not in terms of reconstruction, but in terms of obligatory QR of the matrix arguments to a position above the landing site of LDS. However, such an account does not seem feasible. First, Hindi lacks QR; see (17a) and (17c). Second, long-scrambled DPs also obligatorily scope below the embedding predicate, which cannot undergo QR; this will be discussed below in (21).

16 A similar contrast also appears to hold for scrambling in Japanese (Bošković and Takahashi 1998, Saito 2004), as (i) from Miyagawa (2006:615) illustrates:

(i) Daremo-ni$_1$ dareka-ga [John-ga ___$_1$ kisusita to] omotteiru.
everyone-DAT someone-NOM John-NOM kissed COMP thinks
'Everyone, someone thinks that John kissed.' ($\exists \gg \forall$; $*\forall \gg \exists$)

However, there is one notable difference between Hindi and Japanese in this domain. As Miyagawa (2006:615) discusses, a long-distance-scrambled object may (marginally) take scope over the matrix subject if the embedded subject is quantificational:

(ii) Daremo-ni$_1$ dareka-ga [futari-no kodomo-ga ___$_1$ kisusita to] omotteiru.
everyone-DAT someone-NOM two-GEN kids-NOM kissed COMP thinks
'Everyone, someone thinks that two kids kissed.' (OK/??$\forall \gg \exists$; $\exists \gg \forall$)

Miyagawa's (2006) account attributes this curious effect to scope economy (Fox 2000): successive-cyclic movement to [Spec, CP] of the lower clause does not cross a scopal element in (i), and hence cannot be scope-shifting. Subsequent movement above the matrix predicate then cannot be scope-shifting either. In (ii), the first movement step crosses the quantificational embedded subject and is hence able to shift scope, and so is the second movement step over the matrix subject. Hindi does not seem to exhibit such effects. For our consultants, LDS over a matrix subject never shifts scope, regardless of whether the embedded subject is quantificational or not; for example, both (iii) and (19a) require scope reconstruction.

(iii) har laṛkii-ko$_1$ kisii shikshak-ne socaa [ki do baccõ-ne ___$_1$ dekhaa]
every girl-ACC some teacher-ERG thought that two boys-ERG saw
'Every girl, some teacher thought that two boys saw.' ($\exists \gg \forall$; $*\forall \gg \exists$)

may undergo local scrambling within the embedded clause before it undergoes LDS into the matrix clause. As (20) shows, this prediction is borne out.

long scrambling *local scrambling*

(20)	**har**	**laṛkii-ko**$_1$	Sita-ne	socaa	[$_{CP}$	ki	___$_1$	*kisii*	*shikshak-ne*	___$_1$
	every	girl-ACC	Sita-ERG	thought		that		some	teacher-ERG	

dekhaa	]
saw	

‘Every girl, Sita thought that some teacher saw.’ (∀ ≫ ∃)

In what follows, we are only interested in LDS itself. Therefore, we place all the relevant components (e.g. scope-bearing element, coindexed pronoun, intensional operator) in the *matrix* clause—except the moving element, of course—in order to rule out effects of local scrambling in the embedded clause. If the test configuration requires two argument DPs, the matrix predicate must then be ditransitive. (We leave further exploring local scrambling feeding LDS to future research.)

This restriction on LDS is also observed in *how many*-questions. Hindi does not have *wh*-movement, but *wh*-elements may be scrambled (Mahajan 1990:107–194, Dayal 1994b:138–139, 1996:35–38). Following the methodology in Fox (1999), we elicited scope judgements for *how many*-questions by setting up contexts in which the two interpretations yield distinct answers. In (21), the *wh*-element *kitnii tasviirẽ* ‘how many pictures’ is moved into the matrix clause. The surface-scope reading (*many* ≫ *tell*) is either impossible or severely degraded in (21). The reconstructed-scope reading (*tell* ≫ *many*), by contrast, is readily available.

(21) *Context:* Sita wants to show pictures from her recent trip to Kolkata as a slide show at a party. She is an avid picture-taker and took about 500 of them. Sangita is preparing the slide show for Sita and needs to know how many slides Sita plans to show and which ones. Sita and Sangita meet one afternoon to discuss this question. Sita tells Sangita that she picked 100 pictures that she really likes and wants to show at the party. They then go over the individual pictures together but after listing 52 specific pictures she wants to show, Sita needs to leave. Sita intends to tell Sangita about the remaining 48 slides some other day.

Possible answers: 52 (many ≫ tell), 100 (tell ≫ many)

kitnii	**tasviirẽ**$_2$	Sita-ne	Sangita-se	**kahaa**	[$_{CP}$	ki	vo	___$_2$	dikhaanaa
how.many	pictures	Sita-ERG	Sangita-INSTR	told		that	she		show.INF

caahtii	hai	]?
wants	AUX	

‘How many pictures did Sita tell Sangita that she wants to show?’

(tell ≫ many [100]; ?*many ≫ tell [52])

The lack of a wide-scope reading in (21) stands in direct contrast to otherwise analogous structures in English (cf. (10); see e.g. Cresti 1995 and Rullmann 1995). The reconstruction requirement is furthermore independent of the type of the embedding verb. It also holds for other attitude predicates like *tay karnaa* 'decide', as shown in (22).[17]

(22) *Context:* Sita wants to show pictures from her recent trip to Kolkata as a slide show at a party. She is an avid picture-taker and took 500 of them. Because of time constraints, Sita decides to show 100 pictures in total (of the 500 that she has). Now it is time to choose the actual slides. After an hour of internal debate, Sita decides on 52 pictures that she really likes and prepares them for display. The remaining 48 slides will be chosen at random at the time of the party.

kitnii	**tasviirẽ**$_1$	Sita-ne	**tay**	kiyaa	hai	[$_{CP}$	ki	vo	___ $_1$	dikhaaegii	]?
how.many	pictures	Sita-ERG	decide	do	AUX		that	she		will.show	

'How many pictures did Sita decide that she will show?'

(decide ≫ many [100]; ?*many ≫ decide [52])

The relevant generalization in all of these cases is that LDS obligatorily reconstructs for quantifier scope.

[17] For reasons unclear to us, our consultants report that the unavailability of the surface-scope reading of *how many* is sharper with *tell* (as in (21)) than with *decide* (as in (22)).

Interestingly, the verb *tay karnaa* 'decide' can also occur in a prolepsis(-like) construction, where the *wh*-element is base-generated in the matrix clause and corresponds to a gap in the embedded clause (presumably, *pro*). In this construction, the *wh*-element obligatorily takes scope in the matrix clause:

(i)

[kitnii	**tasviirẽ**	]$_1$	Ram-ne$_1$	tay	**kĩĩ**	**hãĩ**	[	ki	vo	___ $_1$	dikhaaegaa	]?
how.many	pictures.F		Ram-ERG	decide	do.F.PL	AUX.3PL		that	he		will.show	

'How many pictures did Ram decide that he will show?' (?*decide ≫ many; many ≫ decide)

Importantly, the matrix verb in (i) shows feminine plural agreement with *tasviirẽ* 'pictures'. This provides strong evidence that the *wh*-element does not originate in the embedded clause in (i). A general fact about Hindi verb agreement is that verbs cannot agree into finite clauses or with elements moved out of finite clauses (Bhatt 2005, Keine 2019). Therefore, the fact that the *wh*-element controls matrix verb agreement in (i) entails that it must have been base-generated in the matrix clause, not moved there. The reason then that surface scope is possible (and in fact obligatory) in this construction is because no crossclausal movement has taken place in the first place. This converges with the generalization presented in the main text.

Diagnosing this prolepsis(-like) construction is straightforward because the *wh*-element must control matrix verb agreement if the matrix subject is case-marked, whereas a *wh*-element that has undergone LDS cannot control matrix agreement. We leave exploring this construction to future research—including whether it is genuinely prolepsis—, but there are two points worth highlighting here. First, for reasons unclear to us, none of the other embedding predicates used in this paper can occur in this construction. For example, the matrix verb *kahaa* 'tell' agreeing with *tasviirẽ* 'pictures' in (21) is simply ungrammatical. Second, in all the examples in the main text using *tay karnaa* 'decide', we have controlled for the prolepsis(-like) construction; the matrix verb always bears default agreement (*-aa* on the participle, e.g. *kiyaa*, and *hai* for the auxiliary), which requires an LDS structure. Many thanks to Rajesh Bhatt (p.c.) for discussion of this issue and to Amy Rose Deal (p.c.) for suggesting it might be prolepsis.

3.2 Testing Condition C and quantifier scope

One might reasonably wonder at this point whether LDS in Hindi is simply semantically inert or, equivalently, whether it undergoes "radical reconstruction", as has been claimed for long scrambling in Japanese (e.g. Bošković and Takahashi 1998, Bošković 2004, Saito 2004; see also Saito 1989). There is good indication that this is not the case. One interpretative aspect for which reconstruction is not obligatory is Condition C. As (23) shows, a Condition C violation between a matrix subject (*us-ne* 'he-ERG') and an R-expression inside the embedded object (*vo kitaab jo Ram-ko pasand thii* 'the book that Ram liked') is obviated by LDS of the embedded object over the matrix subject in (23b).[18]

(23) *LDS obviates Condition C violations*

a. * $\boxed{\text{us-ne}_1}$ socaa [$_{CP}$ ki Sita-ne kal [$_{DP}$ vo kitaab [jo
he-ERG thought that Sita-ERG yesterday that book REL
$\boxed{\text{Ram-ko}_1}$ pasand thii]] bec dii thii]
Ram-DAT like AUX sell give AUX
'He$_1$ thought that Sita had sold the book that Ram$_1$ liked yesterday.'

b. [$_{DP}$ vo kitaab [jo $\boxed{\text{Ram-ko}_1}$ pasand thii]]$_2$ $\boxed{\text{us-ne}_1}$ socaa
that book REL Ram-DAT like AUX he-ERG thought
[$_{CP}$ ki Sita-ne kal ___$_2$ bec dii thii]
that Sita-ERG yesterday sell give AUX
'The book that Ram$_1$ liked, he$_1$ thought that Sita had sold yesterday.'

The rescuing effect of LDS on Condition C violations demonstrates that LDS in Hindi is not simply semantically inert or the result of "radical reconstruction". As a consequence, its properties are not amenable to a PF-movement account à la Aoun and Benmamoun (1998) and Sauerland and Elbourne (2002) or to an LF-lowering account such as Bošković and Takahashi (1998). This is consistent with the conclusion of section 3.3, where we will show that LDS in Hindi does not have to reconstruct for referential opacity. Additionally, LDS

[18] Given that there is an argument–adjunct asymmetry for Condition C obviation under *wh*-movement in English (Lebeaux 1988, 1990, 2000, 2009), a reviewer asks whether the same asymmetry holds under LDS in Hindi. Interestingly, it does not. Argument clauses in long-scrambled DPs pattern exactly like adjunct clauses in that Condition C violations are obviated, as shown in (i).

(i) a. * **us-ne**$_1$ kahaa [$_{CP}$ ki Sita-ko [$_{DP}$ yah afvaah [ki Mina **Ram-se**$_1$ nafrat kartii
he-ERG said that Sita-DAT this rumor that Mina Ram-INSTR hate do
hai]] pataa hai]
AUX know AUX
'He$_1$ said that Sita knows the rumor that Mina hates Ram$_1$.'

b. [$_{DP}$ yah afvaah [ki Mina **Ram-se**$_1$ nafrat kartii hai]]$_2$ **us-ne**$_1$ kahaa
this rumor that Mina Ram-INSTR hate do AUX he-ERG said
[$_{CP}$ ki Sita-ko ___$_2$ pataa hai]
that Sita-DAT know AUX
'The rumor that Mina hates Ram$_1$, he$_1$ said that Sita knows.'

does not need to reconstruct for *wh*-licensing (Mahajan 1990, Dayal 1994b, 1996), further suggesting that at least some of its effects are LF-visible.

We now turn to the relationship between scope reconstruction and Condition C. The reconstruction properties of LDS provide a particularly clear domain in which Q→C and I→C can be assessed. Because of the strong preference for scope reconstruction with LDS, Q→C predicts that scrambling a scope-bearing element out of a Condition C configuration (see (8)) should not only obligatorily reconstruct for scope, but also exhibit Condition C connectivity, thereby resulting in outright ungrammaticality. On the other hand, since I→C claims that scope reconstruction is independent of Condition C, I→C predicts LDS to be grammatical in a Condition C configuration and a reconstructed-scope reading to be possible.

First, notice that the observation that LDS strongly favors scope reconstruction (19)–(21), but does not require Condition C connectivity (23) provides a first indication that reconstruction for scope and Condition C connectivity do not correlate, contra Q→C.

We can sharpen this conclusion by manipulating Condition C and scope simultaneously, as in (24). In (24b), the moved element contains an R-expression coindexed with the matrix subject—which in situ would yield a Condition C violation (24a)—and moves across the quantificational element *kisii laṛkii-se* 'some girl-INSTR'. The sentence is fully grammatical on a coreferential reading of the pronoun and with a reconstructed-scope interpretation of *har kitaab* 'every book'. Furthermore, in line with the scope observations in (19)–(21), surface scope of the moved element is impossible in (24b).

(24) *No correlation between scope and Condition C connectivity*

a. * $\boxed{\text{us-ne}_1}$ **kisii laṛkii-se** kahaa [$_{\text{CP}}$ ki Mina-ne kal [$_{\text{DP}}$ **har**
he-ERG some girl-INSTR told that Mina-ERG yesterday every
kitaab jo $\boxed{\text{Ram-ko}_1}$ pasand hai]$_2$ bec dii]
book REL Ram-DAT like AUX sell give
'He$_1$ told some girl that Mina sold every book that Ram$_1$ likes yesterday.'

b. [$_{\text{DP}}$ **har kitaab** jo $\boxed{\text{Ram-ko}_1}$ pasand hai]$_2$ $\boxed{\text{us-ne}_1}$ **kisii laṛkii-se**
every book REL Ram-DAT like AUX he-ERG some girl-INSTR
kahaa [$_{\text{CP}}$ ki Mina-ne kal ___$_2$ bec dii]
told that Mina-ERG yesterday sell give
'Every book that Ram$_1$ likes, he$_1$ told some girl that Mina sold yesterday.'
($\exists \gg \forall$; ?*$\forall \gg \exists$)

The crucial property of (24b) is that it readily allows a reconstructed-scope interpretation without incurring a Condition C violation. Thus, (24b) shows that scope reconstruction is possible even if Condition C connectivity with the launching site of movement would result in ungrammaticality. This provides an argument that reconstruction for quantificational scope does *not* generally entail Condition C connectivity, contra Q→C.

This pattern is general. It can be replicated with indefinites (25), *how many*-questions (26), and other embedding predicates (27). (Note that the indefinite in (25) must be interpreted *de re*, which we discuss in the next section.)

(25) [$_{DP}$ **ek kitaab** jo $\boxed{\text{Ram-ko}_1}$ pasand hai]$_2$ $\boxed{\text{us-ne}_1}$ **har laṛkii-se** kahaa
a book REL Ram-DAT like AUX he-ERG every girl-INSTR told
[$_{CP}$ ki Mina-ne kal ___$_2$ bec dii]
that Mina-ERG yesterday sell give
'A book that Ram$_1$ likes, he$_1$ told every girl that Mina sold yesterday.' ($\forall \gg \exists$)

(26) *Context:* The same as (21).
[$_{DP}$ **kitnii tasviirẽ** jo $\boxed{\text{Sita-ko}_1}$ pasand hãĩ]$_2$ $\boxed{\text{us-ne}_1}$ Sangita-se
how.many pictures REL Sita-DAT likes AUX she-ERG Sangita-INSTR
kahaa [$_{CP}$ ki vo$_1$ ___$_2$ dikhaanaa caahtii hai]?
told that she show.INF wants AUX
'How many pictures that Sita$_1$ likes did she$_1$ tell Sangita that she$_1$ wants to show?'
(tell $\gg$ many [100]; ?*many $\gg$ tell [52])

(27) *Context:* The same as (22).
[$_{DP}$ **kitnii tasviirẽ** jo $\boxed{\text{Sita-ne}_1}$ khĩĩcĩĩ hãĩ]$_2$ $\boxed{\text{us-ne}_1}$ **tay** kiyaa
how.many pictures REL Sita-ERG pulled AUX she-ERG decide do
hai [$_{CP}$ ki vo$_1$ ___$_2$ dikhaaegii]?
AUX that she will.show
'How many pictures that Sita$_1$ took (lit. pulled) did she$_1$ decide that she$_1$ will show?'
(decide $\gg$ many [100]; ?*many $\gg$ decide [52])

We conclude that scope reconstruction and Condition C connectivity do not necessarily correlate; that is, it is possible to reconstruct for quantifier scope without inducing Condition C connectivity. Because this is precisely what Q→C rules out, it strongly suggests that Q→C is not a universal constraint on reconstruction.

3.3 Testing Condition C and referential opacity

We have seen so far that reconstruction for scope in Hindi is independent of Condition C connectivity. This provides evidence against Q→C and is compatible with I→C. However, I→C makes a much stronger prediction: not only is scope reconstruction independent of Condition C, but Condition C is predicted to block reconstruction for referential opacity.

To investigate the empirical relationship between referential-opacity reconstruction and Condition C connectivity, let us begin by considering the paradigm in (28). The scenario in (28) is designed so that the description *ghost that loves him* is true relative to Pratap's doxastic alternatives, but false relative to the actual world, given that what Sangita saw was not actually a ghost. In the nonmovement baseline in (28a), the embedded object is embedded under the intensional predicate *soctaa* 'think'. As expected, the embedded object can be interpreted opaquely with respect to this predicate; (28a) is hence true in the given scenario. The examples in (28b,c) investigate how the availability of this reading interacts with movement. In (28b), the embedded object undergoes LDS into the matrix clause. While there is a bias for the transparent interpretation, (28b) allows for an opaque reading of the scrambled DP with respect to *soctaa* 'think'. Hence, reconstruction for referential opacity is possible in (28b). Against this backdrop, the crucial example is (28c). (28c) is identical to (28b), except that the R-expression and the pronoun have been swapped, so that the R-expression is now inside the scrambled DP. As such, if the scrambled DP were to be evaluated for Condition C in its launching site, it would incur a Condition C violation. Importantly, while the sentence in (28c) is grammatical, it is not judged as true in the given scenario. The only available interpretation is one where the moved DP is interpreted transparently with respect to *soctaa* 'think'. The opaque interpretation is not available at all. Thus, (28c) commits the speaker to the claim that Sangita saw an actual ghost and is thus infelicitous (under the assumption that ghosts do not exist in the actual world).

(28) *Context:* Pratap has the crazy belief that there exists a ghost in his backyard that is in love with him. Of course, no such ghost actually exists. One day, Sangita sees some animal out of the corner of her eye in Pratap's backyard. Upon reporting this incident to Pratap, Pratap is convinced (incorrectly) that what Sangita saw was the ghost that he believes lives in his backyard and is in love with him.

a. *Non-movement baseline → Opaque reading possible*

$\boxed{\text{Pratap}_1}$	**soctaa**	hai	[$_{\text{CP}}$ ki	Sangita-ne	[$_{\text{DP}}$ ek	**bhuutnii**	jo	
Pratap	thinks	AUX	that	Sangita-ERG	a	ghost	REL	
$\boxed{\text{us-se}_1}$	pyaar	kartii	hai	] dekhii]				
him-INSTR	love	do	AUX	saw				

'Pratap$_1$ thinks that Sangita saw a ghost that loves him$_1$.'

b. *No Condition C configuration → Opaque reading possible*

[$_{\text{DP}}$ ek	**bhuutnii**	jo	$\boxed{\text{us-se}_1}$	pyaar	kartii	hai	]$_2$	$\boxed{\text{Pratap}_1}$	**soctaa**
a	ghost	REL	him-INSTR	love	do	AUX		Pratap	thinks
hai	[$_{\text{CP}}$ ki	Sangita-ne	___$_2$	dekhii]					
AUX	that	Sangita-ERG		saw					

'A ghost that loves him$_1$, Pratap$_1$ thinks that Sangita saw.'

c. *Condition C configuration → Opaque reading impossible*

# [$_{\text{DP}}$ ek	**bhuutnii**	jo	$\boxed{\text{Pratap-se}_1}$	pyaar	kartii	hai	]$_2$	$\boxed{\text{vo}_1}$	**soctaa**
a	ghost	REL	Pratap-INSTR	love	do	AUX		he	thinks
hai	[$_{\text{CP}}$ ki	Sangita-ne	___$_2$	dekhii]					
AUX	that	Sangita-ERG		saw					

'A ghost that loves Pratap$_1$, he$_1$ thinks that Sangita saw.'

(*grammatical, but entails actual existence of ghosts and thus is infelicitous*)

The impossibility of an opaque reading in (28c) demonstrates that reconstruction for referential opacity is impossible in a Condition C configuration. In light of the availability of such reconstruction in (28b), where Condition C is not at stake, this strongly suggests that reconstruction for referential opacity induces Condition C connectivity. Therefore, the paradigm in (28) indicates that reconstruction for an opaque reading is crucially *not* independent of Condition C, unlike reconstruction for quantifier scope. This finding aligns with the predictions of I→C.

Additional support comes from subjunctive relative clauses. Subjunctive relative clauses have the interesting property that they must be interpreted opaquely with respect to the intensional predicate that they are embedded under (Farkas 1985, 1997, Quer 1998, Romero 1998, Bhatt 2021). To illustrate, consider the DP *aise aadmii-se jis-ko French aatii ho* 'a man who knows French' in (29), which contains a subjunctive relative clause. The contexts in (30a) and (30b) are set up so that only an opaque reading or only a transparent reading of the DP holds respectively. The sentence in (29) is judged as true in (30a), but not in (30b). That is, the DP must be interpreted opaquely with respect to *caahtaa* 'want'.

(29) *Subjunctive relative clauses must be opaque*

Mohit	**caahtaa**	hai	ki	Sita	[$_{DP}$	aise	aadmii-se	jis-ko	French	aatii
Mohit	wants	AUX	that	Sita		such	man-INSTR	REL-DAT	French	knows

ho	]	shaadii	kare
AUX.SBJV		marriage	do

'Mohit wants Sita to marry a man who knows French.' (✓opaque; *transparent)

(30) a. *Opaque context for (29):* Mohit would like to visit France someday but he does not speak any French. Not wanting to learn French and being a very practical man, Mohit wants his sister Sita to marry a man who knows French. That way, they can visit France together, and Sita's future husband can be the interpreter.

b. *Transparent context for (29):* Mohit dislikes French people, and he would never want his sister Sita to marry a French person. He does not know that Sita's current boyfriend is, in fact, French. Mohit really likes Sita's boyfriend and, not knowing that he is French, he wants them to get married.

Crucially, the same pattern of judgements in (28) holds for long-scrambled DPs with subjunctive relative clauses, as shown in (31). When Condition C is not at stake, the scrambled DP can be interpreted opaquely with respect to the intensional predicate (31b)—in fact, given the subjunctive relative clause, it must be. The Condition C configuration in (31c) is outright ungrammatical: the subjunctive relative clause requires reconstruction, and this is blocked by Condition C.

(31) *Context:* Ram has the crazy belief that there are ghosts living in his house. Of course, no such ghosts exist. He also believes that some of these ghosts love him, while other ghosts hate him. He invites Sita over, hoping that she would meet one of the ghosts that love him.

a. *Non-movement baseline → Opaque reading required*

$\boxed{\text{Ram}_1}$ **caahtaa** hai [$_{CP}$ ki Sita [$_{DP}$ aise **bhuut-se** jo $\boxed{\text{use}_1}$ pyaar
Ram wants AUX that Sita such ghost-INSTR REL him love

kartaa ho] mile]
do AUX.SBJV meet

'Ram$_1$ wants Sita to meet a ghost that loves him$_1$.'

b. *No Condition C configuration → Opaque reading required*

[$_{DP}$ aise **bhuut-se** jo $\boxed{\text{use}_1}$ pyaar kartaa ho]$_2$ $\boxed{\text{Ram}_1}$ **caahtaa**
such ghost-INSTR REL him love do AUX.SBJV Ram wants

hai [$_{CP}$ ki Sita ___$_2$ mile]
AUX that Sita meet

'A ghost that loves him$_1$, Ram$_1$ wants Sita to meet.'

c. *Condition C configuration → Ungrammatical*

* [$_{DP}$ aise **bhuut-se** jo $\boxed{\text{Ram-ko}_1}$ pyaar kartaa ho]$_2$ $\boxed{\text{vo}_1}$
such ghost-INSTR REL Ram-ACC love do AUX.SBJV he

caahtaa hai [$_{CP}$ ki Sita ___$_2$ mile]
wants AUX that Sita meet

'A ghosts that loves Ram$_1$, he$_1$ wants Sita to meet.'

Finally, a more complex example investigating the three-way relationship between Condition C, scope, and referential opacity is given in (32), modelled after Sharvit's (1998) example in (15). The sentence only has the reconstructed-scope, transparent reading in (32b). It lacks the other two logically possible readings: a surface-scope, transparent reading (32a) and an (reconstructed-scope) opaque reading (32c).[19]

(32) [$_{DP}$ **kitnii** **tasviirẽ** jo $\boxed{\text{Sita-ne}_1}$ khĩĩcĩĩ]$_2$ $\boxed{\text{us-ne}_1}$ **tay** kar liyaa hai
how.many pictures REL Sita-ERG pulled she-ERG decide do take AUX

[$_{CP}$ ki vo$_1$ ___$_2$ dikhaaegii]?
that she will.show

'How many pictures that Sita$_1$ took did she$_1$ decide that she$_1$ will show?'

[19] In a scenario where Sita is standing in front of a pile of pictures that she took, but Sita is not aware of who took the pictures, only the transparent reading of the moved DP in (32) holds. As indicated in (32), such a transparent interpretation is available, but only if *how many* takes scope below *decide*; that is, on a narrow-scope reading (32b) (i.e. the "third reading"). Moreover, in a scenario where Sita is standing in front of a pile of pictures that Ram took, but Sita incorrectly believes that these pictures were taken by herself, only the opaque reading of the moved DP would hold. In such a scenario, the sentence in (32) is judged as inappropriate, indicating the absence of an opaque reading.

a. **Surface scope, transparent* (*no reconstruction*)
For what number n: There are n-many x that are pictures that Sita took $\underline{\text{in } w_0}$ and in all of Sita's bouletic alternatives w' in w_0, Sita shows x in w'.

b. ✓*Reconstructed scope, transparent* (*reconstruction for scope*)
For what number n: In all of Sita's bouletic alternatives w' in w_0, there are n-many x that are pictures that Sita took $\underline{\text{in } w_0}$ and Sita shows x in w'.

c. **Reconstructed scope, opaque* (*reconstruction for scope and opacity*)
For what number n: In all of Sita's bouletic alternatives w' in w_0, there are n-many x that are pictures that Sita took $\underline{\text{in } w'}$ and Sita shows x in w'.

The observation that (32b) is the only available interpretation for (32) is fully consistent with the generalizations that we have reached thus far. First, because LDS in Hindi obligatorily reconstructs for quantifier scope, the surface-scope reading in (32a) is ruled out.[20] Second, we saw on the basis of (28) above that Condition C connectivity blocks reconstruction for referential opacity, thereby ruling out the opaque interpretation in (32c). Crucially, Condition C connectivity does *not* block reconstruction for quantifier scope. The reconstructed-scope, transparent reading in (32b) is therefore possible. As predicted, if the R-expression and the pronoun are swapped in (32) so that Condition C is no longer at stake, the opaque interpretation becomes available, as shown in (33).

(33) $[_{\text{DP}}$ **kitnii** **tasviirẽ** jo $\boxed{\text{us-ne}_1}$ khĩĩcĩĩ $]_2$ $\boxed{\text{Sita-ne}_1}$ **tay** kar liyaa hai
how.many pictures REL she-ERG pulled Sita-ERG decide do take AUX

$[_{\text{CP}}$ ki vo$_1$ ___$_2$ dikhaaegii]?
that she will.show

'How many pictures that she$_1$ took did Sita$_1$ decide that she$_1$ will show?'

a. **Surface scope, transparent* (*no reconstruction*)

b. ✓*Reconstructed scope, transparent* (*reconstruction for scope*)

c. ✓*Reconstructed scope, opaque* (*reconstruction for scope and opacity*)

In sum, the data in (28), (31), and (32) provide evidence that Condition C connectivity correlates with referential-opacity reconstruction, but not with scope reconstruction, converging with the previous evidence in this section. Taken together, the Hindi reconstruction data support I→C (repeated here as (34)) as an empirical generalization about the properties of reconstruction effects. The next section will explore the theoretical consequences of this conclusion and provide an analysis of Hindi scrambling in terms of Lechner's (1998, 2013, 2019) hybrid model of reconstruction.

[20] The fact that such an interpretation is available in Sharvit's (1998) structurally analogous example in (15) is due to the independently observable difference that *wh*-movement in English does not exhibit obligatory scope reconstruction (see e.g. Cresti 1995, Rullmann 1995).

(34) *Intensionality–Condition C correlation (I→C)*
Condition C connectivity correlates with reconstruction for referential opacity, not with reconstruction for quantificational scope. [Sharvit 1998, Lechner 2013, 2019]

4 A hybrid account of reconstruction

The crucial takeaway from I→C and the Hindi reconstruction data supporting I→C (§3) is that *some but not all* reconstruction effects correlate with Condition C connectivity. Assuming that Condition C connectivity is indicative of a syntactic reconstruction mechanism, this means that *some but not all* reconstruction effects are syntactic; those that are not syntactic are semantic. This state of affairs represents a middle ground between the opposing views that have emerged in the reconstruction literature, where it is argued either that reconstruction is purely syntactic (e.g. Romero 1997, 1998, Fox 1999, Sportiche 2016, Poole 2017, to appear) or that reconstruction is purely semantic (e.g. Cresti 1995, Rullmann 1995, Sternefeld 2001, Ruys 2015). We contend instead that reconstruction is part syntactic and part semantic.

In this section, we argue that Hindi long scrambling provides novel support for the hybrid model of reconstruction developed by Lechner (1998, 2013, 2019). The core feature of Lechner's system is that it uses *both* higher-copy neglect (a syntactic mechanism) *and* higher-type traces (a semantic mechanism). We show how such a model derives the intricate Hindi reconstruction facts via the interaction of these two modes of reconstruction.

4.1 The insufficiency of nonhybrid accounts

Before proceeding to the analysis, it is instructive to briefly consider the challenge that the Hindi reconstruction pattern poses for nonhybrid accounts of reconstruction, i.e. a purely syntactic account in terms of higher-copy neglect *or* a purely semantic account in terms of higher-type traces.

On one hand, an account limited to higher-copy neglect predicts that reconstruction effects should universally correlate with Condition C connectivity (Romero 1997, 1998, Fox 1999). As we have seen in section 3.2, this is not the case. Thus, a purely syntactic account of reconstruction is too restrictive to accommodate the Hindi facts.[21]

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[21] Romero (1998:104–105) suggests to account for the reconstructed-scope, transparent reading of Sharvit's (1998) example in (15)—and by extension I→C—through the more complicated LF in (i). Concretely, she proposes that *how many students who hate Anton* is represented at LF as *how many* ***of the*** *students who hate Anton* (a partitive) and that *the students who hate Anton* QRs out of the moved DP prior to reconstruction.

(i) [the students who hate Anton$_1$]$_2$ he$_1$ hopes [that [how many of ___$_2$] will buy him a beer]

The procedure that Romero suggests for generating the LF in (i) would violate the Freezing Principle (Wexler and Culicover 1980). Be that as it may, we can rule out the LF in (i) being possible on independent grounds, irrespective of how exactly it is generated. It is well-known that DPs in fronted predicates obligatorily reconstruct for scope (Huang 1993, Sauerland and Elbourne 2002), as demonstrated in (ii.a) (based on Sauerland and Elbourne 2002:305), where *every bank* cannot take scope over *a police officer*. The LF in (ii.b) is comparable to (i) and crucially would produce this unattested reading.

On the other hand, an account limited to higher-type traces would dissociate Condition C from *all* reconstruction effects. This dissociation would fail to capture the empirical connection between referential-opacity reconstruction and Condition C connectivity from section 3.3. Interestingly, Sternefeld (2001) and Ruys (2015) propose enriched versions of the higher-type-trace account that derive a strict correlation between Condition C and reconstruction effects. In this regard, these enriched accounts are empirically equivalent to higher-copy-neglect accounts (as Sternefeld 2001 himself emphasizes). As a consequence, these accounts are too restrictive for exactly the same reason.

Any account of reconstruction in which *all* reconstruction effects or *no* reconstruction effects correlate with Condition C connectivity is too coarse to capture the intricate empirical relationship between Condition C, scope, and referential opacity. A more nuanced account is therefore called for. In principle, either higher-copy neglect or higher-type traces might be augmented to variably induce Condition C connectivity, but we suspect that such an account will be stipulative. Instead, we pursue a hybrid theory of reconstruction, which makes available both reconstruction mechanisms and derives the limited correlation between reconstruction effects and Condition C connectivity from general syntactic and semantic principles.

4.2 Analysis

In this section, we show that the interpretation of Hindi scrambling receives a principled explanation under Lechner's (1998, 2013, 2019) hybrid model of reconstruction. Let us begin by making some concrete assumptions about the nature of local and long-distance scrambling in Hindi. We adopt Mahajan's (1990, 1994) account, according to which scrambling in Hindi is ambiguous between two distinct movement types (see also Bhatt 2016 and Keine 2016, 2020). One type of scrambling, which we will refer to as *A-scrambling*, exhibits A-properties and cannot cross a finite-clause boundary. The second type of scrambling, which we will call *$\overline{\text{A}}$-scrambling*, exhibits $\overline{\text{A}}$-properties and is able to leave a finite clause.[22] Thus, LDS in Hindi is invariably $\overline{\text{A}}$-scrambling in this technical sense, whereas local scrambling is ambiguous between A-scrambling and $\overline{\text{A}}$-scrambling (35).

(ii) a. . . . and [stand in front of every bank], a police officer did ___ that day (∃ ≫ ∀; *∀ ≫ ∃)

b. [every bank]$_1$ [a police officer did [stand in front of ___$_1$] that day]

Barring a theory that allows QR out of the moved element in (15) but not in (ii.a), Romero's analysis in (i) is untenable. In light of this obstacle, we do not pursue an account along these lines.

[22] The exact relationship between the two types of scrambling, on the one hand, and A-movement and $\overline{\text{A}}$-movement in English, on the other hand, is controversial, primarily because A-scrambling does not behave exactly like English A-movement in all respects (Dayal 1994a, Kidwai 2000, Keine 2018, Bhatt and Keine 2019). The precise relationship between Hindi A-scrambling and English A-movement is inconsequential for our account. We hence use the terms "A-scrambling" and "$\overline{\text{A}}$-scrambling" as convenient descriptive labels, without committing to them aligning one-to-one on every metric with the A/$\overline{\text{A}}$-movement distinction in English.

(35) a. Long-distance scrambling is $\overline{\text{A}}$-scrambling.

b. Local scrambling can be either A-scrambling or $\overline{\text{A}}$-scrambling.

Turning now to the interpretation of the two scrambling types, we propose that $\overline{\text{A}}$-scrambling in Hindi can be interpreted either by neglecting the higher copy (36a) or by using a higher-type trace, in particular a generalized-quantifier trace (36b). By assumption, these are the only two options; in particular, translating the trace position of $\overline{\text{A}}$-scrambling into a type-e variable is impossible (see section 6 for further discussion).[23] Because both procedures in (36) yield reconstructed scope, it follows that $\overline{\text{A}}$-scrambling never shifts the scope of the moved element. In turn, given that LDS is invariably $\overline{\text{A}}$-scrambling, LDS thus displays obligatory scope reconstruction.

(36) *Interpreting $\overline{A}$-scrambling*

$\mathrm{DP}_1 \ldots \mathrm{Op} \ldots \_\_\__1 \ldots$

$\overline{A}$-scr

a. *Neglecting the higher copy*

LF: [$\cancel{\mathrm{DP}_1}$ [… Op … DP_1 …]] $(\mathrm{Op} \gg \mathrm{DP}_1)$

b. *Using a higher-type trace*

LF: [DP_1 [$\lambda\mathcal{Q}_{\langle et,t\rangle}$ [… Op … $\mathcal{Q}$ …]]] $(\mathrm{Op} \gg \mathrm{DP}_1)$

The crucial component of (36) is that both higher-copy neglect and higher-type traces are in principle *always available* to interpret $\overline{\text{A}}$-scrambling. However, as we will show, they have slightly different effects, and higher-copy neglect is crucially blocked when it would induce a Condition C violation, leaving a higher-type trace as the only option in such cases.

Furthermore, we propose that A-scrambling in Hindi is interpreted with a type-e trace, as schematized in (37).

(37) *Interpreting A-scrambling*

$\mathrm{DP}_1 \ldots \mathrm{Op} \ldots \_\_\__1 \ldots \rightsquigarrow$ LF: [DP_1 [λx_e [… Op … x …]]] $(\mathrm{DP}_1 \gg \mathrm{Op})$

A-scr

As local scrambling is ambiguous between A-scrambling and $\overline{\text{A}}$-scrambling, it (descriptively) has access to all three interpretive options in (36) and (37). It therefore follows that local scrambling can reconstruct (as in (18)), but that such reconstruction is optional (as in (17)), in contrast to LDS, whose two interpretive options both yield reconstruction.[24]

[23] As noted in fn. 14, for one of our consultants, $\overline{\text{A}}$-scrambling does not obligatorily reconstruct for scope (i.e. it can extend scope); otherwise, this speaker patterns like the others. The account presented in this section may be conservatively extended to this pattern by allowing $\overline{\text{A}}$-scrambling to also map onto a trace of type e. At present, we are not aware of any independent correlate of this variation.

[24] From local scrambling alone, one cannot discern whether A-scrambling allows reconstruction (either via higher-copy neglect or via higher-type traces), since local scrambling can be either A-scrambling or $\overline{\text{A}}$-scrambling. In section 6 though, we will argue that superlocal scrambling in Hindi (i.e. scrambling a direct object over an indirect object) does not allow reconstruction and thus is an instance of unambiguous A-scrambling, which can only be interpreted with a type-e trace.

This difference in how movement types are interpreted must be encoded somewhere in the grammar. Following van Urk (2015), we assume that such differences are encoded in the probe triggering the movement. Specifically, we propose that movement-triggering probes may either be interpreted as a λ-operator over a particular semantic type(s) (building on Kratzer 2002:112–114) or as the identity function. Under this approach, the λ-operator binding the trace is not inserted at LF. Higher-copy neglect occurs whenever interpreting the higher copy in the landing site would result in a semantic-type mismatch. This state of affairs only arises when the probe is interpreted as the identity function—so that it is semantically vacuous—, because elements of type e and $\langle et, t\rangle$ cannot compose in this case. Applied to Hindi scrambling: the $\overline{\text{A}}$-scrambling probe is interpreted either as a λ-operator over type $\langle et, t\rangle$ (yielding a higher-type trace) or as the identity function (yielding neglect), and the A-scrambling probe is interpreted only as a λ-operator over type e.

We now proceed to demonstrating how the coexistence of the two reconstruction mechanisms for $\overline{\text{A}}$-scrambling in (36) and the division of labor between them enables a principled explanation of the Hindi reconstruction data from section 3.

4.2.1 *Higher-type traces*

The principal motivation for higher-type traces comes from the observation in section 3.2 that scope reconstruction is possible in Hindi even if evaluating the moved element in its launching site at LF would give rise to a Condition C violation. Consider the sentence in (24b), repeated here as (38). As discussed above, scope reconstruction is possible in (38)—and is in fact strongly preferred—despite the fact that the scrambled DP contains an R-expression and the movement crosses a pronoun coindexed with that R-expression.

(38) *Scope reconstruction does not induce Condition C connectivity* (=24b)

[$_{\text{DP}}$ **har**	**kitaab**	jo	$\boxed{\text{Ram-ko}_1}$	pasand	hai	]$_2$	$\boxed{\text{us-ne}_1}$	**kisii**	**laṛkii-se**
every	book	REL	Ram-DAT	like	AUX		he-ERG	some	girl-INSTR

kahaa	[$_{\text{CP}}$ ki	Mina-ne	kal	___$_2$	bec	dii	]
told	that	Mina-ERG	yesterday		sell	give	

'Every book that Ram$_1$ likes, he$_1$ told some girl that Mina sold yesterday.'

($\exists \gg \forall$; ?*$\forall \gg \exists$)

Because (38) involves LDS, the scrambling must be an instance of $\overline{\text{A}}$-scrambling. According to (36), it can be interpreted either by neglecting the higher copy (39) or with a higher-type trace (40). (For the sake of simplicity, we abstract away from any movement that might happen within the embedded clause, such as type-driven movement or local scrambling.) As both options yield scope reconstruction, it immediately follows that (38) lacks a surface-scope reading. However, neglecting the higher copy would produce ungrammaticality in (38) because it would lead to a Condition C violation—but a higher-type trace would not.

(39) *LF of (38) with higher-copy neglect*
* ~~[every book that Ram$_1$ likes]~~ **he**$_1$ told some girl [that
Mina sold [every book that **Ram**$_1$ likes] yesterday] $\leadsto$ *Violates Condition C*

(40) *LF of (38) with higher-type traces*
✓[every book that **Ram**$_1$ likes] [$\lambda\mathcal{Q}_{\langle et,t\rangle}$ [**he**$_1$ told some girl
[that Mina sold $\mathcal{Q}$ yesterday]]] $\leadsto$ *Does not violate Condition C*

It follows then that (38), where Condition C is at stake, cannot be interpreted via higher-copy neglect and must be interpreted via higher-type traces. In cases where Condition C is not at stake, e.g. (19), both higher-copy neglect and higher-type traces are possible (i.e. there is an ambiguity). Higher-type traces hence derive the independence of scope reconstruction and Condition C connectivity in Hindi LDS, as documented in section 3.2. This provides an argument that reconstruction effects may be the result of higher-type traces.

At the same time, we showed in section 3.3 that Condition C and reconstruction effects are not entirely independent of each other: Condition C connectivity systematically bleeds reconstruction for referential opacity. The relevant example (28c) is repeated below in (41).

(41) *Referential-opacity reconstruction induces Condition C connectivity* (=28c)

# [$_{\text{DP}}$	ek	**bhuutnii**	jo	$\boxed{\text{Pratap-se}_1}$	pyaar	kartii	hai	]$_2$	$\boxed{\text{vo}_1}$	**soctaa**	hai
	a	ghost	REL	Pratap-INSTR	love	do	AUX		he	thinks	AUX

[$_{\text{CP}}$	ki	Sangita-ne	___$_2$	dekhii	]
	that	Sangita-ERG		saw	

'A ghost that loves Pratap$_1$, he$_1$ thinks that Sangita saw.'
(*grammatical, but entails actual existence of ghosts and thus is infelicitous*)

Given that higher-type traces do not induce Condition C connectivity, e.g. (40), the correlation between Condition C and referential-opacity reconstruction in (41) reveals that higher-type traces must be unable to produce referential-opacity reconstruction. Otherwise, if a higher-type trace could be used to derive an opaque reading of an $\overline{\text{A}}$-scrambled DP, then (41) would be felicitous, contrary to fact.

Following Lechner (2019), we propose that this restriction on higher-type traces is due to a general principle that the intensionality of a DP, specifically its NP restrictor, is evaluated in its position at LF. For concreteness, we adopt the theory of syntactically realized situation (or world) pronouns (Percus 2000), which has this principle as a consequence.[25] Under this theory, the opaque reading of a DP requires that its situation pronoun be bound

[25] This principle would also follow in a system where the situation argument is a parameter of the denotation function ($[\![.]\!]^{s}$) and is locally set. The proposals in this paper are compatible with such a system. However, a situation-parameter system and a situation-pronoun system (as assumed in the main text) make different predictions with respect to higher-copy neglect. Namely, a situation-parameter system predicts that whenever higher-copy neglect is independently forced (e.g. by pronominal binding; see section 5.1), thereby interpreting the moved element in its base position, the moved DP should only have an opaque reading. A situation-pronoun system does not make this prediction (see e.g. (44)). By design, it allows transparent and opaque readings in precisely this configuration. The prediction is difficult to test though, and we have not done so here. Preliminary data from Romero (1998:100n20, 165n16) suggest that the prediction of a situation-parameter

by the λ-operator associated with the relevant intensional operator. When a moved DP is interpreted with a higher-type trace, its situation pronoun must be bound from the landing site of movement, as this is its LF position. Thus, an intensional operator that a DP has moved over cannot bind its situation pronoun, as schematized in (42).[26]

(42) *LF of (41) with higher-type traces*
$[\ \underline{\underline{\lambda s_0}}\ [\ [_{\text{DP}}$ a ghost in $\underline{\underline{s_{0/*2}}}$ that loves **Pratap**$_1$ $]\ [\ \lambda \mathcal{Q}_{\langle et,t\rangle}\ [$ **he**$_1$ thinks in s_0
$[\ \underline{\underline{\lambda s_2}}\ [$ that Sangita saw $\mathcal{Q}$ in s_2 $]\ ]\ ]\ ]\ ]\ ]\ ]$ (✓transparent; *opaque)

In sum, higher-type traces yield reconstruction for scope, but not for referential opacity. Because a higher-type trace does not give rise to Condition C connectivity, scope reconstruction is independent of Condition C and thus is not constrained by it.

4.2.2 *Higher-copy neglect*

While we have seen evidence for higher-type traces in Hindi, such traces alone are insufficient; higher-copy neglect must be available as well. To illustrate why, consider again the sentence in (28b), repeated below as (43). (43) is a minimally different variant of (41) in which the positions of the R-expression and the pronoun have been swapped. Condition C is not at play in (43), and an opaque reading of the moved DP with respect to *soctaa* 'think' is possible.

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system is not borne out—though, as she points out, the judgements are subtle and require a more extensive study.

[26] There is a mechanical means of circumventing this restriction (a kind of "funny business", to borrow a phrase from Barbara Partee): The NP restrictor contains a situation pronoun that is λ-abstracted over at the edge of the DP. Thus, the moved DP is of type $\langle s, \langle et, t\rangle\rangle$. In the trace position, the higher-type trace—also of type $\langle s, \langle et, t\rangle\rangle$—combines with a situation pronoun, and then it composes with the predicate. The situation pronoun fed into the higher-type trace may be bound by a λ-operator associated with an intensional operator that was crossed by movement, yielding an opaque interpretation of the moved DP. This is schematized in (i).

(i) $[_{\text{DP}}\ \lambda s\ [\ \text{D}\ [\ \text{NP}\ s\ ]\ ]\ ]\ [\ \lambda \mathcal{Q}_{\langle s,\langle et,t\rangle\rangle}\ [\ \ldots \text{think}\ [\ \lambda s'\ [\ \ldots \mathcal{Q}(s')\ \ldots\ ]\ ]\ ]\ ]$

The LF in (i) hence must be blocked. Lechner (2019) proposes *Extensional Traces and Antecedents* (ETA): "the denotation of quantificational DPs and their traces do not include situation variables" (p. 118). ETA is a constraint on the semantic type of functions denoted by (quantificational) DPs: they must be purely extensional. (The *denotations* of DPs of course include situation variables, as otherwise they would effectively all be rigid designators; it is clear from the text that this is not what Lechner intends.) Under ETA, a DP and its trace cannot be type $\langle s, \langle et, t\rangle\rangle$, and hence the LF in (i) is blocked. The intuition behind ETA is that determiners themselves are purely extensional à la Barwise and Cooper (1981) (Winnie Lechner, p.c.). However, nothing about the denotation of D in (i) would preclude inserting a λ-operator at the edge of DP that locally binds a situation pronoun. Thus, it remains an open question how ETA might be derived or explained. We suspect, instead, that the LF in (i) is blocked by general constraints on the distribution of λ-operators over situations, namely that they must be introduced by predicates and are not freely insertable, but we leave developing such an account to future research.

(43) *Referential-opacity reconstruction is possible when Condition C is not at stake* (=28b)

[$_{\text{DP}}$	ek	**bhuutnii**	jo	$\boxed{\text{us-se}_1}$	pyaar	kartii	hai	]$_2$	$\boxed{\text{Pratap}_1}$	**soctaa**	hai
	a	ghost	REL	him-INSTR	love	do	AUX		Pratap	thinks	AUX

[$_{\text{CP}}$	ki	Sangita-ne	___$_2$	dekhii	]
	that	Sangita-ERG		saw	

'A ghost that loves him$_1$, Pratap$_1$ thinks that Sangita saw.'

(*opaque reading possible*)

As discussed above, reconstruction for referential opacity *cannot* be the result of a higher-type trace (see (42)). Therefore, the opaque interpretation in (43) must be the result of higher-copy neglect, as schematized in (44). By interpreting only the lower copy, the situation pronoun in the moved DP is in the scope of the λ-operator of *soctaa* 'think', so that it may bind the situation pronoun, yielding an opaque interpretation. Crucially, because the moved DP contains a pronoun instead of an R-expression, interpreting only the lower copy in (44) does not result in a Condition C violation, unlike (39).

(44) *LF of (43) with higher-copy neglect*

[$\underline{\underline{\lambda s_0}}$ [~~[$_{\text{DP}}$ a ghost in $s_{0/2}$ that loves him$_1$]~~ **Pratap**$_1$ thinks in s_0 [$\underline{\underline{\lambda s_2}}$ [that Sangita saw in s_2 [$_{\text{DP}}$ a ghost in $\underline{\underline{s_{0/2}}}$ that loves **him**$_1$]]]]] (✓transparent; ✓opaque)

The option of neglecting the higher copy therefore explains why $\overline{\text{A}}$-scrambling allows for referential-opacity reconstruction. Crucially, because higher-copy neglect induces Condition C connectivity, referential-opacity reconstruction is only possible when it would not yield a Condition C violation. When Condition C is at stake, as in (41) above, reconstruction for referential opacity is impossible via higher-copy neglect, as schematized in (45).

(45) *Illicit LF of (41) with higher-copy neglect*

*[$\underline{\underline{\lambda s_0}}$ [~~[$_{\text{DP}}$ a ghost in $s_{0/2}$ that loves Pratap$_1$]~~ **he**$_1$ thinks in s_0 [$\underline{\underline{\lambda s_2}}$ [that Sangita saw in s_2 [$_{\text{DP}}$ a ghost in $\underline{\underline{s_{0/2}}}$ that loves **Pratap**$_1$]]]]] ⇝ *Violates Condition C*

In such cases where there would be a Condition C violation in the launching site of movement, as in (41), the only available interpretive option is thus a higher-type trace. In turn, because higher-type traces are unable to produce referential-opacity reconstruction, only a transparent interpretation of the scrambled DP is possible in such cases. This derives the observation that reconstruction for referential opacity, but not for scope, correlates with Condition C connectivity.

This account also extends to the more complex example in (32), repeated in (46). Here, Condition C connectivity blocks reconstruction for referential opacity, but allows it for scope.

(46) [$_{\text{DP}}$ **kitnii** **tasviirẽ** jo $\boxed{\text{Sita-ne}_1}$ khı̃ı̃cı̃ı̃]$_2$ $\boxed{\text{us-ne}_1}$ **tay** kar liyaa hai
how.many pictures REL Sita-ERG pulled she-ERG decide do take AUX

[$_{\text{CP}}$ ki vo$_1$ ___$_2$ dikhaaegii]?
that she will.show

'How many pictures that Sita$_1$ took did she$_1$ decide that she$_1$ will show?' (=32)

a. **Surface scope, transparent* (*no reconstruction*)

b. ✓*Reconstructed scope, transparent* (*reconstruction for scope*)

c. **Reconstructed scope, opaque* (*reconstruction for scope and opacity*)

The opaque reading in (46c) would require neglecting the higher copy. However, as this would give rise to a Condition C violation, this option is unavailable. Consequently, the only interpretive option in (46) is a higher-type trace. Because higher-type traces can produce reconstruction for scope but not for referential opacity, using a higher-type trace yields the reconstructed-scope, transparent reading in (46b), the only attested reading of (46). The surface-scope transparent reading in (46a) is ruled out because it would require a type-*e* trace, which is independently unavailable for $\overline{\text{A}}$-scrambling.

4.3 Interim summary

We have argued that Hindi provides evidence for the existence of both higher-copy neglect and higher-type traces as complementary mechanisms of reconstruction (Lechner 1998), because some but not all reconstruction effects in Hindi induce Condition C connectivity. The two reconstruction mechanisms have distinct empirical properties, which are summarized in (47) and (48). These conclusions converge with those reached independently by Lechner (2013, 2019).

(47) *Properties of higher-copy neglect*

$\lambda s_0 \ldots \cancel{[_{\text{DP}}\ s\ \text{R-exp}_2\ ]} \ldots \text{pron}_{*2/3} \ldots \text{Op} \ldots \lambda s_1 \ldots [_{\text{DP}}\ s_{0/1}\ \text{R-exp}_2\ ] \ldots$

ii. Reconstruction for scope

iii. Reconstruction for referential opacity

iv. Condition C connectivity

(48) *Properties of higher-type traces*

$\lambda s_0 \ldots [_{\text{DP}}\ s_{0/*1}\ \text{R-exp}_2\ ]\ [\ \lambda \mathcal{Q}_{\langle et,t\rangle}\ [\ \ldots \text{pron}_{2/3} \ldots \text{Op} \ldots \lambda s_1 \ldots \mathcal{Q} \ldots$

ii. Reconstruction for scope

iii. No reconstruction for referential opacity

iv. No Condition C connectivity

This division of labor between the two reconstruction mechanisms derives the overarching empirical generalizations that we saw in Hindi. Because (i) reconstruction for referential opacity can only be achieved by neglecting the higher copy and (ii) such neglect induces Condition C connectivity in the launching site of movement, it follows that reconstruction for referential opacity correlates with Condition C, deriving the facts in section 3.3. By contrast, scope reconstruction is not similarly restricted. It can be produced by either higher-copy neglect or higher-type traces. Because higher-type traces do not induce Condition C connectivity, scope reconstruction is not constrained by Condition C in the way that referential-opacity reconstruction is; this derives the facts in section 3.2. Taken together, these consequences derive the empirical generalization I→C, repeated below in (49), from the interplay of the two mechanisms as complementary modes of reconstruction.

(49) *Intensionality–Condition C correlation (I→C)*
Condition C connectivity correlates with reconstruction for referential opacity, not with reconstruction for quantificational scope. [Sharvit 1998, Lechner 2013, 2019]

In the next section, we extend our account of Hindi reconstruction to two other semantic properties of $\overline{\text{A}}$-scrambling in Hindi: pronominal binding and weak crossover.

5 Extensions

The account developed in the previous section (§4) focused on the intricate relationships between reconstruction for scope, reconstruction for referential opacity, and Condition C connectivity. The claims that we made about the interpretation of scrambling in Hindi are general enough in nature to be assessed and applied in other domains as well, two of which we investigate in this section.[27] Section 5.1 assesses a prediction that emerges from our account with respect to reconstruction for pronominal binding. Section 5.2 extends the account to the classical weak crossover effects noted in section 3.1.

5.1 Pronominal binding

LDS in Hindi is able to reconstruct for pronominal binding, as shown in (50), where the pronoun *uske* 'her' may be bound by the matrix subject *har laṛkii* 'every girl', which it scrambles over. Because LDS invariably involves $\overline{\text{A}}$-scrambling, (50) thus demonstrates that $\overline{\text{A}}$-scrambling may reconstruct for pronominal binding.

[27] There is another extension that we do not discuss here because it would take us too far afield: Lahiri (2017) observes that reconstruction for NPI licensing does not induce Condition C connectivity under Hindi long scrambling. He concludes that higher-type traces therefore must be at least an option for interpreting Hindi scrambling and that higher-type traces can produce reconstruction for NPI licensing. Our account of Hindi scrambling is compatible with this claim, since it permits higher-type traces.

(50) *$\overline{A}$-scrambling may reconstruct for pronominal binding*

[**uske**$_1$	bhaaii-se	]$_2$ **har**	**laṛkii**$_1$	soctii	hai	[$_{CP}$ Kareena	Kapoor	___$_2$
her	brother-INSTR	every	girl	thinks	AUX	Kareena	Kapoor	

shaadii	karegii]
marriage	will.do

'Every girl$_1$ thinks that Kareena Kapoor will marry her$_1$ brother.'

Lechner (1998), Romero (1998), and Fox (1999) argue that higher-type traces do not allow for pronominal-binding reconstruction and that such reconstruction must therefore be the result of higher-copy neglect. In a nutshell, this restriction follows from the standard assumption that variables can only be bound by operators whose scope (i.e. c-command domain) they are in at LF. When using a higher-type trace, the scrambled element is in its landing site at LF, so a pronoun inside of it cannot be bound by an operator crossed by the movement, as schematized in (51).

(51) *LF of (50) with higher-type traces ⇝ No bound reading*
[**her** brother] [$\lambda \mathcal{Q}_{\langle et,t \rangle}$ [[**every girl**] thinks [that K. K. will marry $\mathcal{Q}$]]]

This restriction entails that (50) must involve higher-copy neglect, as schematized in (52). By interpreting only the lower copy, the pronoun is within the scope of the quantificational matrix subject at LF, so that it may bind the pronoun. (We assume that the matrix subject undergoes a step of short movement, which binds both the trace and the pronoun, following Heim and Kratzer 1998.)

(52) *LF of (50) with higher-copy neglect ⇝ Bound reading possible*
~~[her brother]~~ [**every girl**] [λx_e [x thinks [that K. K. will marry [**her**$_x$ brother]]]]

Against this backdrop, our account makes an immediate prediction: if reconstruction for pronominal binding requires higher-copy neglect, then it should induce Condition C connectivity. Fox (1999) shows that this prediction holds in English (data not included for reasons of space). As (53) demonstrates, this prediction is borne out in Hindi as well (Rajesh Bhatt, p.c.). In (53a), the $\overline{\text{A}}$-scrambled DP contains a bound pronoun (*us-ne* 'he-ERG') and an R-expression (*Sita-ko* 'Sita-DAT'). The $\overline{\text{A}}$-scrambling step crosses (i) a DP that binds the pronoun (*har laṛke-ko* 'every boy-DAT') and (ii) a pronoun that is coindexed with the R-expression (*us-ne* 'she-ERG'). The resulting structure is illformed. (53b) provides the relevant control structure, in which the positions of the R-expression and the coindexed pronoun have been swapped, so that Condition C is no longer at stake. The resulting structure is wellformed, demonstrating that the illformedness of (53a) is indeed the result of a Condition C violation.

(53) *Pronominal-binding reconstruction induces Condition C connectivity*

a. * [$_{DP}$ vo paper jo **us-ne**$_1$ $\boxed{\text{Sita-ko}_2}$ diyaa thaa]$_3$ $\boxed{\text{us-ne}_2}$ kahaa
that paper REL he-ERG Sita-DAT gave AUX she-ERG said

[$_{CP}$ ki **har laṛke-ko**$_1$ ___$_3$ sudhaarnaa caahiye]
that every boy-DAT improve should

Intended: 'She$_1$ said that every boy x should improve the paper that x had given Sita$_1$.'

b. [$_{DP}$ vo paper jo **us-ne**$_1$ $\boxed{\text{us-ko}_2}$ diyaa thaa]$_3$ $\boxed{\text{Sita-ne}_2}$ kahaa
that paper REL he-ERG she-DAT gave AUX Sita-ERG said

[$_{CP}$ ki **har laṛke-ko**$_1$ ___$_3$ sudhaarnaa caahiye]
that every boy-DAT improve should

'Sita$_1$ said that every boy x should improve the paper that x had given her$_1$.'

The contrast in (53) is readily explained if (i) only higher-copy neglect may achieve pronominal-binding reconstruction and (ii) this procedure gives rise to Condition C connectivity, as argued in section 4. Thus, in (53a), binding of the DP-internal pronoun requires interpreting the lower copy of the DP, which results in a Condition C violation. Interpreting the $\bar{\text{A}}$-scrambling via a higher-type trace is possible in (53a), but it is unable to produce a bound reading of the pronoun. Removing Condition C as a factor, as in (53b), permits higher-copy neglect and hence a bound reading of the pronoun.

5.2 Weak crossover

In this section, we briefly demonstrate that our analysis sheds light on another interpretive difference between A-scrambling and $\bar{\text{A}}$-scrambling. As Déprez (1989), Mahajan (1990, 1994), Gurtu (1992), and others have shown, local scrambling in Hindi is not subject to weak crossover and hence is able to feed pronominal binding from the landing site of movement (54a). By contrast, LDS displays weak crossover effects (54b).

(54) a. *Local scrambling: No weak crossover effects*
har laṛke-ko$_1$ [**uskii**$_1$ bahin-ne] ___$_1$ dekhaa
every boy-ACC his sister-ERG saw
'For every boy x, x's sister saw x.'

b. *Long scrambling: Weak crossover effects*
har laṛke-ko$_1$ [**uskii**$_{2/*1}$ bahin-ne] socaa [$_{CP}$ ki Ram-ne ___$_1$
every boy-ACC his sister-ERG thought that Ram-ERG

dekhaa]
saw

'His$_2$ sister thought that Ram saw every boy$_1$.' (*bound reading impossible*)

While we are unable to do justice to the rich and varied literature on crossover phenomena within the scope of this paper, the proposal advanced in section 4 provides a straightforward explanation for the contrast in (54), on the standard assumption that pronouns range over individuals (see e.g. Sauerland 1998, Ruys 2000). Let us first consider LDS, as in (54b). Because LDS in Hindi is invariably $\overline{\text{A}}$-scrambling, it must be interpreted via either higher-copy neglect or a higher-type trace (see (36)). If pronouns are of type *e*, then neither interpretive option allows binding of a pronoun from the landing site of movement. First, with higher-type traces, the λ-operator binding the trace is of type $\langle et,t\rangle$, but the pronoun is of type *e*. The λ-operator cannot bind the pronoun because their semantic types do not match (55). The resulting LF is wellformed, but lacks a bound reading of the pronoun.

(55) *LF of $\overline{\text{A}}$-scrambling (54b) with higher-type traces ⇝ No bound reading*

$$[\text{ every boy }]\ [\ \lambda\mathcal{Q}_{\langle et,t\rangle}\ [\ \textbf{his}_e \text{ sister thought } [\text{ that Ram saw } \mathcal{Q}\ ]\,]\,]$$

Second, with higher-copy neglect, only the lower copy of the moved DP is interpreted. As this copy does not c-command the pronoun, binding is impossible (56).

(56) *LF of $\overline{\text{A}}$-scrambling (54b) with higher-copy neglect ⇝ No bound reading*
~~[every boy]~~ [**his** sister thought [that Ram saw [**every boy**]]]

The fact that neither interpretive mechanism allows the moved DP to bind a pronoun from its landing site derives the observation that $\overline{\text{A}}$-scrambling in Hindi—and hence LDS—is subject to weak crossover. Crucially, this follows from the independently motivated semantic interpretation of $\overline{\text{A}}$-scrambling from section 4.

Compare LDS to local scrambling, which is not subject to weak crossover (54a). Because local scrambling can be A-scrambling, it is possible to interpret it with a trace of type *e* (see (37)), as motivated by the ability of a locally scrambled DP to take scope in its landing site. A second consequence of the type-*e* trace is that the λ-operator that binds this trace can additionally bind pronouns, as their semantic types match; this is shown in (57).

(57) *LF of A-scrambling (54a) with a type-e trace ⇝ Bound reading possible*

$$[\text{ every boy }]\ [\ \lambda x_e\ [\ \textbf{his}_e \text{ sister saw } x\ ]\,]$$

It follows then that A-scrambling allows binding of a pronoun, but $\overline{\text{A}}$-scrambling does not. Due to the clauseboundedness of A-scrambling, LDS is necessarily $\overline{\text{A}}$-scrambling, and hence is unable to bind pronouns. In this way, our account derives the crossover asymmetry between the two scrambling types from the independently observable scopal differences between them. To the extent that this extension to crossover is on the right track, it provides support for the view that crossover phenomena reduce to properties of quantificational scope (Ruys 2000).[28]

6 The typology of traces and reconstruction

Despite the coexistence of two independent reconstruction mechanisms in our model, the model nonetheless imposes systematic restrictions on possible reconstruction profiles. For example, because reconstruction for referential opacity and pronominal binding can only be achieved through higher-copy neglect, the model predicts that such reconstruction effects should always induce Condition C connectivity, unlike reconstruction for quantifier scope. Furthermore, because higher-copy neglect gives rise to scope reconstruction, the model also predicts that any movement type that allows for reconstruction for referential opacity or pronominal binding—and therefore must have access to higher-copy neglect—should also permit scope reconstruction.

Within these restrictions imposed by the model, there is variability. Our model involves three mechanisms for interpreting movement dependencies: (i) type-e traces, (ii) type-$\langle et,t\rangle$ traces, and (iii) higher-copy neglect. We have proposed that movement types have access to a *subset* of these mechanisms. If we assume that all combinatorial options are in fact possible, the model predicts 2^3 interpretive profiles, which are listed in (58). (We focus here on movement of DPs; we discuss predicate movement below.)

[28] Incidentally, the line of reasoning that underlies this account is similar to the choice-function account of weak crossover (Sauerland 1998, Ruys 2000). According to the choice-function account, $\overline{\text{A}}$-movement is interpreted as abstraction over choice functions. Being of type $\langle et,e\rangle$, a λ-operator binding a choice-function variable cannot also bind a pronoun of type e; this yields weak crossover. On this account, the LF representation of the example in (54b) would be as in (i):

(i) [every [$\lambda f^{\text{CH}}_{\langle et,e\rangle}$ [**his**$_e$ sister thought [that Ram saw [$_{\text{DP}}$ $f^{\text{CH}}(\text{boy})$]]]]] *(no bound reading)*

The choice-function account shares with our proposal the intuition that $\overline{\text{A}}$-movement cannot lead to pronominal binding because it involves abstraction over a variable of a semantic type that is different from the semantic type of pronouns. Yet the two accounts are neither equivalent nor interchangeable. In particular, the choice-function account of crossover does not extend to Hindi because on a choice-function account, the quantification over the choice-function variable applies in the *landing* site of movement, entailing that quantifier scope is determined in this position. Thus, (i) would predict that $\overline{\text{A}}$-scrambling is able to extend scope. This is not the case, as we have seen throughout this paper. We conclude, therefore, that $\overline{\text{A}}$-scrambling in Hindi cannot be interpreted via choice functions. This conclusion, of course, does not imply that there are no instances of crossover that can be successfully handled by the choice-function account. One movement type that appears to fit the predictions of a choice-function account is QR, as it extends scope but at the same time does not feed pronominal binding.

(58)

	type-*e* trace	type-$\langle et, t\rangle$ trace	neglect	
(A)	✗	✗	✗	(*incoherent*)
(B)	✓	✓	✓	English *wh*-movement (Lechner), Hindi local scrambling
(C)	✓	✓	✗	German superlocal scrambling
(D)	✓	✗	✓	English *wh*-movement (Romero, Fox)
(E)	✓	✗	✗	Hindi superlocal scrambling
(F)	✗	✓	✓	Hindi long scrambling
(G)	✗	✓	✗	
(H)	✗	✗	✓	

Let us consider the reconstruction profiles in (58) in turn. Row (A) would correspond to a movement type that cannot be interpreted in any of the three ways. We assume that such a movement type is ruled out simply because the structure that it creates would be semantically uninterpretable. This leaves the seven combinations in rows (B)–(H).

Row (B) corresponds to a movement type with access to all three interpretive mechanisms. Such a movement type is instantiated by English *wh*-movement as characterized by Lechner (2013, 2019) (following Sharvit 1998). This movement type allows wide scope in the landing site of movement, implicating a type-*e* trace; it allows for referential-opacity reconstruction, implicating higher-copy neglect; and it dissociates scope reconstruction from Condition C, implicating a type-$\langle et, t\rangle$ trace.[29]

Row (C) is plausibly exemplified by what we will call "superlocal" scrambling in German: scrambling of a direct object over an indirect object but not over the subject (Lechner 1998, 2019). Lechner shows that superlocal scrambling may reconstruct for scope (59a), but not pronominal binding (59b) (though see Wurmbrand 2008 and Bobaljik and Wurmbrand 2012 for some qualifications). He proposes that this asymmetry follows if superlocal scrambling has access to a type-$\langle et, t\rangle$ trace, but not to higher-copy neglect.

(59) a. *German superlocal scrambling: Scope reconstruction*

dass sie [mindestens einen Gast]$_1$ [fast jedem Freund]
that she.NOM at.least one guest.ACC almost every friend.DAT

___$_1$ mit Freude vorgestellt hat
with joy introduced has

'that she introduced at least one guest to almost every friend with joy'

(at least one ≫ almost every; almost every ≫ at least one)

[29] Hindi local scrambling descriptively exhibits the same constellation of properties, though we have not included all of the data here for reasons of space (see Mahajan 1990). Under our analysis, local scrambling is not a discrete movement type in Hindi, but rather is ambiguous between A-scrambling and $\overline{\text{A}}$-scrambling—rows (E) and (F) respectively—and so has access to all the options in row (B).

b. *German superlocal scrambling: No pronominal-binding reconstruction*

*weil die Maria [**sein**$_1$ Geschenk]$_2$ **jedem**$_1$ ___$_2$ überreicht hat
because the Maria.NOM his present.ACC everyone.DAT given has
'because Maria gave his present to everyone' [Lechner 1998:286, 297]

It is also clear that German superlocal scrambling has access to a type-*e* trace, because it may extend scope (59a) and feed pronominal binding (60), thereby obviating WCO.

(60) *German superlocal scrambling: No weak crossover effects*

a. *weil ich [**seiner**$_1$ neuen Sekretärin] [**jeden Professor**]$_1$ vorstellte
because I.NOM his new secretary.DAT every professor.ACC introduced

b. weil ich [**jeden Professor**]$_1$ [**seiner**$_1$ neuen Sekretärin] ___$_1$ vorstellte
because I.NOM every professor.ACC his new secretary.DAT introduced
'because I introduced every professor to his new secretary' [Frey 1993:82–83]

Note that it is not possible to assess German superlocal scrambling for Condition C connectivity, because there is an independent constraint in German forcing pronouns to precede full DPs in the middlefield (Lechner 2019:131). Moreover, referential-opacity reconstruction cannot be tested for superlocal scrambling more generally: because it is a very short movement step, there are no intensional operators that it may cross.

Row (D) corresponds to the properties of English *wh*-movement as characterized by Romero (1997, 1998) and Fox (1999): both scope extension and scope reconstruction are possible, but scope reconstruction induces Condition C connectivity. We return to the conflicting characterizations of English *wh*-movement below.

Row (E) is exemplified by superlocal scrambling in Hindi (i.e. scrambling of a direct object over an indirect object, but to the right of the subject; see Bhatt 2016 for an overview). Hindi superlocal scrambling extends scope (61), but it does not permit scope reconstruction (62).[30] Because both type-$\langle et, t\rangle$ traces and higher-copy neglect result in scope reconstruction, both must be unavailable. Only type-*e* traces are available then—hence the scope extension.

[30] Mahajan (2017:427) claims that there is a scope ambiguity with Hindi superlocal scrambling. His example, however, involves scrambling a universal over an existential: *Kabiir har bhajan kisii aadmii-ko sunaaegaa* 'Kabir every prayer some person-DAT will.recite'. Because any situation verifying $\exists \gg \forall$ also verifies $\forall \gg \exists$, one cannot diagnose an ambiguity in scope from this configuration (for discussion of this kind of issue, see Ruys 2002). In other words, the sentence may only have surface scope. The sentence in (62) does not face this entailment issue and shows that this is indeed the case: Hindi superlocal scrambling only yields surface scope.

(61) *Hindi superlocal scrambling: Extends scope*

a. Ram-ne [kisii chaatr-ko] [har kitaab] dii
Ram-ERG some student-DAT every book gave
'Ram gave some student every book.' ($\exists \gg \forall$; $*\forall \gg \exists$)

b. Ram-ne [har kitaab]$_1$ [kisii chaatr-ko] ___$_1$ dii
Ram-ERG every book some student-DAT gave
'Ram gave every book to some student.' ($\forall \gg \exists$)

(62) *Hindi superlocal scrambling: No scope reconstruction*
Ram-ne [koii kitaab]$_1$ [har chaatr-ko] ___$_1$ dii
Ram-ERG some book every student-DAT gave
'Ram gave some book to every student.' ($\exists \gg \forall$; $*\forall \gg \exists$)

If higher-copy neglect is unavailable, then pronominal-binding reconstruction should be unavailable as well. As (63) shows, this prediction is borne out.

(63) *Hindi superlocal scrambling: No pronominal-binding reconstruction*

a. unhõ-ne [**har** **mããa-ko**]$_1$ [**uskaa**$_1$ laṛkaa] lautaayaa
they-ERG every mother-DAT their son returned
They returned their$_1$ son to every mother$_1$.'

b. *unhõ-ne [**uskaa**$_1$ laṛkaa]$_2$ [**har** **mããa-ko**]$_1$ ___$_2$ lautaayaa
they-ERG their son every mother-DAT returned

According to Bhatt and Anagnostopoulou (1996:16), Hindi superlocal scrambling also obviates Condition C violations, though their test configurations differ from ours (see (8)), which deserves followup in future research.

Row (F) corresponds to Hindi long scrambling, as argued at length in this paper.

The remaining two rows are not currently attested, as far as we know. Row (G)—only type-$\langle et, t\rangle$ traces—would correspond to a movement type that obligatorily reconstructs for scope without incurring Condition C connectivity, but does not allow reconstruction for referential opacity or pronominal binding.[31] Row (H)—only higher-copy neglect—would correspond to a movement type that obligatorily reconstructs for scope and allows reconstruction for pronominal binding and referential opacity (though does not require it). It would also

[31] Interestingly, row (G) corresponds to what Dawson and Deal (2019) propose for prolepsis in Tiwa (Tibeto-Burman; India). Proleptic objects can take narrow scope in the embedded clause, but cannot be interpreted opaquely with respect to the embedding predicate. Dawson and Deal analyze this pattern in terms of a bound generalized-quantifier pronoun. This is akin to a trace, but they importantly show that the proleptic dependency in Tiwa does not involve movement (e.g. it is not sensitive to islands). For another application of higher-type variables to a base-generation dependency, see Cecchetto (2001) on clitic left-dislocation of PPs in Italian (though he argues that all movement exhibits Q→C, which we have argued against). These proposals raise the question of whether modes of interpreting movement are utilized elsewhere in the grammar for *non*movement dependencies—in which case they would belong in the typology in (58)—, but we leave this question for future research.

always exhibit Condition C connectivity, and so in a Condition C configuration, it would be ungrammatical irrespective of the interpretation. Moreover, with no access to a type-*e* trace, both movement types described in (G) and (H) would not obviate WCO.

We note that the sample of languages and movement types that the existing reconstruction literature is based on is quite limited. It is striking though that even within the very limited sample size of English, German, and Hindi, there is such variability: five out of the seven patterns predicted by the model. At the same time, the current absence of movement types that instantiate rows (G) and (H) is difficult to interpret given this small sample size, and so we are hesitant to draw any conclusions from this absence. A more comprehensive evaluation of (58) thus calls for expanding the empirical basis, in particular for carrying out careful investigation of reconstruction profiles in a greater range of languages. We hope that our investigation of the reconstruction profile of Hindi long scrambling may serve as a model for such future work.

If the typology in (58) is on the right track, there are two immediate consequences. First, there is no default, always-available interpretive mechanism—contra Ruys' (2015) *Condition on Trace Typing*, which always permits a type-*e* trace. Second, the attested variability demonstrates the need for an articulated theory of reconstruction mechanisms. It is difficult to see, for instance, how any theory that recognizes only a single reconstruction mechanism or a binary A/$\overline{\text{A}}$-distinction in reconstruction profiles would be able to accommodate the attested patterns. By postulating several interpretive mechanisms that may or may not be available for any given movement type, the theory developed here promises a more comprehensive analysis of reconstruction phenomena across a range of languages and movement types.

We have focused thus far on the combinatorial typology predicted by our model if otherwise left unconstrained. An important next question is whether there are further constraints on the availability of interpretive mechanisms for any given movement type in any given language. In other words, is it possible to predict the interpretive mechanisms available to a given movement type from other properties of the movement type or the language? This question, while important, falls outside the scope of this paper.[32] It is also, we think, somewhat premature, given the empirical limitations discussed above, again highlighting the importance of establishing a broader empirical base of reconstruction effects.

The typology in (58) also invites us to reconsider the relationship between the conflicting generalizations about English *wh*-movement presented by Romero (1997, 1998) and Fox (1999) on the one hand (as obeying Q→C) and by Sharvit (1998) and Lechner (2013, 2019) on the other (as obeying I→C). Because our model can produce both patterns—rows (D) and (B) respectively—, it is possible, in principle, that both reconstruction profiles coexist and that the two generalizations are simply based on speakers with distinct grammars. This view would not affect the core argument in this paper: it is still the case that any theory of

[32] Wurmbrand (2008) and Bobaljik and Wurmbrand (2012) propose that neglect is only available to movement types that occur for some reason other than shifting scope—for example, for information structure or to avoid an expletive. We note that this proposal is very susceptible to backward-engineering of the "reasons", and so it is not clear to us what predictions it makes. Moreover, Poole (to appear:7–11) observes that there are movement types that occur for reasons other than scope-shifting, but which nevertheless disallow scope reconstruction; such cases are problematic for their proposal.

reconstruction that has Q→C as a necessary consequence is empirically too restrictive as a general theory of reconstruction (see section 4.1).

Alternatively, it is possible that I→C is in fact the correct generalization for English *wh*-movement for all speakers, and that Romero's and Fox's failure to observe it stems from the fact that their examples did not control for intensionality. In this case, we predict that once intensionality is controlled for, a reconstructed-scope, transparent reading becomes possible. Consider again Romero's (1998) original example in (10), repeated here as (64), which we have supplemented with a scenario that enforces a transparent interpretation of the moved DP. In this scenario, the English speakers we have consulted accept the sentence with a reconstructed-scope reading, though the judgement is subtle.

(64) *Context:* John is picking out pictures to suggest to the editor for the Sunday Special. Unbeknownst to him, the pictures are the pictures that he himself took in Sarajevo. He intends to suggest 20 pictures in total, but has so far only picked out 10 of these 20.

[How many pictures $[_{\text{RC}}$ that **John**$_2$ took in Sarajevo] $]_1$ does **he**$_2$ *want* the editor to publish ___$_1$ in the Sunday Special?

Answer: 20 (reconstructed scope, transparent)

It is conceivable that reconstruction for scope preferentially coincides with reconstruction for referential opacity (plausibly as a parsing principle), and that as a result, scope reconstruction is degraded in cases where reconstruction for referential opacity is blocked, as in Condition C configurations. This is consistent with (64), where intensionality is controlled for, bringing to the fore the otherwise dispreferred reconstructed-scope interpretation. If this line of reasoning is on the right track, it resolves the apparent contradiction noted in section 2, and it reconciles Romero's (1997, 1998) and Fox's (1999) evidence with I→C. We leave it up to future research to decide between these two approaches to the conflicting generalizations about English *wh*-movement.

Finally, we have focused on movement of nominals (i.e. DPs), but there are also movement types that target predicates (e.g. VPs, APs). Under the typology in (58), predicate movement would have to be interpreted via higher-copy neglect. Because predicates are of type $\langle s,t\rangle$ (or type $\langle e,st\rangle$ if not assuming predicate-internal subjects), they cannot be represented by traces of type e or $\langle et,t\rangle$ (or intensional variants thereof). Such an analysis of predicate movement is supported by the fact that predicate movement (in English) exhibits robust Condition C effects (Barss 1986, Huang 1993, Heycock 1995, Takano 1995). We think that the restriction on higher-type traces blocking referential-opacity reconstruction (see section 4.2.1) would likewise block type-$\langle s,t\rangle$ traces, though we leave exploring this issue to future research.

7 Summary and consequences

In this paper, we have offered an assessment of two longstanding but conflicting empirical generalizations about reconstruction effects, through the lens of scrambling in Hindi. One generalization, Q→C, claims that Condition C connectivity correlates with scope reconstruction (Romero 1997, 1998, Fox 1999). The other generalization, I→C, claims instead that Condition C connectivity correlates with referential-opacity reconstruction (Sharvit 1998, Lechner 2013, 2019). Based on novel evidence from Hindi, we have argued that Q→C does not represent a valid universal characterization of reconstruction effects, but that I→C plausibly does: Condition C correlates with reconstruction for referential opacity, not with reconstruction for scope.

We then explored the consequences of this finding for the mechanisms that underlie reconstruction. We argued that any account with Q→C as a consequence is empirically too restrictive. This conclusion challenges purely syntactic accounts of reconstruction that treat all reconstruction effects as the result of neglecting the higher copy (e.g. Romero 1997, 1998, Fox 1999, Sportiche 2016, Poole 2017, to appear). It also casts doubt on the purely semantic accounts of reconstruction in Sternefeld (2001) and Ruys (2015) that employ enriched higher-type traces to derive Q→C. We instead proposed that the Hindi reconstruction facts provide evidence that higher-copy neglect and higher-type traces coexist as complementary mechanisms of reconstruction, giving novel support for Lechner's (1998, 2013, 2019) independently motivated hybrid model of reconstruction. We showed how together (i) the interaction of higher-copy neglect and higher-type traces and (ii) the restrictions on these two mechanisms derive the intricate Hindi reconstruction facts, viz. I→C.

The key consequence of our proposal is that some but not all reconstruction effects are syntactic—that is, amount to interpreting the lower copy at LF; other reconstruction effects are purely semantic. The remainder of this paper is devoted to discussing several consequences and issues that emerge from our proposal: the need for LF, reconstruction effects (counter)bleeding binding, the Trace Interpretation Constraint, and Trace Conversion.

7.1 The status of LF

The debate about whether reconstruction effects are syntactic or semantic in nature often features in the debate about whether or not it is necessary to posit Logical Form (LF), a level of syntactic representation distinct from surface structure that serves as the input to the semantic computation (e.g. Fox 1999, Jacobson 2002, 2004). Concerning this topic, we make two points: First, LF is necessary if we want to systematically account for how Condition C connectivity applies to (some but not all) reconstruction effects—some amount of copy neglect is needed. Approaches like Direct Compositionality, which do not posit LF, are thus inadequate. Second, at the same time, not all quantifier scope relations map onto c-command relations at LF. Higher-type traces allow a DP to scope below another scope-bearing element that it c-commands at LF. This state of affairs is, in some sense, a middle ground between what proponents and opponents of LF advocate for.

7.2 Reconstruction (counter)bleeding binding

The empirical focus of this paper has been on binding-theoretic connectivity bleeding and counterbleeding reconstruction effects. There is another side to this puzzle though, namely the inverse: reconstruction effects bleeding and counterbleeding (surface) binding possibilities.[33] Chomsky (1993, 1995) observes that in English, an anaphor in a moved *wh*-phrase can be evaluated for Condition A in the landing site of movement, so that it is bound by the matrix subject (65b). This interpretation is unavailable if the *wh*-phrase remains in situ (65a). However, as shown in (65c), when the *wh*-phrase must reconstruct for an idiomatic interpretation, binding by the matrix subject is no longer available. In other words, reconstruction for idiomatic interpretation bleeds anaphora binding in the landing site of movement.

(65) a. John$_1$ wondered [who$_2$ [___ saw [which picture of **himself**$_{*1/2}$]]].

b. John$_1$ wondered [[which picture of **himself**$_{1/2}$] [Bill$_2$ saw ___]].

c. John$_1$ wondered [[which picture of **himself**$_{*1/2}$] [Bill$_2$ *took* ___]].

(where *take picture* means 'photograph')

[Chomsky 1995:188–189]

Chomsky argues that the idiomatic interpretation in (65c) involves neglecting the higher copy, so that *himself* is not in a position at LF where it can be bound by *John*. This analysis is compatible with the hybrid model of reconstruction from section 4 if we assume that higher-type traces do not yield reconstruction for idiomatic interpretation. This predicts though that reconstruction effects that can be achieved with higher-type traces—under our proposal, only scope reconstruction—should *not* bleed surface binding possibilities.[34]

Crucially, to assess this prediction, the movement type in question must independently feed anaphora binding, like in (65b). Unfortunately, Hindi scrambling does not have this property; as shown in (66), scrambling a DP containing an anaphor does not change binding possibilities. Thus, Hindi does not bear on this prediction. (Note: The anaphor *apnii* in (66) can marginally be bound by *Anu* with a logophoric interpretation, but this reading is available irrespective of scrambling.)

[33] Thanks to a reviewer for drawing our attention to this angle of the puzzle.

[34] This prediction is tough to test with scope reconstruction in English. Because the *wh*-phrase lands below an attitude predicate in configurations like (65b), testing its scope with respect to an attitude predicate that is crossed by movement—similar to (10)—is difficult (if not impossible). Another way to test scope reconstruction is as in (i), where the *wh*-phrase may scope below *every woman* to yield a pair-list reading.

(i) a. John wondered [[how many pictures] every woman liked ___].

b. John$_1$ wondered [[how many pictures of himself$_1$] every woman liked ___].

It is not obvious that the pair-list reading in (i) can be achieved with higher-type traces (e.g. it may involve a bound pronoun). However, if we assume that it can be, the prediction is that binding of *himself* by *John* should be possible with a pair-list reading in (i.b). The judgement here is unclear to us. (A non–pair-list reading of (i.b) is, of course, possible.)

(66) Anu-ne$_1$ socaa [$_{CP}$ [**apnii**$_{*1/2}$ kaunsii behin-ko] Ram-ne$_2$ ___ dekhaa
Anu-ERG thought SELF which sister-ACC Ram-ERG saw
thaa]
AUX
'Anu wondered which of his sisters Ram had seen'

7.3 Trace Interpretation Constraint

Poole (2017, to appear) proposes a general ban on higher-type traces (his *Trace Interpretation Constraint*): movement may either reconstruct (via higher-copy neglect) or be interpreted with an individual-type trace (see also Chierchia 1984, Landman 2006). This proposal is at odds with our arguments in favor of higher-type traces in Hindi. We leave reconciling these two proposals for future research. However, we would like to highlight what we believe to be a substantive difference between the kinds of evidence considered in this paper and in Poole (2017, to appear): the empirical arguments for Poole's constraint do not involve Condition C connectivity, but rather involve instances where reconstruction is blocked or is obligatory. This difference might represent a path towards reconciling these two conflicting proposals.

7.4 Trace Conversion

Throughout this paper, we have assumed that traces are simplex variables, but a substantial body of work has advanced the hypothesis that traces are in fact bound definite descriptions, commonly known as *Trace Conversion* (Engdahl 1980, 1986, Sauerland 1998, 2004, Fox 1999, 2002, 2003, Poole to appear). The issue of whether traces are simplex or definite descriptions is largely orthogonal to considerations of what semantic types a trace can be. It is in principle possible for bound definite descriptions to be of higher semantic types.

As a proof of concept, (67) sketches a variant of *the* that Trace Conversion could substitute in for the lower copy's determiner in order to produce a generalized-quantifier trace ($\langle et, t\rangle$).[35]

[35] Lechner (2019:135–137) proposes a variant of Trace Conversion that produces generalized-quantifier traces (notation modified to be in line with (67), for the sake of comparison):

(i) $[\![\text{the}_n]\!]^g = \iota\mathcal{Q}_{\langle et,t\rangle}[\mathcal{Q} = [\lambda \mathrm{P}_{\langle e,t\rangle} \,.\, \mathrm{P} = [\lambda x_e \,.\, x = g(n)]]]$

Note that for Lechner, generalized-quantifier traces involve a lower copy with no NP—that is, just a bare *the*. The NP is late-merged onto a higher copy (à la Takahashi and Hulsey 2009). This difference between (67) and (i) does not affect the discussion at hand.

According to the semantic types in (i), $g(n)$ must be of type e, and hence the λ-operator–variable relationship must be over type e as well. Effectively then, (i) produces type-e traces that are (locally) type-shifted to type $\langle et, t\rangle$. Consequently, (i) does not produce scope reconstruction as intended. This is demonstrated in the derivation in (ii) (cf. (68)), where Op stands for some scope-bearing operator.

(ii) LF: [every cat]$_1$ [λ_1 [Op [the$_1$ sleep]]]

a. $[\![\text{the}_1 \text{ sleep}]\!]^g = [\![\text{the}_1]\!]^g([\![\text{sleep}]\!]^g)$
$= [\iota\mathcal{Q}_{\langle et,t\rangle}[\mathcal{Q} = [\lambda \mathrm{P}_{\langle e,t\rangle} \,.\, \mathrm{P} = [\lambda x_e \,.\, x = g(1)]]]](\lambda x_e \,.\, x \text{ sleeps})$
$= [\lambda \mathrm{P}_{\langle e,t\rangle} \,.\, \mathrm{P} = [\lambda x_e \,.\, x = g(1)]](\lambda x_e \,.\, x \text{ sleeps})$ (via $\iota x[x = y] = y$)
$= [\lambda x_e \,.\, x \text{ sleeps}] = [\lambda x_e \,.\, x = g(1)]$

For the sake of simplicity, (67) encodes the variable in the definite determiner itself and sets aside the definite's presupposition. A sample derivation is given in (68), where Op stands for some scope-bearing operator (e.g. a modal).

(67) $[\![\text{the}_n]\!]^g = \lambda \mathrm{P}_{\langle e,t\rangle}\, \lambda \mathrm{R}_{\langle e,t\rangle}\, .\, [\iota \mathcal{Q}_{\langle et,t\rangle}[\mathcal{Q}(\mathrm{P}) \wedge \mathcal{Q} = g(n)]](\mathrm{R})$

(68) LF: [every cat]$_1$ [λ_1 [Op [[the$_1$ cat] sleep]]]

a. $[\![\text{the}_1 \text{ cat sleep}]\!]^g = [\![\text{the}_1 \text{ cat}]\!]^g([\![\text{sleep}]\!]^g)$
$= [\lambda \mathrm{R}_{\langle e,t\rangle}\, .\, [\iota \mathcal{Q}_{\langle et,t\rangle}[\mathcal{Q}(\lambda x_e\, .\, x \text{ is a cat}) \wedge \mathcal{Q} = g(1)]](\mathrm{R})](\lambda x_e\, .\, x \text{ sleeps})$
$= [\iota \mathcal{Q}_{\langle et,t\rangle}[\mathcal{Q}(\lambda x_e\, .\, x \text{ is a cat}) \wedge \mathcal{Q} = g(1)]](\lambda x_e\, .\, x \text{ sleeps})$

b. $[\![\text{Op [the}_1 \text{ cat sleep]}]\!]^g$
$= \mathrm{Op}([\iota \mathcal{Q}_{\langle et,t\rangle}[\mathcal{Q}(\lambda x_e\, .\, x \text{ is a cat}) \wedge \mathcal{Q} = g(1)]](\lambda x_e\, .\, x \text{ sleeps}))$

c. $[\![\lambda_1 \text{ [Op [the}_1 \text{ cat sleep]]}]\!]^g$
$= \lambda \mathcal{P}_{\langle et,t\rangle}\, .\, \mathrm{Op}([\iota \mathcal{Q}_{\langle et,t\rangle}[\mathcal{Q}(\lambda x_e\, .\, x \text{ is a cat}) \wedge \mathcal{Q} = \mathcal{P}]](\lambda x_e\, .\, x \text{ sleeps}))$

d. $[\![\text{[every cat] } \lambda_1 \text{ [Op [the}_1 \text{ cat sleep]]}]\!]^g = [\![\text{(68c)}]\!]^g([\![\text{every cat}]\!]^g)$
$= \mathrm{Op}([\iota \mathcal{Q}_{\langle et,t\rangle}[\mathcal{Q}(\lambda x_e\, .\, x \text{ is a cat}) \wedge \mathcal{Q} = [\![\text{every cat}]\!]^g]](\lambda x_e\, .\, x \text{ sleeps}))$
[*Note:* $[\![\textit{every cat}]\!](\lambda x_e\, .\, x \textit{ is a cat})$ *is always true, so* $\iota\mathcal{Q}$ *returns* $[\![\textit{every cat}]\!]$.]
$= \mathrm{Op}([\![\text{every cat}]\!]^g(\lambda x_e\, .\, x \text{ sleeps}))$
$= \mathrm{Op}(\forall y[y \text{ is a cat} \rightarrow y \text{ sleeps}])$

There are two general issues concerning Trace Conversion and higher-type traces that need to be addressed. The first is that Trace Conversion must be unable to produce reconstruction for referential opacity. In addition to the proposals in section 4.2.1 (see (42)), we need to say something else to block an intensional operator occurring between the two copies from binding the situation pronoun in the lower copy but not the higher copy (since the operator does not c-command the higher one). This restriction presumably follows from the higher and lower copies needing to be evaluated at the same situation. Assuming a Lewisian theory of transworld identity between objects (Lewis 1968, 1986), where no individual exists in multiple possible worlds (i.e. maximal situations), if the higher and lower copies are evaluated with respect to different worlds, then the statement $\mathcal{Q} = g(n)$ in (an intensionalized version of) (67) cannot be satisfied. Thus, both the higher copy and the lower copy must be bound by an intensional operator that has both copies in its scope; that is, it must c-command both copies at LF.

The second issue is more general: Trace Conversion must obviate Condition C violations for relative clauses, irrespective of the semantic type of the trace. On standard assumptions,

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b. $[\![\text{Op [the}_1 \text{ sleep]}]\!]^g = \mathrm{Op}([\lambda x_e\, .\, x \text{ sleeps}] = [\lambda x_e\, .\, x = g(1)])$

c. $[\![\lambda_1 \text{ [Op [the}_1 \text{ sleep]]}]\!]^g = \lambda y_e\, .\, \mathrm{Op}([\lambda x_e\, .\, x \text{ sleeps}] = [\lambda x_e\, .\, x = y])$

d. $[\![\text{[every cat] } \lambda_1 \text{ [Op [the}_1 \text{ sleep]]}]\!]^g = \forall z[z \text{ is a cat} \rightarrow \mathrm{Op}([\lambda x_e\, .\, x \text{ sleeps}] = [\lambda x_e\, .\, x = z])]$

In addition, the meaning that (i) produces is far too strong. For example, (ii) is predicted to be false in a scenario with more than one cat or more than one sleeper (modulo Op). Thanks to Dylan Bumford (p.c.) for discussion of the derivation in (ii).

this property follows from the relative clause late-merging onto the moved element after movement has occurred, so that the lower copy never contains the offending R-expression (Lebeaux 1988, 1990, 2000, 2009, Fox 2002). Late-merge blocks neglecting the higher copy because it would strand the relative clause without a host. As a result, neglecting the higher copy is only possible if the relative clause is first-merged in the lower copy. Therefore, the derivation that allows circumventing Condition C is possible with traces (as definite descriptions), but not with higher-copy neglect. However, alternative explanations of Lebeaux effects (e.g. Sportiche 2016, Poole 2017) are equally compatible with the claims made here.

Acknowledgements

Many thanks to Rajesh Bhatt for extensive help in preparing the data; to Rajesh Bhatt, Bhamati Dash, and Anoop Mahajan for sharing their Hindi judgements; and additionally to Hashmita Agarwal and Sakshi Bhatia for discussion of the data. We are indebted to Amy Rose Deal and Winnie Lechner for helpful discussion and feedback, in addition to Itai Bassi, Rajesh Bhatt, Dylan Bumford, Peter Jenks, Anoop Mahajan, Roumi Pancheva, Gillian Ramchand, Martin Salzmann, Dominique Sportiche, Tom Trigg, Ekaterina Vostrikova, and audiences at NELS 48, GLOW 41, the TerraLing Workshop 2021, UCLA, UC Berkeley, and McGill. Special thanks to the anonymous reviewers for helpful comments.

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