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
  - i. Phase deactivation approach
  - ii. 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** has already finished her paper].
b. * Alex believes **Anna**$_k$ with all their heart [(that) t_k has already finished her paper].

- ○ 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) $[_{CP} \ldots DP_{case\ \alpha} \ldots [_{CP}$ COMP $\ldots < DP_{case\ \beta} > \ldots]]$ (where $\alpha \neq \beta$)

- 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)
[Halpert 2018, (3)]

(6) *Hyperraising to object in Mongolian*
a. Bat chang-aar [**Dorj** sain seheetin gej] khel-sen.
Bat loud-INSTR [Dorj.NOM good noble COMP] say-PST
'Bat said loudly that Dorj is good and noble.'
b. Bat **Dorj-iig**$_k$ chang-aar [t_k sain seheetin gej] khel-sen.
Bat Dorj-ACC loud-INSTR [good noble COMP] say-PST
'Bat said loudly that Dorj is good and noble.'

[1] For 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

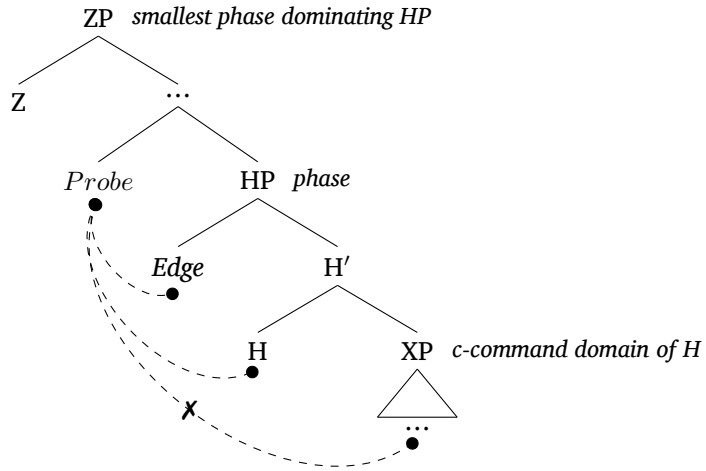
- Common assumptions in minimalist syntax:

(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.



(8) *Activity Condition*

Goal as well as probe must be active for Agree to apply. *[…]* For the Case/agreement systems, the uninterpretable features are φ-features of the probe and structural Case of the goal N. φ-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]

(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:
  - Ferreira (2009); Takeuchi (2010): nominative case is not assigned in the embedded clause, just in the matrix one.
  - 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].

[Davies 2005]

- 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**].

[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].

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.

[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.).

[Davies 2005]

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** bömbög-öör toglo-dog baa **nokhoi**
Nara [cat.NOM ball-INSTR play-HAB CONJ dog.NOM
yas-aar toglo-dog gej] khel-sen.
bone-INSTR play-HAB COMP] say-PST
'Nara said that the cat plays with a ball and the dog plays with a bone.'

b. * **Nokhoi-g** Nara **muur-iig** bömbög-öör toglo-dog baa *t*
dog-ACC Nara cat-ACC ball-INSTR play-HAB CONJ *t*
yas-aar toglo-dog gej khel-sen.
bone-INSTR 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) Dulma-DAT book-REFL.POSS give-PST
gej] chang-aar khel-sen.
COMP] loud-INSTR say-pst
'Bat said loudly that Dorj gave his book to Dulmaa.'

b. * Bat **Dulmaa-d** [Dorj(-iig) *t* nom-oo ög-sön
Bat Dulma-DAT [Dorj(-ACC) *t* book-REFL.POSS give-PST
gej] chang-aar khel-sen.
COMP] loud-INSTR 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-INSTR [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 ($\overline{\text{A}}$-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 $\overline{\text{A}}$-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:[4]

- 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.

[4] 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. Deal'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**$_k$ 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.'
(literally: 'Zinhle seems that will make steamed bread.'; SF)

[Halpert 2018, (3a, b)]

- Subject agreement: in (17a), there is no raising and the matrix verb appears with default morphology (*ku-*).
- The same affix occurs when the subject remains *v*P-internal in root clauses and with weather predicates.

(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.'

[Halpert 2018, (29, 34)]

- Conversely, standard raising is prohibited from infinitival clauses.

(19) * **uZinhle**$_k$ u-bonakala [t_k uko-xova ujeqe].
AUG.1Zinhle 1S-seem [INF-make AUG.1steam.bread]
Int.: 'It seems that Zinhle will make steamed bread.'

[Halpert 2018, (3c)]

- 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. * John$_k$ seems [$_{CP}$ (that) t_k is happy].

HR prohibited

b. It seems [$_{CP}$ (that) John is happy].

c. John$_k$ seems [$_{TP}$ t_k to be happy].

raising obligatory

d. * It seems [$_{TP}$ 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 *v*P. The latter is string-vacuous, but may be signalled by the occurrence of the affix *ya* (Halpert, 2018, fn. 16).

(21) a. uZinhle u- xova ujeqe.
AUG1.Zinhle 1S- make steamed.bread
'Zinhle is making steamed bread.'

b. uZinhle u-*ya*-[wu]- xova **ujeqe**.
AUG1.Zinhle 1S-YA-1OBJ 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 φ-features.

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

(22) *Finite CP can trigger object agreement*

ngi-*ya*-[ku]-cabanga [$_{CP}$ ukuthi uMlu u-ya-bhukuda manje]
1SG.S-YA-17OBJ-think [that AUG.1Mlu 1S-YA-swim now]
'I think that Mlu is swimming now.'

[Halpert 2018, (45a); adapted]

(23) *Infinitival TP can trigger object agreement*

ngi-*ya*-[ku]-funa [$_{TP}$ uku-xova ujeqe]
1SG.S-YA-15/17OBJ-want [AUG.15/17-make AUG1.steamed.bread]
'I want to make steamed bread.'

[Halpert 2018, (41b); adapted]

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

C. Yet another difference: movement to the subject position

(24) *Finite clause cannot be the subject*

* [$_{CP}$ ukuthi w-a-thatha umhlala phansi] ku-ya-ngi-mangaza.
[that 1S-PST-take AUG.1sit down] 17S-YA-1SG.OBJ-surprise
Int.: 'That he retired surprises me.'

[Halpert 2018, (47)]

(25) *Infinitival clause can be the subject*

[$_{TP}$ uku-xova ujeqe] ku-mnandi.
[AUG.15/17-make AUG.1steamed.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 satify the EPP.

D. Summary

(26)

	Finite CP	Infinitival TP
(Hyper)raising	✓	*
Object agreement	✓	✓
Subject of a clause	*	✓

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:

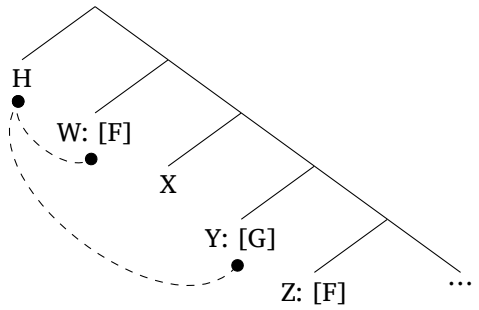
(27) i. Interaction: the search space is assessed in a structured way for goals with appropriate features; if such are found, features are copied to the probe.
ii. Satisfaction: unvalued features on the probe receive a

value, and interaction stops.

[Deal 2015, Universität Leipzig handout]

(28) 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 φ-features) and $F \neq G$.

(29)



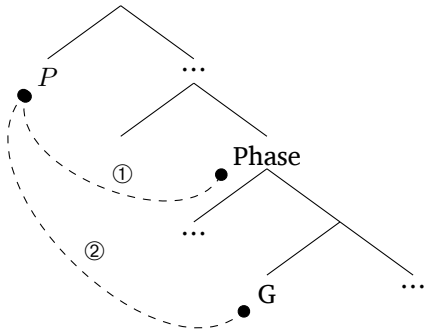
[Deal 2015]

- In (29), the probe H is only satiasfied 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.

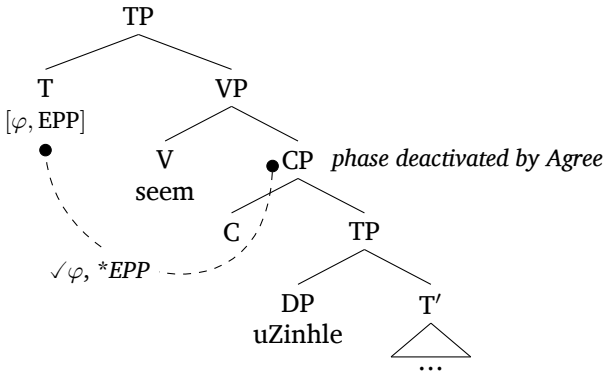
(30)



D. Sample derivation #1: finite CP[5]

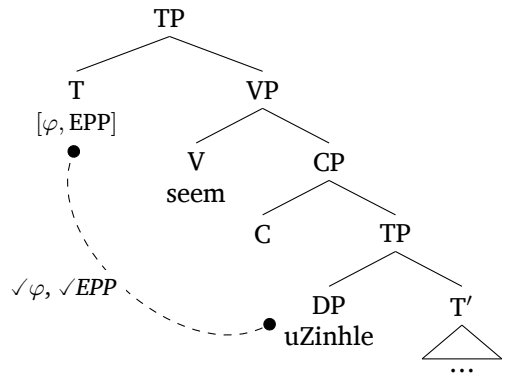
- Halpert's proposal for HR in Zulu:

(31) a. *Step 1: T Agrees with embedded CP for φ-features*



[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)*

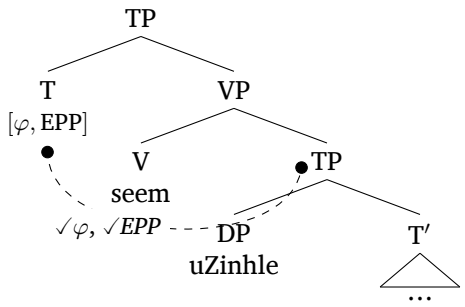


[Halpert 2018, (51); adapted]

- 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 φ.
  - The embedded CP can satisfy only one of these features (φ, 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: $\overline{A}$-movement (transparent) but A-movement (opaque)*

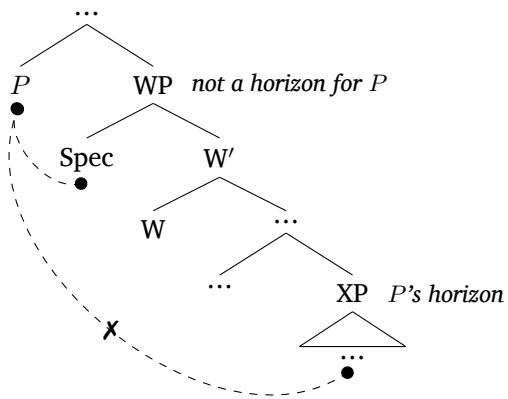
a. [$_{CP}$ Who$_k$ do you think [$_{CP}$ t_k eats oatmeal for breakfast]]?
$\overline{A}$

b. * [$_{CP}$ John$_k$ seems [$_{CP}$ t_k eats oatmeal for breakfast]].
A

[Keine 2019, (2); adapted]

- 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.

(34)



- 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 $P1$, but not for a probe $P2$.
- Illustrating with (33): CP is a horizon for the probe that triggers A-movement, but not for the probe that trigger $\overline{\text{A}}$-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 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]

(36) *Agreement in Hindi*

a. **niina** bacce-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)

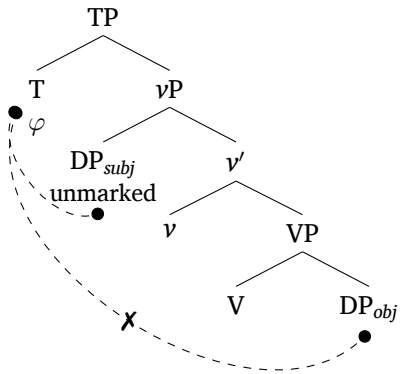
c. **siitaa** kelaa khaatii thii.
Sita.FEM banana.MASC eat.IMPERF.FEM be.PAST.FEM
'Sita (habitually) ate bananas.'
agreement with highest unmarked

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]

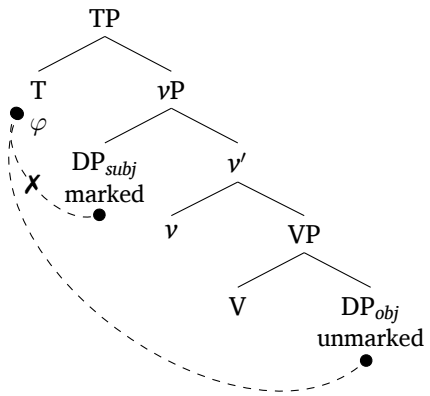
- Keine's analysis of agreement in Hindi: φ is located at T.

(37) a. *Agreement with unmarked subject*



[6] More 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 φ in T finds is as the first possible goal. Agree with the lower object is preempted.
- In (37b), the subject is marked, so φ 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.[7]

(38) *Long distance agreement in Hindi*

a. laṛkõ-ne [$_{\text{Inf}}$ roṭii khaa-naa]
boys-ERG [bread.FEM eat-INF.MASC.SG]
caah-aa.
want-PERF.MASC.SG
'The boys wanted to eat bread.'

default agreement

b. laṛkõ-ne [$_{\text{Inf}}$ **roṭii** khaa-nii] caah-ii.
boys-ERG [bread.FEM eat-INF.FEM.SG] want-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 hafte raam-ne [$_{\text{TP}}$ yeh kitaab
last week Ram-ERG [this book.FEM
kal paṛh-naa]
yesterday/tomorrow read-INF.MASC.SG]
caah-aa tha-aa.
want-PERF.MASC.SG be.PST-MASC.SG
'Last week, Ram had wanted to read this book yesterday/tomorrow.'

default agreement

b. # pichle hafte raam-ne [$_{v\text{P}}$ **yeh kitaab**
last week Ram-ERG [this book.FEM
kal paṛh-nii] caah-ii
yesterday/tomorrow read-INF.FEM.SG] want-PERF.FEM.SG
tha-ii.
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 (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 *v*P.
- Default agreement occurs in the TP infinitive in (39a), while long distance agreement occurs in the *v*P infinitive in (39b).

D. Interaction between movement and long distance agreement

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

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

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

b. [$_{DP}$ us-ke maalik-ne] [$_{Inf}$ **har billii** ghumaa-nii]
[3SG-GEN owner-ERG] [every cat.FEM walk-INF.FEM.SG]
caah-ii.
want-PERF.FEM.SG
'His/Her$_{k/*i}$ owner wanted to walk every cat$_i$.'
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 (38).

(41) *$\bar{A}$-movement from infinitival clause*

a. har billii [$_{DP}$ us-ke maalik-ne] [$_{Inf}$ ghumaa-naa]
every cat.FEM [3SG-GEN owner-ERG] [walk-INF.MASC.SG]
caah-aa.
want-PERF.MASC.SG
'Every cat$_k$, his/her$_i$ owner wanted to walk (it).'
default agreement

b. **har billii** [$_{DP}$ us-ke maalik-ne] [$_{Inf}$ ghumaa-nii]
every cat.FEM [3SG-GEN owner-ERG] [walk-INF.FEM.SG]
caah-ii.
want-PERF.FEM.SG
'Every cat$_k$, his/her$_i$ owner wanted to walk (it).'
long distance agreement

[Keine 2019, (11b); adapted]

- Now the embedded subject (*every cat*) moved above the matrix subject.
- How we know this movement can be of the $\bar{A}$-type: no creation of new antecedents for binding.[8]
- Long distance agreement is still optional.

(42) *A-movement from infinitival clause*

a. * har billii [$_{DP}$ us-ke maalik-ne] [$_{Inf}$ ghumaa-naa
every cat.FEM [3SG-GEN owner-ERG] [walk-INF.MASC.SG
] caah-aa.
] want-PERF.MASC.SG
Int.: 'For every cat *x*, *x*'s owner wanted to walk *x*.'
default agreement

b. **har billii** [$_{DP}$ us-ke maalik-ne] [$_{Inf}$ ghumaa-nii]
every cat.FEM [3SG-GEN owner-ERG] [walk-INF.FEM.SG]
caah-ii.
want-PERF.FEM.SG
'For every cat *x*, *x*'s owner wanted to walk *x*.'
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 mãã-ne] [$_{Inf}$ har bacce-ko film
[3SG-GEN mother-ERG] [every child-DAT movie.FEM
dikhaa-naa] caah-aa.
show-INF.MASC.SG] want-PERF.MASC.SG
'His/Her$_k$ mother wanted to show a movie to every child$_i$.'
default agreement

[8] 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. $\bar{A}$-movement in contrast does not have such an ability.

b. [$_{DP}$ us-kii mãã-ne] [$_{Inf}$ har bacce-ko **film**
[3SG-GEN mother-ERG] [every child-DAT movie.FEM
dikhaa-[nii]] caah-[ii].
show-INF.FEM.SG] want-PERF.FEM.SG
'His/Her$_k$ mother wanted to show a movie to every child$_i$.'
long distance agreement

[Keine 2019, (12a); adapted]

- Baseline sentences, where the matrix subject contains a pronoun (*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 (*his/her*) inside the matrix subject.
- The optionality of long distance agreement is also expected, given (38).

(44) *$\overline{A}$-movement out of infinitival clause*

a. har bacce-ko [$_{DP}$ us-kii mãã-ne] [$_{Inf}$ *t* film
every child-DAT [3SG-GEN mother-ERG] [movie.FEM
dikhaa-[naa]] caah-[aa].
show-INF.MASC.SG] want-PERF.MASC.SG
'His/Her$_k$ mother wanted to show a movie to every child$_i$.'
default agreement

b. har bacce-ko [$_{DP}$ us-kii mãã-ne] [$_{Inf}$ *t* **film**
every child-DAT [3SG-GEN mother-ERG] [movie.FEM
dikhaa-[nii]] caah-[ii].
show-INF.FEM.SG] want-PERF.FEM.SG
'His/Her$_k$ mother wanted to show a movie to every child$_i$.'
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 $\overline{A}$-type: no creation of new antecedents for binding.
- Long distance agreement is still optional.

(45) *A-movement out of infinitival clause*

a. *? har bacce-ko [$_{DP}$ us-kii mãã-ne] [$_{Inf}$ film
every child-DAT [3SG-GEN mother-ERG] [movie.FEM
dikhaa-[naa]] caah-[aa].
show-INF.MASC.SG] 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 mãã-ne] [$_{Inf}$ *t* **film**
every child-DAT [3SG-GEN mother-ERG] [movie.FEM
dikhaa-[nii]] caah-[ii].
show-INF.FEM.SG] 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

(46) *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

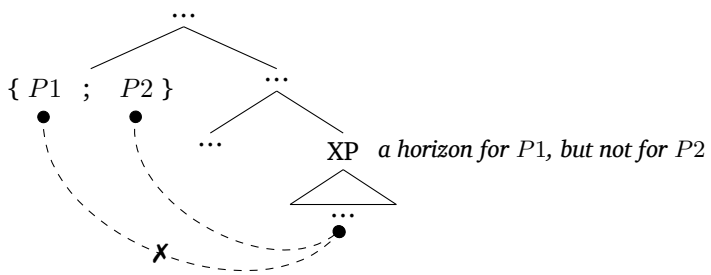
by *XP* are therefore outside P's search space.

[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 $P2$.

(47)



- 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}

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

b. *CP a horizon for* P_φ

* [$_{CP}$ P_φ seems [$_{CP}$ John eats oatmeal for breakfast]].

I. Components of the analysis of Hindi long distance agreement

- Relevant domains: *v*P, 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), $P_{\bar{A}}$ (probe that triggers $\bar{\text{A}}$-movement), and P_φ (probe that triggers φ-agreement).
- Location of these probes: P_A and P_φ are located in T (see (37)); $P_{\bar{A}}$ is located in C (as usual).
- Keine's proposal for the horizons of these probes:

(49)

		Domain to be probed into	
Probe	Horizon	*v*P infinitive	TP infinitive
P_φ	**TP**	✓	*
P_A	**TP**	✓	*
$P_{\bar{A}}$	**Ø**	✓	✓

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, *v*P and TP (cf. (39)).
- ▷ If P_φ probes into a *v*P, the probing is not halted because *v*P 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 *v*P, P_A can probe into it, because *v*P 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 *v*P.
- ▷ Auxiliary minimalist assumption: if Agree is possible, then it is obligatory (Preminger, 2014).
- ▷ As we saw above, P_φ can also only probe into *v*Ps. Because P_φ's probing is possible, it is obligatory, given the assumption above.

iii. $\bar{\text{A}}$-movement out of the infinitival clause has no such effect on long distance agreement.

- ▷ $P_{\bar{A}}$ can probe both into *v*Ps and TPs because it does not have a horizon (i.e. no domain halts its probing).
- ▷ If the infinitival clause is a *v*P, P_φ can and therefore must probe into it. The result is long distance agreement into the clause $P_{\bar{A}}$ 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 $P_{\bar{A}}$ is probing into.

K. Taking stock

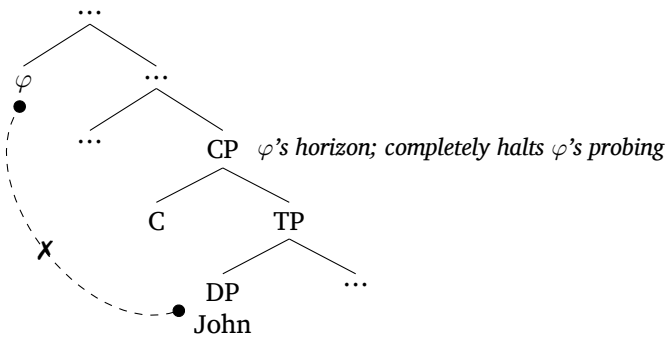
- What we saw: long distance agreement in Hindi and, specially, its interaction with movement.
- This supplied the empirical motivation for horizons.
- Importantly, the same domain (e.g. TP) can be a horizon for a probe (P_φ and P_A), but not for another ($P_{\bar{A}}$).

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

- English: CP is a horizon for the φ-probe that triggers hyperraising.

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

b.

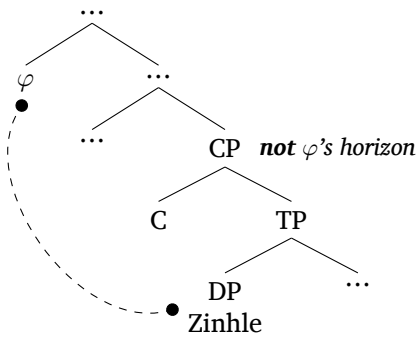


- Zulu: CP is *not* a horizon for the φ-probe that triggers hyperraising.

(51) a. *Hyperraising in Zulu*

uZinhle$_k$ 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.'
(literally: 'Zinhle seems that will make steamed bread.'; SF)
[Halpert 2018, (3b)]

b.



2.3 Interim summary + looking forward

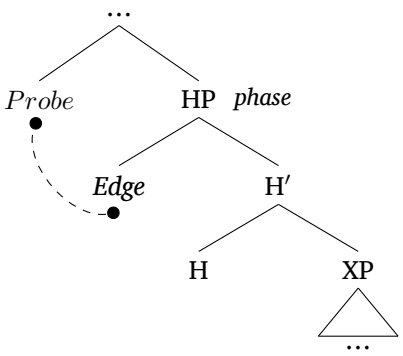
A. We have just surveyed two analyses of HR:

- 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 $P1$, though not for a probe $P2$).
    - 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 φ-features is CP.
    - Zulu (or any HR language): the horizon for φ-features is not CP. As such, an embedded CP does not halt the φ'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.

(52)



- 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.

(53) $[_{CP} \ldots \text{DP} \ \text{T}/v \ldots [_{CP} \boxed{<\text{DP}>} [_{C'} \text{COMP} \ldots <\text{DP}> \ldots]]]$

A $\quad$ $\bar{A}$

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

(54) $\bar{\text{A}}$-movement of a constituent X cannot be followed by movement of X to an A-position.

[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′) $[_{CP} \ldots \text{DP} \ \text{T}/v \ldots [_{CP} \boxed{<\text{DP}>} [_{C'} \text{COMP} \ldots <\text{DP}> \ldots]]]$

A $\quad$ **A**

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

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