Theoretical approaches to hyperraising

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Overview of lecture #1

- Empirical characterization of hyperraising
- Theoretical challenges HR creates
- Summary of two different analyses of HR
  1. Phase deactivation approach
  2. Probe horizons approach

1 Basics of hyperraising

A. Background: raising to subject and raising to object/ECM in a language like English:¹
   - Raising is possible out of infinitival clauses:
     (1)  a. Ravi_k seems [ t_k to have bought a car ].
          b. Alex believes Anna_k with all their heart [ t_k have already finished their paper ].
   - But not out of finite clauses:

(2)  a. It seems [ (that) Ravi bought a car ].
     b. *Ravi_k seems [ (that) t_k bought a car ].

(3)  a. Alex_k believes with all their heart [ (that) Anna_k has already finished her paper ].
     b. *Alex believes Anna_k with all their heart [ (that) t_k has already finished her paper ].
   o The latter type of construction is called ‘hyperraising’.

B. What is hyperraising (HR)?
   - HR = biclausal construction where the embedded clause is finite, but which subject raises from. Both the positions of departure and landing are case-marked.
   
(4)  [CP ... DP_case α ... [CP COMP ... <DP_case β> ...]] (where α ≠ β)

   - Even though it is not possible in English, HR is found in found in several, sometimes unrelated languages.

(5)  Hyperraising to subject in Zulu
   a. ku-bonakala [ ukuthi uZinhle u-zo-xova 17s-seem [ that AUG.1Zinhle 1S-FUT-make ujeqe AUG.1steam.bread ]]
      ‘It seems that Zinhle will make steamed bread.’
   b. uZinhle_k u-bonakala [ ukuthi t_k u-zo-xova AUG.1Zinhle 1s-seem [ that 1S-FUT-make ujeqe AUG.1steam.bread ]]
      ‘It seems that Zinhle will make steamed bread.’
      (literally: ‘Zinhle seems that will make steamed bread.’; SF)

(6)  Hyperraising to object in Mongolian
      Bat loud-INSTR [ Dorj.NOM good noble COMP ] say-PST
      ‘Bat said loudly that Dorj is good and noble.’
      Bat Dorj-ACC loud-INSTR [ good noble COMP ] say-PST
      ‘Bat said loudly that Dorj is good and noble.’

¹For the purposes of this course, I will not draw a distinction between raising to object and ECM. I will just use the terms to designate the assignment of accusative case by a verb to a DP that is the subject of its complement.
C. Theoretical challenges

- Common assumptions in minimalist syntax:

  (7) **Phase Impenetrability Condition (PIC)**
  a. The domain of H [head of a phase] is not accessible to operations at ZP [the smallest phase dominating HP]; only H and its edge are accessible to such operations. [Chomsky 2001, p. 14]
  b. 

     \[
     \begin{array}{c}
     ZP \quad \text{smallest phase dominating HP} \\
     \vdots \\
     \text{Probe} \\
     \text{HP} \\
     \text{phase} \\
     \text{Edge} \\
     \text{H} \\
     \text{XP} \\
     \text{c-command domain of H}
     \end{array}
     \]

(8) **Activity Condition**

Goal as well as probe must be active for Agree to apply. [...] For the Case/agreement systems, the uninterpretable features are \( \varphi \)-features of the probe and structural Case of the goal N. \( \varphi \)-features of N are interpretable; hence N is active only when it has structural Case. Once the Case value is determined, N no longer enters into agreement relations and is “frozen in place”.

[Chomsky 2001, p. 6]

- Resulting challenges engendered by HR:\(^2\)

  a. It seems [ Ravi to have bought a car ].
  b. Alex believes with all their heart [ she have already finished their paper ].

(9) a. **Phase problem**: how come a DP inside a finite embedded CP, a phase, can Agree with a probe (T or v) in the embedding clause?

b. Case problem: how come a DP moves from a case position in the embedded clause into another case position in the embedding clause?

- This course focuses on the phase problem (9a). For discussion of the case problem, see:

  o Ferreira (2009); Takeuchi (2010): nominative case is not assigned in the embedded clause, just in the matrix one.
  o Kornfilt & Preminger (2015); Fong (2019): nominative (unmarked case in general) is the exponence of an unvalued case feature.

D. HR vs. prolepsis\(^3\)

- These theoretical challenges are only raised if HR is indeed derived by movement/raising.

- Alternative: prolepsis, a type of construction that does not involve movement from an embedded finite clause into the matrix clause. Rather, a nominal is base-generated inside the matrix and referred back to with a pronoun in the embedded clause.

(10) I believe about **Kate** [CP that **she** won the Daughter-of-the-Year award].

[Chomsky 2001, p. 6]

- Arguments that prolepsis does not involve movement: (i) island-insensitivity, (ii) embedded subject can be skipped over.

(11) **Island-insensitivity**

I believe about **Kate** [CP that **she** and Anna won the Daughters-of-the-Year award].

(12) **Embedded subject can be skipped over**

Sheryl thought about/of **Tim** [CP that the police would never catch **him**].

HR, on the other hand, is optional. With the exception of Nunes (2008) and Takeuchi (2010), the existing analyses do not account for this fact.

\(^2\)A third type of challenge introduced by HR is its optionality. Standard raising in a language like English is obligatory:

(i) a. * It seems [ Ravi to have bought a car ].
  b. Alex believes with all their heart [ she have already finished their paper ].

\(^3\)In the interests of time and space, I only discuss prolepsis, which is a base-generation alternative to HR to object, as found in Mongolian. The base-generation alternative to HR to subject, as found in Zulu, is copy-raising (Landau 2011, a.o.).
E. HR is derived by movement.

- Arguments that HR does involve movement: (i) island-sensitivity, (ii) embedded subject cannot be skipped over.

(13) Mongolian: island sensitivity

a. Nara [muur bömböö-ör toglo-dog baa nokhooi ]
   Nara [cat.NOM ball-INST play-HAB CONJ dog.NOM
   yas-aar toglo-dog gej ] khel-sen.
   bone-INST play-HAB COMP ] say-PST
   ‘Nara said that the cat plays with a ball and the dog plays with a bone.’

b. *Nokhooi-g Nara muur-iig bömböö-ör toglo-dog baa t
   dog-ACC Nara cat-ACC ball-INST play-HAB CONJ t
   yas-aar toglo-dog gej khel-sen.
   bone-INST play-HAB COMP say-PST
   Int.: ‘Nara said that the cat plays with a ball and the dog plays with a bone.’

(14) Mongolian: embedded subject cannot be skipped over

a. Bat [Dorj(-iig) Dulmaa-d nom-oo ög-sön ]
   Bat [Dorj(-ACC) Dulmaa-DAT book-REFL.Poss give-PST
   gej ] chang-aar khel-sen.
   COMP ] loud-INST say-PST
   ‘Bat said loudly that Dorj gave his book to Dulmaa.’

b. *Bat Dulmaa-d [Dorj(-iig) t nom-oo ög-sön ]
   Bat Dulmaa-DAT [Dorj(-ACC) t book-REFL.Poss give-PST
   gej ] chang-aar khel-sen.
   COMP ] loud-INST say-PST
   Int.: ‘Bat said loudly that Dorj gave his book to Dulmaa.’

c. *Bat Dulmaa-g chang-aar [Dorj t nom ög-sön ]
   Bat Dulmaa-ACC loud-INST [Dorj.NOM t book give-PST
   gej ] khel-sen.
   COMP ] say-PST
   Int.: ‘Bat said loudly that Dorj gave a book to Dulmaa.’

- A case for movement in Zulu can also be made on the basis of idiom preservation.

(15) Idiom preservation in standard in English

The cat seems [t to be out of the bag].

(16) Idiom preservation in standard in English

a. ku-bonakala [ukuthi iqhina li-zo-phuma
   17s-seem ]
   [that AUG.5steinbock 1s-FUT-exit embizeni ].
   LOC.3-cooking.pot ]
   ‘It seems that the secret will come out.’

b. iqhina li-bonakala [ukuthi t li-zo-phuma
   Aug.5steinbock 17s-seem ]
   [that 1s-FUT-exit embizeni ].
   LOC.3-cooking.pot ]
   ‘It seems that the secret will come out.’

[Halpert 2018, (19)]

F. Relevance of investigating HR

- Empirical (and theoretical) relevance
  - The PIC and the Activation Condition are largely based on more frequently studied languages like English, where HR is prohibited.
  - But: HR is clearly possible in languages like Zulu and Mongolian (and many more).
  - By investigating HR, we broaden our empirical knowledge of the constructions that grammars may or may not generate.

- Theoretical relevance
  - It helps us evaluate our theories of which syntactic nodes are visible to certain syntactic operations like movement and Agree.
    - The embedded CP HR departs from is usually considered to be a phase.
    - Which operations do grammars make available to escape a phase?
  - It is informative of how nominals (specifically, subjects) are licensed and what conditions the possibility or necessity of them to move.
    - The embedded subject position that HR departs from can be marked with case.
    - Why can a DP move from that position?
    - What role (if any) does case have in the licensing of a nominal?
  - It is informative of the nature of syntactic positions and the movement that passes through them.
According to common assumptions, HR is not possible in English because it would imply that the hyperraising subject is moving through the embedded Spec-CP (A-movement) and then to a matrix argumental position (A-movement). The result is a violation on the Ban on Improper Movement, which militates against the occurrence of A-movement followed by A-movement (see more below).

But why is HR possible in a language like Mongolian? Why is the Ban on Improper Movement not violated in this language?

2 Different theoretical approaches to hyperraising

A. Goals of this section

- Investigate two different analyses of HR.
- Why: they are based on state-of-the-art theoretical tools (i.e. phase deactivation and horizons).
- I believe they are very useful tools to syntacticians in general, whether or not they are investigating HR in particular.
- Empirically: agreement in Hindi.

B. Solutions to the phase problem (9a) considered here:

- Phase deactivation approach §2.1
- Selective opacity §2.2
- Edge + featural solution

2.1 A-over-A condition approach (Halpert, 2018)

2.1.1 Empirical properties of raising in Zulu

A. The raising profile in Zulu

- In, Zulu, HR out of finite clauses is optional.

A fourth type of solution is one where the phasehood of the embedded CP does not matter at the point where HR occurs, either because that CP is not a phase to begin with (cf. Ferreira’s 2009 analysis of Brazilian Portuguese) or because its the weak, delayed version of the Phase Impenetrability Condition is assumed (cf. Dale’s 2017 analysis of covert hyperraising in Nez Perce). For space and time reasons, we will not investigate this type of analysis.

(17) a. ku-bonakala [ ukuthi uZinhle u-zo-xova 17S-seem [ that AUG.1Zinhle 1S-FUT-make ujeqe ] AUG.1steam.bread ]

'It seems that Zinhle will make steamed bread.'

b. uZinhle, u-bonakala [ ukuthi k u-zo-xova AUG.1Zinhle 1S-seem [ that 1S-FUT-make ujeqe ] AUG.1steam.bread ]

'It seems that Zinhle will make steamed bread.'

(18) a. ku-/*ba- xova [vP omakhelwane ujeqe]

17s-/*2s make [ AUG.2neighbor AUG.1steamed.bread ]

'The neighbors are making steamed bread.'

b. ku-ya-banda.

17s-YA-be.cold

'It is cold.'

Conversely, standard raising is prohibited from infinitival clauses.

(19) * uZinhle, u-bonakala [ tk u-xo-xova ujeqe ]

AUG.1Zinhle 1S-seem [ that AUG.1steamed.bread ]

Int.: ‘It seems that Zinhle will make steamed bread.’

NB: this is the opposite pattern found in a language like English, which, to recall, forms the empirical basis of many standard assumptions about raising.

(20) a. * Johnk seems [CP (that) tk is happy].

HR prohibited

b. It seems [CP (that) John is happy].

raising obligatory
d. * It seems \([\text{TP} \text{John to be happy}]\).

B. Another difference: object agreement

- Basics of object agreement in Zulu: unlike subject agreement, object is optional, though the object agreed with must exist the \(vP\). The latter is string-vacuous, but may be signalled by the occurrence of the affix \(ya\) (Halpert, 2018, fn. 16).

(21) a. \(u\text{Zinhle u-xova ujeqe.}\) \(\text{AUG1.Zinhle 1s-make steamed.bread}\) ‘Zinhle is making steamed bread.’

b. \(u\text{Zinhle u-ya-[wu]-xova ujeqe.}\) \(\text{AUG1.Zinhle 1s-YA-TOBJ make steamed.bread}\) ‘Zinhle is making steamed bread.’

[Halpert 2012, (6, 7a)]

- Object agreement reflects the noun class of the phrase agreed with.
- Noun classes are interpreted in terms of \(\phi\)-features.

- Both finite CPs and infinitival TPs can trigger object object agreement.

(22) **Finite CP can trigger object agreement**

\[\text{ngi}-y\text{u-[ku]-cabanga} \text{ [CP ukuthi uMlu u-ya-bhukuda manje]} \text{1sg.s-\text{AUG1-TOBJ-think} [ that AUG1.Mlu 1s-\text{AUG1-swim now}]} \text{I think that Mlu is swimming now.}\]

[Halpert 2018, (45a); adapted]

(23) **Infinitival TP can trigger object agreement**

\[\text{ngi}-y\text{u-[ku]-funa} \text{ [TP uku-xova ujeqe} \text{1sg.s-\text{AUG1-15/17-make AUG1-steamed.bread}]} \text{I want to make steamed bread.}\]

[Halpert 2018, (41b); adapted]

- What this possibility means: that both infinitival and finite clauses have \(\phi\)-features that can be cross-references by object agreement, akin to the DP object in (21).

D. Summary

(24) **Finite clause cannot be the subject**

\(* [\text{CP ukuthi w-a-thatha umhala phansi}] ku-ya-\text{ngi-mangaza.}\) \(\text{[ that 1s-PST-take AUG1-sit down] 17s-YA-1SG.OBJ-suitheprprise Int.: ‘That he retired surprises me.’}\)

[Halpert 2018, (47)]

(25) **Infinitival clause can be the subject**

\([\text{TP uku-xova ujeqe}] \text{ku-mnandi.}\) \(\text{[ AUG1.15/17-make AUG1-steamed.bread] 15/17-nice ‘Making steamed bread is nice.’}\)

[Halpert 2018, (40b)]

- How to model this fact: movement to the subject position (Spec-TP) is usually taken to be a respond to T's EPP feature.
  - Finite clause: cannot satisfy the EPP.
  - Infinitival clause: can satisfy the EPP.

2.1.2 Analysis

A. Theoretical assumptions

- Interaction vs. satisfaction in Agree (Deal, 2015)
- Phase deactivation via Agree (Rackowski & Richards, 2005; van Urk & Richards, 2015)

B. Interaction vs. satisfaction (Deal 2015; cf. Preminger 2014))

- Common assumption (Chomsky, 2001): the operation Agree requires full matching between the probe and the goal. Furthermore, Agree must result in the valuation of the probe.
- Deal (2015): a probe can be searching for a particular feature value and enter some relation with potential goals that lack the desired value. In other words, we can draw a distinction between Interaction and Satisfaction:

<table>
<thead>
<tr>
<th>(Hyper)raising</th>
<th>Finite CP</th>
<th>Infinitival TP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(26)</strong></td>
<td>(\checkmark)</td>
<td>*</td>
</tr>
<tr>
<td>Object agreement</td>
<td>(\checkmark)</td>
<td>(\checkmark)</td>
</tr>
<tr>
<td>Subject of a clause</td>
<td>*</td>
<td>(\checkmark)</td>
</tr>
</tbody>
</table>

C. Yet another difference: movement to the subject position

(27) i. Interaction: the search space is assessed in a structured way for goals with appropriate features; if such are found, features are copied to the probe.

ii. Satisfaction: unvalued features on the probe receive a
A probe may interact with feature set $F$ even if it may only be satisfied by feature set $G$, where $F, G \subseteq \Phi$ (the set of $\varphi$-features) and $F \neq G$. 

In (29), the probe $H$ is only satisfied by the value $[G]$, though it can interact with $[F]$. In (29), $H$ probes its c-command domain and first finds $[F]$, interacting with it. However, the probing continues because $H$ has not been satisfied yet. It finally finds $[G]$, at which point the probe $H$ is satisfied and its probing halts.

C. Phase deactivation via Agree (Rackowski & Richards, 2005; van Urk & Richards, 2015)

- The proposal, in a nutshell: it is possible to extract some element from a phase XP only if XP is Agreed with first.

D. Sample derivation #1: finite CP\(^5\)

- Halpert’s proposal for HR in Zulu:

- Step 1: $T$ Agrees with embedded CP for $\varphi$-features

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\(^5\)Halpert’s (2018) proposal is very similar to that in Nunes (2008) for Brazilian Portuguese. For space and time reasons, I omit the latter from the discussion.
b. Step 2: T agrees with subject (and moves it to Spec-TP)

- Hyperraising the embedded subject becomes possible as a consequence of a conspiracy of three factors:
  - T is searching for a goal that can satisfy two features, EPP and $\varphi$.
  - The embedded CP can satisfy only one of these features ($\varphi$, but not EPP).
  - The matrix T can nevertheless interact with the embedded CP, thereby also deactivating.

E. Sample derivation #2: infinitival clauses

(32) 

- Standard raising is not possible in Zulu, because the infinitival TP alone is capable of satisfying (in Deal’s (2015) terms) the features in the matrix T.
- As such, there is no need to probe into the infinitival TP.

F. What about English?

- Recall: the raising profiles of Zulu and English are mirror images of each other.
- Halpert (2018) has an analysis of raising profiles crosslinguistically. I omit the discussion here because of time constraints.

2.1.3 Takeaway points

- Halpert (2018) provides an analysis of the raising profile in Zulu, which is strikingly different from that of English.
- The analysis relied on independent properties of finite CPs and infinitival TPs, specially regarding agreement and movement.
- Theoretical tools employed in the analysis:
  - A more refined view of Agree, which distinguishes between Interaction and Satisfaction (Deal, 2015).
  - Phase deactivation via Agree (Rackowski & Richards, 2005; van Urk & Richards, 2015)

2.2 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.

(33) $XP = $ finite CP; $A$-movement (transparent) but $A$-movement (opaque)

a. $[CP \text{ Who do you think } [CP \text{ t eats oatmeal for breakfast}]]$?

b. $^* [CP \text{ John seems } [CP \text{ t eats oatmeal for breakfast}]]$.

- Proposal: probes have horizons = “nodes that prevent certain probes from searching into them” (informal definition; Keine 2019, p. 16).
  - If a probe $P$ has as its horizon the node XP, then $P$ cannot probe past XP.
Even the edge of XP (Spec and head of XP) is opaque to $P$. (Compare Phase Impenetrability Condition 7 with horizon.)

How selective opacity is modeled: the same XP may be a horizon for a probe $P_1$, but not for a probe $P_2$.

Illustrating with (33): CP is a horizon for the probe that triggers A-movement, but not for the probe that trigger $\bar{A}$-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.⁶

(35) **Hindi $\varphi$-agreement algorithm**

i. If the subject does not bear a case marker $\rightarrow$ agree with the subject.

ii. Otherwise: if the object does not bear a case marker $\rightarrow$ agree with the object.

iii. Otherwise: use masculine singular default agreement.

(36) **Agreement in Hindi**

⁶More 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**

In (37a), the subject is unmarked, so $\varphi$ in T finds is as the first possible goal. Agree with the lower object is preempted.

In (37b), 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. 

(38) **Long distance agreement in Hindi**

a. laṛkõ-ne [\textit{Inf} roṭii khaa-[\textit{nii}]] caah-[\textit{ii}]
boys-\text{ERG} [\text{bread.FEM eat-INF.FEM.SG}] want-\text{PERF.FEM.SG}

‘The boys wanted to eat bread.’

Throughout, the matrix and embedded verb share the agreement, obligatorily. See discussion in Bhatt (2005); Keine (2019).

b. laṛkõ-ne [\textit{Inf} roṭii khaa-[\textit{nii}]] caah-[\textit{ii}]
boys-\text{ERG} [\text{bread.FEM eat-INF.FEM.SG}] want-\text{PERF.FEM.SG}

‘The boys wanted to eat bread.’

**long distance agreement**

[Keine 2019, (7); adapted]

- This optionality, however, is only apparent.

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

a. pichle hafe raam-ne [\textit{TP} yeh kitaab]
last week Ram-\text{ERG} [\text{this book.FEM}]
kal parh-[\textit{nii}] yesterday/tomorrow read-\text{INF.MASC.SG}
ciaah-[\textit{aa}] thaa-[\textit{aa}].
want-\text{PERF.MASC.SG} be.\text{PST-MASC.SG}

‘Last week, Ram had wanted to read this book yesterday/tomorrow.’

default agreement

b. # pichle hafe raam-ne [\textit{vP} yeh kitaab]
last week Ram-\text{ERG} [\text{this book.FEM}]
kal parh-[\textit{nii}] caah-[\textit{ii}]
yesterday/tomorrow read-\text{INF.FEM.SG} want-\text{PERF.FEM.SG}
tha-[\textit{ii}] be.\text{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 (39a), the infinitival clause there is assumed to be a TP.
- Because kal cannot be licensed in (39b), the infinitival clause there is assumed to be a vP.
- Default agreement occurs in the TP infinitive in (39a), while long distance agreement occurs in the vP infinitive in (39b).

D. **Interaction between movement and long distance agreement**

(40) **Baseline: no movement from infinitival clause**
The embedded subject (his/her) owner wanted to walk every cat.

(b) 

Every cat’s owner wanted to walk (it).

(42) A-movement from infinitival clause


Every cat’s owner wanted to walk (it).’

(default agreement)


Every cat’s owner wanted to walk (it).’

(long distance agreement)

(Keine 2019, (11c); adapted)

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

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

(43) Baseline: no movement

a. [dp us-kii māa-ne ] [inf har baccine-to film ]
   every child-DAT movie.FEM [ 3SG-GEN mother-ERG ] [ walk-INF.MASC.SG ]
   caah-[nāa] show-INF.MASC.SG want-PERF.MASC.SG

‘His/Her mother wanted to show a movie to every child.’

(default agreement)

b. [dp us-ke maalik-ne ] [inf billii ] every cat.FEM [ 3SG-GEN owner-ERG ] [ walk-INF.MASC.SG ]
   caah-[āā] want-PERF.MASC.SG

‘His/Her owner wanted to walk every cat.’

(long distance agreement)

(Keine 2019, (11b); adapted)
b. \[\text{DP us-kii māā-ne } ]\[\text{Inf har bacce-ko film}\\\text{3SG-GEN mother-ERG} ]\[\text{every child-DAT movie.FEM}\\\text{dikhaa-[nii]} ]\text{caah-[i]}\\\text{show-INF.FEM.SG} ]\text{want-PERF.FEM.SG}\\\text{His/Her}_k\text{ mother wanted to show a movie to every child}_l.

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

- Baseline sentences, where the matrix subject contains a pronoun \(\text{(his/her)}\) and the embedded clause contains a case-marked quantified expression (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 \(\text{(his/her)}\) inside the matrix subject.
- The optionality of long distance agreement is also expected, given (38).

\[\text{A\text{-}movement out of infinitival clause}\]

\[\text{a. }\text{har bacce-ko }[\text{DP us-kii māā-ne } ]\[\text{Inf t film}\\\text{every child-DAT }[\text{3SG-GEN mother-ERG} ]\text{movie.FEM}\\\text{dikhaa-[nii]} ]\text{caah-[i]}\\\text{show-INF.MASC.SG} ]\text{want-PERF.MASC.SG}\\\text{His/Her}_k\text{ mother wanted to show a movie to every child}_l.
\]

\text{default agreement}\\\text{[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).

\[\text{b. }\text{har bacce-ko }[\text{DP us-kii māā-ne } ]\[\text{Inf t film}\\\text{every child-DAT }[\text{3SG-GEN mother-ERG} ]\text{movie.FEM}\\\text{dikhaa-[nii]} ]\text{caah-[i]}\\\text{show-INF.FEM.SG} ]\text{want-PERF.FEM.SG}\\\text{His/Her}_k\text{ mother wanted to show a movie to every child}_l.
\]

\text{long distance agreement}\\\text{[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 \(\overline{\text{A}}\)-type: no creation of new antecedents for binding.
- Long distance agreement is still optional.

\[\text{(45) A\text{-}movement out of infinitival clause}\]

F. Taking stock: empirical facts we want to explain

\[\text{i. Long distance agreement in Hindi is optionally allowed into infinitival clauses.}\]
\[\text{ii. Long distance agreement is obligatory when A\text{-}movement from the infinitival clause occurs. The nominal that A\text{-}moves and the nominal that is long distance agreed with can mismatch.}\]
\[\text{iii. }\overline{\text{A}}\text{-movement out of the infinitival clause has no such effect on long distance agreement.}\]

G. Horizons

\[\text{(46) Horizons}\]

If a category label \(X\) is a horizon for probe \(P\) \([\ldots]\), 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.

(47)

\[
\left\{ \begin{array}{c}
P_1 \\
P_2 \\
\end{array} \right\} \quad \cdots \quad \text{XP a horizon for P1, but not for P2}
\]

- Concretely, going back to our initial paradigm (33), we can say that CP is not a horizon for a Wh-probe, but it is for φ-probe that triggers raising.

(48) a. CP not a horizon for P_{Wh}

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

b. CP a horizon for P_{φ}

\[
\ast \text{[CP P_{φ} seems [CP John eats oatmeal for breakfast]].}
\]

I. Components of the analysis of Hindi long distance agreement

- Relevant domains: vP, TP (the two of infinitival clauses in Hindi; cf. temporal adverb mismatch (39)), and CP (finite clauses).
- Relevant probes: P_{A} (probe that triggers A-movement), P_{φ} (probe that triggers \textit{A}-movement), and P_{φ} (probe that triggers φ-agreement).
- Location of these probes: P_{A} and P_{φ} are located in T (see (37)); P_{A} is located in C (as usual).
- Keine’s proposal for the horizons of these probes:

<table>
<thead>
<tr>
<th>Probe</th>
<th>Horizon</th>
<th>Domain to be probed into</th>
</tr>
</thead>
<tbody>
<tr>
<td>P_{φ}</td>
<td>TP</td>
<td>√</td>
</tr>
<tr>
<td>P_{φ}</td>
<td>TP</td>
<td>√</td>
</tr>
<tr>
<td>P_{A}</td>
<td>Ø</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. (39)).
▷ If P_{φ} probes into a vP, the probing is not halted because vP is not a horizon for P_{φ}. The result is long distance agreement.
▷ If P_{φ} probes into a TP, the probing is halted because TP is a horizon for P_{φ}. 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 a 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_{φ} can also only probe into vPs. Because P_{φ}’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_{φ} 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_{φ} into the clause P_{A} is probing into.)
K. Taking stock

- What we saw: 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 ($P_\phi$ and $P_A$), but not for another ($P_A$).

L. Horizon’s solution to the phase problem (9a) in hyperraising

- English: CP is a horizon for the $\phi$-probe that triggers hyperraising.

(50) a. *John seems (that) eats oatmeal for breakfast.

b. 

- Zulu: CP is not a horizon for the $\phi$-probe that triggers hyperraising.

(51) a. Hyperraising in Zulu

uZinhle u-bonakala [ ukuthi u-zo-xova
AUG.1Zinhle 1S-seem [ that 1S-FUT-make
ujeqe ]
AUG.1steam.bread ]
‘It seems that Zinhle will make steamed bread.’
(literally: ‘Zinhle seems that will make steamed bread.’; SF)

[Halpert 2018, (3b)]

b. 

2.3 Interim summary + looking forward

A. We have just surveyed two analyses of HR:

- A-over-A condition approach (Halpert, 2018)
  - Gist of the proposal: the matrix T in Zulu can interact with a finite CP, though it cannot be satisfied by it. Nevertheless, Agreeing with a CP suffices to deactivate that phase. HR of the embedded subject becomes possible.
  - Solution to the phase problem introduced by HR (exemplified by Zulu): the matrix T can move (i.e. hyperraise) the embedded subject out of the embedded CP because T Agrees with the CP first, thereby deactivating it.

- Horizons approach (Keine, 2019)
  - Gist of the proposal: probes have horizons, i.e. XPs that completely halt the probing.
    - Probes may differ in their horizons (i.e. the same XP can be a horizon for a probe $P_1$, though not for a probe $P_2$).
    - Likewise, languages may differ in what counts as horizon for the same probe.
  - Solution to the phase problem introduced by HR:
    - English (or any non-HR language): the horizon for $\phi$-features is CP.
    - Zulu (or any HR language): the horizon for $\phi$-features is not CP. As such, an embedded CP does not halt the $\phi$’s probing. This allows this probe to access the embedded subject and then hyperraise it.

B. Upcoming: a third analysis, the edge approach
Overview of solution to the phase problem: this analysis explores the escape hatch hardwired into the PIC.

But: assuming that Spec-CP is inherently an A-position, a derivation for HR like (53) violates the Ban on Improper Movement.

Gist of the proposal: the embedded subject moves to Spec-CP. From that position, it becomes accessible to the matrix probe v.

Movement to phase edges is how successive cyclic Wh-movement is assumed to happen anyway.

An embedded subject could then hyperraise into the matrix clause via the escape hatch Spec, CP.

But: assuming that Spec-CP is inherently an A-position, a derivation for HR like (53) violates the Ban on Improper Movement.

\[ (54) \quad \text{\textit{A}-movement of a constituent X cannot be followed by movement of X to an A-position.} \]

\[ \text{\textbf{Safir 2019, (10)}} \]

C. Proposed solution

- Movement to Spec-CP does not have to always violate the Ban on Improper Movement if Spec-CP can be A-position.

\[ (53') \quad \text{\textit{A}-movement of a constituent X cannot be followed by movement of X to an A-position.} \]

- Plan for lecture #2 and #3: background to make this solution possible.

References


