Agreement reversals and the directionality of Agree

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1 Agree: Upward, downward, or bidirectional?

- The recent literature has seen an increasing interest in the directionality of ϕ-agreement and what it reveals about the mechanisms that underlie it.

  1. **Upward valuation:** valuee always c-commands valuer
     → *Downward Agree* (Chomsky 2000, 2001, *et seq.*, recently defended by Preminger 2013 and Preminger & Polinsky 2015)

  2. **Downward valuation:** valuer always c-commands valuee
     A. *Upward Agree* (Zeijlstra 2012, Wurmbrand 2012, 2014), *or*
     B. *Spec–Head* (Mahajan 1989, Koopman 2006)

  3. **Variable valuation:** valuer may in principle c-command or be commanded by valuee
     A. valuation is in principle *symmetrical* (Baker 2008, Bjorkman & Zeijlstra 2014, Carstens 2016), *or*
     B. *Downward Agree + agreement with specifier* (Fernández & Albizu 2000, Rezac 2003, Béjar & Rezac 2009)

- ***This talk***
  We present and analyze a ϕ-agreement directionality reversal in Hindi-Urdu (henceforth Hindi).
  - ▷ In most cases, the verb agrees with the *structurally highest* available argument.
  - ▷ We show that in a narrow class of configurations, this pattern is reversed. In these configurations, agreement with a *structurally lower* argument takes priority over agreement with a higher one.

- ***Proposal:***

  1. We argue that this reversal provides evidence that the directionality of valuation is ***variable*** → This favors **Option 3**

  2. We argue that downward valuation is much more restricted than upward valuation in its locality:
     - ▷ A probe on head H may not agree with elements higher than HP.
     - ▷ Thus, upward and downward valuation are ***not symmetrical.***

     This provides evidence for **Option 3.B**.

  3. There is downward-Agree bias: Spec–Head agreement obtains only if downward Agree has failed.
     - ➪ novel evidence for *cyclic Agree* (Rezac 2003, Béjar & Rezac 2009) (also see the concept of *delayed valuation* in Carstens 2016)

     (1) ***Cyclic Agree***
     Given a probe P on head H,
     a. P first searches HP's complement (Comp,HP);
     b. (i) if unsuccessful, P can agree with Spec,HP;
     (ii) P *cannot* target Spec,XP for any head X c-commanding H.

  4. Building on Rezac (2003) and Béjar & Rezac (2009), we propose an account of (1) in terms of ***probe projection.*** On this account, Agree as an operation is ***strictly downward.***

- ***Consequences:***
  1. Agree is strictly downward, but probe projection may produce Spec agreement as a secondary process. This may induce agreement reversals.
  2. Evidence for second-cycle Agree effects beyond hierarchy effects between co-arguments.
  3. One and the same probe in the same construction and language exhibits variable agreement behavior → evidence against language-specific or probe-specific directionality parameters

2 Top-down agreement

- ***Upshot***
  Standard agreement in Hindi is strictly top-down: The verb agrees with the structurally highest available argument, over potentially long distances.

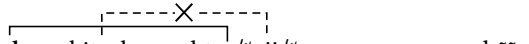
➪ This behavior implicates downward Agree.

2.1 Local agreement

- Verbal agreement in Hindi targets the structurally highest, non-overtly case-marked DP (Pandharipande & Kachru 1977). Both subjects and direct objects can in principle control verb agreement. If there is no viable agreement target, masculine singular default agreement arises as a last resort.

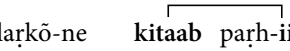
(2) *ϕ-agreement algorithm in Hindi*
If the subject does not bear a case marker → agree with the subject
Otherwise: If object does not bear a case marker → agree with the object
Otherwise: Use masculine singular default agreement.

(3) a. *Subject agreement preempts object agreement*



laṛke kitaab paṛht-**e**/*-ii/*-aa hãĩ
boys.M book.F read.HAB-M.PL/*-F.SG/*-DFLT AUX
'Boys read books.'

b. *Object agreement if subject agreement is impossible*



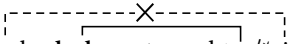
laṛkõ-ne **kitaab** paṛh-**ii**/*-e/*-aa hai
boys.M-ERG book.F read.PFV-F.SG/*-M.PL/*-DFLT AUX
'Boys have read books.'

c. *Default agreement as last resort*

laṛkõ-ne kitaab-ko paṛh-**aa**/-*e/*-ii hai
boys.M-ERG book.F.SG-ACC see.PFV-DFLT/*-M.PL/*-F.SG AUX
'Boys have read the book.'

- ***Agreement and scrambling***
  Scrambling does not affect verbal agreement (Bhatt 2005). That is, scrambling of the object over the subject does not override the subject preference.

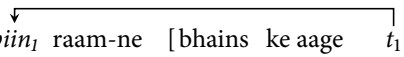
(4) *Subject preference not affected by movement*



kitaab$_1$ **laṛke** t_1 paṛht-**e**/*-ii/*-aa hãĩ
book.F boys.M read.HAB-M.PL/*-F.SG/*-DFLT AUX
'Boys read books.'

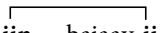
- ***Local agreement does not require movement:***
  - ▷ There is no evidence that an agreeing object has to move into a designated position (Bhatt 2005, Keine 2016, 2017b). See the Appendix A for evidence from scope and binding.
  - ▷ Certain idioms in Hindi do not allow the object to move (Bhatt & Keine to appear). An example is *bhains ke aage biin bajaa* 'to teach something to someone who usually doesn't listen' (*lit.* 'to play the flute in front of buffalo').
    - ▷ The object may not move (5a), but it may control agreement (5b).

(5) a. *Object movement impossible*



#*biin*$_1$ raam-ne [bhains ke aage t_1 bajaay-ii]
flute Ram-ERG buffalo infront-of play.F.SG
#'Ram taught something to someone who usually doesn't listen.'
lit: 'Ram played a flute infront of a buffalo.'

b. *Object agreement possible*



raam-ne [bhains ke aage **biin** bajaay-**ii**]
Ram-ERG buffalo infront-of flute.F play-F.SG
'Ram taught something to someone who usually doesn't listen.'

➽ ***Conclusions:***

1. Object agreement is not parasitic on movement.
2. ***Top-down agreement***
   Agreement with a structurally lower DP is possible only if agreement with a higher DP is impossible.

2.2 Long-distance agreement (LDA)

- Hindi also allows long-distance agreement between a verb and the object of an embedded nonfinite clause (Mahajan 1989, Butt 1993, Bhatt 2005, Chandra 2007, Keine 2016).
  - ▷ In most cases, LDA is optional and alternates with default agreement.

(6) *Subject overtly case-marked → LDA or default agreement*

shikṣakõ-ne [raam-ko **kitaab** paṛhne] **dii/diyaa**
teachers.M-ERG Ram-DAT book.F read.INF let.F.SG/let.DFLT
'The teachers let Ram read a book.'

- ***Handling optionality***
  Following Bhatt (2005) and Keine (2016, 2017b), we will assume that nonfinite clauses are ambiguous between a structure that is transparent for ϕ-agreement and one that is not. See Keine (2016) for discussion and justification.
  - ▷ Clause transparent for ϕ-agreement → LDA obligatory
  - ▷ Clause opaque for ϕ-agreement → LDA impossible → default agreement
- ***Subject preference***
  Like local agreement, LDA exhibits a subject preference (Bhatt 2005). If both the subject and the embedded object are not overtly case-marked (and hence visible to agreement), only the subject can control agreement. LDA is then impossible.

(7) *Subject not overtly case marked → only subject agreement*

a. *Subject agreement*

saare **shikṣak** [raam-ko kitaab paṛhne] **dete** hãĩ
all teachers.M Ram-DAT book.F read.INF let.M.PL AUX
'All the teachers let Ram read a book.'

b. *No LDA*

* saare shikṣak [raam-ko **kitaab** paṛhne] **detii** hai
all teachers.M Ram-DAT book.F read.INF let.F.SG AUX

c. *No default agreement*

* saare shikṣak [raam-ko kitaab paṛhne] **detaa** hai
all teachers.M Ram-DAT book.F read.INF let.DFLT AUX

- ***LDA does not require movement:***
  - ▷ Just like in the case of local agreement, there is no indication that LDA requires movement of the agreement trigger. See the Appendix A for scope and binding evidence
  - ▷ If the object is part of an idiom and resists movement, it can nonetheless control LDA:

(8) raam-ne [bhains ke aage **biin** bajaanii] caah-**ii**
Ram-ERG buffalo infront-of flute.F play.INF want.F.SG
'Ram wanted to teach something to someone who usually doesn't listen.'

. . . . . .

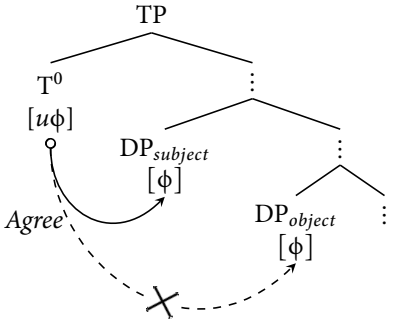
➽ ***Conclusions:***

1. LDA is not parasitic on movement.
2. ***Top-down agreement***
   Agreement with a structurally lower DP is possible only if agreement with a higher DP is impossible.

2.3 Analytical consequence: Downward Agree

- The evidence so far clearly suggests ***downward Agree/upward valuation:***
  - ▷ Search is ***long-distance*** (i.e., no Spec–Head). This accounts for the observation that LDA is independent of movement.
  - ▷ Search is ***top-down***. This explains the pervasive subject preference.

(9) *Subject agreement preempts object agreement*



(10) *Obligatory operations* (Preminger 2011, 2014)
If a verb can ϕ-agree with a DP, it has to.

3 Bottom-up agreement

- ***Upshot***
  We make the novel observation that scrambling *can* feed agreement in a limited set of circumstances.
- In these configurations, the top-down pattern witnessed so far flips. Agreement then exhibits a bottom-up preference.

3.1 Object scrambling may feed agreement

- ***Extraposed clauses are islands for agreement***
  Extraposition of a nonfinite clause bleeds LDA into it. In (11), the infinitival clause is extraposed and LDA into it is degraded. Only default agreement is possible.

(11) *No LDA into extraposed clause*

shikṣakõ-ne	t_1	**diyaa**/***dii**	[	raam-ko	**kitaab**	paṛhne	]$_1$
teachers-ERG		let.DFLT/*let.F.SG		Ram-DAT	book.F	read.INF	

'The teachers let Ram read a book.'

- We take this to be freezing effect.
- ***Scrambling can feed agreement***
  Extraposed clauses are transparent for scrambling out of them. If the embedded object is moved into the matrix clause, LDA is again possible.

(12) a. *Object scrambling can feed agreement …*

kitaab$_2$	shikṣakõ-ne	t_1	**dii**	[	raam-ko	t_2 paṛhne	]$_1$
book.F	teachers-ERG		let.F.SG		Ram-DAT	read.INF	

'The teachers let Ram read a book.'

b. *… but default agreement is also possible*

kitaab$_2$	shikṣakõ-ne	t_1	**diyaa**	[	raam-ko	t_2 paṛhne	]$_1$
book.F	teachers-ERG		let.DFLT		Ram-DAT	read.INF	

➽ ***Implications:***

- ▷ Agreement in (12) is with the landing site of the object, as its base position in the extraposed clause is not accessible to agreement (see (11)).
- ➪ Object scrambling can in principle feed agreement.

3.2 A- vs. $\overline{\text{A}}$-scrambling

- Why do moved objects only optionally trigger LDA in (12)?
- Scrambling in Hindi is not a uniform phenomenon (Mahajan 1990, Gurtu 1992). The language employs both A- and $\overline{\text{A}}$-scrambling. Importantly, only A-scrambling may feed pronominal binding; $\overline{\text{A}}$-scrambling is subject to weak crossover.

3.2.1 Diagnosing A-scrambling

- Because $\overline{\text{A}}$-scrambling is subject to weak crossover, (13) must involve A-scrambling of the object. In this case, agreement is obligatory.

(13) *Object A-scrambling makes LDA obligatory*

har	**kitaab**$_2$	[	unke$_2$	lekhakõ-ne	]	t_1	**dii**/***diyaa**		[raam-ko
every	book.F		its	authors-ERG			let.F.SG/*let.DFLT		Ram-DAT
t_2	paṛhne	]$_1$							
	read.INF								

'For every book x, x's authors let Ram read x.'

➪ A-landing sites are visible to matrix ϕ-agreement.

3.2.2 Diagnosing $\overline{\text{A}}$-scrambling: Case-marked clauses

- Certain verbs, like *kah* in (14), embed a case-marked infinitival clause. Such clauses allow $\overline{\text{A}}$-scrambling out of them, but not A-scrambling, as evidenced by weak crossover: the pronoun *unke* may not be bound by the moved DP.

(14) *No A-movement out of case-marked clauses*

har *khat*$_2$ unke$_{3/*2}$ lekhakõ-ne [raam-se t_2 paṛhne-ko]
every letter.M its authors-ERG Ram-INSTR read.INF-DAT
kahaa
say.M.SG
'Its$_3$ authors told Ram to read every letter$_2$.'

- ***$\overline{\text{A}}$-scrambling and agreement***
Crucially, these $\overline{\text{A}}$-scrambled DPs cannot control ϕ-agreement. This holds irrespective of whether the embedded clause is extraposed or not.

(15) *$\overline{\text{A}}$-extraction does not feed agreement*

a. *Intraposed clause*

har *kitaab*$_2$ unke$_{3/*2}$ lekhakõ-ne [raam-se t_2 paṛhne-ko]
every book.F its authors-ERG Ram-INSTR read.INF-DAT
kahaa/*kahii
say.DFLT/*say.F.SG
'Its$_3$ authors told Ram to read every book$_2$.'

b. *Extraposed clause*

har *kitaab*$_2$ [unke$_{3/*2}$ lekhakõ-ne] t_1 **kahaa/*kahii**
every book.F its authors-ERG say.DFLT/*say.F.SG
[raam-se t_2 paṛhne-ko]$_1$
Ram-INSTR read.INF-DAT
'Its$_3$ authors told Ram to read every book$_2$.'

- The same is true for finite clauses: They only permit $\overline{\text{A}}$-scrambling out of them, and DPs moved out of them cannot control matrix agreement.

- ***Conclusion***
Movement into A-positions feeds matrix agreement; movement into $\overline{\text{A}}$-positions does not.

3.3 Subject preference

- Importantly, A-scrambling of the object only feeds agreement if the subject cannot agree (i.e., if it bears an overt case marker). If subject agreement is possible, it takes precedence over object agreement.

(16) *Subject agreement preempts agreement with A-moved object*

a. *Subject agreement*

har *kitaab*$_2$ **unke$_2$** **lekhak** t_1 **dete** hãĩ [raam-ko t_2
every book.F its authors.M let.M.PL AUX Ram-DAT
paṛhne]$_1$
read.INF
'For every book x, x's authors let Ram read x.'

b. *No LDA*

*__har__ __kitaab$_2$__ unke$_2$ lekhak t_1 __detii__ hai [raam-ko t_2
every book.F its authors.M let.F.SG AUX Ram-DAT
paṛhne]$_1$
read.INF
'For every book x, x's authors let Ram read x.'

c. *No default agreement*

*har kitaab$_2$ unke$_2$ lekhak t_1 **detaa** hai [raam-ko t_2
every book.F its authors.M let.DFLT AUX Ram-DAT
paṛhne]$_1$
read.INF
'For every book x, x's authors let Ram read x.'

- ***Consequence: Bottom-up agreement***
Because the object DP unambiguously occupies a structurally higher position than the subject DP in (16) (given the binding), we have an instance of a *bottom-up preference:* Agreement with the structurally higher DP is possible only if agreement with a structurally lower one is not.

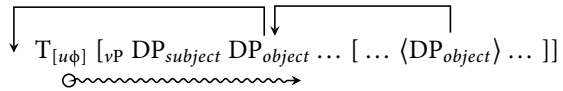
- ***Directionality reversal***
In terms of the structural positions involved, these data instantiate a directionality reversal: In (7) agreement has to be with the structurally higher DP; in (16) it has to be with the structurally lower one.

- Remarkably, this reversal arises for a single probe in a single construction, suggesting that probing directions are at least partly variable.

3.4 Agreement with intermediate position?

- One might wonder whether it is possible to circumvent this conclusion by postulating a two-step A-scrambling chain, e.g., through Spec,*v*P of the matrix clause.

(17) *Hypothetical two-step scrambling chain*



- Agreement would then be established with the intermediate position of the object. All else equal, this would reconcile the evidence above with a purely downward agreement model.

- ***Problems:***

1. **Order of operations**
   Edge movement would have to obligatorily take place before the subject is merged (or else the subject preference would be lost). This conflicts with standard assumptions about edge movement, which allow edge feature insertion only once a head is otherwise complete (Chomsky 2000, 2001, 2008).

2. **$\overline{\text{A}}$-scrambling**
   $\overline{\text{A}}$-scrambling would also have to proceed through this intermediate position. This would incorrectly predict that $\overline{\text{A}}$-scrambling likewise feeds agreement.

   ▷ ***A- vs. $\overline{\text{A}}$-positions***
   One remaining possibility is that intermediate A-positions are visible to agreement, but $\overline{\text{A}}$-positions are not.

   * This would be a stipulation. Below, we will try to *derive* the difference between A- and $\overline{\text{A}}$-positions.
   * It would also be *too strong:* $\overline{\text{A}}$-positions *are* visible to agreement in several languages (e.g., LDA in Tsez, Passamaquoddy, and Innu-aimûn; see Polinsky & Potsdam 2001, Bruening 2001, Branigan & MacKenzie 2002).

- ***Conclusion***
  It is the A-landing site of the DP that agreement is established with, not an intermediate position.

3.5 Consequences for Agree directionality

- A-scrambling may thus feed ϕ-agreement, but only if the matrix subject is not an available agreement target:

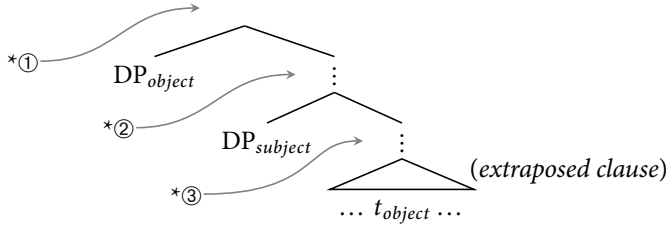
(18) $\text{DP}_{obj}\ \text{DP}_{subj}\ \text{V}\ [_{\text{extraposed clause}}\ \dots\ \text{DP}_{obj}\ \dots\ ]$

(19) $\text{DP}_{obj}\ \text{DP}_{subj}\text{-ERG}\ \text{V}\ [_{\text{extraposed clause}}\ \dots\ \text{DP}_{obj}\ \dots\ ]$

- ***Structural requirements:***
  - ▷ A-moved object c-commands subject (for binding)
  - ▷ A-moved object can control agreement (19)
  - ▷ subject agreement preference (18)
  - ▷ base position of object invisible due to extraposition

- ***Challenge***
  This reversal is problematic for accounts in which probes may only agree with goals that they c-command.

(20) *Downward Agree: Possible probe positions*



① — object agreement would bleed subject agreement → contra (16)
② — object scrambling should never feed agreement → contra (13)
③ — subject agreement should be impossible → contra (16)

- ***Conclusion***
  A strictly downard-Agree approach does not capture the directionality reversal in Hindi.

(21) ***Key conclusions***

a. §2: A probe P on head H can agree with elements inside Comp,HP.

b. §3: A probe P on head H can agree with elements outside of Comp,HP.

c. Descriptively, the directionality of valuation seems to be **variable.**

4 Cyclic Agree

- The Hindi data provide evidence for *Cyclic Agree* (Rezac 2003, Béjar & Rezac 2009) or *Delayed valuation* (Carstens 2016).

(22) ***Cyclic Agree***
Given a probe P on head H,

a. P first searches Comp,HP;

b. if unsuccessful, P can agree with material higher than Comp,HP.
(*to be refined*)

- ***Two ingredients:***
  1. Agreement is not limited to search into Comp,HP;
  2. Search into Comp,HP is primary; higher search is secondary.

- Following Rezac (2003), Béjar & Rezac (2009), and Carstens (2016), the primacy of agreement into Comp,HP follows from the cyclicity of structure building, in particular the Earliness Principle (see also Chomsky 2000, Pesetsky & Torrego 2001, Collins 2003, among others).

(23) ***Earliness Principle***
Agree between a probe and a goal has to take place as soon as possible.

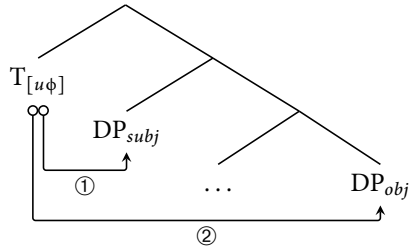
- ***First-cycle Agree***
Agree into Comp,HP applies first, because it is possible as soon as H is merged– hence before higher structure is built

- ***Second-cycle Agree***
Agree with higher material only applies if first cycle has failed

- ***Structural assumptions:***
  - ▷ The verbal ϕ-probe in Hindi resides on T, hence above the *v*P-internal base-generation site of subject and object (see Bhatt 2005 and Keine 2016, 2017b).
  - ▷ Scrambling targets a *v*P-external position (*to be refined below*).

- ***First-cycle Agree***
The ϕ-probe [*u*ϕ] searches T's complement and agrees with the closest visible DP. Only non-overtly case-marked DPs are visible to [*u*ϕ], which we treat as an instance of case-sensitive probing (Preminger 2014).

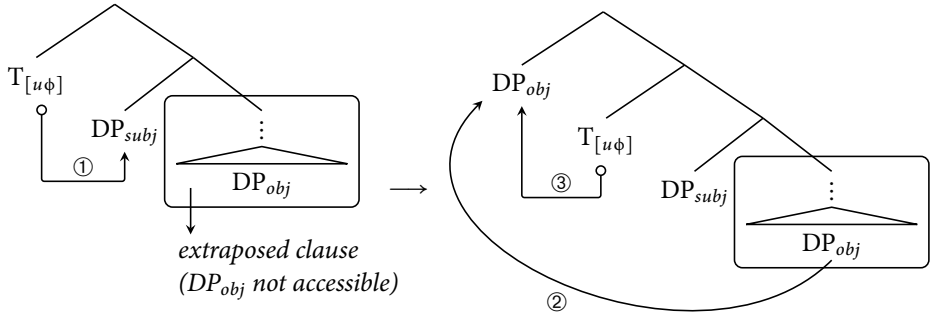
(24) *Simple clause*



⇨ Agree with the object is possible only if Agree with the subject is not. This produces the pervasive top-down preference.

- ***Second-cycle Agree***
If first-cycle Agree fails, then [*u*ϕ] can agree with an A-moved object.

(25) *Second-cycle Agree in complex clauses*



- Because second-cycle Agree (③) is possible only if first-cycle Agree (①) has failed, A-movement feeds agreement only if *v*P does not contain a viable Agree target.
  - ▷ If the subject is a licit agreement target, Agree is always successful in the first cycle (i.e., before object scrambling).

➪ Subject agreement (①) preempts agreement with an A-moved object (③).

(26) *Object A-scrambling feeds LDA (③)* *=(13)*

har **kitaab$_2$** unke$_2$ lekhakõ-ne t_1 **dii/*diyaa** [raam-ko t_2
every book.F its authors-ERG let.F.SG/*let.DFLT Ram-DAT
paṛhne]$_1$
read.INF
'For every book x, x's authors let Ram read x.'

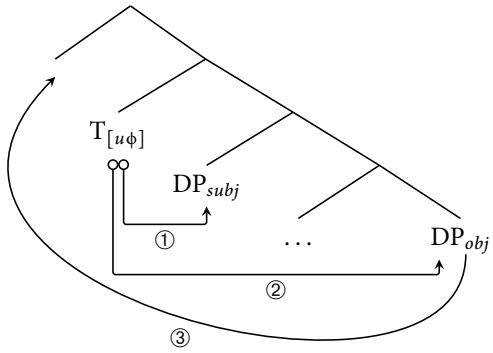
(27) *… but only if subject agreement (①) is impossible* *=(16a)*

har kitaab$_2$ **unke$_2$** **lekhak** t_1 **dete** hãĩ [raam-ko t_2 paṛhne]$_1$
every book.F its authors.M let.M.PL AUX Ram-DAT read.INF
'For every book x, x's authors let Ram read x.'

➪ This derives the bottom-up agreement preference that emerges in these constructions.

- ***Local scrambling and agreement***
  This account also derives the fact that in most cases, scrambling does not affect the agreement pattern.
  - ➪ Scrambling applies after first-cycle Agree. In local scrambling configurations, this is derivationally too late to have an impact on agreement. This explains why scrambling only feeds agreement in a very narrow set of circumstances.
  - ➪ The order of operations is crucial for this account. It is intrinsically determined (i.e., cyclicity).

(28) *Local agreement → no effect of scrambling*



- ***Default agreement***
  We saw above that default agreement is possible only if *both* first-cycle *and* second-cycle Agree have failed. This supports Preminger's (2011, 2014) claim that default agreement is the realization of an unvalued probe at PF.

. . . . . .

- ***Consequences:***
  1. The primacy of top-down agreement as well as attested instances of bottom-up agreement (and hence the agreement reversal) are derived from the cyclicity of (Internal) Merge and Agree.
  2. The primacy of argument structure for determining agreement in scrambling configurations is also derived.
  3. Crucially, a single probe in a single construction in a single language exhibits variable agreement directionality. This provides novel evidence for Rezac's (2003), Béjar & Rezac's (2009), and Carstens' (2016) proposal that Agree domains are derivationally variable.

5 The mechanics of second-cycle Agree

- ***What we've seen so far:***
  - ▷ The Hindi ϕ-probe exhibits cyclic Agree:
    - ∗ It first searches downward, into its c-command domain.
    - ∗ If this search is unsuccessful, it searches upward.
- ***The next question***
  What are the mechanics of upward agreement? Is it upward Agree (Carstens 2016)? Or is it confined to Spec–Head relationships (Rezac 2003, Béjar & Rezac 2009)?
- In this section, we will argue that second-Cycle Agree is extremely local. This suggests that there is ***no genuine upward Agree.***

  (29) Given a probe P on head H, second-cycle Agree cannot target elements higher than HP.

5.1 A- vs. $\overline{\text{A}}$-scrambling

- We saw above that A- and $\overline{\text{A}}$-scrambling in Hindi differ in their ability to feed agreement.

(30) *Object A-scrambling feeds agreement* *=(13)*

har **kitaab$_2$** [unke$_2$ lekhakõ-ne] t_1 **dii/*diyaa** [raam-ko t_2
every book.F its authors-ERG let.F.SG/*let.DFLT Ram-DAT
paṛhne]$_1$
read.INF
'For every book x, x's authors let Ram read x.'

(31) *$\overline{\text{A}}$-scrambling does not feed agreement* *=(15b)*

har **kitaab$_2$** [unke$_{3/*2}$ lekhakõ-ne] $_1$ **kahaa/*kahii** [raam-se
every book.F its authors-ERG say.DFLT/*say.F.SG Ram-INSTR
t_2 paṛhne-ko]$_1$
read.INF-DAT
'Its$_3$ authors told Ram to read every book$_2$.'

(32) *Consequence*
A-scrambling may feed second-cycle Agree; $\overline{\text{A}}$-scrambling does not.

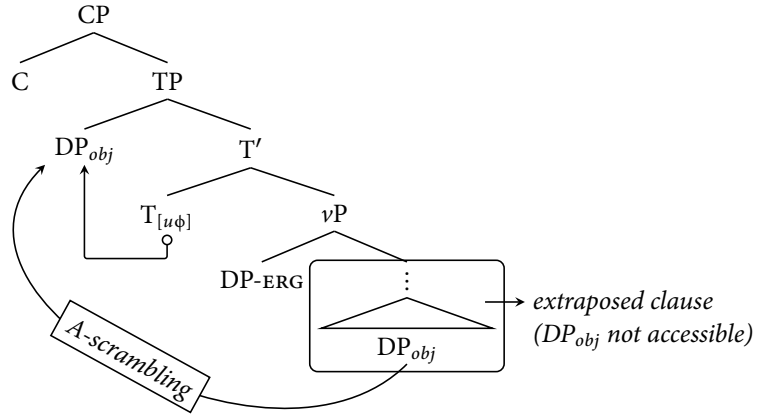
- We could simply stipulate that $\overline{\text{A}}$-positions are invisible to ϕ-Agree. But this would be ad hoc. It would also be at odds with evidence that $\overline{\text{A}}$-movement can in principle feed ϕ-agreement (e.g., LDA in Tsez, Passamaquoddy, and Innu-aimûn; Polinsky & Potsdam 2001, Bruening 2001, Branigan & MacKenzie 2002).

- ***A landing site difference***
We will adopt here a proposal in Keine (2017b) that A- and $\overline{\text{A}}$-scrambling differ in their landing sites. See Appendix B and Keine (2017a,b) for evidence.

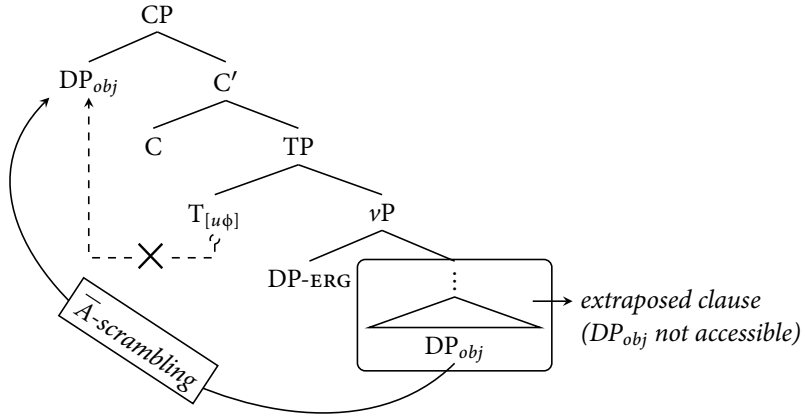
(33) *Landing sites*
a. *A-scrambling:* Spec,TP
b. *$\overline{\text{A}}$-scrambling:* Spec,CP

- ***Consequences for second-cycle Agree***
We saw that A-scrambling, but not $\overline{\text{A}}$-scrambling, can feed second-cycle Agree. This contrast is schematized in (34) and (35).

(34) *A-scrambling feeds second-cycle Agree*



(35) *$\overline{\text{A}}$-scrambling does not feed second-cycle Agree*



- This provides evidence that second-cycle Agree is very local:

(36) ***Cyclic Agree*** (*revised from (22)*)
Given a probe P on head H,
a. P first searches Comp,HP;
b. (i) if unsuccessful, P can agree with Spec,HP;
(ii) P *cannot* target Spec,XP for any head X c-commanding H.

- Second-cycle Agree is much more severely restricted than first-cycle Agree: It seems confined to **Spec–Head** agreement.

➪ This provides evidence for cyclic Agree with specifier (Rezac 2003, Béjar & Rezac 2009) over genuine upward Agree (Carstens 2016).

5.2 Second-cycle Agree as probe projection

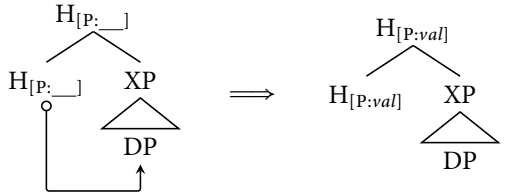
- What is the relationship between downward Agree and Spec–Head agreement?
- Following Rezac (2003), Béjar & Rezac (2009), we propose that second-cycle Agree is the result of ***probe projection.*** A probe on head H projects as part of H's label. From there, it can search into the specifier.

(37) ***Probe projection***
Merge($H_{[P]}$, XP) → $\{H_{[P]}, \{H_{[P]}, XP\}\}$

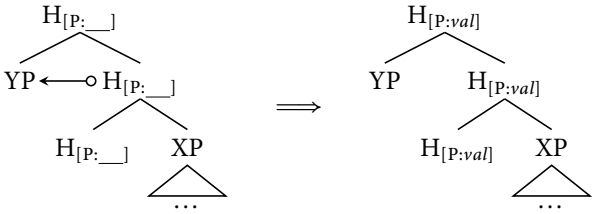
- ***Feature sharing***
We propose that probe projection produces several *occurrences* (or, equivalently, *copies*) of the same probe. That is, they are in a *feature sharing* relationship (see Pollard & Sag 1994, Frampton & Gutmann 2000, Bhatt 2005, Legate 2005, Pesetsky & Torrego 2007, Abels 2012, Ackema & Neeleman 2013, Haug & Nikitina 2016). Valuation of one values all, much like in the case of movement chains.

(38) ***Covaluation***
Valuation of an occurrence of probe P leads to valuation of all occurrences of P.

(39) *First-cycle Agree*



(40) *Second-cycle Agree*

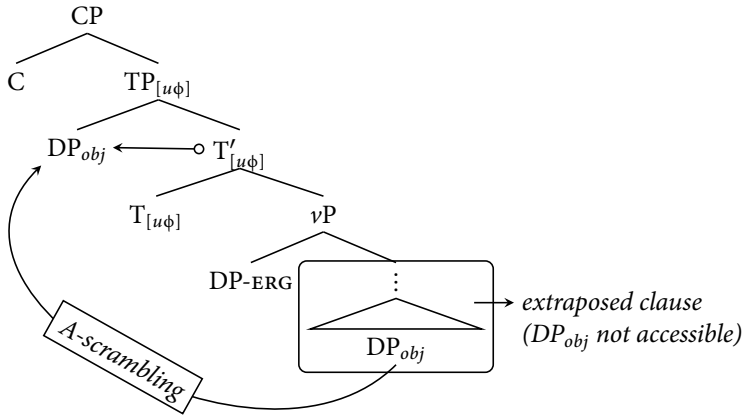


- ***Downward Agree***
Crucially, Agree itself is strictly downward (Chomsky 2000, 2001), as defended recently by Preminger (2013) and Preminger & Polinsky (2015).

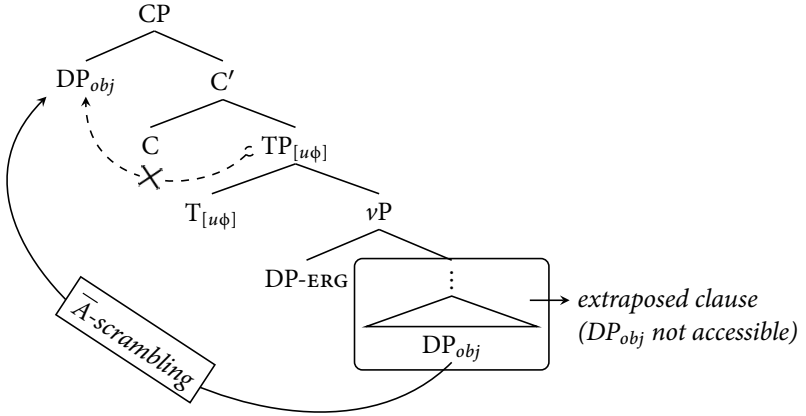
▷ In this respect, our proposal differs from Rezac (2003) and Béjar & Rezac (2009), where Agree is established under dominance.

(41) ***Agree directionality***
A probe P can agree with a goal G only if P c-commands G.

(42) *A-scrambling feeds ϕ-agreement*



(43) *$\overline{A}$-scrambling does not feed ϕ-agreement*



- ***Upshot***
  Probe projection coupled with strictly downward Agree derives both the existence of agreement reversals as well as the tight constraints on it.

  ➪ The locality of second-cycle Agree follows from the locality of labeling.

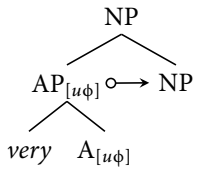
5.3 C-command or dominance?

- Our account shares with the one proposed by Rezac (2003) and Béjar & Rezac (2009) the view that second-cycle Agree effects arise as a result of probe projection.
- They differ, however, in the specifics of Agree. For Rezac (2003) and Béjar & Rezac (2009), Agree between probe P and goal G is possible only if P ***dominates*** G (as a result of probe projection).
- It is difficult to distinguish these two hypotheses. For the data considered so far, the two views are indistinguishable.
- *But:* This account predicts that a probe P on head H should only be able to agree with elements dominated by HP. This is arguably too restrictive.

(44) [bahut acch-**ii**] **kitaab**
very good-F.SG book.F

- On the standard adjunction structure in (45), the adjective agrees with the N that is not dominated by AP, but c-commanded by it. This would seem to favor c-command instead of dominance as the relevant structural relation.

(45)



- A similar conclusion can be reached based on 'agreeing *how*' in Bantu languages (Carstens & Diercks 2013).

(46) [$_{vP}$ [$_{vP}$ **Si-tanda** si-funikhe] **si**-rie(na)]? [Lubukusu]
7-bed 7SA-broke 7-how
'How did the bed break?'

6 Conclusions

- We have provided evidence for descriptively variable valuation in Hindi.
  - ▷ primacy of upward valuation
  - ▷ limited 'downward' valuation
    - ∗ derivationally secondary
    - ∗ probe P on head H can agree with Spec,HP, but not higher specifiers
- We have proposed that variable valuation follows from cyclic Agree and hence extends the empirical basis of cyclic-Agree effects:
  - ▷ beyond interactions between coarguments and hierarchy effects
  - ▷ cyclic-Agree effects produced by movement
- Primacy of upward valuation follows from the cyclicity of Merge and Agree.
- Downward valuation is a second-cycle Agree effect. Its strict locality is derived from downward Agree plus probe projection through labeling.
  - ▷ Spec–Head agreement as downward Agree plus probe projection
  - ▷ Agree as an operation is strictly downward
- This conclusion suggests that dependencies like negative concord, which exhibit less restrictive upward relations, should not be analytically unified with ϕ-agreement (Preminger 2013, Preminger & Polinsky 2015).

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The judgments reported here are due to Bhamati Dash and Rajesh Bhatt, whom we would like to thank. We are indebted to Amy Rose Deal, Line Mikkelsen, Haley Wei, Ken Wexler, and to audiences at USC and UC Berkeley for helpful and insightful discussion.

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Appendix A: Agreement is long-distance

- Above we provided evidence from idioms that local and long-distance ϕ-agreement does not require movement. Evidence from scope and binding converges with this conclusion.

- ***Quantifier scope***
  In the SOV base order, the object cannot take scope over the subject (Mahajan 1997). This holds even if the object controls agreement. Overt movement makes wide scope possible.

  (47) a. *SOV*
  kisii laṛke-ne **har** **kitaab** paṛh-**ii**
  some boy.M-ERG every book.F read-F.SG
  'Some boy read every book.' (∃ > ∀; *∀ > ∃)

  b. *OSV*
  har **kitaab**$_1$ *kisii laṛke-ne* t_1 paṛh-**ii**
  every book.F some boy.M-ERG read-F.SG
  'Some boy read every book.' (∀ > ∃)

- This also holds for long-distance agreement.

  (48) *kisii laṛke-ne* [raam-ko **har** **kitaab** paṛhne] **dii**
  some boy.M-ERG Ram-ACC every book.F read.INF let.F.SG
  'Some boy let Ram read every book.' (∃ > ∀; *∀ > ∃)

- ***Pronominal binding***
  In SOV order, the object cannot bind a pronoun inside the subject (Mahajan 1990, Dayal 1994, Kidwai 2000), even if the object controls agreement. Overt movement again makes such an interpretation available.

  (49) a. *SOV*
  uske$_{2/*1}$ lekhak-ne **har** **kitaab**$_1$ paṛh-**ii**
  its author.M-ERG every book.F read-F.SG
  'Its$_2$ author read every book$_1$.'

  b. *OSV*
  har **kitaab**$_1$ uske$_{1/2}$ lekhak-ne t_1 paṛh-**ii**
  every book.F its author.M-ERG read-F.SG
  'Its$_{1/2}$ author read every book$_1$.'

- The same holds for long-distance agreement.

  (50) uske$_{2/*1}$ lekhak-ne [raam-ko **har** **kitaab**$_1$ paṛhne] **dii**
  its author.M-ERG Ram-ACC every book.F read.INF let.F.SG
  'Its$_{2/*1}$ author let Ram read every book$_1$.'

Appendix B: The landing site of A- and $\overline{\text{A}}$-scrambling

- Keine (2016, 2017b) argues that A- and $\overline{\text{A}}$-scrambling differ in their landing site in Hindi (see (33)). The arguments are indirect and based on the structural size of finite and nonfinite clauses.

- There is good evidence that nonfinite clauses in Hindi lack a CP projection.

  (51) a. Finite clauses can carry the complementizer *ki*, nonfinite clauses cannot.
  b. Finite clauses can provide a *wh*-scope position, nonfinite clauses cannot (Mahajan 1990, Dayal 1996).

➽ Nonfinite clauses are (approximately) TPs.

- ***The landing site of A-scrambling***
  A-scrambling can land inside a nonfinite clause. Given that nonfinite clauses lack a CP layer, this indicates that A-scrambling targets a ***TP-internal position.***

  (52) *A-scrambling can land inside nonfinite clause: Adverb*
  siitaa-ne caahaa [$_{TP}$ *har* *laṛkii-ko$_1$* [uskii$_1$ shaadii ke dauraan] t_1
  Sita-ERG wanted every girl-ACC her wedding during
  dekhnaa]
  see.INF
  'Sita wanted to see every girl *x* at *x*'s wedding.'

- ***The landing site of $\overline{\text{A}}$-scrambling***
  In stark contrast, $\overline{\text{A}}$-scrambling cannot land inside a nonfinite clause (53).

- ▷ Because it leaves the innermost finite clause, the movement in (53) is $\overline{\text{A}}$-scrambling.
- ▷ (53b) shows that $\overline{\text{A}}$-scrambling cannot land in the intermediate nonfinite clause.
- ▷ (53c) demonstrates that it is the landing site that makes (53b) bad: If the same element is moved all the way into the matrix clause, the result is grammatical.

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

a. *Base configuration:*

[$_{\text{CP}}$ mãĩ caahtaa hũũ [$_{\text{TP}}$ kah-naa [$_{\text{CP}}$ ki mãĩ-ne **kitaab-ko**
I want AUX say-INF that I-ERG book-ACC
paṛhaa hai]]
read AUX

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

⇝ *Schema:* ✓[$_{\text{matrix clause}}$ [$_{\text{non-finite clause}}$ [$_{\text{finite clause}}$ DP]]]

b. *No $\overline{A}$-mvt into non-finite clauses:*

*[$_{\text{CP}}$ mãĩ caahtaa hũũ [$_{\text{TP}}$ **kitaab-ko$_1$** kah-naa [$_{\text{CP}}$ ki mãĩ-ne t_i
I want AUX book-ACC say-INF that I-ERG
paṛhaa hai]]
read AUX

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

c. *$\overline{A}$-mvt into finite clauses:*

[$_{\text{CP}}$ **kitaab-ko$_1$** mãĩ caahtaa hũũ [$_{\text{TP}}$ kah-naa [$_{\text{CP}}$ ki mãĩ-ne t_i
book-ACC I want AUX say-INF that I-ERG
paṛhaa hai]]
read AUX

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

- This pattern can be accounted for if $\overline{\text{A}}$-scrambling lands in Spec,CP, which nonfinite clauses lack.

(54) *Conclusions*

a. $\overline{\text{A}}$-scrambling lands in Spec,CP.

b. A-scrambling lands in an (outer) Spec,TP.