Selective opacity

(Keine, 2019)

A. Overview of Keine (2019)

- **Selective opacity** — the empirical observation that certain domains (i.e. certain XPs) are transparent for some operations, but opaque for others.

\[(1) \quad \text{XP} = \text{finite CP}: \overline{A}\text{-movement (transparent) but A-movement (opaque)}\]

a. Who do you think \([CP t_k \text{ eats oatmeal for breakfast}]\)?

b. * John\(_k\) seems \([CP t_k \text{ eats oatmeal for breakfast}]\).

[Keine 2019, (2); adapted]

- Proposal: probes have **horizons** = “nodes that prevent certain probes from searching into them” (informal, first-pass definition; Keine 2019, p. 16).

  - If a probe \(P\) has as its horizon the node XP, then \(P\) cannot probe past XP.

\[(2)\]

- How selective opacity is modeled: the same XP may be a horizon for a probe \(P1\), but not for a probe \(P2\).

- Illustrating with (1): CP is a horizon for the probe that triggers A-movement, but not for the probe that trigger \(\overline{A}\)-movement.

- Main empirical motivation: long distance agreement in Hindi and its interaction with movement.

B. Agreement in Hindi-Urdu (henceforth, Hindi)
• Agreement is with the highest unmarked (i.e. case-less) nominal.¹

(3) **Hindi ϕ-agreement algorithm**
   i. If the subject does not bear a case marker → agree with the subject.
   ii. Otherwise: if the object does not bear a case marker → agree with the object.
   iii. Otherwise: use masculine singular default agreement.

   [Keine 2019, (6); adapted]

(4) **Agreement in Hindi**
   a. *niina* bacc-ko uthaayegii.
      Nina.FEM child-ACC lift.FUT.FEM
      ‘Nina will pick the child up.’

   agreement with subject (unmarked)

   b. Raam-ne *Rotii* khaayii thii.
      Ram-ERG.MASC bread.FEM eat.PERF.FEM be.PAST.FEM
      ‘Ram had eaten bread.’

   agreement with object (unmarked)

   c. *siitaa* kelaa khaati thii.
      Sita.FEM banana.MASC eat.IMPERF.FEM be.PAST.FEM
      ‘Sita (habitually) ate bananas.’

   agreement with highest unmarked

   d. *siitaa*-ne laRkii-ko dekhaa.
      Sita-ERG.FEM girl-ACC.FEM see.PERF.MASC
      ‘Sita saw the girl.’

   default agreement

   [Bobaljik 2008, (22), citing Woolford 1999; adapted]

• Keine’s analysis of agreement in Hindi: ϕ is located at T.

(5) a. **Agreement with unmarked subject**

¹More specifically: “The basic case system of this language [Hindi-Urdu] involves two overt affixes (‘dative’ -ko, and ‘ergative’ -ne). The ergative is used to mark external arguments of transitive (and some unergative) predicates, but only in the perfective tense/aspect. The dative is used to mark experiencers and goals (including experiencer subjects), and is also used to mark specific or animate direct objects. Remaining core arguments are unmarked.” [Bobaljik 2008].
b. Agreement with unmarked object, across marked subject

\[ TP \]
\[ /T/ \]
\[ \varphi \]
\[ \text{DP}_{\text{adj}} \]
\[ \text{marked} \]
\[ v \]
\[ \text{DP}_{\text{obj}} \]
\[ \text{unmarked} \]
\[ \text{vP} \]
\[ \text{VP} \]

- In (5a), the subject is unmarked, so \( \varphi \) in T finds is as the first possible goal. Agree with the lower object is preempted.
- In (5b), the subject is marked, so \( \varphi \) in T cannot Agree with it (recall: agreement in Hindi is only with unmarked nominals). Agree with the lower object is therefore allowed.

C. Long distance agreement

- Agreement can reach into an infinitival clause if the matrix clause does not have an eligible (i.e. case-less) nominal that can be agreed with.
- Why ‘long distance‘: because the matrix verb agrees not with a nominal of its own clause, but with a nominal that belongs to the embedded clause.
- Descriptively, long distance agreement is optional.\(^2\)

(6) Long distance agreement in Hindi

a. larkö-ne [\text{Inf } roṭii ] khaa-[\text{nāa}] caah-[\text{āa}]
   boys-ERG [ bread.FEM eat-INF.MASC.SG ] want-PERF.MASC.SG
   ‘The boys wanted to eat bread.’
   \[ \text{default agreement} \]

b. larkö-ne [\text{Inf } roṭii ] khaa-[\text{nīi}] caah-[\text{iī}]
   boys-ERG [ bread.FEM eat-INF.FEM.SG ] want-PERF.FEM.SG
   ‘The boys wanted to eat bread.’
   \[ \text{long distance agreement} \]

\[^2\text{Furthermore, the matrix and embedded verb share the agreement, obligatorily. See discussion in } \text{Bhatt (2005); Keine (2019).} \]
This optionality, however, is only apparent.

(7) **Mismatching temporal modification correlated with long distance agreement**

a. \[ \text{pichle hafte raam-ne} [\text{TP yeh kitaab kal parh[\text{naa}] } ] \]
   last week Ram-ERG [ _ this book.FEM yesterday/tomorrow read-INF.MASC.SG ]
   caah-[\text{aa}] tha-[\text{aa}]
   want-PERF.MASC.SG be.PST-MASC.SG
   'Last week, Ram had wanted to read this book yesterday/tomorrow.'
   
   **default agreement**

b. \# \[ \text{pichle hafte raam-ne} [\text{vP yeh kitaab kal parh[\text{nii}]} ] \]
   last week Ram-ERG [ _ this book.FEM yesterday/tomorrow read-INF.FEM.SG ]
   caah-[\text{ii}] tha-[\text{ii}]
   want-PERF.FEM.SG be.PST-FEM.SG
   Int.: 'Last week, Ram had wanted to read this book yesterday/tomorrow.'
   
   **long distance agreement**

   [Keine 2019, (24); adapted]

- Assumption: the licensing of a temporal adverb like *kal* ‘yesterday/tomorrow’ requires the projection of TP.
- Because *kal* can be licensed in (7a), the infinitival clause there is assumed to be a TP.
- Because *kal* cannot be licensed in (7b), the infinitival clause there is assumed to be a vP.
  
  - **Interim conclusion:** default agreement occurs in the TP infinitive in (7a), while long distance agreement occurs in the vP infinitive in (7b).
  - But why should this be true?

D. Interaction between movement and long distance agreement

(8) **Baseline: no movement from infinitival clause**

a. \[ \text{[DP us-ke maalik-ne ] [inf har billii ghumaa[\text{naa}]} ] caah-[\text{aa}] \]
   [ 3SG-GEN owner-ERG ] [ _ every cat.FEM walk-INF.MASC.SG ] want-PERF.MASC.SG
   'His/Her k/*i owner wanted to walk every cat.'
   
   **default agreement**

b. \[ \text{[DP us-ke maalik-ne ] [inf har billii ghumaa[\text{nii}]} ] caah-[\text{ii}] \]
   [ 3SG-GEN owner-ERG ] [ _ every cat.FEM walk-INF.FEM.SG ] want-PERF.FEM.SG
   'His/Her k/*i owner wanted to walk every cat.'
   
   **long distance agreement**

   [Keine 2019, (11a); adapted]

- Baseline sentences, where the matrix subject contains a pronoun (*his/her*) and the embedded subject is a quantified expression (*every cat*).
- The absence of a variable binding reading (*For every cat x, x’s owner wanted to walk x*) is expected: the quantified expression *every cat* does not c-command the pronoun (*his/her*) inside the matrix subject.
- The optionality of long distance agreement is also expected, given (6).

(9) **A-movement from infinitival clause**

a. \[ \text{har billii [DP us-ke maalik-ne ] [inf ghumaa[\text{naa}]} ] caah-[\text{aa}] \]
   every cat.FEM [ 3SG-GEN owner-ERG ] [ _ walk-INF.MASC.SG ] want-PERF.MASC.SG
   'Every cat_k, his/her_i owner wanted to walk (it).'
   
   **default agreement**
b. \textbf{har billii} \[\text{DP us-ke maalik-ne} \] \[\text{inf ghumaa[\text{nii}] } \] \text{caah[\text{ii}].}

\begin{align*}
\text{every cat.FEM} & \ [ \ 3SG-GEN owner-\text{erg} ] \ [ \ \text{walk-INF.FEM.SG } \] \text{want-PERF.FEM.SG} \\
\text{‘Every cat}_k\text{, his/her owner wanted to walk (it).’}
\end{align*}

long distance agreement

\[\text{Keine 2019}, \ (11b); \text{ adapted}\]

- Now the embedded subject (\textit{every cat}) moved above the matrix subject.
- How we know this movement can be of the A-type: no creation of new antecedents for binding.\footnote{In principle, the movement could still be of the A-type, since the latter can, but does not have to create new antecedents for binding. A\texttext{-movement in contrast does not have such an ability.}}
- Long distance agreement is still optional.

(10) \textbf{A-movement from infinitival clause}

a. *\textbf{har billii} \[\text{DP us-ke maalik-ne} \] \[\text{inf ghumaa[\text{naa}] } \] \text{caah[\text{aa}].}

\begin{align*}
\text{every cat.FEM} & \ [ \ 3SG-GEN owner-\text{erg} ] \ [ \ \text{walk-INF.MASC.SG } \] \text{want-PERF.MASC.SG} \\
\text{Int.: ‘For every cat}_x\text{, x’s owner wanted to walk x.’}
\end{align*}

default agreement

b. \textbf{har billii} \[\text{DP us-ke maalik-ne} \] \[\text{inf ghumaa[\text{nii}] } \] \text{caah[\text{ii}].}

\begin{align*}
\text{every cat.FEM} & \ [ \ 3SG-GEN owner-\text{erg} ] \ [ \ \text{walk-INF.FEM.SG } \] \text{want-PERF.FEM.SG} \\
\text{‘For every cat}_x\text{, x’s owner wanted to walk x.’}
\end{align*}

long distance agreement

\[\text{Keine 2019}, \ (11c); \text{ adapted}\]

- The embedded subject (\textit{every cat}) has again moved above the matrix subject.
- How we know this is necessarily A\text{-movement: creation of new antecedent for binding (more precisely, variable binding).}
- Now default agreement is prohibited. In other words, \textbf{long distance agreement is obligatory if A\text{-movement occurs from the embedded clause}.

- But why should this be true?

E. Moved nominal and nominal long distance agreed with can be different.

(11) \textbf{Baseline: no movement}

a. \[\text{DP us-kii māā-ne} \] \[\text{inf har bacce-ko film dikhaa[\text{naa}] } \] \text{caah[\text{aa}].}

\begin{align*}
\text{3SG-GEN mother-\text{erg} } & \ [ \ \text{every child-DAT movie.FEM show-INF.MASC.SG } \] \text{want-PERF.MASC.SG} \\
\text{‘His/Her}_k\text{ mother wanted to show a movie to every child}_i.\text{’}
\end{align*}

default agreement

b. \[\text{DP us-kii māā-ne} \] \[\text{inf har bacce-ko film dikhaa[\text{nii}] } \] \text{caah[\text{ii}].}

\begin{align*}
\text{3SG-GEN mother-\text{erg} } & \ [ \ \text{every child-DAT movie.FEM show-INF.FEM.SG } \] \text{want-PERF.FEM.SG} \\
\text{‘His/Her}_k\text{ mother wanted to show a movie to every child}_i.\text{’}
\end{align*}

long distance agreement

\[\text{Keine 2019}, \ (12a); \text{ adapted}\]

- Baseline sentences, where the matrix subject contains a pronoun (his/her) and the embedded clause contains a \textbf{case-marked} quantified expression (\textit{every child-DAT}).
Because this nominal has case, it cannot trigger long distance agreement.

- The absence of a variable binding reading is expected: the quantified expression every child does not c-command the pronoun (his/her) inside the matrix subject.
- The optionality of long distance agreement is also expected, given (6).

\[(12)\] **A-movement out of infinitival clause**

a. har bacce-ko [dp us-kii māā-ne ] [inf t film dikhaa-[nāa] ]
   every child-DAT [ 3SG-GEN mother-ERG ] [ movie.FEM show-INF.MASC.SG ]
   caah-[āā]
   want-PERF.MASC.SG
   'His/Her\_k mother wanted to show a movie to every child,\_'
   \[default agreement\]

b. har bacce-ko [dp us-kii māā-ne ] [inf t film dikhaa-[nī] ]
   every child-DAT [ 3SG-GEN mother-ERG ] [ movie.FEM show-INF.FEM.SG ]
   caah-[iī]
   want-PERF.FEM.SG
   'His/Her\_k mother wanted to show a movie to every child,\_'
   \[long distance agreement\]
   \[Keine 2019, (12a); adapted\]

- Now the embedded quantified expression (every child-DAT) moved above the matrix subject.
- How we know this movement can be of the A-type: no creation of new antecedents for binding.
- Long distance agreement is still optional.

\[(13)\] **A-movement out of infinitival clause**

a. *? har bacce-ko [dp us-kii māā-ne ] [inf film dikhaa-[nāa] ]
   every child-DAT [ 3SG-GEN mother-ERG ] [ movie.FEM show-INF.MASC.SG ]
   caah-[āā]
   want-PERF.MASC.SG
   Int.: 'For every child x, x’s mother wanted to show x a movie.'
   \[default agreement\]

b. har bacce-ko [dp us-kii māā-ne ] [inf t film dikhaa-[nī] ]
   every child-DAT [ 3SG-GEN mother-ERG ] [ movie.FEM show-INF.FEM.SG ]
   caah-[iī]
   want-PERF.FEM.SG
   'For every child x, x’s mother wanted to show x a movie.'
   \[long distance agreement\]
   \[Keine 2019, (12b); adapted\]

- The embedded quantified expression (every child-DAT) has moved above the matrix subject.
- How we know this is necessarily A-movement: creation of new antecedent for variable binding.
- Default agreement is again prohibited. In other words, long distance agreement is obligatory if A-movement occurs from the embedded clause.
  - The nominal that triggers agreement (movie) is different from the nominal that A-moves (every child-DAT).

F. Taking stock: empirical facts we want to explain

i. Long distance agreement in Hindi is optionally allowed into infinitival clauses.
ii. Long distance agreement is obligatory when A-movement from the infinitival clause occurs. The nominal that A-moves and the nominal that is long distance agreed with can mismatch.

iii. \( \overline{A} \)-movement out of the infinitival clause has no such effect on long distance agreement.

G. Horizons

(14) **Horizons**

If a category label \( X \) is a horizon for probe \( P \) […], then a \( P \)-initiated search terminates at a node of category \( X \). All elements dominated by \( XP \) are therefore outside \( P \)'s search space.

[Keine 2019, (38); notation simplified]

H. How horizons model selective opacity

- The same node \( XP \) can be a horizon for a probe \( P1 \), but not for a probe \( P2 \).

\[
\begin{array}{c}
\{ \{ P1 \}; P2 \} \ldots
\end{array}
\]

\[
XP \quad \text{a horizon for } P1, \text{ but not for } P2
\]

- Concretely, going back to our initial paradigm (1), we can say that CP is not a horizon for a Wh-probe, but it is for \( \varphi \)-probe that triggers raising.

\[
\begin{array}{c}
\text{(16) a. } \text{CP not a horizon for } P_{\text{Wh}}
\end{array}
\]

\[
P_{\text{Wh}} \text{ do you think } [\text{CP who eats oatmeal for breakfast}].
\]

\[
\begin{array}{c}
\text{b. } \text{CP a horizon for } P_{\varphi}
\end{array}
\]

\[
* P_{\varphi} \text{ seems } [\text{CP John eats oatmeal for breakfast}].
\]

I. Components of the analysis of Hindi long distance agreement

- Relevant domains: \( \nu P \), TP (the two types of infinitival clauses in Hindi; cf. temporal adverb mismatch (7)), and CP (finite clauses).

- Relevant probes: \( P_A \) (probe that triggers A-movement), \( P_{\overline{A}} \) (probe that triggers \( \overline{A} \)-movement), and \( P_{\varphi} \) (probe that triggers \( \varphi \)-agreement).

- Location of these probes: \( P_A \) and \( P_{\varphi} \) are located in T (see (5)); \( P_{\overline{A}} \) is located in C (as usual).

- Keine’s proposal for the horizons of these probes:

<table>
<thead>
<tr>
<th>Probe</th>
<th>Domain to be probed into</th>
<th>( \nu P ) infinitive</th>
<th>TP infinitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>( P_{\varphi} )</td>
<td>TP</td>
<td>✓</td>
<td>*</td>
</tr>
<tr>
<td>( P_A )</td>
<td>TP</td>
<td>✓</td>
<td>*</td>
</tr>
<tr>
<td>( P_{\overline{A}} )</td>
<td>Ø</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
J. Explaining the long distance agreement facts

i. Long distance agreement in Hindi is optionally allowed into infinitival clauses.
   ▷ Optionality is actually the result of two derivations.
   ▷ Recall that there are two sizes of infinitival clause, vP and TP (cf. (7)).
   ▷ If $P_\varphi$ probes into a vP, the probing is not halted because vP is not a horizon for $P_\varphi$. The result is long distance agreement.
   ▷ If $P_\varphi$ probes into a TP, the probing is halted because TP is a horizon for $P_\varphi$. The result is no agreement, i.e., default agreement.

ii. Long distance agreement is obligatory when A-movement from the infinitival clause occurs. The nominal that A-moves and the nominal that is long distance agreed with can mismatch.
   ▷ Now the relevant probe is $P_A$.
   ▷ If the infinitival clause is a vP, $P_A$ can probe into it, because vP is not a horizon for $P_A$.
   ▷ If the infinitival clause is a TP, $P_A$ cannot probe into it, because TP is a horizon for $P_A$.
   ▷ In other words, if we see A-movement out of an infinitival clause, we know it must be a vP.
   ▷ Auxiliary minimalist assumption: if Agree is possible, then it is obligatory (Preminger, 2014).
   ▷ As we saw above, $P_\varphi$ can also only probe into vPs. Because $P_\varphi$’s probing is possible, it is obligatory, given the assumption above.

iii. A-movement out of the infinitival clause has no such effect on long distance agreement.
   ▷ $P_A$ can probe both into vPs and TPs because it does not have a horizon (i.e. no domain halts its probing).
   ▷ If the infinitival clause is a vP, $P_A$ can and therefore must probe into it. The result is long distance agreement into the clause $P_A$ is probing into.
   ▷ But the TP option is still available. The result is no agreement (because TP is a horizon for $P_\varphi$) into the clause $P_A$ is probing into.

K. Taking stock

- Data: long distance agreement in Hindi and, specially, its interaction with movement.
- This supplied the empirical motivation for horizons.
- Importantly, the same domain (e.g. TP) can be a horizon for a probe ($P_\varphi$ and $P_A$), but not for another ($P_A$).

References


