Not all reconstruction effects are syntactic

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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 argue that Hindi-Urdu requires the hybrid approach to reconstruction developed on independent grounds by Lechner (1998, 2013, to appear), where both copy neglection (a syntactic mechanism) and higher-type traces (a semantic mechanism) are available as independent interpretation mechanisms. We show that the interaction of these two modes of reconstruction derives the intricate reconstruction facts in Hindi-Urdu.

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

1 Introduction

Moved elements exhibit RECONSTRUCTION EFFECTS—or more neutrally *connectivity effects*—with their premovement positions (Barss 1986, Kroch 1989, Cinque 1990, Cresti 1995, Heycock 1995, Rullmann 1995, Romero 1997, 1998, Fox 1999, Frampton 1999, Sportiche 2006, 2016, Lebeaux 2009, Poole 2017; amongst many others). That is, moved elements may display behavior that we would expect them to display if they had not moved. 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 expression would have received if it had not moved.

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

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

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

The predominant view of reconstruction effects since the advent of the Copy Theory of Movement (Chomsky 1993, 1995) is that they 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 *neglecting the higher copy*.[1]

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

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

The copy-theoretic view of reconstruction was bolstered by Romero's (1997, 1998) and Fox's (1999) observation that scope reconstruction and Condition C connectivity correlate: 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 3.1). This state of affairs follows straightforwardly from the copy-theoretic view of reconstruction: the moved element is evaluated for Condition C in its launching site because that is where it is located at LF.

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-

[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 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.

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, i.e. when the moved element is interpreted opaquely with respect to an intensional operator that it crosses (also observed for English by Sharvit 1998). This state of affairs does not follow from an all-or-nothing approach to reconstruction, like the copy-theoretic approach. Rather, we argue that Hindi requires the hybrid approach to reconstruction developed on independent grounds by Lechner (1998, 2013, to appear), where both higher-copy neglection (a syntactic mechanism) and higher-type traces (a semantic mechanism) are available as independent interpretation mechanisms. Higher-type traces allow for a moved element to scope in its launching site (Cresti 1995, Rullmann 1995), but through purely semantic means and crucially without inducing Condition C connectivity. We show that the interaction of these two independent modes of reconstruction 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 introducing the reconstruction effects that we examine in this paper and the mechanics behind higher-type traces. In section 3, we discuss the two competing empirical generalizations in the reconstruction literature about the relationship between reconstruction effects and Condition C connectivity. We turn our attention to Hindi in section 4. We argue that Hindi (long) scrambling adjudicates between the two competing generalizations, in particular showing that reconstruction for referential opacity, but not reconstruction for scope correlates with Condition C connectivity. Section 5 develops an analysis of Hindi scrambling under Lechner's (1998, 2013, to appear) 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 6 to reconstruction for pronominal binding and weak crossover in Hindi. Section 7 concludes by discussing several consequences and open questions relating to our proposal.

2 Background on reconstruction

This section provides some background on reconstruction and lays out the terminological and notational conventions employed in this paper. Section 2.1 introduces the different types of reconstruction effects that we consider in this paper and, for illustration, shows how a standard higher-copy neglection account handles them. For consistency, they are all demonstrated using *wh*-movement. Section 2.2 then explains the mechanics of higher-type traces—the other approach to reconstruction—, in particular for deriving scope reconstruction.

We use the term 'reconstruction' in a purely descriptive manner. As such, 'α reconstructs for β' should be understood as 'α is evaluated for β in its premovement position', i.e. the launching site of movement, without any implication about how that evaluation is achieved.

We refer to the traditional sense of reconstruction, i.e. a syntactic operation, as HIGHER-COPY NEGLECTION (following Sportiche 2016).

2.1 Reconstruction effects

2.1.1 *Quantificational scope*

SCOPE RECONSTRUCTION is when a moved quantificational expression takes scope in its launching site, rather than its landing site. To illustrate, let us examine *how many*-questions. In addition to its *wh*-meaning component, *how many* carries existential quantification over entities, and this quantification may vary in scope. As a result, *how many*-questions that involve *how many* moving over another scope-bearing expression give rise to a scope ambiguity (Kroch 1989, Cinque 1990, Cresti 1995, Rullmann 1995, Frampton 1999). Consider the question in (3), where *how many books* moves over the modal *should*.

(3) [**How many books**]$_1$ *should* Alex read ___$_1$ this summer?
(how many ≫ should; should ≫ how many)

There are two possible interpretations of (3), corresponding to whether *how many* scopes above or below *should*.[2] The first reading assumes that there is a certain set of books that Alex should read and asks how many such books there are, as paraphrased in (4). This reading is appropriate in a context where, e.g., Alex has a summer English assignment to read a handful of specific literary classics before the start of the school year. On this reading, *how many* takes scope over *should*, and so the books being asked about are constant across the modal alternatives. Because this scope is reflected in the surface word order, let us refer to this as the *surface-scope reading*.[3]

(4) *Surface-scope reading of (3)* (how many ≫ should)
For what number n: There are n-many (particular) books x such that Alex should read x this summer.

The second reading assumes that there is a particular number of books that Alex should read, without having any particular books in mind, as paraphrased in (5). This reading is appropriate in a context where, e.g., Alex's summer English assignment is to read ten books before the start of the school year, but it does not matter which ten books those are. On this reading, *how many* takes scope below *should*, and so the books being asked about may vary across the modal alternatives. Because this is the scope that *how many* would have if it had not moved, let us refer to this as the *reconstructed-scope reading*.

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[2] In these two readings, the quantity is interpreted *de re*. There is another reading where the quantity is interpreted *de dicto*, e.g. *How many books should Alex read? As many as Taylor reads*. For the sake of simplicity, we do not discuss this reading.

[3] 'Surface scope' should be understood as wide scope with respect to the relevant operator. 'Reconstructed scope' should be understood as narrow scope with respect to the relevant operator.

(5) *Reconstructed-scope reading of (3)* (should $\gg$ how many)
For what number n: It is necessary for there to be n-many books x such that Alex reads x this summer.

The standard analysis of the surface-scope reading in (4)—regardless of whether one adopts higher-copy neglection or higher-type traces—is to interpret the moved element in its landing site and replace the launching site with a variable of semantic type e that is bound by a λ-operator inserted immediately below the landing site of movement (Beck 1996, Heim and Kratzer 1998, Sauerland 1998). We will refer to these λ-bound variables as *traces*. Following Heim and Kratzer (1998), we will assume (i) that the index of the moved element is copied below the moved element at LF—which we notate as λ_n—and (ii) that this copied index is translated into a λ-abstraction over that index via Predicate Abstraction. A simplified semantic derivation of (3), up to the introduction of the question meaning, that follows this procedure is given in (6), abstracting away from intensionality for the sake of illustration.

(6) *Surface-scope derivation of (3)*
LF: Q_n [how$_n$ many books] [λ_1 [should [Alex read t_1]]]

a. $[\![$how$_n$ many books$]\!] = \lambda P_{\langle e,t\rangle} \, . \, \exists x[\#x = n \wedge {}^*\textsc{book}(x) \wedge P(x)]$

b. $[\![$[λ_1 [should [Alex read t_1]]]$]\!] = \lambda y_e \, . \, \textsc{should}(\text{Alex reads } y)$

c. $[\![$how$_n$ many books$]\!]([\![$[λ_1 [should [Alex read t_1]]]$]\!])$
$= \exists x[\#x = n \wedge {}^*\textsc{book}(x) \wedge [\lambda y_e \, . \, \textsc{should}(\text{Alex reads } y)](x)]$
$= \exists x[\#x = n \wedge {}^*\textsc{book}(x) \wedge \textsc{should}(\text{Alex reads } x)]$

How (3) becomes a question is not critical for our purposes. For concreteness, though, we will assume that there is a question operator Q at the top of the structure, which, as part of its meaning, binds a variable introduced by the *wh*-phrase (7) (following Baker 1970 and Rullmann 1995). For the sake of simplicity, we have particularized the Q operator in (7) to *how many*. We will generally represent the variable introduced by the *wh*-phrase directly (i.e. as n), as we do in (6), with the understanding that it is not a free variable, rather than going through the assignment function (i.e. $g(i)$, where i is the index). An advantage of this simple system is that it does not require the *wh*-phrase to be in a particular position at LF, thereby allowing the *wh*-phrase to be in its launching site (via higher-copy neglection) and for *wh*-in-situ, the latter of which is necessary for Hindi. The truth conditions of the surface-scope reading of (3) under these assumptions are given in (8). Again, nothing crucial hinges on these assumptions, and most contemporary theories of question semantics could be readily substituted in.[4]

[4] These compatible theories of question semantics include: Q is actually *how*, which separates from the rest of the *wh*-phrase at LF, so that the two may scope separately (Romero 1998); Q existentially binds the choice function introduced by the *wh*-phrase (Engdahl 1980, 1986, Reinhart 1997); or Q 'catches' the focus alternatives that percolate up from the *wh*-phrase (Beck 2006, Beck and Kim 2006, Cable 2007, 2010, Kotek 2014).

(7) *Simple question operator*
$[\![\mathrm{Q}_i\ \mathrm{CP}]\!]^g = \lambda w_s\, \lambda p_{st}\ .\ \exists n[n \in \mathbb{N} \wedge p = \lambda w'_s\ .\ [\![\mathrm{CP}]\!]^{g[i\rightarrow n]}(w')]$

(8) *Surface-scope truth conditions of (3)*
$[\![(3)]\!](w_0) = \lambda p_{st}\ .\ \exists n[n \in \mathbb{N} \wedge p = \lambda w'_s\ .\ \exists x[\#x = n \wedge {}^{*}\textsc{book}(w')(x)$
$\wedge\ \textsc{should}(w')(\lambda w''_s\ .\ \text{Alex reads } x \text{ in } w'')]]$

Recent work has advanced the hypothesis that traces are not simplex, but rather more articulated, namely *bound definite descriptions* (Sauerland 1998, 2004, Fox 1999, 2002, 2003). This hypothesis is most commonly known under the name *Trace Conversion*, but the idea can be traced back to the seminal work of Engdahl (1980, 1986). For the sake of simplicity, we will continue to represent traces as simplex variables throughout this paper, though nothing crucial hinges on this choice. See section 7.3 for some discussion of the relationship between the proposals in this paper and Trace Conversion.

On a higher-copy neglection account, the reconstructed-scope reading in (5) involves neglecting the higher copy and only interpreting the lower copy at LF. Because LF is the structure that is submitted for interpretation, the moved element ends up taking scope in its launching site, thereby yielding reconstructed scope. The derivation for the reconstructed-scope reading of (3) on a higher-copy neglection account is provided in (9) (following the same simplifications as (6)).

(9) *Reconstructed-scope derivation of (3) with higher-copy neglection*
LF: Q_n ~~[how$_n$ many books]~~ [should [Alex read [how$_n$ many books]]]

a. $[\![\text{how}_n \text{ many books}]\!] = \lambda \mathrm{P}_{\langle e,t\rangle}\ .\ \exists x[\#x = n \wedge {}^{*}\textsc{book}(x) \wedge \mathrm{P}(x)]$

b. $[\![\text{Alex read [how}_n \text{ many books]}]\!] = \exists x[\#x = n \wedge {}^{*}\textsc{book}(x) \wedge \text{Alex reads } x]$

c. $[\![\text{should}]\!]([\![\text{Alex read [how}_n \text{ many books]}]\!])$
$= \textsc{should}\big(\exists x[\#x = n \wedge {}^{*}\textsc{book}(x) \wedge \text{Alex reads } x]\big)$

(10) *Reconstructed-scope truth conditions of (3)*
$[\![(3)]\!](w_0) = \lambda p_{st}\ .\ \exists n[n \in \mathbb{N} \wedge p = \lambda w'_s\ .\ \textsc{should}(w')(\lambda w''_s\ .\ \exists x[\#x = n$
$\wedge {}^{*}\textsc{book}(w'')(x) \wedge \text{Alex reads } x \text{ in } w''])]$

(9) abstracts over the common assumption that generalized quantifiers cannot semantically compose in nonsubject positions because the semantic types do not match. Thus, *how many books* needs to undergo a short step of intermediate movement for type purposes, which is interpreted with a standard type-*e* trace, as schematized in (11). The same movement step is needed in the higher-type trace account as well; see section 2.2. For the sake of readability, we will not depict the intermediate movement step outside of this background section.

(11) *Higher-copy neglection with type-driven intermediate movement*
LF: Q_n ~~[how$_n$ many books]~~ [should [[how$_n$ many books] [λ_1 [Alex read t_1]]]]

Scope reconstruction demonstrates an important tenet (and consequence) of the higher-copy neglection account of reconstruction: there is a one-to-one mapping between semantic scope and syntactic scope (viz. c–command). Thus, if X c–commands Y, then X takes scope over Y in the interpretation. Neglecting copies works by manipulating the syntactic structure that is submitted for interpretation, i.e. the LF, thereby giving rise to reconstruction effects.

2.1.2 *Pronominal binding*

PRONOMINAL-BINDING RECONSTRUCTION is when a moved element contains a pronoun that is bound by another expression that the moved element crosses over (12a).[5] As a pronoun cannot ordinarily be bound by an expression that does not c–command it, it must be the case that the movement dependency is what enables this interpretation. In the case of anaphora, this reconstruction is obligatory (12b).

(12) a. [Which of **their**$_{1/2}$ friends]$_3$ did [*every child*]$_1$ see ___$_3$?

b. [Which picture of **themself**$_{1/*2}$]$_3$ does [*no person*]$_1$ like ___$_3$?

According to higher-copy neglection, reconstruction for pronominal binding is possible because by interpreting only the lower copy, the pronoun is then in the scope (i.e. c–command domain) of its binder, a precondition for the bound interpretation (see e.g. Heim and Kratzer 1998). The LF for the bound interpretation of (12a) on this account is given in (13).

(13) LF: Q$_n$ ~~[which$_n$ of their$_1$ friends]~~ [[every child]$_1$ [see [which$_n$ of their$_1$ friends]]]

2.1.3 *Referential opacity*

REFERENTIAL-OPACITY RECONSTRUCTION is when a moved element is interpreted opaquely with respect to an intensional operator that it crosses over. This reconstruction effect is illustrated in (14), where *which criminal* may be interpreted opaque or transparent to the attitude predicate *want*. On the opaque (*de dicto*) reading, the person who Alex wants to date is a criminal in Alex's bouletic alternatives, but not necessarily in the actual world (i.e. the evaluation world) (14a). On the transparent (*de re*) reading, the person who Alex wants to date is a criminal in the actual world, but not necessarily in Alex's bouletic alternatives (14b).[6]

[5] The result of pronominal-binding reconstruction is typically a functional reading, where the *wh*-phrase ranges over functions (Engdahl 1980, 1986, Heim 2012). For example, a possible answer to (12a) is 'their best friend', a function that takes a child and returns that child's best friend.

[6] It is important to bear in mind with referential-opacity reconstruction (and the *de re*/*de dicto* ambiguity) that depending on Alex's desires, the opaque and transparent readings of (14) could in principle be identical. That is, the referent of *which criminal* could be a criminal in both the actual world and in Alex's bouletic alternatives; in such a context, one cannot detect the difference between (14a) and (14b). In order to detect the ambiguity in (14), Alex needs to be wrong or ignorant about the identity of the referent of *which criminal*.

(14) [**Which criminal**]$_1$ does Alex *want* to date ___$_1$?

a. *Opaque interpretation*
For what x: In all of Alex's bouletic alternatives w' in w_0, Alex dates x in w', where x is a criminal $\underline{\text{in } w'}$.

b. *Transparent interpretation*
For what x: In all of Alex's bouletic alternatives w' in w_0, Alex dates x in w', where x is a criminal $\underline{\text{in } w_0}$.

We will assume the theory of overt situation (or world) pronouns (Percus 2000).[7] This theory has two key ingredients: (i) indexed situation variables, represented in the structure by situation pronouns, and (ii) λ-operators associated with each intensional operator that bind these situation pronouns. Each predicate is associated with a situation pronoun, whose value sets the situation at which the predicate is evaluated. An opaque reading of a DP requires that the situation pronoun of its NP be bound by the λ-operator associated with the relevant intensional operator. This binding in turn requires that the DP be in the scope of that intensional operator.

According to higher-copy neglection, reconstruction for referential opacity is possible for essentially the same reason that reconstruction for pronominal binding is possible: interpreting only the lower copy puts the situation pronoun in the scope of the intensional operator at LF and thus allows it to be bound by the associated λ-operator. The LF of the opaque interpretation of (15) on this account is given in (15).[8]

(15) LF: $\mathrm{Q}_n\ \lambda s_0$ ~~[which$_n$ criminal]~~ [Alex want [$\underline{\underline{\lambda s_1}}$ to date [which$_n$ criminal$_{s_0/\underline{\underline{s_1}}}$]]]

2.2 Higher-type traces

The discussion above showed how neglecting the higher copy is able to derive reconstruction effects. While this line of approach is widely adopted in the literature, there is a second line of approach to reconstruction in terms of HIGHER-TYPE TRACES.[9] This approach maintains that the moved element is invariably interpreted in its landing site, but that the trace position is

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[7] We assume the situation semantics of Kratzer (1989), in order to be consistent with Schwarz's (2012) proposals about intensionality in DP, which we adopt in section 5.3. Under this semantics, a possible world is a maximal situation. Nothing critical in our proposal hinges on this decision.

[8] The traditional 'scope' theory of the *de re*/*de dicto* ambiguity, where an intensional operator sets the world/situation at which the material in its scope is evaluated, also requires a DP to be in the intensional operator's scope for an opaque interpretation (e.g. Quine 1956, Montague 1973, Ogihara 1996, Keshet 2008, 2011). On such a theory, reconstruction for referential opacity with higher-copy neglection is thus derived in the same way as (15). However, the scope theory of the *de re*/*de dicto* ambiguity—including Keshet's (2008, 2011) more articulated theory of 'split intensionality'—will not suffice for Hindi; see section 7.4 for discussion.

[9] Romero (1998), Fox (1999), Sternefeld (2001), and Lechner (1998, 2013, to appear) refer to this approach as *semantic reconstruction*. We avoid this terminology, however, because it is somewhat confusing as reconstruction is traditionally a syntactic operation.

not necessarily translated into a variable of semantic type e. Rather, traces may also be variables of higher semantic types, which can be used to achieve various kinds of reconstruction effects. For example, a trace of the semantic type of a generalized quantifier ($\langle\langle e,t\rangle,t\rangle$) yields scope reconstruction (Cresti 1995, Rullmann 1995), as schematized in (16).

(16) *Generalized-quantifier traces for scope reconstruction* (Op $\gg$ DP)

DP ... Op ... DP ... $\rightsquigarrow$ LF: DP [$\lambda \mathcal{Q}_{\langle\langle e,t\rangle,t\rangle}$ [... Op ... $\mathcal{Q}$ ...]]

A brief note about notation: We will use λ-operator–variable notation in schematic LFs, like (16), 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).

The result of the generalized-quantifier variable in the trace position is that the moved element ends up being interpreted as taking scope in the launching site of movement. To illustrate this effect, the derivation for the reconstructed-scope reading of (3)—repeated below in (17)—on a higher-type trace account is given in (18), abstracting away from intensionality for the sake of illustration. The crucial step of the derivation to take note of is when the moved element combines with the λ-abstraction created by movement (18c). Ordinarily, with a type-e trace, the moved quantificational element takes as argument the λ-abstraction, as in (6c) above. However, with a type-$\langle\langle e,t\rangle,t\rangle$ trace, it is vice versa: the λ-abstraction takes as argument the moved quantificational element (18c).

(17) [**How many books**]$_1$ *should* Alex read ___$_1$ this summer? (=3)

(how many $\gg$ should; should $\gg$ how many)

(18) *Reconstructed-scope derivation of (3) with higher-type traces*

LF: Q_n [how$_n$ many books] [λ_1 [should [Alex read t_1]]]

a. $[\![\text{how}_n \text{ many books}]\!] = \lambda \mathrm{P}_{\langle e,t\rangle} \,.\, \exists x[\#x = n \wedge {}^*\textsc{book}(x) \wedge \mathrm{P}(x)]$

b. $[\![[\, \lambda_1 [\text{ should } [\text{ Alex read } t_1]]]]\!] = \lambda \mathcal{Q}_{\langle\langle e,t\rangle,t\rangle} \,.\, \textsc{should}(\mathcal{Q}(\lambda z_e \,.\, \text{Alex reads } z))$

c. $[\![[\, \lambda_1 [\text{ should } [\text{ Alex read } t_1]]]]\!]([\![\text{how}_n \text{ many books}]\!])$
$= \textsc{should}\big([\lambda \mathrm{P}_{\langle e,t\rangle} \,.\, \exists x[\#x = n \wedge {}^*\textsc{book}(x) \wedge \mathrm{P}(x)]](\lambda z_e \,.\, \text{Alex reads } z)\big)$
$= \textsc{should}\big(\exists x[\#x = n \wedge {}^*\textsc{book}(x) \wedge [\lambda z_e \,.\, \text{Alex reads } z](x)]\big)$
$= \textsc{should}\big(\exists x[\#x = n \wedge {}^*\textsc{book}(x) \wedge \text{Alex reads } x]\big)$

As with the higher-copy neglection account, an intermediate step of movement is needed for type purposes (see section 2.1.1), as schematized in (19). For the sake of readability, we will not depict the intermediate movement step outside of this background section.

(19) *Higher-type traces with type-driven intermediate movement*

LF: Q_n [how$_n$ many books] [$\lambda \mathcal{Q}_{\langle\langle e,t\rangle,t\rangle}$ [should [$\mathcal{Q}$ [λx_e [Alex read x]]]]]

The truth conditions in (18) are identical to those derived under higher-copy neglection in (9). However, a crucial difference of the higher-type trace account in (18) is that the DP remains in its landing site at LF. Both the surface-scope and reconstructed-scope readings of (3) thus have the same LF; they differ only in the semantic type of the λ-bound variable.[10] As such, reconstructed scope is purely semantic on a higher-type trace account.

We have shown in this section how higher-type traces can account for scope reconstruction. Higher-type traces can in principle be extended to pronominal-binding reconstruction (e.g. Engdahl 1980, 1986, Jacobson 1999, 2004; though see Heim 2012) and referential-opacity reconstruction (e.g. Sharvit 1998; though see Romero 1998:108–114) as well, though the specific semantic type of the trace will be different. Analyses of reconstruction effects in this general line of approach have been developed by von Stechow (1991), Chierchia (1995), Cresti (1995), Rullmann (1995), Lechner (1998, 2013, to appear), Sharvit (1998), Sternefeld (2001), and Ruys (2015), amongst others.

3 Scope, referential opacity, and Condition C

As introduced in the previous section, there are two general approaches to reconstruction effects: higher-copy neglection and higher-type traces. According to higher-copy neglection, reconstruction effects are achieved by manipulating the LF, a syntactic level of representation, and thus are fundamentally *syntactic*. According to higher-type traces, reconstruction effects are instead achieved by manipulating the semantic type of the variable in the trace position, not the LF, and thus are fundamentally *semantic*. Because in order to account for each type of reconstruction effect, the two approaches ultimately generate the same truth conditions, they are mostly indistinguishable on these metrics alone. Thus, the literature has looked elsewhere to investigate the question of whether it is possible to empirically distinguish between the two approaches. The ensuing discussion has come to center around the interaction between reconstruction effects and binding-theoretic connectivity for Condition C (Romero 1997, 1998, Sharvit 1998, Fox 1999, Sternefeld 2001, Lechner 2013, to appear, Ruys 2015). For the time being, we will focus on reconstruction for scope and referential opacity, setting aside reconstruction for pronominal binding until section 6.1.

A central difference between the two approaches to reconstruction is where the moved element is located at LF. On a higher-copy neglection account, the moved element is evaluated in its launching site at LF, while on a higher-type trace account, it is evaluated in its landing site. The insight of the previous literature (see the authors cited above) is that other LF principles may be used to independently detect the location of a moved element at LF. One such principle is Condition C, which is standardly taken to be evaluated at LF (Lebeaux 1988,

[10] On a (pure) higher-type trace account, as far as reconstruction is concerned, there is no need for LF as an intermediate representation between the narrow syntax and the model-theoretic interpretation. As a result, such accounts are often adopted and championed by proponents of *Direct Compositionality*. However, higher-type traces are not incompatible with the existence of LF, and thus it is instructive to compare the two accounts of reconstruction using the same terminology. Moreover, we will ultimately argue for a hybrid theory of reconstruction, which crucially requires LF as a level of representation. See section 7.1 for discussion about the ramifications of our proposal for the status of LF.

1990, 2000, 2009, Chomsky 1995). Higher-copy neglection predicts that reconstruction effects should cooccur with Condition C connectivity at the launching site of movement, as this is the position of the moved element at LF (20). Conversely, higher-type traces predict that reconstruction effects should *not* cooccur with Condition C connectivity (unless further assumptions are made), as the moved element instead occupies its landing site at LF (21).

(20) *Higher-copy neglection 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*

(21) *Higher-type traces and Condition C*
$^{✓}[_{\text{DP}} \ldots \textbf{R-exp}_1 \ldots]_2 \; [\, \lambda \mathcal{Q}_{\langle\langle e,t\rangle,t\rangle} \; [\ldots \textbf{pron}_1 \ldots \mathcal{Q} \ldots]\,]$ *No Condition C violation*

In short, under higher-copy neglection, 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 (22).[11]

(22) 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 (22b) is that the moved element would incur a Condition C violation in its base position, parallel to (22a), but not in its surface position. Thus, (22b) demonstrates that a moved DP can be evaluated in its landing site for Condition C; otherwise (22b) would be ungrammatical. For investigating the relationship between reconstruction effects and Condition C connectivity, the test configuration has the general form of (23), 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. In this configuration, a reconstruction effect that correlates with Condition C connectivity should be blocked in (23) because it would yield a Condition C violation; that is, Op $\gg$ DP should be impossible.[12] By contrast, a reconstruction effect that does not correlate with Condition C connectivity should be permitted in (23) because Condition C is not a factor; that is, Op $\gg$ DP should be possible.

[11] Something needs to be said about why the R-expression in the lower copy does not invariably trigger a Condition C violation. The reason is likely tied to the relative clause. The standard explanation is that the relative clause can be countercyclically late merged onto the moved element after movement, so that the lower copy never contains the offending R-expression (Lebeaux 1988, 1990, 2000, 2009). Crucially, late merge bleeds being able to neglect the higher copy because it would strand the relative clause without a host; thus, if the higher copy is to be neglected, the relative clause must be first-merged in the lower copy. However, the claims in this paper are not contingent on late merge being the explanation of Lebeaux effects, nor are they contingent on the argument–adjunct distinction that Lebeaux effects are claimed to exhibit.

[12] This prediction can alternatively be characterized as a disjoint-reference effect: if Op $\gg$ DP, then the R-expression and the pronoun cannot corefer.

(23) *Schematic test configuration*

$[_{DP} \ldots [_{RC} \ldots \textbf{R-exp}_1 \ldots]\,]_2 \ldots \textbf{pron}_1 \ldots \text{Op} \ldots \_\_\__2 \ldots$

Empirical investigations of these predictions have produced conflicting results. From the literature, we extrapolate two competing generalizations. Romero (1997, 1998) and Fox (1999) argue that scope reconstruction does indeed correlate with Condition C connectivity. This is encapsulated in the generalization in (24).

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

According to (24), if a moved element reconstructs into its launching site for quantificational scope, then this element is evaluated in its launching site for Condition C. We will mnemonically refer to this generalization as 'Q→C'. Romero (1997, 1998) and Fox (1999) argue that Q→C receives a principled explanation if scope reconstruction is the result of neglecting the higher copy (20), but not if it arises from higher-type traces (21). They conclude that reconstruction effects are exclusively the result of higher-copy neglection, and that, as such, reconstruction is purely syntactic. This view has been widely adopted in the literature on reconstruction (e.g. Sportiche 2006, 2016, Poole 2017).

However, there is subsequent literature that has called into question this argument in two ways. The first challenge is from Sternefeld (2001) and Ruys (2015), who develop amended versions of the higher-type trace account that are able to derive Q→C. They contend that Q→C thus does not necessarily constitute definitive evidence in favor of higher-copy neglection. The second challenge is whether Q→C is empirically correct to begin with. Sharvit (1998) and Lechner (2013, to appear) argue that Condition C connectivity does *not* correlate with scope reconstruction, contra Q→C, but instead with referential-opacity reconstruction. We will refer to this competing generalization as 'I→C', given in (25), because it asserts that reconstruction for an opaque intensional interpretation is what feeds Condition C connectivity.

(25) *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, to appear]

Lechner (2013, to appear) concludes, based on I→C, that an account of reconstruction effects that is confined to higher-copy neglection (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 5.[13]

[13] Sharvit (1998) takes I→C as evidence for a purely semantic approach to reconstruction in terms of higher-type traces. To do so, she is forced to posit an ad hoc version of Condition C that takes into account the possible world at which DPs and traces are evaluated; see Romero (1998:108–114) for counterarguments to Sharvit's (1998) analysis. We should also note that Sharvit 1998 is no longer available, and thus our understanding of the paper's contents relies solely on Romero's (1998) exposition of it.

It should be noted that (i) the two generalizations—Q→C (24) and I→C (25)—are based on distinct datasets and that (ii) they are incompatible with one another. The debate about the theoretical treatment of reconstruction effects is hence, to a significant degree, based on conflicting empirical generalizations. To the best of our knowledge, there has not been an attempt in the literature to systematically adjudicate between Q→C and I→C. This empirical uncertainty bears on the reliability of the analytical conclusions that can be drawn on the basis of these two generalizations about the precise mechanism that underlies reconstruction effects. Analytical progress in this domain then requires a better understanding of the empirical landscape. This paper attempts to do precisely such: we will argue that Hindi provides clear evidence against Q→C and in favor of I→C as the correct empirical generalization which should inform the analytical treatment of reconstruction.

The remainder of this section presents some of the evidence that underlies Q→C and I→C and briefly discusses how this evidence has informed previous accounts of reconstruction. This exposition will set the stage for our own investigation of Hindi in section 4.

3.1 Arguments for the Quantifier–Condition C correlation

Romero (1997, 1998) and Fox (1999) argue that scope reconstruction is blocked in configurations like (23), thereby supporting Q→C (see also Heycock 1995).[14] Their argument is based on sentences like (26). In (26), 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*. (26) thus instantiates the schema in (23). Crucially, Romero and Fox report that the sentence is unambiguous. It only has the surface-scope reading in (26a), where it is assumed that there is set of particular pictures that John wants the editor to publish, and the question is asking how many such pictures there are. This reading is appropriate in a context where, e.g., John has a handful of favorite pictures from his trip to Sarajevo, and he wants to see those ones published. The sentence is claimed to lack the reconstructed-scope reading in (26b), where the question is asking about the quantity of pictures that John wants the editor to publish, without having any particular pictures in mind. This reading would be appropriate in a context where, e.g., John wants the editor to publish three pictures because then his commission will be sufficient to cover his bills, but he does not care which pictures those are.

(26) *Condition C connectivity forces surface scope*
[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* (how 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.

[14] Fox (1999) also shows that reconstruction for pronominal binding correlates with Condition C connectivity, which we discuss in section 6.1.

b. *Reconstructed-scope reading* (want ≫ how 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 (26) to (27), 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.

(27) *Swapping the R-expression and the pronoun* (✓surface, ✓reconstructed)
[How many pictures [$_{RC}$ 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 scope reconstruction is impossible in (26) because it would give rise to a Condition C violation, and hence scope reconstruction correlates with Condition C connectivity. This conclusion supports the empirical generalization Q→C, repeated below in (28), because Condition C connectivity bleeds scope reconstruction. They present converging evidence for Q→C from A-movement and other $\overline{\text{A}}$-movement configurations.[15]

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

Romero (1997, 1998) and Fox (1999) take Q→C as evidence in favor of an analysis of reconstruction in terms of neglecting higher copies and against the availability of higher-type traces. As discussed above, higher-copy neglection inherently predicts that reconstruction effects are sensitive to Condition C and thus derives the Q→C for free. For example, the reconstructed-scope reading of (26) on a higher-copy neglection account is produced by interpreting the moved element in its launching site at LF, as schematized in (29). This has the consequence of putting the R-expression in the c–command domain of the coindexed pronoun, thereby yielding a Condition C violation.

(29) *Reconstructed-scope reading of (26) with higher-copy neglection*
*Q$_n$ ~~[how$_n$ many pictures that John$_1$ took in Sarajevo]~~ **he**$_1$ wants [
the editor to publish [how$_n$ many pictures that **John**$_1$ took in Sarajevo]
in the Sunday special] ⇝ *Violates Condition C*

[15] The judgments are not particularly clear for A-movement, as Fox (1999:179n36) himself notes. Fox (1999:179) reports the contrast in (i). In (i.a), a DP containing an R-expression is A-moved over an experiencer DP coindexed with the R-expression. The sentence is reported to lack the reconstructed-scope reading; only wide scope of the indefinite with respect to *seem* is possible. (i.b) serves as a control. Here, the positions of the R-expression and the coindexed pronoun have been swapped, and both surface scope and reconstructed scope are possible. If correct, this contrast would support Q→C. However, in light of the delicacy of the relevant judgments, we will focus on $\overline{\text{A}}$-movement in the main text.

(i) a. [A student of **David's**$_1$]$_2$ *seems* to **him**$_1$ ___$_2$ to be at the party. (✓∃ ≫ seem; *seem ≫ ∃)
b. [A student of **his**$_1$]$_2$ *seems* to **David**$_1$ ___$_2$ to be at the party. (✓∃ ≫ seem; ✓seem ≫ ∃)

The surface-scope reading of (26) is available because interpreting the moved element in its landing site at LF does not violate Condition C. Finally, the control sentence in (27), where the R-expression and the pronoun have been swapped, allows the reconstructed-scope reading because interpreting the lower copy does not violate Condition C.

On the other hand, on a higher-type trace account, the reconstructed-scope reading of (26) is produced by translating the trace position into a variable of semantic type $\langle\langle e, t\rangle, t\rangle$, crucially leaving the moved element in its landing site at LF, as schematized in (30). Because the moved element is in its landing site at LF, the R-expression is not in the c–command domain of the coindexed pronoun, and thus there is no Condition C violation.

(30) *Reconstructed-scope reading of (26) with higher-type traces*
✓Q_n [how$_n$ many pictures that **John**$_1$ took in Sarajevo] [$\lambda \mathcal{Q}_{\langle\langle e,t\rangle,t\rangle}$ [**he**$_1$ wants [the editor to publish $\mathcal{Q}$ in the Sunday special]]]
$\rightsquigarrow$ *Does not violate Condition C*

All else equal, there is no expectation that Condition C should be able to influence the availability of a reconstructed-scope reading on a higher-type trace account, contrary to Q→C. Accordingly, Romero (1997, 1998) and Fox (1999) conclude that (26) supports a purely syntactic approach to reconstruction, in which reconstruction effects result exclusively from neglecting a higher copy (see also Sportiche 2016, Poole 2017).

As noted above, the conclusion that Q→C favors higher-copy neglection 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 (though see Romero 1998:108–138); Sternefeld (2001) by placing Condition C into the semantics (see also Sharvit 1998) and Ruys (2015) by imposing a general constraint on the availability of higher-type traces.

3.2 Arguments for the Intensionality–Condition C correlation

An important empirical challenge to Q→C has been put forth by Sharvit (1998) and Lechner (2013, to appear). They argue that (i) scope reconstruction does *not* generally correlate with Condition C connectivity and that (ii) Q→C is hence not a valid characterization of the properties of reconstruction effects. At the same time, they argue that reconstruction effects are also not entirely disassociated from Condition C connectivity. Instead, rather than scope reconstruction, what Condition C connectivity correlates with is reconstruction for referential opacity, i.e. the generalization I→C.

The crucial piece of evidence for I→C comes from the paradigm in (31), which Romero (1998:97) and Lechner (2013:175, to appear:8) attribute to Sharvit (1998). The sentence in (31) instantiates the test schema in (23) above, but in addition to quantifier scope, it manipulates referential opacity. The three a priori possible readings in (31) are conditioned by whether or not the moved DP reconstructs for quantifier scope and for referential opacity.

(31) [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 in w'.

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 who 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 who will buy him a beer in w'.

Let us step through the three logically possible readings of (31). The first reading (31a) involves the quantificational force of *how many* taking scope above the attitude predicate *hope* and the restrictor NP *students who hate Anton* being interpreted transparent to *hope*. On this reading, it is assumed that there is a set of particular individuals who in the actual world (i.e. the evaluation world) are students who hate Anton—potentially unbeknownst to Anton—, such that Anton hopes they will buy him a beer, and the question is asking how many such individuals there are. This reading corresponds to the surface position of the moved element and thus does not involve any reconstruction effects.

The second reading (31b) 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 (31b) is a possible interpretation of (31) presents a challenge for Q→C.

Crucially absent is the third reading (31c), 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, to appear) conclude from (31) 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 (31c)).[16] Examples analogous to (31) are mentioned in passing by von Fintel and Heim (2011:114–115) and Ruys (2015:479n27). Lechner (2013:175–176, to appear:4) provides converging evidence from A-movement. This conclusion stands in opposition to Q→C. Sharvit (1998) and Lechner (2013, to appear) therefore reject Q→C and conclude that the correct generalization is I→C, repeated below in (32).

(32) *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, to appear]

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.[17] This state of affairs has repercussions for the analytical conclusions about the proper analytical treatment of reconstruction effects. As noted above, Q→C has been taken to support a purely syntactic account of reconstruction in terms of higher-copy neglection (Romero 1997, 1998, Fox 1999). By contrast, Lechner (2013, to appear) argues that a successful account of I→C requires both higher-copy neglection and higher-type traces. 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.

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, where the predictions of Q→C and I→C come apart in a particularly clear 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 show that the Hindi evidence provides novel support for Lechner's (1998, 2013, to appear) hybrid theory of reconstruction, which encompasses both higher-copy neglection and higher-type traces as independent and complementary mechanisms of reconstruction.

[16] One potentially problematic aspect of Sharvit's (1998) example in (31) is that the crucially absent opaque reading in (31c) 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 sections 4.3 and 7.2, we have endeavored to construct sentences that are parallel to (31), but which do not pragmatically favor the transparent reading of the moved element, removing this potential confound.

[17] Ruys (2015:479n27) notes this conflict and speculates that the judgments underlying Q→C and I→C might reflect interspeaker variation. While it is certainly possible that the paradox reduces to interspeaker variation, it would entail that speakers differ in whether they achieve reconstruction effects by either neglecting a higher copy or using higher-type traces. Furthermore, we have found individual speakers who exhibit all the judgments in sections 3.1 and 3.2. We may therefore hope to find a more systematic resolution of this paradox.

4 Long-distance scrambling in Hindi

This section investigates the reconstruction profile of long-distance scrambling across a finite clause boundary in Hindi. We show that such scrambling obligatorily reconstructs for scope. 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, which indicates that Q→C is not a universally valid constraint on reconstruction and, by extension, that any account of reconstruction that has Q→C as a consequence is too restrictive on empirical grounds. We then show that there is nonetheless a correlation between Condition C and reconstruction for referential opacity in Hindi, supporting the validity of I→C.

4.1 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 (also see Gambhir 1981, Dayal 1994a, Kidwai 2000, and Keine 2016, to appear for extensive studies of Hindi scrambling). 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 (Mahajan 1990, Gurtu 1992): LDS is subject to weak crossover, whereas local scrambling is not (see also section 6.2). In this section, we will 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 5.

Keine (2016, to appear) 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 (33a).[18,19] When the object is scrambled over the subject, the object may take scope over the subject (Mahajan 1997:199–200), as shown in (33b). Scope reconstruction is also possible, as (34) illustrates.

[18] See Anand and Nevins (2006) for some qualifications that are not directly relevant for our present purposes.

[19] Unless indicated otherwise, Hindi judgments are due to our consultants. We use the following abbreviations in the glosses: ABL – ablative; ACC – accusative; AUX – auxiliary; COMP – complementizer; DAT – dative; ERG – ergative; F – feminine; GEN – genitive; INF – infinitive; INSTR – instrumental; LOC – locative; NOM – nominative; PL – plural; REL – relative pronoun; SG – singular.

(33) *Local scrambling may extend scope*

a. *kisii* *vipakshii* *netaa-ne* **har** **samasyaa** khadii kii hai
some opposition politician-ERG every problem standing did AUX
'Some opposition politician caused every problem.' (∃ ≫ ∀; *∀ ≫ ∃)

b. **har** **samasyaa**$_1$ *kisii* *vipakshii* *netaa-ne* ___$_1$ khadii kii hai
every problem some opposition politician-ERG standing did AUX
'Every problem, some opposition politician caused.' (∀ ≫ ∃)

(34) *Local scrambling may reconstruct for scope*

a. *sab* **tiin** **ciizẽ** khariidẽge
everyone three things will buy
'Everyone will buy three things.' (∀ ≫ 3)

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

Scope extension under local scrambling may also be observed for *how many*-questions, as illustrated in (35). Here, because scrambling leaves a nonfinite clause, it is an instance of local scrambling. As before, surface scope coexists with the option of scope reconstruction.

(35) **kitnii** **tasviirẽ**$_1$ Sita [___$_1$ dikhaanaa] **caahtii** hai?
how many pictures Sita show.INF want AUX
'How many pictures does Sita want to show?' (many ≫ want; want ≫ many)

Significantly, this ability to extend scope is confined to local scrambling. LDS—i.e. scrambling out of a finite clause—does *not* extend the scope options of the moving element.[20] In other words, scope reconstruction is obligatory, or at least strongly preferred. In (36), the embedded object *har samasyaa* 'every problem' is moved over the matrix subject *kisii vipakshii netaa-ne* 'some opposition politician-ERG', but it may not take scope over it.[21]

[20] While most of our informants do not accept the surface-scope reading in (36), one of our informants does find it acceptable. It is possible that this discrepancy is a matter of dialectal variation. Notwithstanding, the crucial 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. This pattern of judgments is thus fully compatible with the conclusions that will be reached here. For the sake of simplicity, the main text presents the pattern of judgments of speakers for whom scope reconstruction is obligatory. Also see fn. 28.

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

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

har	**samasyaa**$_1$	*kisii*	*vipakshii*	*netaa-ne*	socaa	[$_{CP}$	ki	
every	problem	some	opposition	politician-ERG	thought		that	

pradhaan mantrii-ne	___$_1$	khadii	kii	hai	]
Prime Minister-ERG		standing	did	AUX	

'Every problem, some opposition politician thought that the Prime Minister had caused.'
$(\exists \gg \forall; {*}\forall \gg \exists)$

This restriction is general. It can also, e.g., be observed in *how many*-questions. In (37), the *wh*-element *kitnii tasviirẽ* 'how many pictures' is moved into the matrix clause. The surface-scope reading (*many* ≫ *decide*) is either impossible or severely degraded in (37). The reconstructed-scope reading (*decide* ≫ *many*), by contrast, is readily available.[22]

(i)

Daremo-ni$_1$	dareka-ga	[John-ga	___$_1$	kisusita	o	]	omotteiru.
everyone-DAT	someone-NOM	John-NOM		kissed	COMP		thinks

'Everyone, someone thinks that John kissed.' $(\exists \gg \forall; {*}\forall \gg \exists)$

There is one notable difference between Hindi and Japanese in this domain, however. 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	2-GEN	kids-NOM		kissed	COMP		thinks

'Everyone, someone thinks that two kids kissed.' $(\text{OK}/??\forall \gg \exists; \exists \gg \forall)$

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 it 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.

(iii) a.

har	laṛkii-ko$_1$	kisii	shikshak-ne	socaa	[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	laṛkii-ko$_1$	kisii	shikshak-ne	socaa	[ki	do	baccõ-ne	___$_1$	dekhaa	]
every	girl-ERG	some	teacher-ERG	thought	that	two	boys-ERG		saw	

'Every girl, some teacher thought that two boys saw.' $(\exists \gg \forall; {*}\forall \gg \exists)$

In focusing on the Hindi patterns, we will set aside the intricate Japanese facts in this paper, though as far as we can see, Miyagawa's (2006) analysis of Japanese is compatible with our general claims about reconstruction.

[22] Following the methodology in Fox (1999), we elicited scope judgments for *how many*-questions by setting up a scenario in which the two interpretations yield distinct answers. Such a scenario is given in (i):

(i) Sita wants to show slides from her recent trip to Kolkata at a party. She is an avid picture-taker and took about 500 of them. Sita decides to show a total of 100 pictures at the party. Now she has to pick the specific pictures that she wants to show. Sita goes through the pictures and decides for 52 of them that she wants to show them at the party. The remaining 48 pictures will be chosen at random at the time of the party.

In this scenario, the '*many* ≫ *decide*' reading corresponds to the answer '52', whereas the '*decide* ≫ *many*' interpretation corresponds to the answer '100'. The answer '100' is readily accepted by our consultants, while the answer '52' is judged impossible or degraded.

(37) **kitnii** **tasviirẽ**$_1$ Sita-ne **tay** kar liyaa hai [$_{CP}$ ki vo ___$_1$
how many pictures Sita-ERG decide do take AUX that she
dikhaaegii]?
will show
'How many pictures did Sita decide that she will show?'
(decide ≫ many; ?*many ≫ decide)

The lack of a wide-scope reading in (37) stands in direct contrast to otherwise analogous structures in English (cf. (26)). Note also that the lack of the wide-scope reading in (37) is not simply due to some inherent property of *kitnii* 'how many', as local scrambling of *kitnii* does not display obligatory reconstruction (35). The reconstruction requirement is furthermore independent of the type of the embedding verb. It also holds for other attitude predicates like *tell*, as shown in (38).

(38) **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; ?*many ≫ tell)

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

4.2 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, also see 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 (39) 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 (39b).

(39) *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 [$_{CP}$
that book REL Ram-DAT like AUX he-ERG thought
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 clearly 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). We will provide further support for this conclusion in section 4.3, where we show that LDS in Hindi does not reconstruct for referential opacity in certain configurations. Additionally, LDS 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. Recall that Q→C and I→C make different claims about whether or not the two correlate. The reconstruction properties of LDS provide a particularly clear domain in which these claims can be assessed: because of the strong preference for scope reconstruction with LDS that we saw above, Q→C predicts that scrambling of a scope-bearing element out of a Condition C configuration should not only obligatorily reconstruct for scope, but also exhibit Condition C connectivity, thereby resulting in ungrammaticality. This prediction is not shared by I→C: because I→C claims that scope reconstruction is independent of Condition C, it follows that scope reconstruction should not induce Condition C connectivity. In other words, 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 ((36)–(38)), but does not require Condition C connectivity (39) provides a first indication that reconstruction for scope and Condition C connectivity do not correlate, contra Q→C.

We can sharpen this conclusion by devising structures that manipulate Condition C and scope simultaneously, such as (40). In (40), the moving element *har kitaab jo Ram-ko pasand hai* 'every book that Ram likes' contains an R-expression coindexed with the matrix subject. In addition, the matrix clause contains the quantificational element *kisii laṛkii-se* 'some girl-INSTR'. As indicated, 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 (36)–(38), surface scope of the moved element is impossible in (40).

(40) *No scope–Condition C connectivity*

[$_{DP}$ **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 [$_{CP}$ 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 (40) is that it readily allows a reconstructed-scope interpretation without incurring a Condition C violation. Thus, (40) 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. This conclusion provides direct evidence against Q→C, according to which scope reconstruction should invariably correlate with Condition C connectivity.

This pattern is perfectly general and can be replicated with *how many*-questions, as shown in (41). Here too, the reconstructed-scope reading is readily available even if the R-expression and the pronoun are coindexed.[23] The same observation also holds for other embedding verbs, like *kahaa* 'tell' (42).

[23] Scope judgments were elicited as described in fn. 22, i.e., by providing a scenario for which the two readings produce different answers. The answer corresponding to the '*decide* ≫ *many*' reading was readily accepted; the answer corresponding to the '*many* ≫ *decide*' reading was rejected or dispreferred by most of our informants. To express the surface-scope reading, it is possible to base-generate the quantificational DP in its surface position:

(i) [$_{DP}$ jo tasviirẽ Sita-ne$_1$/us-ne$_1$ khĩĩcĩĩ hãĩ] un=me=se kitnii
REL pictures.F Sita-ERG/she-ERG pulled AUX they=LOC=ABL ('out of these') how many

us-ne$_1$ tay kar lĩĩ hãĩ [$_{CP}$ ki vo$_1$ dikhaaegii]?
she-ERG decide do take.F.PL AUX.3PL that she will show

'The pictures that Sita$_1$/she$_1$ took, how many of them did she$_1$ decide to show?'

(?*decide ≫ many; many ≫ decide)

There is good reason to believe that the quantificational element does not originate in the embedded clause in (i). One interesting aspect of (i) is that the matrix verb *tay kar lĩĩ hãĩ* 'decide' shows feminine plural agreement with the head noun of the complex DP. A general fact about verb agreement in Hindi is that verbs cannot agree into finite clauses or with elements moved out of finite clauses (see Bhatt 2005 and Keine to appear). As a consequence, we can conclude that *jo tasviirẽ Sita-ne/us-ne khĩĩcĩĩ hãĩ* 'the pictures that Sita/she took' is base-generated as an argument of the matrix clause, not moved there. Note in particular that the matrix verb in (41) appears in its nonagreeing form and that agreement with *tasviirẽ* would be ungrammatical in (41). What these considerations suggest is that the reason that surface scope is possible (and in fact obligatory) in (i) is because no crossclausal movement has taken place in the first place. This converges with the generalization presented in the main text.

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

(42) [$_{DP}$ **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 ≫ many; ?*many ≫ tell)

Additionally, it holds for indefinite elements like *koii tasviir* 'some picture', which allows a narrow-scope reading with respect to the attitude predicate:

(43) [$_{DP}$ **koii** **tasviir** jo $\boxed{\text{Sita-ne}_1}$ khĩĩcii]$_2$ $\boxed{\text{us-ne}_1}$ **tay** kiyaa [$_{CP}$ ki vo$_1$
some picture REL Sita-ERG pulled she-ERG decide did that she
___$_2$ dikhaaegii]
will show
'Some picture that Sita$_1$ took, she$_1$ decided that she$_1$ will show.' (decide ≫ ∃)

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

4.3 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.

The empirical relationship between referential-opacity reconstruction and Condition C connectivity is investigated in the paradigm in (44). The scenario in (44) is designed so that the description *ghost that loves him* is true relative to Pratap's doxastic alternatives, but false relative to the evaluation world (i.e. the actual world), given that what Sangita saw was not actually a ghost. In the nonmovement baseline structure in (44a), the embedded object *ek bhuutnii jo us-se pyaar kartii hai* 'a ghost who loves him' is embedded under the intensional predicate *soctaa* 'think'. As expected, the embedded object can be interpreted opaquely with respect to this predicate; (44a) is hence true in the given scenario. The examples in (44b,c) investigate how the availability of this reading interacts with movement. In (44b), the embedded object undergoes LDS into the matrix clause. (44b) still allows for an opaque interpretation of the scrambled DP with respect to the matrix predicate *soctaa* 'think'. Hence, reconstruction for referential opacity is possible in (44b). Against this backdrop, the crucial example is (44c). (44c) is identical to (44b), 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, the sentence in (44c) 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'. In other words, (44c) commits the speaker to the claim that Sangita saw an actual ghost and is thus infelicitous (under the assumption that ghosts do not exist).

(44) *Scenario:*
Pratap incorrectly believes that there exists a ghost in his backyard that is in love with Pratap. 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.

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.'
(*entails actual existence of ghost*)

The impossibility of an opaque reading in (44c) demonstrates that reconstruction for referential opacity is impossible in a Condition C configuration. In light of the availability of such reconstruction in (44b), the reason that it is unavailable in (44c) must be because it would give rise to a Condition C violation. This strongly suggests that reconstruction for referential opacity induces Condition C connectivity. The reason that such reconstruction is possible in (44b) is precisely because Condition C is not at stake. Therefore, the paradigm in (44) 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.

A more complex example investigating the relationship between Condition C, scope, and referential opacity is given in (45). This paradigm manipulates all three factors simultaneously. In this sense, it is analogous to Sharvit's (1998) example in (31). First, the moved DP in (45) contains an R-expression and crosses a coindexed pronoun. Second, the moved DP is headed by *kitnii* 'how many', which gives rise to scopal interactions with the embedding predicate *tay* 'decide.' Third, the restrictor NP *tasviirẽ jo Sita-ne khĩĩcĩĩ* 'pictures that Sita took' can a priori be interpreted transparently or opaquely with respect to *tay* 'decide.' As indicated in (45a), the sentence does not have a surface-scope, transparent reading. However, the sentence does have the reconstructed-scope, transparent reading in (45b). This reading is obtained by reconstructing the moved DP for scope, but not for referential opacity. Finally, the sentence lacks an (reconstructed-scope) opaque reading (45c).[24]

(45)

[$_{DP}$ **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 she$_1$ will show?'

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'.

[24] A transparent reading of the moved DP in (45) corresponds to an interpretation where, e.g., Sita is standing in front of a pile of pictures that she took, but Sita is not aware of who took the pictures. As a result, the description *pictures that Sita took* is true in the actual world, but not in Sita's bouletic alternatives. As indicated in (45), such a transparent interpretation is available, but only if *how many* takes scope below *decide*; that is, on a narrow-scope reading (45b) (i.e. the "third reading"). Moreover, an opaque reading of the NP restrictor would be true in a scenario in which, e.g., Sita is standing in front of a pile of pictures that Ram took, but Sita incorrectly believes that these pictures were taken by herself. In this scenario, the description *pictures that Sita took* would be true only in Sita's bouletic alternatives. In such a scenario, the sentence in (45) is judged as false, indicating the absence of an opaque reading.

The observation that (45b) is the only available interpretation for (45) 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 (45a) is ruled out.[25] Second, we saw on the basis of (44) above that Condition C connectivity blocks reconstruction for referential opacity, thereby ruling out the opaque interpretation in (45c). Crucially, Condition C connectivity does *not* block reconstruction for quantifier scope. The reconstructed-scope, transparent reading in (45b) is therefore possible.

The paradigm in (44) hence provides further 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 (46)) 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, to appear) hybrid model of reconstruction.

(46) *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, to appear]

5 A hybrid account of reconstruction

The crucial takeaway from I→C and the Hindi reconstruction data supporting I→C from the previous section (§4) 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 entails 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 sides that have emerged in the reconstruction literature, where it is argued either that reconstruction is purely syntactic (e.g. Romero 1997, 1998, Fox 1999, Poole 2017) 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, to appear). The core feature of Lechner's system is that it uses *both* higher-copy neglection (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. We then discuss the restrictions that must be imposed on higher-type traces on this account and argue that these restrictions follow independently from the syntax of situation pronouns in DPs (à la Schwarz 2012).

[25] The fact that such an interpretation is available in Sharvit's (1998) structurally analogous example in (31) is due to the independently observable difference that *wh*-movement in English does not exhibit obligatory scope reconstruction (see (26)).

5.1 The insufficiency of nonhybrid accounts

Before proceeding to the account, 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 neglection *or* a purely semantic account in terms of higher-type traces.

On one hand, an account limited to higher-copy neglection predicts that reconstruction effects should universally correlate with Condition C connectivity (Romero 1997, 1998, Fox 1999). As we have seen in section 4.2, this is not the case. Thus, a purely syntactic account of reconstruction is too restrictive to accommodate the Hindi facts.[26]

On the other hand, an account limited to higher-type traces would disassociate Condition C from *all* reconstruction effects. This disassociation would fail to capture the empirical connection between referential-opacity reconstruction and Condition C connectivity (see (44) and (45)). 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 neglection accounts (as Sternefeld 2001 himself emphasizes). As a consequence, these accounts are too restrictive for exactly the same reason as purely higher-copy neglection accounts: any account in which Condition C and reconstruction effects are universally correlated is empirically too restrictive, irrespective of the mechanism by which the two are correlated.

We hence conclude that the Hindi evidence indicates that nonhybrid accounts of reconstruction are too coarse to capture the intricate empirical relationship between Condition C, scope, and referential opacity. A more nuanced account is therefore called for. The next section is dedicated to showing that a hybrid theory of reconstruction affords such nuance.

5.2 A hybrid account of reconstruction in Hindi

In light of the analytical challenges that it presents for nonhybrid accounts of reconstruction, we argue that the interpretation of Hindi long-distance scrambling (LDS) receives a principled

[26] Romero (1998:104–105) suggests to account for Sharvit's (1998) example in (31)—and by extension I→C—through distributed copy neglection. Concretely, she proposes that, at LF, *how many students who hate Anton* is represented as *how many **of the** students who hate Anton* (a partitive). She then suggests that *the students who hate Anton* undergoes QR out of the DP and that the remnant reconstructs (i). Alternatively, the entire DP reconstructs, after which *the students who hate Anton* undergoes QR out of the DP.

(i) Q_n [the students who hate Anton_1 $]_2$ he_1 hopes [that [how_n many of ___ $_2$] will buy him a beer]

While (i) derives the desired reconstructed-scope, transparent reading, a proper evaluation would require a formulation of the general syntactic and semantic principles that generate (i), which Romero (1998) does not provide. One challenge that (i) faces is that it assumes the existence of a phonologically covert definite determiner (and preposition). However. bare plurals cannot be definite in English (while they may involve maximality, they do not trigger a uniqueness presupposition), which raises the question why this null determiner cannot be used more pervasively. A second potential problem for (i) is that the QRed DP *the students who hate Anton* is separated from its trace by a finite clause boundary. This would violate the standard locality conditions on QR, which is clausebounded. The problem is perhaps even more pressing for Hindi, as Hindi might not even have QR (given (33a)) and covert movement in Hindi must be clausebounded (Mahajan 1990, Srivastav 1991, Dayal 1996). In light of these obstacles, we do not pursue an account along these lines.

explanation under Lechner's (1998) hybrid model of reconstruction, once we adopt independently motivated restrictions on situation pronouns in order to appropriately constrain the distribution of higher-type traces. This argument builds on work by Lechner (2013, to appear). Under the hybrid model, reconstruction is crucially part syntactic and part semantic. We begin in this section by laying out how the two modes of reconstruction derive the Hindi reconstruction data. Then, in section 5.3, we turn our attention to the constraints that need to be placed on higher-type traces under this hybrid model of reconstruction.

In order to develop our account, we begin by making some concrete assumptions about the nature of local and long-distance scrambling in Hindi. Specifically, 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). 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.[27] 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 (47).

(47) 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 (48a) or by using a higher-type trace (48b). 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.[28] Because both procedures in (48) 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.

[27] 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 2017, Bhatt and Keine 2018). 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.

[28] As noted in fn. 20, one of our consultants allows $\overline{\text{A}}$-scrambling to shift the scope of the moved element. Crucially, this speaker shares the key reconstruction facts as well. 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 semantic type *e*. At present, we are not aware of any independent correlate of this variation.

(48) *Interpreting $\bar{A}$-scrambling*

$$\underbrace{\mathrm{DP}_1 \ldots \mathrm{Op} \ldots \_\_\__1}_{\bar{A}\text{-}scr} \ldots$$

a. *Neglecting the higher copy*

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

b. *Using a higher-type trace*

LF: [DP_1 [$\lambda \mathcal{Q}_{\langle\langle e,t\rangle,t\rangle}$ [... Op ... $\mathcal{Q}$ ...]]] (Op $\gg$ DP_1)

The crucial component of (48) is that both higher-copy neglection and higher-type traces are in principle always available to interpret $\bar{A}$-scrambling. However, as we will show, they have slightly different effects, and higher-copy neglection 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 by translating the trace position into a type-*e* variable (49).

(49) *Interpreting A-scrambling*

$\underbrace{\mathrm{DP}_1 \ldots \mathrm{Op} \ldots \_\_\__1}_{A\text{-}scr} \ldots \rightsquigarrow$ LF: [DP_1 [λx_e [... Op ... x ...]]] ($\mathrm{DP}_1 \gg$ Op)

As local scrambling is ambiguous between A-scrambling and $\bar{A}$-scrambling, it descriptively has access to all three interpretive options in (48) and (49). It therefore follows that local scrambling can reconstruct (as in (34)), but that such reconstruction is optional (as in (33)), in contrast to LDS, whose two interpretive options both yield reconstruction.[29]

We now proceed to demonstrating how the coexistence of the two reconstruction mechanisms for $\bar{A}$-scrambling in (48) enables a principled explanation of the Hindi reconstruction facts from section 4.

5.2.1 *Higher-type traces*

To demonstrate the effects of the two mechanisms for reconstruction in (48) and the division of labor between them, we will first illustrate the role played by higher-type traces. The principal motivation for higher-type traces comes from the observation in section 4.2 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 as an example the sentence in (41), repeated here as (50). This example involves LDS of *kitnii tasviirẽ* 'how many pictures'. As discussed above, scope reconstruction is possible in (50)—and is in fact strongly preferred—

[29] It is an open question whether A-scrambling must be interpreted as in (49) or whether it may also reconstruct (either via higher-copy neglection or via higher-type traces). The reason is that, in Hindi, the configurations that allow A-scrambling also allow $\bar{A}$-scrambling. Thus, reconstruction effects in such configurations (e.g. (34)) do not necessarily indicate that A-scrambling is able to reconstruct. As movement in such configurations is ambiguous between A-scrambling and $\bar{A}$-scrambling, it is possible that reconstruction arises if and only if the movement chain is $\bar{A}$-scrambling. Nothing hinges on this limitation.

despite the fact that the scrambled DP contains an R-expression and the movement crosses a pronoun coindexed with that R-expression.

(50) *Scope reconstruction does not induce Condition C connectivity* (=41)

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

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

'How many pictures that Sita$_1$ took did she$_1$ decide that she$_1$ will show?'
(decide ≫ many; ?*many ≫ decide)

Because (50) involves LDS, the scrambling must be an instance of $\overline{\text{A}}$-scrambling. According to (48), its interpretive options are thus (i) neglecting the higher copy or (ii) using a higher-type trace. As both options yield scope reconstruction, it immediately follows that (50) lacks a surface-scope reading. However, neglecting the higher copy would produce ungrammaticality in (50) because it would lead to a Condition C violation. This is schematized in (51), where the R-expression *Sita* in the lower copy is in the c–command domain of the coindexed pronoun and hence violates Condition C.

(51) *LF of (50) with higher-copy neglection*

* Q$_n$ ~~[how$_n$ many pictures that Sita$_1$ took]~~ **she**$_1$ decided [that
she$_1$ will show [how$_n$ many pictures that **Sita**$_1$ took]] $\rightsquigarrow$ *Violates Condition C*

It follows then that (50) cannot be interpreted via higher-copy neglection. The fact that (50) is nevertheless a grammatical string entails that it must be interpreted in some other way; this is where the option of a higher-type trace comes in. The LF that results from using a higher-type trace is schematized in (52). The trace position is translated into a λ-bound variable of semantic-type $\langle\langle e,t\rangle,t\rangle$, thereby producing the reconstructed-scope reading (see section 2.2). The R-expression *Sita* is interpreted in the landing site of movement, outside the c–command domain of the coindexed pronoun, so that no Condition C violation arises.

(52) *LF of (50) with higher-type traces*

✓Q$_n$ [how$_n$ many pictures that **Sita**$_1$ took] [$\lambda\mathcal{Q}_{\langle\langle e,t\rangle,t\rangle}$ [**she**$_1$ decided [
that **she**$_1$ will show $\mathcal{Q}$]]] $\rightsquigarrow$ *Does not violate Condition C*

Higher-type traces hence derive the independence of scope reconstruction and Condition C connectivity in Hindi LDS, as documented in section 4.2. This provides an argument that reconstruction effects may be the result of higher-type traces.

At the same time, we showed in section 4.3 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 (44c) is repeated below in (53).

(53) *Referential-opacity reconstruction induces Condition C connectivity* (=44c)

\# [$_{DP}$ 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

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

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

(entails actual existence of ghost)

Given that higher-type traces do not induce Condition C connectivity, e.g. (52), the correlation between Condition C and referential-opacity reconstruction in (53) 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, (53) would be felicitous, contrary to fact. As discussed in section 2.1.3, we assume that the opaque reading of a DP involves the attitude predicate binding the situation pronoun associated with that DP (Percus 2000). As such, higher-type traces must be unable to yield an interpretation equivalent to the bound situation-pronoun LF.[30] For now, we will take this restriction as an assumption, stated in (54). We will suggest how this restriction may be independently derived in section 5.3.

(54) Higher-type traces cannot produce reconstruction for binding of situation pronouns.

In sum, higher-type traces yield reconstruction for scope, but not for referential opacity (by (54)). 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.

5.2.2 *Higher-copy neglection*

While we have seen evidence for higher-type traces in Hindi, such traces alone are insufficient; higher-copy neglection must be available as well. To illustrate why it must be available, consider again the sentence in (44b), repeated below as (55). (55) is a minimally different variant of (53) in which the positions of the R-expression and the pronoun have been swapped. Condition C is not at play in (55)—i.e. evaluating the moved element for Condition C in the landing site would not yield a Condition C violation—and an opaque reading of the moved DP with respect to *soctaa* 'think' is possible.

(55) *Referential-opacity reconstruction is possible when Condition C is not at stake* (=44b)

[$_{DP}$ 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

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

'A ghost that loves him$_1$, Pratap$_1$ thinks that Sangita saw.' (opaque reading possible)

[30] We take up reconstruction for binding of entity pronouns in section 6.1.

To achieve the opaque interpretation in (55), the moved DP needs to reconstruct for binding of situation pronouns. Given the restriction in (54), this reconstruction *cannot* be the result of a higher-type trace. It must therefore be the result of another reconstruction mechanism. We propose that this mechanism is higher-copy neglection, as shown in (56). By interpreting only the lower copy, the situation pronoun in the moved DP is in the scope of the λ-operator associated with *soctaa* 'think', so that the λ-operator may bind the situation pronoun, yielding an opaque interpretation (see section 2.1.3). Crucially, because the moved DP contains a pronoun instead of an R-expression, interpreting only the lower copy in (56) does not result in a Condition C violation, unlike (51).

(56) *LF of (55) with higher-copy neglection*
[$\underline{\underline{\lambda s_0}}$ [~~[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 [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 neglection 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, e.g. in (53) above, reconstruction for referential-opacity is impossible via higher-copy neglection, as schematized in (57).

(57) *Illicit LF of (53) with higher-copy neglection*
*[$\underline{\underline{\lambda s_0}}$ [~~[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 [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 (53), the only available interpretive option is thus a higher-type trace. In turn, because higher-type traces are unable to produce referential-opacity reconstruction, per (54) (see also section 5.3), 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 (45), repeated in (58). Here, Condition C connectivity blocks reconstruction for referential opacity, but allows it for scope.

(58)

[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 she$_1$ will show?' (=45)

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 (58c) 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 (58) 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 (58b), the only attested reading of (58). The surface-scope transparent reading in (58a) is ruled out because it would require a type-*e* trace, which is independently unavailable for $\overline{\text{A}}$-scrambling.

5.3 Restricting higher-type traces

In section 5.2.1, we concluded that higher-type traces are unable to achieve reconstruction for referential opacity, viz. reconstruction for binding of situation pronouns. This generalization is repeated in (59). The motivation for this restriction was based on (i) the empirical observation that reconstruction for referential opacity correlates with Condition C connectivity (see section 4.3) and (ii) the analytical fact that higher-type traces do not induce Condition C connectivity (see section 5.2.1).

(59) Higher-type traces cannot produce reconstruction for binding of situation pronouns. (=54)

The discussion above simply stated (59) as an axiom of the system, but a comprehensive account needs to explain why (59) should hold in the first place. In this section, we develop a proposal of how (59) may be derived from independently motivated assumptions about the syntactic position of the situation pronoun in DP, namely that it is an argument of the determiner (Schwarz 2012).

First, let us consider what it would require for higher-type traces to be able to produce referential-opacity reconstruction, contra (59). As discussed in section 2.1.3, we assume that predicates are associated with a syntactically represented situation variable, i.e. a situation pronoun, whose value sets the situation at which the predicate is evaluated (Percus 2000). Broadly speaking, because operators can only bind variables in their scope (i.e. c–command domain) at LF, reconstruction for referential opacity with higher-type traces would require that traces be able to be intensional. There are several analytical options here, but we will focus on two representative illustrations.[31]

The first analytical option, illustrated in (60), is that (i) determiners are purely extensional (60a) and (ii) the NP restrictor contains a situation pronoun that is λ-abstracted over at the edge of the DP (60b). Under this option, the moved DP would be type $\langle s, \langle\langle e, t\rangle, t\rangle\rangle$. In the trace position, the higher-type trace—also of type $\langle s, \langle\langle e, t\rangle, t\rangle\rangle$—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

[31] We are greatly indebted to Winnie Lechner for discussing all of the many analytical options and their repercussions with us and for leading us towards the criteria in (62).

that was crossed by movement, yielding an opaque interpretation of the moved DP with respect to that intensional operator.

(60) *Option #1: Extensional determiners* *(to be ruled out)*
$[\ \mathrm{DP}_{\langle s,\langle\langle e,t\rangle,t\rangle\rangle}\ [\ \lambda\mathcal{Q}_{\langle s,\langle\langle e,t\rangle,t\rangle\rangle}\ [\ \ldots \text{think}\ [\ \lambda s'\ [\ \ldots \mathcal{Q}(s') \ldots\ ]\ ]\ ]\ ]\ ]$

a. $[\![\mathrm{D}]\!] = \lambda \mathrm{P}_{\langle e,t\rangle}\, \lambda \mathrm{Q}_{\langle e,t\rangle}\ .\ \mathrm{D}(\mathrm{P})(\mathrm{Q})$

b. $[_{\mathrm{DP}}\ \lambda s\ [\ \mathrm{D}\ [\ \mathrm{NP}\ s\ ]\ ]\ ]$

The second analytical option is to assume intensional denotations for determiners (61a) and to adopt a fully intensional semantics—i.e. one without syntactically represented situation variables (e.g. Montague 1973)—, as shown in (61). Illustrative examples of quantifier and attitude-predicate denotations in this analysis are given in (61b) and (61c) respectively. Under this option, everything in the semantic scope of an intensional operator is evaluated with respect to that intensional operator, so that the intensionality of a DP is fixed to where it takes semantic scope.

(61) *Option #2: Fully intensional determiners* *(to be ruled out)*
$[\ \mathrm{DP}_{\langle\langle e,\langle s,t\rangle\rangle,\langle s,t\rangle\rangle}\ [\ \lambda\mathcal{Q}_{\langle\langle e,\langle s,t\rangle\rangle,\langle s,t\rangle\rangle}\ [\ \ldots \text{think}\ [\ \ldots\ [\ \mathrm{V}_{\langle e,\langle s,t\rangle\rangle}\ \mathcal{Q}\ ]\ \ldots\ ]\ ]\ ]\ ]$

a. $[\![\mathrm{D}]\!] = \lambda \mathrm{P}_{\langle e,\langle s,t\rangle\rangle}\, \lambda \mathrm{Q}_{\langle e,\langle s,t\rangle\rangle}\, \lambda s_s\ .\ \mathrm{D}(\lambda x\ .\ \mathrm{P}(x)(s))(\lambda x\ .\ \mathrm{Q}(x)(s))$

b. $[\![\text{every}]\!] = \lambda \mathrm{P}_{\langle e,\langle s,t\rangle\rangle}\, \lambda \mathrm{Q}_{\langle e,\langle s,t\rangle\rangle}\, \lambda s_s\ .\ \forall x[\mathrm{P}(x)(s) \rightarrow \mathrm{Q}(x)(s)]$

c. $[\![\text{think}]\!] = \lambda p_{\langle s,t\rangle}\, \lambda x_e\, \lambda s_s\ .\ \forall s'[s' \in \textsc{acc}_x(s) \rightarrow p(s')]$

If (60) or (61) were possible, they would permit reconstruction for referential opacity that is independent of Condition C connectivity. As we have seen, this would violate our empirically motivated generalization in (59). Thus, these possibilities (and others) must be blocked.

We propose that all of the analytical options that would allow higher-type traces to produce referential-opacity reconstruction are correctly ruled out if (i) intensionality is represented with overt situation pronouns (Percus 2000), as we have been assuming, and (ii) the two conditions in (62) are satisfied.

(62) a. The NP restrictor must be associated with a local situation pronoun.

b. Situation pronouns cannot be λ-abstracted over within the DP.

The general restrictions in (62) rule out (60) and (61), as desired. (60) involves λ-abstraction over a situation pronoun within the DP, violating (62b). (61) does not associate the NP restrictor with a local situation pronoun, violating (62a). To illustrate the repercussions of the restrictions in (62), let us consider the example in (44c)/(53), repeated below as (63). As we saw in section 4.3, the moved DP lacks an opaque reading with respect to *soctaa* 'think' because of Condition C connectivity.

(63) # [$_{\text{DP}}$ 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.'
(entails actual existence of ghost)

Because higher-copy neglection would incur a Condition C violation in (63), the only possible option to interpret the $\overline{\text{A}}$-scrambling in (63) is a higher-type trace. Given the restrictions in (62), the copy of the DP interpreted in the landing site must contain a situation pronoun that cannot be λ-abstracted over within the DP, as schematized in (64). This situation pronoun cannot be bound by a λ-operator lower than the landing site of movement because it can only be bound by an operator that c–commands it at LF. Thus, in (64), λs_2 cannot bind the situation pronoun in the scrambled DP. Consequently, an opaque interpretation with respect to the embedding predicate is impossible, as desired.

(64) *LF of (63) with higher-type traces*
[$\underline{\underline{\lambda s_0}}$ [[$_{\text{DP}}$ a ghost in $\underline{\underline{s_{0/*2}}}$ that loves **Pratap**$_1$] [$\lambda \mathcal{Q}_{\langle\langle e,t\rangle,t\rangle}$ [**he**$_1$ thinks in s_0
[$\underline{\underline{\lambda s_2}}$ [that Sangita saw $\mathcal{Q}$ in s_2]]]]]] (✓transparent; *opaque)

The restrictions in (62) thus have the effect that higher-type traces cannot produce reconstruction for an opaque reading because the situation pronoun associated with the NP is never in the scope of the relevant intensional operator, regardless of the semantic type of the trace.

While (62) imposes the desired restriction on the expressive power of higher-type traces, these restrictions may themselves follow from more fundamental principles. Lechner (2013, to appear) advances one proposal that would satisfy the criteria in (62). He proposes the axiom in (65).

(65) *Extensional Traces and Antecedents (ETA)*
The denotation of quantificational DPs and their traces do not include situation variables. [Lechner 2013, to appear]

The ETA (65) imposes a restriction on intensionality in DP "from the top", forcing DPs and their traces to be extensional semantic types. For example, the ETA rules out DPs and traces of type $\langle s, \langle\langle e, t\rangle, t\rangle\rangle$ or $\langle\langle e, \langle s, t\rangle\rangle, \langle s, t\rangle\rangle$, amongst others, but allows DPs and traces of type $\langle\langle e, t\rangle, t\rangle$. The intuition behind Lechner's proposal is that determiners themselves are purely existential à la Barwise and Cooper (1981) (Winnie Lechner, p.c.). The ETA satisfies the criteria in (62), and it is easy to see that it rules out the structures in (60) and (61), while allowing for (64).

While Lechner's analysis successfully captures (62), it has several consequences for the semantics overall, which may be independently undesirable. First, it forces determiners to combine with predicates ($\langle e, t\rangle$), rather than properties ($\langle e, \langle s, t\rangle\rangle$). As such, verb phrases would need to be purely extensional as well—not, e.g., sets of events. Second, there are cases, namely donkey sentences (Heim 1990, Elbourne 2005), that arguably call for intensional determiners (Schwarz 2012), which we will discuss below shortly.

We propose that it is possible to satisfy the criteria in (62) without forcing DPs and determiners to be purely extensional if we adopt the proposals in Schwarz (2012). Schwarz proposes that the situation pronoun in DP is an argument of the determiner (66a), rather than, e.g., the NP. Assuming a Kratzerian situation semantics (Kratzer 1989), he then proposes that determiners themselves have intensional denotations, combining with properties (66b).[32]

(66) *Situation pronoun as argument of the determiner*

a. $[_{\text{DP}}\,[\text{ D } s\,]\,[\text{ NP }]\,]$

b. $[\![\text{every}]\!] = \lambda s_r\, \lambda \text{P}_{\langle e,\langle s,t\rangle\rangle}\, \lambda \text{Q}_{\langle e,\langle s,t\rangle\rangle}\, \lambda s\,.\; \forall x[\text{P}(x)(s_r) \rightarrow \text{Q}(x)(s)]$

Schwarz (2012) argues that such an analysis has two immediate upshots. First, it derives without further ado two well-known restrictions on intensional interpretations of DPs: Generalization X (Percus 2000) and Generalization Z (Keshet 2008); see Schwarz (2012:446–449) for the details. Second, intensional determiners seem to be necessary for a compositional analysis of donkey sentences, where the determiner must quantify over situations relative to the nominal predicate and to state some kind of minimality condition on those situations (Heim 1990, Elbourne 2005). This compositional analysis is sketched in (67).[33]

(67) a. Every farmer who owns a donkey beats it.

b. For any situation s, (67a) is true in s iff
for every individual x and every situation $s' \leq s$
such that s' is a minimal situation
where there is a donkey y and x is a farmer who owns y in s'
there is a situation s'' such that $s' \leq s'' \leq s$
and x beats the unique donkey in s''.

c. $[\![\text{every}]\!] = \lambda s_r\, \lambda \text{P}_{\langle e,\langle s,t\rangle\rangle}\, \lambda \text{Q}_{\langle e,\langle s,t\rangle\rangle}\, \lambda s_s\,.\; \forall x \forall s_1[(s_1 \leq s_r \wedge \textsc{ex}(\text{P}(x))(s_1)) \rightarrow \exists s_2[s_1 \leq s_2 \leq s \wedge \text{Q}(x)(s_2)]]$

d. $\textsc{ex}(\text{S})(s) \Leftrightarrow s$ exemplifies the proposition S

With respect to reconstruction, the situation pronoun being an argument of the determiner satisfies the criteria in (62). As such, it render higher-type traces unable to produce reconstruction for referential opacity, as schematized in (68).

(68) $\underline{\underline{\lambda s_0}} \ldots [_{\text{DP}}\,[\text{ D } \underline{\underline{s_{0/*2}}}\,]\,[\text{ NP }]\,]\,[\,\lambda \mathcal{Q}_{\langle e,\langle s,t\rangle\rangle}\,[\ldots \underline{\underline{\lambda s_2}} \ldots \mathcal{Q} \ldots]\,]$

[32] The 's_r' stands for the *resource situation*, which just refers to the situation argument inside of DPs. It is only a notational convention and does not have a special status in the system.

[33] Minimality in (67) is in terms of *exemplification* (Kratzer 2009), following Schwarz (2012).

Unlike Lechner's analysis, which imposes a restriction on DP "from the top", the proposal that we are advancing here in (66) imposes a restriction on intensionality in DP "from the bottom": the determiner, viz. the head of the DP. While both proposals satisfy the restrictions on the expressive power of higher-type traces in (62), thereby preventing them from producing reconstruction for referential opacity, our proposal based on Schwarz (2012) does not force adopting a more extensional semantics more broadly.

5.4 Interim summary

We have argued that Hindi provides evidence for the existence of both higher-copy neglection 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 (69) and (70). These conclusions converge with those reached independently by Lechner (2013, to appear).

(69) *Properties of higher-copy neglection*
$\lambda s_0 \ldots \cancel{[_{\text{DP}}\ s\ \text{R-exp}_2\ ]} \ldots \text{pron}_{*2/3} \ldots \text{Op} \ldots \lambda s_1 \ldots [_{\text{DP}}\ s_{0/1}\ \text{R-exp}_2\ ] \ldots$

i. Reconstruction for scope

ii. Reconstruction for referential opacity

iii. Condition C connectivity

(70) *Properties of higher-type traces*
$\lambda s_0 \ldots [_{\text{DP}}\ s_{0/*1}\ \text{R-exp}_2\ ]\ [\ \lambda \mathcal{Q}_{\langle e,\langle s,t\rangle\rangle}\ [\ \ldots \text{pron}_{2/3} \ldots \text{Op} \ldots \lambda s_1 \ldots \mathcal{Q} \ldots$

i. Reconstruction for scope

ii. No reconstruction for referential opacity

iii. 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 neglection 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 4.3. By contrast, scope reconstruction is not similarly restricted. It can be produced by either higher-copy neglection 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 range of facts in section 4.2. Taken together, these consequences derive the empirical generalization I→C, repeated below in (71), from the interplay of the two mechanisms as complementary modes of reconstruction.

(71) *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, to appear]

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.

6 Extensions

The account developed in the previous section (§5) 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. Section 6.1 assesses a prediction that emerges from our account with respect to reconstruction for pronominal binding. Section 6.2 extends the account to the classical weak crossover effects noted in section 4.1.

6.1 Pronominal binding

This section discusses reconstruction for pronominal binding in Hindi and argues that it provides additional support for higher-copy neglection. As shown in (72), long distance scrambling in Hindi is able to reconstruct for pronominal binding: the pronoun *uske* 'her' may be bound by the matrix subject *har laṛkii* 'every girl', over which it scrambles. As discussed in section 5, long scrambling in Hindi invariably involves $\overline{\text{A}}$-scrambling (Mahajan 1990). (72) thus demonstrates that $\overline{\text{A}}$-scrambling may reconstruct for pronominal binding.

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

[**uske**$_1$	bhaaii-se	]$_2$	**har**	**laṛkii**$_1$	soctii	hai	[$_{\text{CP}}$ 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 neglection. 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—including the pronoun inside of it—is in its landing site at LF, such that being bound by an operator crossed by the movement is impossible, as schematized in (73).

(73) *LF of (72) with higher-type traces* $\rightsquigarrow$ *No bound reading*
[**her** brother] [$\lambda\mathcal{Q}_{\langle\langle e,t\rangle,t\rangle}$ [[**every girl**] thinks [that K. K. will marry $\mathcal{Q}$]]]

This restriction entails that (72) must involve higher-copy neglection, as schematized in (74). 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.[34]

(74) *LF of (72) with higher-copy neglection* $\rightsquigarrow$ *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 neglection, then it should induce Condition C connectivity. As (75) demonstrates, this prediction is indeed borne out (Rajesh Bhatt, p.c.).[35] In (75a), the $\overline{\text{A}}$-scrambled DP contains a bound pronoun (*uske* 'her') and an R-expression (*Ram*). The $\overline{\text{A}}$-scrambling step crosses (i) a DP that binds the pronoun (*har laṛkii-ko* 'every girl-DAT') and (ii) a pronoun that is coindexed with the R-expression (*us-ne* 'he-ERG'). The resulting structure is illformed. (75b) 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 well-formed, demonstrating that the illformedness of (75a) is indeed the result of a Condition C violation.

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

a. * [**uske**$_1$ us bhaaii-se [jise $\boxed{\text{Ram}_2}$ jaanataa hai]]$_3$ $\boxed{\text{us-ne}_2}$ **har**
her that brother-INSTR REL Ram knows AUX he-ERG every
laṛkii-ko$_1$ kahaa [$_{\text{CP}}$ ki Kareena Kapoor ___$_3$ shaadii karegii]
girl-DAT told that Kareena Kapoor marriage will do
Intended: 'He$_2$ told every girl x that Kareena Kapoor will marry that brother of x who Ram$_2$ knows.'

b. [**uske**$_1$ us bhaaii-se [jise $\boxed{\text{vo}_2}$ jaanataa hai]]$_3$ $\boxed{\text{Ram-ne}_2}$ **har**
her that brother-INSTR REL he knows AUX Ram-ERG every
laṛkii-ko$_1$ kahaa [$_{\text{CP}}$ ki Kareena Kapoor ___$_3$ shaadii karegii]
girl-DAT told that Kareena Kapoor marriage will do
'Ram$_2$ told every girl x that Kareena Kapoor will marry that brother of x who he$_2$ knows.'

The contrast in (75) is readily explained if (i) only higher-copy neglection may achieve pronominal-binding reconstruction and (ii) this procedure gives rise to Condition C connectivity, as argued in section 5. Thus, in (75a), binding of the DP-internal pronoun requires interpreting the lower copy of the DP, which results in a Condition C violation. Interpreting

[34] We assume that the matrix subject *har laṛkii* 'every girl' undergoes a step of short A-scrambling that ultimately yields a type-*e* λ-operator that binds the trace and the pronoun (following Heim and Kratzer 1998).

[35] Fox (1999) shows that pronominal-binding reconstruction also induces Condition C connectivity in English. We do not discuss Fox's data here for reasons of space.

the $\overline{\text{A}}$-scrambling via a higher-type trace is possible in (75a), but it is unable to produce a bound reading of the pronoun. Removing Condition C as a factor, as in (75b), permits higher-copy neglection and hence a bound reading of the pronoun.

6.2 Weak crossover

We saw in sections 4 and 5 that A-scrambling and $\overline{\text{A}}$-scrambling in Hindi differ in their ability to extend scope. On one hand, A-scrambling allows the launching site to be translated into a type-e variable, so that the moved DP takes scope in its landing site (see (49)). On the other hand, $\overline{\text{A}}$-scrambling obligatorily reconstructs for scope, either via higher-copy neglection or via higher-type traces (see (48)). In this section, we briefly demonstrate that this difference in the ability to extend scope sheds light on another interpretive difference between the two scrambling types. 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, as illustrated in (76a). By contrast, long-distance scrambling (LDS) displays weak crossover effects, as shown in (76b).

(76) 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 ___$_1$ dekhaa]
every boy-ACC his sister-ERG thought that Ram-ERG 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 5 provides a straightforward explanation for the contrast in (76) on the standard assumption that pronouns range over individuals (see, e.g., Sauerland 1998, Ruys 2000). Let us first consider LDS as in (76b). Because LDS in Hindi is invariably $\overline{\text{A}}$-scrambling, it must be interpreted via either higher-copy neglection or a higher-type trace (see (48)). If pronouns are of semantic 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 $\langle\langle e,t\rangle,t\rangle$, but the pronoun is of type e. As such, it cannot be bound by the λ-operator created by movement because the semantic types do not match (77).[36] The resulting LF is well-formed, but lacks a bound reading of the pronoun.

[36] We must make the fairly uncontroversial assumption that the bound pronoun cannot be type $\langle\langle e,t\rangle,t\rangle$ and then lowered to type e via a type-shifting operation. For arguments that bound expressions independently cannot be type shifted, see Poole (2017, 2018).

(77) *LF of $\overline{\text{A}}$-scrambling (76b) with higher-type traces ⇝ No bound reading*

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

Second, with higher-copy neglection, only the lower copy of the moved DP is interpreted. As this copy does not c–command the pronoun, binding is impossible (78).

(78) *LF of $\overline{\text{A}}$-scrambling (76b) with higher-copy neglection ⇝ 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 5.

Compare LDS to local scrambling, which is not subject to weak crossover (76a). Because local scrambling can be A-scrambling, it is possible to interpret it with a trace of semantic type *e* (see (49)), 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 the semantic types match; this is shown in (79).

(79) *LF of A-scrambling (76a) with a type-e trace ⇝ Bound reading possible*

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

It follows then that A-scrambling allows binding of a pronoun from the landing site of movement, but $\overline{\text{A}}$-scrambling does not. Due to the clauseboundedness of A-scrambling, LDS is necessarily $\overline{\text{A}}$-scrambling, hence unable to bind pronouns. In this way, our account derives the observation that LDS is subject to weak crossover and local scrambling is not from the independently observable scopal differences between the two scrambling types. 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).[37]

[37] 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 $\langle\langle e, t\rangle, e\rangle$, 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 (76b) would be as in (i):

(i) [every [$\lambda f^{\text{CH}}_{\langle\langle e,t\rangle,e\rangle}$ [**his**$_e$ sister thought [that Ram saw [$_{\text{DP}}$ f^{CH}(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

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, to appear). 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, Poole 2017). 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 neglection and higher-type traces coexist as complementary mechanisms of reconstruction, giving novel support for Lechner's (1998, 2013, to appear) independently motivated hybrid model of reconstruction. We showed how together (i) the interaction of higher-copy neglection and higher-type traces and (ii) the restrictions on these two mechanisms serve to 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, i.e. amount to interpreting the lower copy at LF; other reconstruction effects are purely semantic. The remainder of this paper is devoted to discussing some of the consequences and issues that emerge from our proposal. The status of LF under the hybrid model of reconstruction is taken up in section 7.1. Section 7.2 discusses several empirical questions about the typology of traces and reconstruction effects that our proposal raises. Finally, sections 7.3 and 7.4 briefly discuss Trace Conversion and the "third reading" of the *de re/de dicto* ambiguity respectively.

7.1 The status of LF

The debate about whether reconstruction effects are syntactic (i.e. higher-copy neglection) or semantic (i.e. higher-type traces) is tied to 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). If recon-

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.

struction effects could be reduced to only higher-type traces, then, as far as reconstruction is concerned, it would be unnecessary to posit LF in our modelling of the syntax–semantics interface.

In relation to this debate, we make two contributions: First, not all quantificational scope maps directly to c–command relations, because higher-type traces create instances where a DP scopes below some other scope-bearing element even though it c–commands that element. Second, LF as a level of representation is nevertheless required if we want to systematically account for how Condition C connectivity applies to some but not all reconstruction effects. This state of affairs is, in some sense, a middle ground between what proponents and opponents of LF advocate for the syntax–semantics interface.

7.2 The typology of traces and reconstruction

The conclusions reached in this paper raise questions about the typology of ways in which movement dependencies may be interpreted and the typology of reconstruction effects. In this section, we highlight three of these questions.

First, Ruys (2015) proposes that a type-*e* trace is always available to interpret a movement dependency as a default (his *Condition on Trace Typing*). Hindi $\overline{\text{A}}$-scrambling poses a challenge for this proposal because it instantiates a movement type for which scope reconstruction is obligatory. The case of Hindi $\overline{\text{A}}$-scrambling indicates that there are movement configurations that resist type-*e* traces, just as there are movement configurations that resist higher-type traces (e.g. *wh*-islands, see Cresti 1995, Rullmann 1995, Ruys 2015). It appears, then, that there is variability in whether a given movement type allows higher-copy neglection, individual-type traces, higher-type traces, or some combination thereof. A general question that emerges at this point is whether all logically possible 2^3 options are attested, and whether the availability of a given mode of interpretation correlates with some independently observable property of the language or movement type. A comprehensive answer to this broader question requires a careful examination of the semantic properties of a larger range of movement types in a greater range of languages. We hope that by investigating the semantics of scrambling in Hindi, this paper contributes towards this goal.

Second, a related question is whether I→C holds crosslinguistically. Recall from section 3 that Q→C and I→C were both initially posited on the basis of English, even though they are conflicting generalizations. We would like to suggest that English also obeys I→C. It is instructive to observe that Romero's (1997, 1998) and Fox's (1999) original evidence for Q→C did not control for intensionality. Once intensionality is controlled for, a reconstructed-scope, transparent reading appears to be possible. Consider again Romero's (1998) original example in (26), repeated here as (80), which we have supplemented with a scenario that enforces a transparent interpretation of the moved DP. In this scenario, our consultants accept the sentence with a reconstructed-scope reading.

(80) *Scenario: 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 (80), 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 3, and it reconciles Romero's (1997, 1998) and Fox's (1999) evidence with I→C.

These considerations also cast light on the relationship between reconstruction in English and Hindi. It seems reasonable at this point to conclude that there is no fundamental difference between the two languages in this domain: Both languages in principle allow scope reconstruction in the presence of a potential Condition C violation, but such reconstruction is more easily detectable in Hindi because it is the only available reading, given that surface scope is ruled out for $\overline{\text{A}}$-scrambling in general. In English, on the other hand, the general availability of a surface-scope interpretation might mask the presence of the reconstructed-scope (transparent) reading along the lines just suggested. If this line of reasoning is on the right track, it suggests that I→C holds in both English and Hindi alike.

Third, Poole (2017) proposes a general ban on higher-type traces (his *Trace Interpretation Constraint*): movement may either reconstruct (via higher-copy neglection) or be interpreted with an individual-type trace. 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): the empirical arguments for Poole's (2017) 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.

7.3 Trace Conversion

As mentioned in section 2.1.1, recent work has advanced the hypothesis that traces are not simplex, but rather more articulated, namely bound definite descriptions (Sauerland 1998, 2004, Fox 1999, 2002, 2003; see also Engdahl 1980, 1986). This hypothesis is most commonly known under the name *Trace Conversion*. The issue of whether traces are simplex or articulated is largely orthogonal to considerations of what semantic types a trace can be. It is in principle possible for Trace Conversion to produce definite descriptions of semantic type $\langle\langle e, t\rangle, t\rangle$ and other higher semantic type. See Lechner (to appear:23–24) for a type-general version of Trace Conversion along these lines.

7.4 The third reading in the *de re*/*de dicto* ambiguity

Under our proposal, there are two ways to arrive at the "third interpretation" in the *de re*/*de dicto* ambiguity, where a DP is interpreted transparent to some intensional operator, but takes scope below that operator: the standard way (81a) (Percus 2000) and with a higher-type trace via (overt or covert) movement (81b) (see also von Fintel and Heim 2011:111–112).

(81) a. *Achieving the third reading in the base position*
$\lambda s_0 \, [\, \ldots \text{Op} \, [\, \lambda s_1 \, [\, \ldots \text{DP}_{s_0/s_1} \ldots \,]\,]\,]$ (Op $\gg$ DP)

b. *Achieving the third reading with higher-type traces*
$\lambda s_0 \, [\, \ldots \underset{\uparrow}{\text{DP}}_{s_0/*s_1} \, [\, \lambda \mathcal{Q}_{\langle\langle e,t\rangle,t\rangle} \, [\, \ldots \text{Op} \, [\, \lambda s_1 \, [\, \ldots \mathcal{Q} \ldots \,]\,]\,]\,]\,]\,]$ (Op $\gg$ DP)

It is worth highlighting that the Hindi reconstruction facts are incompatible with Keshet's (2008, 2011) 'split intensionality' scope-based theory of the *de re*/*de dicto* ambiguity. He proposes that the scope and the intensionality of an intensional operator are spilt into two components: Op and ^ respectively. The third reading is derived by moving a DP between Op and ^ at LF, as schematized in (82), so that the DP takes narrow scope with respect to Op, but is not evaluated intensionally with respect to ^.

(82) *Keshet's (2008, 2011) theory of split intensionality*
$\ldots \text{Op} \, [\, \text{DP} \, [\, \lambda x_e \, [\, {}^\wedge \, [\, \ldots x \ldots \,]\,]\,]\,]\,] \ldots$ (Op $\gg$ DP)

If (82) were the (only) way of achieving the third reading, then a moved DP exhibiting the third reading should display the same Condition C connectivity with respect to the matrix clause as a moved DP exhibiting an opaque (i.e. *de dicto*) reading displays. We saw in section 4.3 that this is not the case in Hindi (see (45b)). Thus, the pattern that we observe for reconstruction effects is compatible with the theory of overt situation/world pronouns (81), but not with the scope theory of *de re*/*de dicto*.

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