Case, landing sites, and movement type asymmetries

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1 Movement type asymmetries

- As is well-known, the A/$\overline{\text{A}}$-distinction manifests itself in a variety of ways in English. Here I will focus on (i) absence of weak crossover, (ii) amnesty of Principle C violations, and (iii) locality.

(1) **English A- vs. $\overline{\text{A}}$-movement**

	A-movement	$\overline{\text{A}}$-movement
Absence of weak crossover	✓	✗
Principle C amnesty w/ adjuncts	✓	✓
Principle C amnesty w/ arguments	✓	✗
Locality: Movement out of CP	✗	✓

- **Absence of weak crossover**
  While an $\overline{\text{A}}$-moved element cannot bind a pronoun from its landing site (2a), A-movement can feed pronominal binding (2b) (Postal 1971, Wasow 1972).

(2) a. *$\overline{A}$-movement:* ✗
         *Which student$_i$ did his$_i$ advisor meet t?

     b. *A-movement:* ✓
         Every student$_i$ seemed to his$_i$ advisor t to be the smartest.

- **Principle C amnesty: Lebeaux effects**
  $\overline{\text{A}}$-movement amnesties Principle C violations incurred by R-expressions inside adjuncts (3a), but not ones by R-expressions inside arguments (3b) (van Riemsdijk & Williams 1981, Lebeaux 1988).

(3) **$\overline{\text{A}}$-movement**

     a. *Adjunct:* ✓
         [Which argument that John$_i$ made] did he$_i$ believe t?

     b. *Argument:* ✗
         *[Which argument that John$_i$ is a genius] did he$_i$ believe t?

- By contrast, A-movement amnesties Principle C violations for both adjuncts and arguments (Chomsky 1993, Sauerland 1998, Fox 1999, Takahashi & Hulsey 2009):

(4) **A-movement**

     a. *Adjunct:* ✓
         [The argument that John$_i$ made] seemed to him$_i$ [t to be correct].

     b. *Argument:* ✓
         [The claim that John$_i$ was asleep] seems to him$_i$ [t to be correct].

- **Locality: Movement out of CP**
  A- and $\overline{\text{A}}$-movement differ in their locality. While $\overline{\text{A}}$-movement may leave finite clauses (5a), A-movement may not (5b) (Chomsky 1973, 1977, 1981, May 1979).

(5) a. *$\overline{A}$-movement:* ✓
         Who do you think [$_{\text{CP}}$ t likes oatmeal]?

     b. *A-movement:* ✗
         *Sue seems [$_{\text{CP}}$ t likes oatmeal].

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- **Claims in this talk:**
  - Not all of these asymmetries have the same underlying source: Some track the landing site of movement, others its relation to case.
  - In English, they are largely confounded, giving the impression of a cluster.
  - In Hindi, case and landing site are deconfounded:

    * **A-scrambling**: lands in Spec,TP; does not feed case
    * **$\overline{\text{A}}$-scrambling**: lands in Spec,CP; does not feed case

- Some interpretive properties correlate with the landing site, other with case (6).
- Specifically, the Hindi facts provide support for a Late Merger account of Principle C obviation and a higher-typed trace account of crossover and scope reconstruction.

(6)   **A-scrambling and $\overline{\text{A}}$-scrambling in Hindi**

	A-scrambling	$\overline{\text{A}}$-scrambling
Landing site	TP	CP
Absence of weak crossover	✓	✗
Scope extension	✓	✗
Locality: Movement out of CP	✗	✓
Feeds case assignment	✗	✗
Principle C amnesty w/ arguments	✗	✗
Principle C amnesty w/ RCs	✓	✓

2 Scrambling in Hindi

- **Overview**
  Scrambling in Hindi is not a uniform phenomenon (Mahajan 1990). We can distinguish between 'A-scrambling' and '$\overline{\text{A}}$-scrambling'. Their properties do not neatly align with the A/$\overline{\text{A}}$-contrast in Hindi.

2.1 A-scrambling

1. no weak crossover,
2. does not amnesty Principle C violations with arguments,
3. amnesties Principle C violations with relative clauses,
4. extends scope, and
5. may not leave finite clauses.

2.1.1 Absence of weak crossover: ✓

- A locally moved element can bind a pronoun from its landing site (Gurtu 1985, 1992, Déprez 1989, Mahajan 1990, 1994, Jones 1993, Dayal 1994, Kidwai

2000). Such movement is thus able to obviate weak crossover that arises in the absence of movement.

(7)   a. *No-movement baseline*
    [*us-kii*$_{*i/j}$ behin-ne] har larke-ko$_i$ dekhaa
     3SG-GEN sister-ERG every boy-ACC saw
    'His/her$_{*i/j}$ sister saw every boy$_i$.'   (*bound reading impossible*)

   b. *Object movement*
    har larke-ko$_i$ [*us-kii*$_i$ behin-ne] t_i dekhaa
    every boy-ACC 3SG-GEN sister-ERG saw
    'For every boy x, x's sister saw x.'

2.1.2 Principle C amnesty

- **Arguments: ✗**
  A-scrambling does not amnesty a Principle C violation with arguments (Bhatt 2003, 2016). Both sentences in (8) are ungrammatical on a coreferential reading, regardless of whether movement has taken place or not.

(8)   a. *No-movement baseline*
    *us-ne$_i$ [mohan-kii$_i$ behin-ko] dekhaa
    he-ERG Mohan-GEN sister-ACC saw
    '*He$_i$ saw Mohan$_i$'s sister.'

   b. *Object movement*
    *[mohan-kii$_i$ behin-ko]$_j$ us-ne$_i$ t_j dekhaa
     Mohan-GEN sister-ACC he-ERG saw
    '*He$_i$ saw Mohan$_i$'s sister.'

- **Relative clauses (Lebeaux effects): ✓**
  With relative clauses, on the other hand, Principle C violations are amnestied in Hindi just as they are in English:

(9)   [vo kitaab jo raam-ko$_i$ pasand thii]$_j$ us-ne$_i$ kal t_j
    that book REL Ram-DAT like AUX 3SG-ERG yesterday
    bec dii
    sell give
    'The book that Ram$_i$ liked, he$_i$ sold yesterday.'

2.1.3 Scope extension: ✓

- A-scrambling can extend scope and enable interpretations that are unavailable in the absence of movement:[1]

(10) a. *Scope rigidity without movement*
kisii laṛkii-ne har laṛke-ko ḍããṭaa
some girl-ERG every boy-ACC scolded
'Some girl scolded every boy.'   (∃ > ∀; *∀ > ∃)

   b. *A-movement widens scope*
har laṛke-ko kisii laṛkii-ne *t* ḍããṭaa
every boy-ACC some girl-ERG   scolded
'Some girl scolded every boy.'   (∀ > ∃)

2.1.4 Locality

- Movement out of a finite clause is possible (11a), but such movement only exhibits A̅-properties (Gurtu 1985, 1992, Déprez 1989, Mahajan 1990, 1994, Jones 1993). It is subject to weak crossover (11b).

(11) **Movement out of finite clause**: No pronominal binding

   a. *No binding → okay*
har laṛke-ko$_i$ [*us-kii$_j$* bahin] soctii hai
every boy-ACC   3SG-GEN sister think AUX

   [ki raam-ne *t$_i$* dekhaa]
     that Ram-ERG   see
'His/her$_j$ sister thinks that Ram saw every boy$_i$.'

   b. *Binding → impossible*
*****har** laṛke-ko$_i$ [*us-kii$_i$* bahin] soctii hai
every boy-ACC   3SG-GEN sister think AUX

   [ki raam-ne *t$_i$* dekhaa]
     that Ram-ERG   see
Intended: 'For every boy x, x's sister thinks that Ram saw x.'

- Scrambling out of a finite clause is of a different type than scrambling within a finite clause.

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[1] Some complications aside, reconstructed readings are also possible. This is the result of ambiguity between A-scrambling and A̅-scrambling appying clause-internally.

2.2 A̅-scrambling

1. subject to weak crossover,
2. does not amnesty Principle C violations with arguments,
3. amnesties Principle C violations with relative clauses,
4. does not extend scope, and
5. may leave finite clauses.

2.2.1 Crossover and locality

- We already saw in (11a) that A̅-scrambling can leave a finite clause. Furthermore, (11b) has demonstrated that such movement is subject to weak crossover.

2.2.2 Principle C amnesty

- **Arguments: ✗**
Just like A-scrambling, A̅-scrambling in Hindi is unable to amnesty a Principle C violation incurred in the base position. Coreference is impossible in (12).

(12) *[mohan-kii$_i$ behin-ko]$_j$ us-ne$_i$ socaa [ki raam-ne t_j
      Mohan-GEN sister-ACC   3SG-ERG thought that Ram-ERG
      dekhaa]
      saw
'*He$_i$ thought that Ram saw Mohan's$_i$ sister.'

- **Relative clauses (Lebeaux effects): ✓**
Again just like A-scrambling, A̅-scrambling in Hindi does obviate Principle C violations for elements inside relative clauses:

(13) [vo kitaab jo raam-ko$_i$ pasand thii] us-ne$_i$ socaa [ki
      that book REL Ram-DAT like AUX 3SG-ERG said that
      siitaa-ne kal   *t* bec dii thii]
      Sita-ERG yesterday   sell give AUX
'The book that Ram$_i$ liked, he$_i$ said that Sita had sold yesterday.'

2.2.3 Scope extension: ✗

- Unlike A-scrambling, A̅-scrambling does not extend scope. The moved element *har kek-ko* 'every cake' has to take scope in the embedded clause.

(14) **har kek-ko**$_i$ kisii laṛke-ne socaa [ki prataap-ne t_i khaa
every cake-ACC some boy-ERG thought that Pratap-ERG eat

liyaa hai]
take AUX

'Every cake, some boy thought that Pratap has eaten (it).'

($\exists > \forall$; *$\forall > \exists$)

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☞ **Section summary**
A summary of the crucial properties of A- and $\overline{\text{A}}$-scrambling in Hindi is provided in (15).

(15) **Interpretive properties of A- and $\overline{\text{A}}$-scrambling in Hindi**

	A-scrambling	$\overline{\text{A}}$-scrambling
Absence of weak crossover	✓	✗
Scope extension	✓	✗
Locality: Movement out of CP	✗	✓
Principle C amnesty w/ arguments	✗	✗
Principle C amnesty w/ RCs	✓	✓

- $\overline{\text{A}}$-scrambling behaves like $\overline{\text{A}}$-movement in English.

- A-scrambling falls between the two:
  - A-properties: no weak crossover, locality
  - $\overline{\text{A}}$-properties: obligatory Principle C reconstruction with arguments

- **Question**
  Is it possible to predict this constellation of properties from independently motivated aspects of the two movement types? – Yes!

3 Case and landing sites in Hindi

- **Overview**
  The movement properties in Hindi can be explained if crossover, scope, and locality track the landing site of movement, whereas Principle C amnesty with arguments tracks case.

3.1 The landing sites of A- and $\overline{\text{A}}$-scrambling in Hindi

- It is difficult to determine where A- and $\overline{\text{A}}$-movement land in Hindi due to its head-final structure and very flexible word order. I will use clause size as an indirect diagnostic.

- **Background: The size of clauses in Hindi**
  There is good evidence that finite and nonfinite clauses differ in their sizes in Hindi:

  1. Finite clause can bear the complementizer *ki* 'that' and carry interrogative force.
  2. Nonfinite clauses can never contain a complementizer and obligatorily lack interrogative force (Mahajan 1990, Srivastav 1991, Dayal 1996).

  (16) **Hindi clause size**
    a. Finite clauses are CPs.
    b. Nonfinite clauses are TPs.

- The claim that nonfinite clauses in Hindi are structurally smaller than finite ones is fairly uncontroversial (see Dayal 1996, Boeckx 2004, Bhatt 2005, Chandra 2007).

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3.1.1 A-scrambling

- A-scrambling in Hindi can land inside a nonfinite clause. This is shown in (17) and (18), where the nonfinite clause is extraposed to demarcate its left edge.

- In both cases, a direct object is scrambled over another element, while still landing inside a nonfinite clause. These bound interpretations are unavailable in the absence of movement.

(17) *A-scrambling can land inside nonfinite clause: Adverb*
siitaa-ne caahaa [**har laṛkii-ko**$_i$ *us-kii*$_i$ shaadii ke dauraan
Sita-ERG wanted every girl-ACC 3SG-GEN wedding during

t_i dekhnaa]
see.INF

'Sita wanted to see every girl x at x's wedding.'

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(18) *A-scrambling can land inside nonfinite clause: Double objects*
raam-ne   caahaa [**har   kuttaa**$_i$ *us-ke*$_i$ baccõ-ko t_i
Ram-ERG   wanted every dog   3SG-GEN   children-DAT

dikhaanaa]
show.INF

'Ram wanted to show every dog *x* to *x*'s children.'

☞ **Conclusion:**
A-scrambling must land in **Spec,TP** or lower. For the sake of concreteness, I will assume that A-scrambling lands in Spec,TP (see Keine 2016 for additional evidence to this effect).

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3.1.2 $\overline{\text{A}}$-scrambling

- In stark contrast, $\overline{\text{A}}$-scrambling cannot land inside a nonfinite clause (19).[2]

  – Because it leaves the innermost finite clause, the movement in (19) is $\overline{\text{A}}$-scrambling.

  – (19b) shows that $\overline{\text{A}}$-scrambling cannot land in the intermediate nonfinite clause.

  – (19c) demonstrates that it is the landing site that makes (19b) bad: If the same element is moved all the way into the matrix clause, the result is grammatical.

(19) **$\overline{\text{A}}$-movement cannot land in nonfinite clauses**

a. *Base configuration:*
mãĩ caahtaa hũũ [kah-naa [ki   mãĩ-ne **kitaab** paṛh lii
I   want   AUX say-INF that I-ERG   book   read take

hai]]
AUX

'I want to say that I read the book.'

$\checkmark$[$_{\text{matrix clause}}$ [$_{\text{non-finite clause}}$ [$_{\text{finite clause}}$ DP]]]

b. *No $\overline{\text{A}}$-mvt into non-finite clauses:*
*mãĩ caahtaa hũũ [**kitaab**$_i$ kah-naa [ki   mãĩ-ne t_i paṛh lii
I   want   AUX book   say-INF that I-ERG   read take

hai]]
AUX

*[$_{\text{matrix clause}}$ [$_{\text{non-finite clause}}$ DP [$_{\text{finite clause}}$ t]]]
$\overline{\text{A}}$

c. *$\overline{\text{A}}$-mvt into finite clauses:*
kitaab$_i$ mãĩ caahtaa hũũ [kah-naa [ki   mãĩ-ne t_i paṛh lii
book   I   want   AUX say-INF that I-ERG   read take

hai]]
AUX

$\checkmark$[$_{\text{matrix clause}}$ DP [$_{\text{non-finite clause}}$ [$_{\text{finite clause}}$ t]]]
$\overline{\text{A}}$

☞ **Conclusion:**
$\overline{\text{A}}$-scrambling lands in **Spec,CP**, higher than A-scrambling.

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3.2 The case properties of A- and $\overline{\text{A}}$-scrambling

- **Overview**
Neither A- nor $\overline{\text{A}}$-scrambling feeds case assignment in Hindi. Rather, both types of movement apply to DPs that have already been assigned case.

- **Evidence: Case connectivity**
Neither A- nor $\overline{\text{A}}$-scrambling affects case in Hindi. The case of a moved element always matches its base position. This is illustrated for direct objects in (20) and for instrumental objects in (21).

(20) **Case connectivity: Direct objects**

a. *Baseline*
siitaa-ne **raam-{ko/*se}**   dekhaa
Sita-ERG Ram-{ACC/*INSTR} saw
'Sita saw Ram.'

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b. *A-scrambling*
raam-{ko/*se}$_i$ siitaa-ne t_i dekhaa
Ram-{ACC/*INSTR} Sita-ERG   saw
'Sita saw Ram.'

c. *$\overline{A}$-scrambling*
raam-{ko/*se}$_i$ siitaa-ne socaa   hai [ki   prataap-ne t_i
Ram-{ACC/*INSTR} Sita-ERG thought AUX   that Pratap-ERG
   dekhaa]
   saw
'Sita thought that Pratap saw Ram.'

(21) **Case connectivity: Instrumentals**[3]

a. *Baseline*
prataap **siitaa-{se/*ko}**   milaa hai
Pratap   Sita-{INSTR/*ACC} met   AUX
'Pratap met Sita.'

b. *A-scrambling*
siitaa-{se/*ko}$_i$ prataap t_i milaa hai
Sita-{INSTR/*ACC} Pratap   met   AUX
'Pratap met Sita.'

c. *$\overline{A}$-scrambling*
siitaa-{se/*ko}$_i$ raam-ne socaa   [ki   prataap t_i milaa
Sita-{INSTR/*ACC} Ram-ERG thought that Pratap   met
   hai]
   AUX
'Ram thought that Pratap met Sita.'

☞ **Section summary**
A- and $\overline{A}$-scrambling in Hindi differ with respect to their landing site, but not with respect to case.

– **Landing site:** A-scrambling lands in Spec,TP (or lower), $\overline{A}$-scrambling lands in Spec,CP

– **Case:** Neither A- nor $\overline{A}$-scrambling feeds case assignment. Both apply to already case-marked DPs.

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[3] The accusative marker *-ko* is marginally possible in (21) under the reading 'Sita found Pratap'. The possibility of *-ko* and the distribution of its reading is not affected by movement.

4 Proposal

- The various interpretative properties of movement types have distinct sources:

  1. **Landing site**: weak crossover, scope, and locality → type of trace + ban on improper movement

  2. **Case**: Principle C amnesty with arguments → Wholesale Late Merger

  3. **Principle C amnesty with RCs** is freely possible

(22) **Proposal: Clusters of A- and $\overline{A}$-properties in Hindi**

	A-scrambling	$\overline{A}$-scrambling
Landing site	TP	CP
Absence of weak crossover	✓	✗
Scope extension	✓	✗
Locality: Movement out of CP	✗	✓
Feeds case assignment	✗	✗
Principle C amnesty w/ arguments	✗	✗
Principle C amnesty w/ RCs	✓	✓

4.1 Principle C amnesty: Late Merge

4.1.1 Principle C amnesty with adjuncts (Lebeaux effects)

- One influential line of account of Principle C amnesty effects is due to Lebeaux (1988). According to this analysis, syntactic material can be countercyclically merged after movement has applied. This obviates a Principle C violation.

(23) a. [Which argument that John$_i$ made] did he$_i$ believe t?

b. *Late-Merge structure:*
[Which argument that John$_i$ made] did he$_i$ believe [which argument]?

c. *Interpretation:*
[Which argument that John$_i$ made] λx. he$_i$ believed x?

- **Adjuncts vs. arguments**
This type of Late Merge must be limited to adjuncts and unavailable to arguments:

(24) *[Which argument that John$_i$ is a genius] did he$_i$ believe t?

- Late Merge of arguments is ruled out by the Projection Principle/Θ-Criterion, following Lebeaux (1988), Chomsky (1993), and others.

  (25) **Projection Principle** (Chomsky 1981)
  The subcategorization/Θ-properties of a lexical item must be satisfied throughout the derivation.

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4.1.2 Principle C amnesty with arguments: English

- A-movement amnesties Principle C violations across the board in English. Takahashi & Hulsey (2009) propose that these effects are likewise due to Late Merger.

- **Wholesale Late Merger**
  Following a proposal by Bhatt & Pancheva (2004, 2007), Takahashi & Hulsey (2009) suggest that A-movement allows Late Merge of the entire NP component of a DP. As a result, Principle C violations are universally obviated under A-movement.

  (26) **Wholesale Late Merger of NP**
  a. [Every argument that John$_i$ is a genius] seems to him$_i$ [t to be flawless].
  b. *Wholesale Late Merger structure*
  [$_{DP}$ Every argument that John$_i$ is a genius] seems to him$_i$ [[$_D$ every] to be flawless].
  c. *Interpretation after trace conversion*
  [Every argument that John$_i$ is a genius] λx. seems to him$_i$ [x to be flawless].

- **The crucial role of case**
  WLM must be available for A-movement only (24). Takahashi & Hulsey (2009) attribute it to the Case Filter:

  (27) **Case Filter**
  NPs need case. As a consequence, WLM is impossible after case has been assigned.

☞ **WLM in English:**
  – A-movement feeds case → WLM possible
    → Principle C amnesty with arguments

– $\overline{\text{A}}$-movement does not feed case → WLM impossible
  → no Principle C amnesty with arguments

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4.1.3 Principle C amnesty with arguments: Hindi

- **No WLM at all**
  I have shown in section 3.2 that in Hindi neither A- nor $\overline{\text{A}}$-scrambling feeds case assignment. Takahashi & Hulsey's (2009) system thus predicts that neither has access to WLM.

  ☞ A-scrambling does not feed case → WLM impossible
  ☞ $\overline{\text{A}}$-scrambling does not feed case → WLM impossible

- This is correct, as shown in section 2. The example is repeated in (28):

  (28) **No Principle C amnesty in Hindi** ⌐ *locus of case assignment*
  *[mohan-kii$_i$ behin-ko]$_j$ us-ne$_i$ t_j dekhaa
  Mohan-GEN sister-ACC he-ERG saw
  '*He$_i$ saw Mohan$_i$'s sister.'

  (29) a. ***Wholesale Late Merger in (28) ⇒ violates Case Filter**
  [mohan-kii$_i$ behin-ko] us-ne$_i$ [D] dekhaa
  Mohan-GEN sister-ACC 3SG-ERG saw
  ⌣ *lacks case*

  b. ***Argument Late Merger in (28) ⇒ violates Projection Principle**
  [mohan-kii$_i$ behin-ko] us-ne$_i$ [$_{PossP}$ behin-ko] dekhaa
  Mohan-GEN sister-ACC 3SG-ERG [$_{PossP}$ sister-ACC] saw
  violates Projection Principle ⌐

☞ **Upshot**
  Takahashi & Hulsey's (2009) account of Principle C amnesty effects derives the difference between English and Hindi from independently motivated differences in their relation to case.

  (30) **Principle C amnesty tracks case**

		A-scrambling	$\overline{\text{A}}$-scrambling
Wholesale Late Merger	Feeds case assignment	✗	✗
	Principle C amnesty w/ arguments	✗	✗

4.2 Weak crossover and scope

- A- and $\overline{\text{A}}$-scrambling differ w. r. t. crossover and scope extension. This behavior is correlated with their landing sites, not case.

(31) **Landing sites, crossover, and scope**

	A-scrambling	$\overline{\text{A}}$-scrambling
Landing site	TP	CP
Absence of weak crossover	✓	✗
Scope extension	✓	✗

- **Absence of weak crossover as pronominal binding**
  Following standard practice (e.g., Heim & Kratzer 1998), binding obtains through λ-abstraction over an individual variable.

(32) **Pronominal binding with A-movement**

   a. Every student$_i$ seemed to her$_i$ advisor [t to be the smartest].

   b. Every student λx. seemed to x's advisor [x to be the smartest]

- **What about $\overline{\text{A}}$-movement?**
  Why can $\overline{\text{A}}$-movement/$\overline{\text{A}}$-scrambling not bind a pronoun? I will first argue against a choice function account, but then propose that the key insight of a choice function account can be preserved on a higher-typed trace approach.

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4.2.1 First stab: Choice functions

- One attractive approach to weak crossover has been proposed by Sauerland (1998, 2004) and Ruys (2000). It is based on the assumption that $\overline{\text{A}}$-movement is interpreted as abstraction over choice functions (Reinhart 1998).

(33) **Binding of choice function variables**

   a. Which student did you see?

   b. $\lambda p \, \exists f^{\text{CH}} \, [p = \lambda w \, [\text{you saw } f(\text{student}) \text{ in } w]]$

- On the assumption that pronouns are type e, it follows a pronoun cannot be bound by choice function abstraction.

(34) **Choice functions and binding**

   a. *Which student$_i$ did her$_i$ advisor meet t?

   b. $[\![C']\!] = \lambda f^{\text{CH}}_{\langle et,e \rangle} \lambda w \, [\text{his}_e \text{ advisor met } f_{\langle et,e \rangle}(\text{student}) \text{ in } w]$

   c. $[\![CP]\!] = \lambda p \, \exists f^{\text{CH}}_{\langle et,e \rangle} \, [p = \lambda w \, [\text{his}_e \text{ advisor met } f_{\langle et,e \rangle}(\text{student}) \text{ in } w]]$

- **Application to Hindi:**
  On a choice function account, the fact that $\overline{\text{A}}$-scrambling does not feed pronominal binding entails that $\overline{\text{A}}$-scrambling also involves abstraction over choice functions.

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- **Problem 1: Choice functions and late merge**
  One challenge for a choice function account has already been noted by Sauerland (1998): It is not straightforwardly compatible with late merge.

  – In a choice function approach, the NP restrictor is only interpreted in the launching site.
  – Late merge requires a restrictor to be interpreted in the landing site.

- Lebeaux effects with $\overline{\text{A}}$-movement in both English and Hindi are thus problematic for a choice function account. The problem can be solved with type shifters (see Sauerland 1998 for a proposal), but such a solution is *ad hoc*.

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- **Problem 2: Crossover and scope**
  Because binding of choice functions extends scope, $\overline{\text{A}}$-scrambling in Hindi should extend scope. This is incorrect:[4]

(35) **har kek-ko$_i$** kisii laṛke-ne socaa [ki prataap-ne t_i khaa
      every cake-ACC some boy-ERG thought that Pratap-ERG eat

   liyaa hai]
   take AUX

   'Every cake, some boy thought that Pratap has eaten (it).'

   (∃ > ∀; *∀ > ∃)

(36) **Illicit wide scope of (35)**
   'For all choice functions f^{CH}, there exists a boy x s.t. x thought that Pratap has eaten $f^{\text{CH}}(\text{cake})$.'

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4   See Sauerland (1998) for a proposal that extends choice functions to all quantifiers.

☞ For these reasons, choice functions are not the right means of capturing weak crossover in Hindi.

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4.2.2 An alternative: Higher-typed traces

- Cresti (1995) and Rullmann (1995) propose an account of scope reconstruction on which the variable that is abstracted over can be of two types (also see Ruys 2015 and Lechner to appear):

(37) a. *Individual variable:*
      $\lambda x_e \rightarrow$ wide scope

   b. *Generalized quantifier variable:*
      $\lambda X_{\langle et,t\rangle} \rightarrow$ narrow scope

- **The role of landing sites:**
Because A- and $\overline{A}$-scrambling differ in their landing site, the crucial semantic difference between them can be formulated on the basis of the movement-inducing heads:

(38) **Proposal**

   a. **Hindi A-scrambling**:
      A movement feature on T is interpreted as λx_e-abstraction.

   b. **Hindi $\overline{A}$-scrambling**:
      A movement feature on C is interpreted as $\lambda X_{\langle et,t\rangle}$-abstraction

- **Application 1: Scope**
Because $\overline{A}$-scrambling targets Spec,CP, it follows from (38) that it does not extend scope:[5]

(39) *$\overline{A}$-scrambling obligatorily reconstructs*
   har   kek-ko$_i$ kisii laṛke-ne socaa [ki   prataap-ne t_i khaa
   every cake-ACC some boy-ERG thought that Pratap-ERG   eat
     liyaa hai]
     take AUX
   'Every cake, some boy thought that Pratap has eaten (it).'
   ($\exists > \forall$; *$\forall > \exists$)

(40) *Deriving obligatory reconstruction through higher-type traces:*
   '[every cake] $\lambda X_{\langle et,t\rangle}$ [some boy thought that Pratap has eaten X].'

- **Application 2: Crossover**
The crossover facts likewise follow from (38): $\lambda X_{\langle et,t\rangle}$ cannot bind a pronoun of type e in its scope.

(41) *$\overline{A}$-scrambling does not feed binding*
   ***har   laṛke-ko$_i$** [*us-kii$_i$* bahin] soctii hai
   every boy-ACC   3SG-GEN sister   think AUX

     [ki   raam-ne t_i dekhaa]
      that Ram-ERG   see
   Intended: 'For every boy x, x's sister thinks that Ram saw x.'

(42) *Deriving weak crossover*
   '[every boy] $\lambda X_{\langle et,t\rangle}$ [his$_e$ sister thinks that Ram saw X].'

───◦◦◦◦───

4.2.3 A prediction: Scope and Principle C

- The system makes an intriguing prediction: It should be possible to late merge an adjunct into an element that has undergone $\overline{A}$-scrambling. The result would obligatory reconstruction for scope, but not for Principle C. This prediction is strikingly borne out:

(43) *Dissociated reconstruction for scope and Principle C*
   [har   kitaab jo raam-ko$_i$ pasand hai] us-ne$_i$ kisii laṛkii-se
     every book REL Ram-DAT like   is   3SG-ERG some girl-INSTR
     kahaa [ki   miinaa-ne kal t bec dii]
     said   that Mina-ERG yesterday   sell give
   'Every book that Ram$_i$ likes, he$_i$ told some girl that Mina sold yesterday.'
   ($\exists > \forall$; *$\forall > \exists$)

(44) **Schematic structure of (43)**

   a. [every book [that Ram$_i$ likes]]$_j$ C he$_i$ told some girl
                        [that Mina sold [every book]$_j$ yesterday]
      ⤳ *no Principle C effect*

   b. [every book [that Ram$_i$ likes]] $\lambda X_{\langle et,t\rangle}$ he$_i$ told some girl
                        [that Mina sold X yesterday]
      ⤳ *obligatory scope reconstruction*

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[5]   The structure in (40) requires generalized quantifiers to be interpretable in object positions. Alternatively, a short step of local scrambling may precede the crucial long scrambling.

- **Hindi vs. English**
  Romero (1998) and Fox (1999) argue that in English, scope and Principle C are determined in the same position. The Hindi facts appear to allow precisely such a mismatch. So the mechanism of scope reconstruction seems to exhibit crosslinguistic variability.

  ··

☞ **Summary**
  Reconstruction for weak crossover and scope coincide in Hindi and track the landing site of movement. This distribution mismatches with the availability of late merger.

(45) **Weak crossover and scope track landing site**

	A-scrambling	$\overline{\text{A}}$-scrambling
Landing site	TP	CP
Absence of weak crossover	✓	✗
Scope extension	✓	✗
Principle C amnesty w/ RCs	✓	✓

type of trace brackets Landing site, Absence of weak crossover, Scope extension.

————∞❦∞————

4.3 Locality

- The final movement property to be investigated involves extractability out of a finite clause. As we saw, only $\overline{\text{A}}$-movement can escape a finite clause in both English and Hindi.

- **Improper movement**
  This ban follows from any principle that rules out movement to Spec,TP from an $\overline{\text{A}}$-position.

  (46) **Ban on improper movement** (May 1979, Chomsky 1981)
     Movement from an $\overline{\text{A}}$- to an A-position is impossible.

- There is a variety of other proposals (e.g., Müller & Sternefeld 1993, Abels 2007, Williams 2003, Keine 2016), which are quite different in execution and scope but the choice does not matter here.

(47) **Locality tracks landing site**

	A-scrambling	$\overline{\text{A}}$-scrambling
Landing site	TP	CP
Movement out of CP	✗	✓

ban on improper movement brackets Landing site and Movement out of CP.

- **Against the Activity Condition**
  Chomsky (2000, 2001) proposes that the locality of A- and $\overline{\text{A}}$-movement follows from case instead of positions (Activity Condition, also see Obata & Epstein 2011).

- Recall that neither A- nor $\overline{\text{A}}$-scrambling in Hindi feeds case assignment. The Activity Condition would thus predict that neither can be A-movement. This is incorrect.

5 Summary

- Some interpretive properties of movement track the landing site, others case.

- In English, landing site and case are largely confounded, creating the impression of a binary movement type distinction (though see Takahashi & Hulsey 2009).

- In Hindi, case and landing site are deconfounded, providing a fine-grained view into the anatomy of movement types.

(48) **Summary 1: Clusters of A- and $\overline{\text{A}}$-properties in Hindi**

	A-scrambling	$\overline{\text{A}}$-scrambling
Landing site	TP	CP
Absence of weak crossover	✓	✗
Scope extension	✓	✗
Locality: Movement out of CP	✗	✓
Feeds case assignment	✗	✗
Principle C amnesty w/ arguments	✗	✗
Principle C amnesty w/ RCs	✓	✓

ban on improper movement brackets the first group; *type of trace* brackets Landing site, Absence of weak crossover, Scope extension. *Wholesale Late Merger* brackets Feeds case assignment and Principle C amnesty w/ arguments.

☞ Crossover, scope, and locality all track the landing site.
☞ Principle C amnesty with arguments tracks case.
☞ Evidence for Wholesale Late Merger and higher-typed traces instead of choice functions in Hindi.

☞ This account extends to English as well:

1. Crossover and locality track landing sites;
2. Principle C amnesty with arguments tracks case;
3. Principle C amnesty with adjuncts is freely available.

(49)   **Summary 2: Comparing English and Hindi**

	English		Hindi	
	A-mvt	$\overline{\text{A}}$-mvt	A-scr	$\overline{\text{A}}$-scr
Landing site	TP	CP	TP	CP
Absence of weak crossover	✓	✗	✓	✗
Locality: Movement out of CP	✗	✓	✗	✓
Feeds case assignment	✓	✗	✗	✗
Principle C amnesty w/ arguments	✓	✗	✗	✗
Principle C amnesty w/ adjuncts	✓	✓	✓	✓

- A similar dissociation of Principle C amnesty and crossover has been observed by Frey (1993) for German.[6]

- Hindi demonstrates that a movement type may have some A-properties but not others. This complements Webelhuth's (1989) and, more recently, van Urk's (2015) arguments that movement types may also combine the benefits of A- and $\overline{\text{A}}$-movement (van Urk's *composite movement*).

- These results contribute to existing work aimed at devising an empirically restrictive typology of movement type asymmetries.

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[6] Thanks to an anonymous NELS reviewer for pointing out the importance of this aspect of Frey (1993) to me.

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