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Movement and cyclic Agree

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Abstract
Recent work has argued for derivational expansion of the search space of ϕ-probes as a result of the cyclic interaction of Merge and Agree (cyclic Agree). Empirical evidence for such effects has come from the interaction of Agree with external Merge, but these accounts make the additional predictions that such interactions should also arise from the interaction of Agree with movement. In this paper, we argue based on evidence from Hindi-Urdu that movement may feed cyclic Agree in the same way as external Merge, bearing out this key prediction. The central empirical generalizations that we argue for are that (i) A-scrambling of an object over a subject may feed agreement in certain configurations, (ii) there is nonetheless a preference for agreement with the structurally lower subject, and (iii) $\overline{\text{A}}$-scrambling of the object never feeds agreement. We develop a cyclic-Agree analysis that provides a principled explanation of these generalizations. Crucial to this explanation are that (i) search space is dynamic and interacts with movement, (ii) there is a preference for agreement with elements c-commanded by the head that hosts the probe (first-cycle Agree), and (iii) ϕ-probes project as part of the label, but not past the immediate projection line of the head.

Keywords Agreement · Scrambling · A/$\overline{\text{A}}$-distinction · Agree · Cyclicity · Hindi-Urdu

1 Introduction

Beginning with Chomsky (1995a,b), minimalist theories typically view structure building as cyclic: application of the operation Merge is interspersed with other syntactic operations, such as Agree. Rezac (2003, 2004) and Béjar and Rezac (2009)

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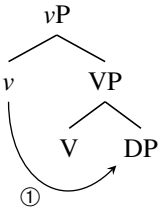
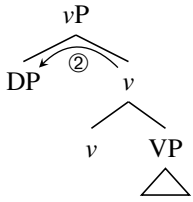
point out that such a model, combined with the view that heads project as labels (bare phrase structure), gives rise to dynamic search spaces: as the phrase marker is cyclically expanded through the application of Merge, the search space of a probe is cyclically expanded as well. Broadly speaking, Rezac's (2003, 2004) and Béjar and Rezac's (2009) model is based on the following core assumptions. First, Agree is subject to an earliness requirement that demands that it be established as soon as its structural description is met. Second, Agree can apply repeatedly if its first application fails to locate a goal. Third, a ϕ-probe projects as part of the label that is projected, in line with standard assumptions in bare phrase structure (Chomsky 1995a). In combination with cyclic structure building, these assumptions give rise to what Rezac (2003, 2004) and Béjar and Rezac (2009) call *cyclic Agree* or *cyclic search-space expansion:* when head H bearing probe π is merged with a complement XP, π's search space comprises XP. If π fails to locate a goal within XP, π remains unvalued. Upon Merge of a specifier YP, π's search space now contains YP, enabling a second cycle of Agree with YP.

For the sake of concreteness, we will illustrate this proposal with the implementation in Clem (2019a:103–105, 2019b, to appear); see fn. 13 for some alternatives. Suppose that *v* contains a ϕ-probe [∗ϕ∗]. When *v* is merged with a complement VP, a first cycle of Agree into VP is launched. If VP contains an accessible goal for [∗ϕ∗], Agree is established, as shown in (1a). If this first-cycle Agree is unsuccessful (either because the VP does not contain a DP or because the DP is not accessible to [∗ϕ∗]), [∗ϕ∗] remains unvalued after first-cycle Agree. When the external argument is merged in [Spec,*v*P], [∗ϕ∗] projects and can then agree with the external argument, as shown in (1b).

(1) a. *First-cycle Agree*



b. *Second-cycle Agree*



Importantly, because Agree and Merge are interspersed, the possibility of second-cycle Agree with [Spec,*v*P] (②) arises only if first-cycle Agree (①) is unsuccessful. Search space is therefore dynamic and may change as a result of the cyclic application of Merge.

Rezac (2003, 2004) and Béjar and Rezac (2009) argue that interactions of this sort are indeed empirically attested. One example is ergative displacement in Basque. In Basque, the prefixal agreement slot is typically controlled by the absolutive DP. In the past tense, if the absolutive DP is 3rd person, this agreement agreement slot is instead controlled by the ergative external argument, with no corresponding case changes on the DPs. This is illustrated in (2). As shown by (2a–c), the prefixal agreement slot is controlled by the absolutive object if this object is 1st or 2nd person, irrespective of the person of the ergative subject. (2d) exemplifies ergative displacement. The absolutive DP is 3rd person, and the prefixal agreement is controlled by the ergative subject.

(2) a. ikusi **z**-in-t-u-da-n
seen 2-X-PL-have-1-PAST
'I saw you.'

b. ikusi **n**-ind-u-en
seen 1-X-have-PAST
'He saw me.'

c. ikusi **n**-ind-u-zu-n
seen 1-X-have-2-PAST
'You saw me.'

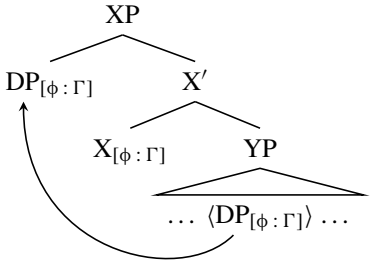
d. ikusi **n**-u-en
seen 1-have-PAST
'I saw him.'

[Béjar and Rezac 2009:37]

Rezac (2003, 2004) and Béjar and Rezac (2009) develop an analysis of this pattern in terms of cyclic search-space expansion as in (1). They assume that (i) prefix agreement is the realization of a ϕ-probe on *v* and (ii) 3rd-person DPs are featurally deficient such that they cannot (fully) value this ϕ-probe. If the internal argument is 1st or 2nd person, [∗ϕ∗] agrees with it in the first cycle of Agree, obviating the possibility of Agree with the external argument. If the internal argument is 3rd person, the probe remains unvalued after first-cycle Agree, leading to a second cycle of Agree with the external argument, yielding (2d). The key consequence is that the probe can agree with elements in *v*'s complement as well as its specifier, but Agree with the former takes priority, allowing the latter only as a last resort.

Rezac's (2003, 2004) and Béjar and Rezac's (2009) principal empirical motivation for cyclic Agree comes from interactions between argument DPs of the same clause. What all of these cases share in common is that the specifier that is the target of second-cycle Agree corresponds to the base position of a DP, that is, it is created by *external Merge*. Because the possibility of cyclic Agree is created through the derivational interleaving of Agree and Merge, there is no principled reason why cyclic-Agree effects should be limited to specifiers created by external Merge. If movement involves Merge, either as a subcomponent (*Move*, see Chomsky 1995b, 2000) or as the internal application of it (*internal Merge*, see Starke 2001; Chomsky 2004), we expect movement to be able to feed second-cycle Agree in the same way. In practice, it is difficult to assess this expectation, for general reasons. Assuming, as is standard, that a moved element must c-command its lower copy, a DP that is moved to [Spec,XP] will have a lower copy that is c-commanded by X, as schematized in (3).

(3)



In this scenario, the ϕ-probe on X does agree with the DP moved into its specifier. But because X c-commands the lower copy of the DP, Agree could plausibly (given the derivational priority for first-cycle Agree) have been established with this lower

copy. If so, then (3) does not instantiate a situation where movement feeds second-cycle Agree, making it irrelevant for the question of whether such feeding is possible. As a result, the principal difficulty for investigating whether movement interacts with cyclic Agree in the same way as external Merge lies in finding a way to ensure that Agree between a head and a specifier created by movement is not established with the launching site, as first-cycle Agree.

In this paper, we investigate a configuration in Hindi-Urdu (henceforth Hindi) long-distance agreement which we argue meets this requirement. In a nutshell, in this configuration the lower occurrence of the DP in (3) is embedded inside a nonfinite clause that allows movement out of it but at the same time is opaque for ϕ-Agree into it. The central empirical generalization that we will argue for is that scrambling out of such clauses may feed ϕ-agreement in the matrix clause, but only if it is A-scrambling, not if it is $\overline{\text{A}}$-scrambling.

With respect to the schematic structure in (3), we argue that in the relevant Hindi configuration, the lower occurrence of the scrambled DP inside the nonfinite clause is not accessible to first-cycle Agree of the ϕ-probe, but that A-scrambling moves this DP to [Spec,XP] (with XP being TP, we argue). We then show that in this configuration, it is indeed possible for X to agree with the DP in [Spec,XP], but only if YP does not contain a possible goal for the probe. This restriction is analogous to (1), but with the crucial difference that [Spec,XP] in (3) is created by movement. This finding provides empirical evidence that cyclic-Agree effects are not limited to external Merge but also arise with Move/internal Merge.

We then propose that the difference between A- and $\overline{\text{A}}$-scrambling (with only A-scrambling being able to feed matrix ϕ-agreement) provides new support for another aspect of the cyclic-Agree model. Because cyclic search-space expansion results from projection under labeling in a bare phrase structure model (Rezac 2003, 2004; Béjar and Rezac 2009), it follows that second-cycle Agree should be local. Because the features of a label do not project beyond the maximal projection of a head, second-cycle Agree should not be able to target DPs in the specifier position of a higher head. All else equal, this prediction is not shared by other proposals that allow long-distance upward Agree (e.g., Carstens 2016; Bjorkman and Zeijlstra 2019).[1] We argue that this strict boundedness of second-cycle Agree will allow us to derive the difference between A-scrambling and $\overline{\text{A}}$-scrambling in their ability to feed second-cycle Agree from an independently motivated difference in the landing sites that they target. This line of explanation is not available with genuine upward Agree, at least unless additional stipulations are imposed.

This paper is structured as follows: Section 2 provides the empirical evidence that our proposal is based on. We provide an overview of local and long-distance agreement in Hindi and then investigate a configuration in which scrambling may feed such agreement and the constraints that govern these feeding possibilities. Section 3 develops our cyclic-Agree account. Section 4 contrasts our analysis with alternative accounts that do not involve cyclic Agree. Section 5 concludes.

[1] For upward Agree more generally, see also Adger (2003); Merchant (2006, 2011); Baker (2008); Wurmbrand (2012, 2014); Zeijlstra (2012); among others. Some of these studies involve only upward Agree, others combine upward and downward Agree.

2 Scrambling–agreement interactions in Hindi

This section lays out the empirical facts that underlie our proposal. We begin by providing some background on local and long-distance agreement in Hindi. We then investigate a specific configuration involving an extraposed nonfinite clause, which we argue allows us to study interactions between scrambling and ϕ-agreement (or lack thereof). We then argue that these interactions instantiate a cyclic-Agree pattern that is fed by movement.

2.1 Background on local and long-distance agreement

2.1.1 Local agreement

Descriptively, verb agreement in Hindi is controlled by the structurally highest argument that does not bear a case marker (see e.g., Mahajan 1989:220–221, Mohanan 1994:102–105). In principle, both the subject and the direct object may control agreement. Whether or not the subject bears a case marker is determined, among other factors, by the aspect of the clause. Because of Hindi's split-ergativity, the subject of a transitive clause bears the ergative case marker *-ne* in the perfective, and in this case it cannot control verb agreement. In the imperfective, on the other hand, the subject is not overtly case-marked and hence eligible for verb agreement. The case marking of the direct object is determined by differential object marking: objects that are animate or specific typically carry the case marker *-ko* (see Bhatt 2007). Other direct objects are not overtly case-marked and hence in principle able to control agreement. The two systems are independent of each other, that is, the case marking of the subject and the object can be manipulated independently of each other. All other arguments of the verb (e.g., indirect objects) are invariably case-marked, which renders them irrelevant for the computation of ϕ-agreement.[2]

Against this background, verb agreement is descriptively determined by the algorithm in (4). Most importantly for our concerns here, when both the subject and the object are not overtly case-marked and hence in principle eligible for controlling agreement, the verb has to agree with the subject. In this sense, agreement shows a subject preference. If both the subject and the object are overtly case-marked, the verb appears in the 3rd person masculine singular default form.

(4) *Hindi local 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 3rd person masculine singular default agreement.

The agreement morphology on the verb does not indicate whether the agreement controller is the subject or the object: on the main verb, *-aa* realizes masculine singular

[2]The marker *-ko* also appears on indirect objects (where it is obligatory). In the examples in the paper, we gloss *-ko* 'accusative' if it occurs on a direct object and as 'dative' if it occurs on an indirect object. Nothing hinges on this.

agreement; *-e* realizes masculine plural; *-ii* realizes feminine singular; and *-ĩĩ* realizes feminine plural, regardless of the grammatical function of the agreement controller. Together with their complementary distribution, this strongly suggests that subject and object agreement are manifestations of the same probe. Finally, if there is an auxiliary (determined by tense/aspect), it agrees with the same DP as the main verb.

The agreement algorithm in (4) is illustrated in (5). In (5a), both the subject and the object do not bear an overt case marker, and agreement is consequently controlled by the subject; object agreement and masculine singular default agreement are impossible. In (5b), the subject is overtly case-marked, and verb agreement is triggered by the object. Finally, in (5c), both the subject and the object are overtly case-marked, and the verb correspondingly bears default agreement. We gloss default agreement *-aa* that results from absence of agreement with a DP as 'DFLT,' though as just noted, it is morphologically identical to masculine singular agreement. Nothing hinges on this glossing choice. Furthermore, to aid readability here and throughout, we annotate agreement relations in grammatical examples with a solid line between the verbal agreement and the agreeing DP; ungrammatical agreement between a verb and a DP is annotated with a dashed, crossed-out line.[3]

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

laṛke kitaab paṛht-**e**/*-ii/*-aa hãĩ
boys.M book.F read.IPFV-M.PL/*-F.SG/*-DFLT AUX.3PL
'The boys read a book.'

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.3SG
'The boys have read a book.'

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.3SG
'The boys have read the book.'

Hindi allows free scrambling of verbal arguments (Mahajan 1990; Kidwai 2000), but this scrambling does not affect local agreement. As (6) illustrates, scrambling of the object over the subject does not impact verb agreement compared to the base order in (5a)—subject agreement is still obligatory.

[3]The following abbreviations are used in the glosses: ABS – absolutive; ACC – accusative; APPL – applicative; AUX – auxiliary; DAT – dative; DFLT – default; ERG – ergative; F – feminine; FUT – future; FV – final vowel; INF – infinitive; IPFV – imperfective; INSTR – instrumental; M – masculine; NEG – negative; OBJ – object; PASS – passive; PFV – perfective; PL – plural; PRES – present; S – subject; SG – singular.

(6) *Subject preference not affected by movement*

kitaab$_1$ **laṛke** ___ $_1$ paṛht-**e**/*-ii/*-aa hãĩ
book.F boys.M read.IPFV-M.PL/*-F.SG/*-DFLT AUX.3PL
'The boys read a book.'

As detailed below, we will assume that the Hindi ϕ-probe is located outside the *v*P, specifically on T. There is no clear empirical evidence that an agreeing object undergoes movement to a designated position above the subject in order to trigger agreement in Hindi, either as covert movement or as overt movement that is masked by subsequent movement of the subject to a higher position. In other words, the relative structural relationship between the subject and object does not seem to be affected by verb agreement (in this, we diverge from, e.g., Mahajan's 1989 Spec–Head analysis of Hindi agreement). For instance, agreeing and non-agreeing objects do not generally differ with respect to scope or binding, as illustrated for scope in (7). The SOV sentence in (7a) is scopally rigid, and overt object movement enables wide scope of the object (7b) (Mahajan 1997:199; Kidwai 2000:52; also see fn. 25). Crucially, the SOV order is likewise unambiguous with object agreement (7c). In light of the observation that object movement allows wide scope of the object (7b), there is hence no indication that the object in (7c) moves above the subject in order to control agreement.

(7) a. **tiin** **laṛke** har kitaab paṛhẽg-**e** *subject agreement, SOV*
three boys.M every book.F read.FUT-M.PL
'Three boys will read every book.' (3 ≫ ∀; *∀ ≫ 3)

b. har kitaab$_1$ **tiin** **laṛke** ___ $_1$ paṛhẽg-**e** *subject agreement, OSV*
every book.F three boys.M read.FUT-M.PL
'Three boys will read every book.' (∀ ≫ 3)

c. tiin laṛkõ-ne **har** **kitaab** paṛh-**ii** *object agreement, SOV*
three boys-ERG every book.F read.PFV-F.SG
'Three boys read every book.' (3 ≫ ∀; *∀ ≫ 3)

Analogous facts hold for pronominal binding (not illustrated here in the interest of space). In the SOV base order, the object cannot bind a pronoun inside the subject, but moving the object above the subject makes such binding possible (Mahajan 1990: 25–26; Dayal 1994:256; Kidwai 2000:7, 31). This generalization is again unaffected by verbal agreement, suggesting that objects do not need to move above the subject in order to control agreement.

Additional evidence comes from idioms. As Bhatt and Keine (2017) note, certain idiomatic objects resist movement in Hindi. An example is the idiom *bhains ke aage biin bajaa* 'to teach something to someone who usually doesn't listen' (*lit.* 'to play the flute in front of buffalo'). As (8a) illustrates, the object *biin* 'flute' resists movement on the idiomatic interpretation. The object is nonetheless able to control verb agreement even on the idiomatic reading (8b). Given that the object *biin* 'flute' resists

movement on the idiomatic reading, (8b) again suggests that object agreement is not parasitic on the object moving above the subject.

(8) a. #**biin**$_1$ Ram-ne [bhains ke aage ___$_1$ bajaay-ii]
flute Ram-ERG buffalo in front of play.PFV-F.SG
#'Ram taught something to someone who usually doesn't listen.'
lit: 'Ram played a flute in front of a buffalo.'

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

In sum, the evidence from scope, binding, and idioms receives an immediate explanation if object agreement in Hindi is not dependent on movement of the object above the subject. Furthermore, the agreement pattern is not affected by scrambling.

2.1.2 Long-distance agreement (LDA)

We have so far limited our attention to local agreement between a verb and its arguments. Hindi also allows long-distance agreement between a verb and the object of an embedded nonfinite clause (see Mahajan 1989; Davison 1991; Butt 1993, 1995; Boeckx 2004; Bhatt 2005; Franks 2006; Chandra 2007; Keine 2016, 2019, 2020b; Bhatt and Keine 2017; Bjorkman and Zeijlstra 2019). An example of LDA is provided in (9), where the matrix verb *de* 'let' can agree with the embedded object *kitaab* 'book.' Unlike local agreement, which never exhibits any kind of optionality, LDA is usually optional and alternates with default agreement (the form *diyaa* in (9)). Note that the matrix subject *saare shikṣakõ-ne* 'all teachers-ERG' bears ergative case-marking in (9). As we will see shortly, this is indeed a requirement for LDA.

(9) *Subject overtly case-marked → LDA or default agreement*
saare shikṣakõ-ne [Ram-ko **kitaab** paṛhne] d-**ii**/diy-**aa**
all teachers.M-ERG Ram-DAT book.F read.INF let.PFV-F.SG/let.PFV-DFLT
'All the teachers let Ram read a book.'

The construction in (9), in which a nonfinite clause is embedded under the verb *de* 'let,' is often called the "permissive" construction (see Butt 1993, 1995, 2014; Bhatt 2005:795; and Davison 2014). While we use this construction to develop our empirical argument, the pattern we observe also holds for other LDA predicates (like *caah* 'want,' for which see Keine and Dash 2018).[4] Davison (2014) argues that the permissive construction is ambiguous between a control structure ('allow X to do Y') and an ECM structure ('allow Y to happen').[5] The LDA pattern presented below does not interact with this ambiguity; that is, this pattern holds regardless of the

[4] In the permissive construction, LDA seems to be obligatory for some speakers (Butt 1993:38, Bhatt 2005:779n7); but this is not the case for all speakers (Bhatt 2005:795n11; Davison 2014:139n2), including the variety investigated here.

[5] Though see Butt (1993, 1995, 2014) for an alternative analysis within LFG.

construal (also see fn. 9 and fn. 18). For the sake of concreteness, we will provide ECM parses of these examples (with *Ram-ko* inside the embedded clause). That is, the target meaning is one where the matrix subject allowed the embedded proposition to take place (i.e., did not prevent it from taking place), with no requirement that an explicit permission was given to someone.[6] Finally, an external argument inside the embedded clause in the permissive construction (*Ram-ko* in (9)) is always marked with *-ko* and never a possible target for LDA. We follow Butt (1993, 1995, 2014) and Davison (2014) in glossing the *-ko* as dative case, though nothing hinges on this.

In the interest of space, we will not investigate the surface optionality of LDA in detail here. Rather, we will assume, following Boeckx (2004); Bhatt (2005); and Keine (2016, 2019, 2020b), that this optionality is the result of a structural ambiguity of nonfinite clauses in Hindi. On this line of account, the nonfinite clauses occur in (at least) two varieties, one of which is transparent to ϕ-agreement, the other of which is opaque. The choice between LDA and default agreement in (9) then reduces to the type of the nonfinite clause. We refer the reader to the sources just cited for specific proposals and justification.

Like local agreement, agreement in LDA configurations displays a subject preference. (10) provides the counterpart of (9) in which the matrix subject *saare shikṣak* 'all teachers' is not overtly case-marked. Here, verb agreement must be controlled by the matrix subject (10a). LDA with the embedded object *kitaab* 'book' (10b) and default agreement (10c) are both impossible.

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

a. **saare shikṣak** [Ram-ko kitaab paṛhne] det-**e** hãĩ
all teachers.M Ram-DAT book.F read.INF let.IPFV-M.PL AUX.3PL
'All the teachers let Ram read a book.'

b. *saare shikṣak [Ram-ko **kitaab** paṛhne] det-**ii** hai
all teachers.M Ram-DAT book.F read.INF let.IPFV-F.SG AUX.3SG

c. *saare shikṣak [Ram-ko kitaab paṛhne] det-**aa** hai
all teachers.M Ram-DAT book.F read.INF let.IPFV-DFLT AUX.3SG

Just as in the case of local agreement (6), object scrambling does not override the subject preference. As (11) shows, scrambling of the embedded object *kitaab* 'book' over the matrix subject *saare shikṣak* 'all teachers' is possible, but it does not affect the requirement for the verb to agree with the matrix subject. Agreement with *kitaab* remains impossible.

[6] Davison (2014) provides various examples that clearly favor an ECM parse, all of which involve unaccusative predicates. The ECM parse is also compatible with transitive embedded predicates, as (i) shows.

(i) Anu-ne [aag-ko fasal jalaane] d-ii/diy-aa
Anu-ERG fire-DAT crops.F.SG burn.INF let.PFV-F.SG/let.PFV-DFLT
'Anu let the fire burn down the crops.'

(11)

a. kitaab$_1$ **saare** **shikṣak** [Ram-ko ___$_1$ paṛhne] det-**e** hãĩ
book.F all teachers.M Ram-DAT read.INF let.IPFV-M.PL AUX.3PL

b. ***kitaab$_1$** saare shikṣak [Ram-ko ___$_1$ paṛhne] det-**ii** hai
book.F all teachers.M Ram-DAT read.INF let.IPFV-F.SG AUX.3SG

Object scrambling also generally does not affect agreement in configurations where LDA is possible. As (12) shows, LDA remains optional if the object is scrambled.[7]

(12)

kitaab$_1$ saare shikṣakõ-ne [Ram-ko ___$_1$ paṛhne] d-**ii**/diy-**aa**
book.F all teachers.M-ERG Ram-DAT read.INF let.PFV-F.SG/let.PFV-DFLT
'A book all the teachers let Ram read.'

Moreover, again just like in the case of local agreement, empirically LDA does not seem to be parasitic on a designated (covert) movement step of the agreement controller to a position above the matrix subject (Davison 1991; Boeckx 2004; Bhatt 2005; Keine 2019, 2020b). The relevant facts are parallel to those for local agreement presented in Sect. 2.1.1. First, an in-situ embedded object invariably takes scope below the matrix subject, even in the case of LDA (13).

(13) *kisii shikṣak-ne* [Ram-ko **har** **kitaab** paṛhne] d-**ii**
some teacher.M-ERG Ram-DAT every book.F read.INF let.PFV-F.SG
'Some teacher let Ram read every book.' (∃ ≫ ∀; *∀ ≫ ∃)

Second, an in-situ object cannot bind a pronoun inside the matrix subject, regardless of whether LDA takes place (Keine 2019).

Third, Bhatt and Keine (2017) observe that certain idiomatic objects that resist being moved—such as *biin* 'flute' in the idiom *bhains ke aage biin bajaa* 'to teach something to someone who usually doesn't listen' (*lit.* 'to play the flute in front of buffalo', see (8))—can nonetheless control LDA, as illustrated by (14).

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

These facts are accounted for if the object does not need to move over the subject in order to control agreement. Our empirical conclusions about LDA are therefore

[7] Keine (2016, 2019, 2020b) documents cases in which A-scrambling out of the embedded clause (either of the direct object DP or another DP) makes LDA obligatory. He proposes that A-scrambling disambiguates the structure of the embedded clause to one that is transparent to matrix ϕ-agreement, which renders agreement obligatory. This generalization and account are compatible with our proposal here but orthogonal to it. In the interest of space, we will therefore put it aside.

analogous to those we reached for local agreement: LDA does not seem to be parasitic on a designated movement step of the object above the matrix subject, it exhibits a subject preference, and it is not generally affected by scrambling of the object.

2.2 Interactions between scrambling and agreement

In this section, we make the novel observation that scrambling in Hindi *can* feed agreement in a limited set of circumstances, and we document the constraints on such feeding.

2.2.1 Object scrambling may feed agreement

In the LDA configurations considered so far, the nonfinite clause that contains the agreement trigger occurs in its preverbal base position. Nonfinite clauses may also be extraposed to the right of the embedding verb, as shown in (15). In this case, LDA into the nonfinite clause is significantly degraded.[8] (15) forms a minimal pair with (9) above. In (9), the embedded clause is not extraposed and LDA with the embedded object *kitaab* 'book' is possible; in (15), by contrast, default agreement is strongly preferred over LDA. Note that the matrix subject in (15) bears ergative case, so the impossibility of LDA does not stem from an interaction with the subject.[9]

(15) *No LDA into extraposed clause*

saare shikṣakõ-ne ___$_1$ diy-**aa**/?*d-**ii** [Ram-ko **kitaab** paṛhne]$_1$
all teachers-ERG let.PFV-DFLT/?*let.PFV-F.SG Ram-DAT book.F read.INF
'All the teachers let Ram read a book.'

This bleeding effect of extraposition on LDA is plausibly a freezing effect (Ross 1967; Wexler and Culicover 1980). For now, we will simply note it as an empirical generalization.

[8] We note that there appears to be some variation in this restriction. Davison (1991) provides the example in (i), which involves LDA into an extraposed clause.

(i) mujhe zaruur ___$_1$ aat-ii hai [saaikal calaa-nii]$_1$
I.DAT surely come.IPFV-F.SG AUX.3SG bicycle.F ride-INF.F.SG
'I certainly know (how) to ride a bicycle.' [Davison 1991:12–13]

The existence of varieties that allow LDA into extraposed clauses is compatible with our argument here. Our core claim is that movement may feed higher-cycle Agree, and this argument is based on speakers for whom extraposition induces freezing for ϕ-agreement (which allows us to determine that agreement is established after the movement has taken place). Varieties that do not have this freezing effect and hence allow (i) are consistent with this argument, but it would not be possible to make our argument based on these varieties (because it is then impossible to diagnose whether agreement with a scrambled DP is established before or after scrambling). The account developed in Sect. 3 may be extended to such varieties in a number of ways. For example, it is possible that in such varieties extraposition applies after ϕ-probing (perhaps because it targets a higher position) and therefore counterbleeds it. Alternatively, the extraposition feature might not constitute a horizon for the ϕ-probe. We thank Madelaine O'Reilly-Brown for discussion.

[9] In line with the ECM parse adopted for the permissive construction throughout this paper, the embedded external argument *Ram-ko* is extraposed inside the nonfinite clause in (15). All facts discussed in this paper also hold if *Ram-ko* remains to the left of the embedding verb (i.e., on a control parse).

As the next step in our argumentation, we observe that extraposed clauses are nonetheless transparent for scrambling out of them. As shown in (16), the embedded object may be moved into the matrix clause. In this case, LDA is again possible, alternating with default agreement (as in (15), the matrix subject bears ergative case and hence cannot control agreement).

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

kitaab$_2$ saare shikṣakõ-ne ___$_1$ d-**ii** [Ram-ko ___$_2$
book.F all teachers-ERG let.PFV-F.SG Ram-DAT
paṛhne]$_1$
read.INF
'All the teachers let Ram read a book.'

b. *… but default agreement is also possible*

kitaab$_2$ saare shikṣakõ-ne ___$_1$ diy-**aa** [Ram-ko ___$_2$
book.F all teachers-ERG let.PFV-DFLT Ram-DAT
paṛhne]$_1$
read.INF

Given that agreement into an extraposed clause is impossible (see (15)), the agreement in (16a) cannot have been established with the base position of *kitaab* 'book' inside the extraposed clause. Rather, the matrix verb must agree with the landing site of the object in the matrix clause.[10] What (16) shows, therefore, is that scrambling in Hindi can in principle feed agreement and hence that agreement is not simply "blind" to scrambling (contra Bhatt 2005; Keine 2019). At the same time, however,

[10]Note that the agreement in (16) cannot be analyzed as having been established before extraposition of the embedded clause, as such a derivation would also allow agreement in (15), contrary to fact. Moreover, it is specifically scrambling *of the embedded direct object* that enables agreement in these structures. This is demonstrated by (i). (ia) involves a regular LDA structure in which the embedded clause contains an instrumental argument (*Sangita-se* 'Sangita-INSTR') and a direct object (*baat* 'talk'). LDA is controlled by the direct object *baat.* In (ib), the embedded clause is extraposed and LDA with *baat* 'talk' becomes impossible. Importantly, in (ic) the instrumental DP *Sangita-se* is scrambled into the matrix clause, but this scrambling does not make LDA with *baat* possible:

(i) a. Ramesh-ne [Raghav-ko Sangita-se **baat** karne] d-**ii**
Ramesh-ERG Raghav-DAT Sangita-INSTR talk.F do.INF let.PFV-F.SG
'Ramesh let Raghav talk to Sangita.'

b. Ramesh-ne ___$_1$ diy-**aa**/?*d-**ii** [Raghav-ko Sangita-se **baat**
Ramesh-ERG let.PFV-DFLT/?*let.PFV-F.SG Raghav-DAT Sangita-INSTR talk.F
karne]$_1$
do.INF

c. Sangita-se$_2$ Ramesh-ne ___$_1$ diy-**aa**/?*d-**ii** [Raghav-ko ___$_2$
Sangita-INSTR Ramesh-ERG let.PFV-DFLT/?*let.PFV-F.SG Raghav-DAT
baat karne]$_1$
talk.F do.INF

As a result, it is not the case that scrambling out of the embedded clause somehow opens this clause up for LDA into it. This supports the conclusion that LDA in (16a) is established with the landing site of the scrambled object *kitaab* 'book.' We thank a reviewer for raising this point. See also fn. 12.

there are not generally any interactions between scrambling and agreement in Hindi, as we saw on the basis of (6) and (11), where word order changes have no impact on verb agreement. One analytical challenge that (16) poses is therefore to account for the possibility of scrambling–agreement interactions as well as the absence of such interactions in most cases. In order to gain a better understanding of the syntax of configurations like (16), we now discuss two systematic constraints on when scrambling may feed agreement.

2.2.2 Subject preference

The matrix subject in (16) is marked with ergative case and hence not an eligible agreement controller. (17) demonstrates that this is indeed a requirement for agreement with a scrambled object. The subject *saare shikṣak* 'all teachers' in (17) is not overtly case-marked, and the verb must agree with it (17a). Agreement with the scrambled object *kitaab* 'book' (17b) and default agreement (17c) are both ruled out.

(17) *Subject agreement preempts agreement with scrambled object*

a. kitaab$_2$ **saare** **shikṣak** ___$_1$ det-**e** hãĩ [Ram-ko ___$_2$ paṛhne]$_1$
book.F all teachers.M let.IPFV-M.PL AUX.3PL Ram-DAT read.INF
'All the teachers let Ram read a book.'

b. * **kitaab$_2$** saare shikṣak ___$_1$ det-**ii** hai [Ram-ko ___$_2$ paṛhne]$_1$
book.F all teachers.M let.IPFV-F.SG AUX.3SG Ram-DAT read.INF

c. * kitaab$_2$ saare shikṣak ___$_1$ det-**aa** hai [Ram-ko ___$_2$ paṛhne]$_1$
book.F all teachers.M let.IPFV-DFLT AUX.3SG Ram-DAT read.INF

There is hence a preference for subject agreement: agreement with a scrambled object is possible only if the subject is ineligible for agreement.

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

One question that arises about (16) is why scrambling into the matrix clause triggers LDA only optionally. This is surprising in light of the fact that local (i.e., clausemate) agreement is not otherwise optional in Hindi (see Sect. 2.1.1). Put differently, if, as concluded above, agreement in (16) is controlled by the landing site of the scrambled object in the matrix clause, then why does it not pattern like other instances of local agreement? In this section, we provide evidence that the surface optionality of LDA in (16) correlates with the type of scrambling that the DP undergoes.

A rich body of literature has argued that scrambling in Hindi is not a uniform phenomenon and that the language utilizes (at least) two types of scrambling, which we will descriptively refer to as "A-scrambling" and "$\overline{\text{A}}$-scrambling" here (see, among others, Déprez 1989; Mahajan 1990, 1994; Gurtu 1992; Jones 1993; Bhatt 2016; Keine 2019, 2020b).[11] Motivation for this distinction comes from the fact that scram-

[11] We will use these terms as convenient labels, without making a commitment about the precise relationship between A- and $\overline{\text{A}}$-scrambling in Hindi and A- and $\overline{\text{A}}$-movement in English. See Dayal (1994); Kidwai (2000); Bhatt (2003, 2016); and Bhatt and Keine (2019) for relevant discussion.

bling within a finite clause and scrambling out of a finite clause exhibit distinct properties. As (18a) shows, scrambling within a finite clause is not subject to weak crossover and hence able to feed pronominal binding. By contrast, (18b) demonstrates that scrambling that crosses a finite clause boundary is subject to weak crossover and hence unable to feed pronominal binding. We adopt here Mahajan's (1990, 1994) influential analysis, according to which A-scrambling in Hindi is not subject to weak crossover but unable to leave a finite clause, whereas $\overline{\text{A}}$-scrambling is subject to weak crossover but able to leave a finite clause. (18b) must therefore involve $\overline{\text{A}}$-scrambling, and it consequently gives rise to weak crossover effects.

(18) a. har laṛke-ko$_1$ [*uskii*$_1$ bahin-ne] ___$_1$ dekh-aa
every boy-ACC his sister-ERG see.PFV-DFLT
'For every boy x, x's sister saw x.'

b. har laṛke-ko$_1$ [*uskii*$_{2/*1}$ bahin-ne] soc-aa [$_{CP}$ ki
every boy-ACC his sister-ERG think.PFV-DFLT that
Ram-ne ___$_1$ dekh-aa]
Ram-ERG see.PFV-DFLT
'His$_2$ sister thought that Ram saw every boy$_1$.'
(*bound reading impossible*)

We will also follow Mahajan (1990, 1994) in assuming that while scrambling that leaves a finite clause must be $\overline{\text{A}}$-scrambling, scrambling within a finite clause is in principle ambiguous between A- and $\overline{\text{A}}$-scrambling. One limitation of the example in (16) above is that it merely involves a word order permutation, and as such could involve either type of scrambling. We will see that once the type of scrambling is appropriately controlled for, the surface optionality of LDA in configurations like (16) disappears: if the movement is unambiguously A-scrambling, LDA is obligatory; if it is clearly $\overline{\text{A}}$-scrambling, LDA is impossible.

A-scrambling and ϕ-agreement Nonfinite clauses in general allow A-scrambling out of them in Hindi, but to observe the interaction between A-scrambling and ϕ-agreement, we require a configuration in which scrambling is unambiguously A-scrambling. Because $\overline{\text{A}}$-scrambling is subject to weak crossover (see (18b)), we can employ crossover configurations to isolate A-scrambling: if a scrambled quantificational element binds a pronoun from its landing site, this scrambling step must be A-scrambling, as $\overline{\text{A}}$-scrambling would result in a crossover violation. This test is applied to the configurations of interest in (19). It is analogous in relevant respects to (16) above, but the scrambled object *har kitaab* 'every book' crosses over a coindexed pronoun inside the matrix subject *uske lekhakõ-ne* 'its authors-ERG,' thus requiring the scrambling to be A-scrambling. The matrix subject is overtly case-marked and hence cannot control verb agreement. Crucially, in this structure, LDA with *har kitaab* 'every book' is obligatory. In this respect, (19) contrasts with (16) above.[12]

[12]In line with fn. 10, only A-scrambling *of the embedded direct object* enables agreement in these structures. In (i), it is the instrumental DP *har bacce-se* 'every child-INSTR' that is A-scrambled out of the

(19) *Object A-scrambling makes agreement obligatory if subject is case-marked*

har **kitaab$_2$** [*uske*$_2$ lekhakõ-ne] ___$_1$ d-**ii**/*diy-**aa**
every book.F its authors-ERG let.PFV-F.SG/*let.PFV-DFLT
[Ram-ko ___$_2$ paṛhne]$_1$
Ram-DAT read.INF
'For every book x, x's authors let Ram read x.'

Recall that the agreement in (19) cannot be established with the object's base position inside the extraposed clause (given (15)). (19) hence demonstrates that DPs that are A-scrambled into the matrix clause are visible to matrix ϕ-agreement, and in fact obligatorily so.

The general preference for agreement with the matrix subject illustrated in (17) still holds if the movement type of the object is controlled for. In (20), the object undergoes unambiguous A-scrambling, but the subject is not overtly case-marked and hence visible for agreement (in contrast to (19)). In this case, agreement must target the matrix subject (*uske lekhak* 'its authors'); agreement with the A-scrambled embedded object (*har kitaab* 'every book') and default agreement are both impossible (default agreement is not shown in (20)).

(20) *Subject agreement preempts agreement with A-scrambled object*

a. har kitaab$_2$ [***uske$_2$*** **lekhak**] ___$_1$ det-**e** hãĩ [Ram-ko ___$_2$
every book.F its authors.M let.IPFV-M.PL AUX.3PL Ram-DAT
paṛhne]$_1$
read.INF
'For every book x, x's authors let Ram read x.'

b. *__**har**__ **kitaab$_2$** [*uske*$_2$ lekhak] ___$_1$ det-**ii** hai [Ram-ko ___$_2$
every book.F its authors.M let.IPFV-F.SG AUX.3SG Ram-DAT
paṛhne]$_1$
read.INF

In sum, unambiguous A-scrambling out of the extraposed clause leads to obligatory agreement with the matrix verb if the matrix subject is unavailable for ϕ-agreement, but does not affect agreement otherwise.

extraposed clause. This scrambling step does not make LDA with the embedded direct object *baat* 'talk' possible (see fn. 10 for the relevant baseline examples). This strongly suggests that LDA in (19) is established with the landing site of the A-scrambled object *har kitaab* 'every book.'

(i) har bacce-se$_2$ [uske$_2$ papa-ne] ___$_1$ diy-**aa**/?*d-**ii** [Raghav-ko
every child-INSTR his/her father-ERG let.PFV-DFLT/?*let.PFV-F.SG Raghav-DAT
___$_2$ **baat** karne]$_1$
talk.F do.INF
'For every child x, x's father let Raghav talk to x.'

$\overline{\text{A}}$-scrambling and ϕ-agreement Let us now turn to the relationship between $\overline{\text{A}}$-scrambling and agreement. In order to diagnose $\overline{\text{A}}$-scrambling, we will make use of embedded clauses that can independently be shown to only allow $\overline{\text{A}}$-scrambling out of them.

The first relevant configuration is case-marked nonfinite clauses. Certain verbs in Hindi, like *kah* 'tell,' embed a nonfinite clause, but require this nonfinite clause to carry an overt case marker. This configuration, which Butt (1993, 1995) calls the "instructive," is illustrated in (21), where the embedded clause must be marked with dative case (*-ko*). Case-marked nonfinite clauses are useful for our purposes because they allow scrambling out of them, and this scrambling is subject to weak crossover. In (21), scrambling of the embedded object *har khat* 'every letter' into the matrix clause is possible, but it is not possible for *har khat* to bind the subject-internal pronoun *uske*. This observation implies that case-marked nonfinite clauses do not allow A-scrambling out of them; all extraction out of them must be $\overline{\text{A}}$-scrambling. This makes them a useful tool for isolating $\overline{\text{A}}$-scrambling.

(21) *No A-scrambling out of case-marked nonfinite clauses*

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

The moved element *har khat* 'every letter' in (21) is masculine singular. The form of the matrix verb *kahaa* 'say' hence does not morphologically indicate whether it bears agreement with *har khat* or default agreement. This demonstrates that the prohibition against A-scrambling out of case-marked nonfinite clauses holds irrespective of agreement.

Case-marked nonfinite clauses do not allow LDA into them (Butt 1993:77; Bhatt 2005:777). We now test whether a DP that is scrambled out of such a clause may control LDA from its landing site within the matrix clause. The example in (22) is structurally analogous to (21) but the scrambled element is the feminine DP *har kitaab* 'every book.' As shown, the matrix verb is unable to agree with it; default agreement is the only option. This holds irrespective of whether the embedded clause occurs in its preverbal base position (22b) or is extraposed (22a).

(22) *A̅-scrambling does not feed agreement*

a. **har** **kitaab$_2$** [uske$_{3/*2}$ lekhakõ-ne] Ram-se ___$_1$ kah-**aa**/*-**ii**
every book.F its authors-ERG Ram-INSTR say.PFV-DFLT/*-F.SG
[___$_2$ paṛhne-ko]$_1$
read.INF-DAT
'Its$_3$ authors told Ram to read every book$_2$.' *extraposed*

b. **har** **kitaab$_2$** [uske$_{3/*2}$ lekhakõ-ne] Ram-se [___$_2$ paṛhne-ko]
every book.F its authors-ERG Ram-INSTR read.INF-DAT
kah-**aa**/*-**ii**
say.PFV-DFLT/*-F.SG
'Its$_3$ authors told Ram to read every book$_2$.' *intraposed*

(22) indicates that A̅-scrambling cannot feed ϕ-agreement in Hindi, and in this respect it contrasts with A-scrambling as in (19).

The same conclusion may be reached on the basis of finite clauses. We already saw based on (18b) above that scrambling out of finite clauses is possible, but it has to be A̅-scrambling (as revealed by weak crossover). They also do not allow LDA into them (Butt 1993:76; Bhatt 2005:776; Chandra 2007:45). As (23) shows, scrambling out of a finite clause also cannot trigger agreement in the matrix clause (Keine 2019: 31). Here, the embedded object *kitaab* is A̅-scrambled into the matrix clause. The matrix verb *soc* 'think' cannot agree with it despite the fact that its local subject *Sita-ne* 'Sita-ERG' is overtly case-marked and hence ineligible to control agreement. Default agreement is the only agreement option in (23).

(23) **kitaab$_1$** Sita-ne soc-**aa**/*-**ii** [$_{CP}$ ki Mona-ne ___$_1$ paṛh-ii
book.F Sita-ERG think.PFV-DFLT/*-F.SG that Mona-ERG read.PFV-F.SG
thii]
AUX.3SG.F
'Sita thought that Mona had read a book.'

In sum, there is a difference between A- and A̅-scrambling with respect to their ability to feed agreement in Hindi: scrambling into an A-position can feed agreement, but scrambling into an A̅-position cannot. This strongly suggests that the apparent optionality of agreement in (16) above is epiphenomenal—it results from the fact that the scrambling in (16) could be either A- or A̅-scrambling. Once the movement type is appropriately controlled for, the surface optionality disappears.

2.2.4 The landing site of A- vs. A̅-scrambling

In this section, we show that the contrast between A- and A̅-scrambling in their ability to feed agreement correlates with an independent difference with respect to their landing sites.

While it is generally difficult to determine the relative landing sites of scrambling operations in Hindi (given the general word order freedom and the head-final clause

structure), Keine (2018, 2019, 2020b) offers arguments that $\overline{\text{A}}$-scrambling targets a higher position than A-scrambling in Hindi, specifically as stated in (24).

(24) *Landing sites of Hindi scrambling*

a. *$\overline{\text{A}}$-scrambling:* [Spec,CP]

b. *A-scrambling:* TP-internal

In the interest of space, we will not present Keine's arguments in detail here, but we illustrate with one piece of evidence. Following Dayal (1996); Bhatt (2005); Chandra (2007); and others, Keine assumes that finite clauses in Hindi are CPs, whereas nonfinite clauses lack a CP projection. Against this background, Keine provides an argument for (24a) based on examples like (25). This example involves a double-embedding structure, in which a matrix clause embeds a nonfinite clause, which in turn embeds a finite clause. The nonfinite clause is extraposed to demarcate its left edge. The crucial restriction is that the object of the innermost clause (*kitaab* 'book') can be scrambled into the matrix clause, but not into the intermediate, nonfinite clause. In other words, it is possible for *kitaab* to appear either in its base position or in the topmost clause, but not inside the intermediate, nonfinite clause.

(25) *Scrambling out of finite clause cannot land in nonfinite clause*

[$_{\text{CP}}$ {**kitaab**} mãĩ caahtaa hũũ [$_{\text{TP}}$ {***kitaab**} kahnaa [$_{\text{CP}}$ ki mãĩ-ne
book I want AUX book say.INF that I-ERG

{**kitaab**} paṛhii hai]]]
book read AUX

'I want to say that I read the book.' [Keine 2019:29–30]

Because the innermost clause is finite in (25), scrambling out of it must be $\overline{\text{A}}$-scrambling, as only $\overline{\text{A}}$-scrambling can leave finite clauses in Hindi (see (18b)). The impossibility of moving *kitaab* into the intermediate nonfinite clause then indicates that $\overline{\text{A}}$-scrambling cannot land in a nonfinite clause, while $\overline{\text{A}}$-scrambling into a finite clause is possible. Keine suggests that this restriction is explained if $\overline{\text{A}}$-scrambling targets [Spec,CP]: given that nonfinite clauses in Hindi lack a CP layer, they are structurally too small to provide a landing site for $\overline{\text{A}}$-scrambling. Movement into the finite clause in (25) is possible given that the matrix clause contains a CP projection. This provides evidence for (24a).

We may add to Keine's argument the observation that scrambling out of a case-marked nonfinite clause exhibits the same restriction, as illustrated in (26). The embedded object *kitaab* 'book' can appear inside the innermost, case-marked clause or it can undergo scrambling into the matrix clause, but it cannot undergo scrambling into the intermediate, nonfinite clause.

(26) *Scrambling out of case-marked clause cannot land in nonfinite clause*

[$_{CP}$ {**kitaab**} mãĩ caahtaa hũũ [$_{TP}$ {***kitaab**} Ram-se [{**kitaab**}
book I want AUX book Ram-INSTR book
paṛhne-ko] kahnaa]]
read.INF-DAT say.INF
'I want to tell Ram to read a book.'

The restriction in (26) also follows from (24a). Because case-marked nonfinite clauses only allow $\overline{\text{A}}$-scrambling out of them (see (21)), such scrambling must land in [Spec,CP], a position that nonfinite clauses lack.

Scrambling out of a simple (i.e., non-case-marked) nonfinite clause does not share this restriction (Keine 2018), as illustrated in (27). Here, the innermost clause is nonfinite, and the embedded object *kitaab* 'book' is scrambled into the intermediate, nonfinite clause. In contrast to what we saw in (25) and (26), this sentence is grammatical.

(27) *Scrambling out of nonfinite clause may land in nonfinite clause*

[$_{CP}$ mãĩ caahtaa hũũ [$_{TP}$ **kitaab$_1$** kal subah [$_{TP}$ ___ $_1$
I want AUX book tomorrow morning
paṛhnaa] shuruu karnaa]]
read.INF start do.INF
'I want to start reading the book tomorrow morning.'

The crucial difference between (25) and (26) on the one hand and (27) on the other is that the movement in (25) and (26) must be $\overline{\text{A}}$-scrambling. This is not the case in (27) because simple nonfinite clauses allow A-scrambling out of them in Hindi. The possibility of scrambling into a higher nonfinite clause in (27) therefore indicates that A-scrambling may target clauses that lack a CP projection, which then entails that A-scrambling targets a position lower than [Spec,CP]. Assuming that these nonfinite clauses are TPs, A-scrambling must be able to target a TP-internal position, in accordance with (24b). See Keine (2018, 2019, 2020b) for additional arguments for this conclusion. To preview, we will propose in Sect. 3 that A-scrambling that lands higher than the subject targets an outer [Spec,TP] because the subject itself moves to an inner [Spec,TP]. A-scrambling to a lower position, to the right of the subject, is possible as well and will be discussed in Sect. 3.4.

In light of this conclusion about the differential landing sites of A- and $\overline{\text{A}}$-scrambling, we are now in a position to restate the generalization that A-scrambling feeds ϕ-agreement under certain conditions, but $\overline{\text{A}}$-scrambling never does.

(28) Scrambling that lands in a TP-internal position (i.e. A-scrambling) feeds ϕ-agreement in certain configurations; scrambling that lands in [Spec,CP] (i.e. $\overline{\text{A}}$-scrambling) never feeds ϕ-agreement.

Ideally, an account of the Hindi facts ought to derive the correlation in (28). In Sect. 3, we show that a cyclic-Agree approach derives the agreement asymmetry from the landing-site differences.

2.3 Section summary

The key empirical conclusions are summarized in (29).

(29) a. In the absence of scrambling, the verb agrees with the structurally highest accessible DP.

b. Object agreement is not parasitic on movement of the object to a designated agreement position above the subject.

c. In local configurations, object scrambling does not feed verb agreement.

d. In LDA configurations with an intraposed clause, object scrambling also does not feed verb agreement.

e. In LDA configurations with an extraposed clause, object scrambling may feed verb agreement:

(i) *A-scrambling:*

i. lands in a TP-internal position;

ii. feeds verb agreement, but only if the matrix subject is overtly case-marked and thus cannot control agreement.

(ii) *$\overline{A}$-scrambling:*

i. lands in [Spec,CP];

ii. never feeds verb agreement.

In the following section, we argue that these generalizations receive a principled explanation on a cyclic-Agree account if movement can feed cyclic Agree.

3 A cyclic-Agree approach

This section develops a cyclic-Agree analysis of the empirical pattern described above. In a nutshell, we propose that this pattern falls out if the following conditions are met: (i) A ϕ-probe on T initiates first-cycle Agree into its complement, agreeing with the structurally highest accessible DP. (ii) If first-cycle Agree fails to locate a goal, the probe agrees with an element in [Spec,TP]. (iii) Elements that appear in [Spec,CP] are outside the search space of second-cycle Agree and can hence never be agreed with. These properties follow immediately from cyclic Agree. In order to streamline the discussion, we will not discuss potential alternative analyses in this section. In particular, we will for now assume without discussion that the ϕ-agreement in these constructions is established with the final landing site of scrambling. We discuss the possibility of Agree with an intermediate position, along with other alternative analyses, in Sect. 4.

3.1 The mechanics of cyclic Agree

As discussed in Sect. 1, the core intuition underlying Rezac's (2003, 2004) and Béjar and Rezac's (2009) cyclic Agree is that a probe located on head X first searches X's complement for an accessible goal. If no such goal exists, then the probe can

agree with a specifier of X. This is implemented through projection of the probe as part of the label, in line with bare phrase structure (Chomsky 1995a). For the sake of concreteness, we assume here one specific implementation of cyclic Agree. This implementation differs in certain non-crucial respects from the formulations in Béjar and Rezac (2009) and Clem (2019a, to appear). For a brief discussion of these differences, see fn. 13 and fn. 16.

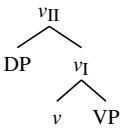
With Rezac (2003, 2004); Béjar and Rezac (2009); and Clem (2019a, to appear), we adopt Chomsky's (2000, 2001) conception of Agree, according to which Agree requires that the probe c-command the goal. For recent defenses of this view, see Preminger (2013); Preminger and Polinsky (2015); Polinsky and Preminger (2019); and Rudnev (2020, 2021). For a discussion of possible alternatives, see Sect. 4.

(30) A probe [∗F∗] can undergo Agree with a goal G only if [∗F∗] c-commands G.

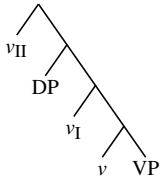
We also assume, as is standard, that the label of a constituent dominates the elements contained within this constituent, an assumption shared by Clem's (2019a, 2019b, to appear) cyclic-Agree system.[13] Rezac (2003, 2004) and Béjar and Rezac (2009)

[13] As an anonymous reviewer, Susana Béjar (p.c.), and Milan Rezac (p.c.) note, Béjar and Rezac (2009: 48n7) mention this implementation as a possibility, but the implementation that Béjar and Rezac (2009) adopt differs in certain respects. Based on the bare phrase structure notation in Chomsky (1995a), where the result of merging a head α to a constituent β is represented as $\{\alpha, \{\alpha, \beta\}\}$ (with α providing the label of the resulting constituent), Béjar and Rezac (2009) assume that labeling amounts to *merging* the head of the constituent to the constituent that it is the label of. In the case at hand, $\{\alpha, \{\alpha, \beta\}\}$, is created by merging the head α to $\{\alpha, \beta\}$. This has the consequence that the projected head α does not dominate $\{\alpha, \beta\}$, but rather c-commands it (on a standard definition of c-command according to which a node c-commands nodes in a constituent that it has merged with; see Epstein et al. 1998). In other words, the standard notation in (i) would correspond to the structure in (ii), where "v_{I}" and "v_{II}" are projected occurrences of v. In (ii), v_{I} and v_{II} do not dominate the constituent that they are the label of, but rather c-command them.

(i)



(ii)

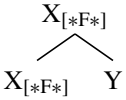


For our account, this difference is insubstantial. We will adopt the more standard representation in (i), but our analysis could easily be translated into (ii).

Nonetheless, these two representations are not entirely equivalent. First, in (i), adopted in Clem (2019a,b, to appear) and here, Agree with the DP in [Spec,vP] is established under c-command with v_{I} (i.e., the intermediate projection of v). In Béjar and Rezac's (2009) representation (ii), Agree with the DP in [Spec,vP] is established under c-command with v_{II} (i.e., the maximal projection of v); see Béjar and Rezac (2009:48). A second point of divergence, pointed out by a reviewer, is that for Béjar and Rezac (2009), the search space of second-cycle Agree properly includes the search space of first-cycle Agree: in (ii), the c-command domain of v_{II} properly contains the c-command domain of v_{I}. By contrast, in the representation in (i), first-cycle Agree and second-cycle Agree have non-overlapping search spaces: the c-command domain of v_{II} is disjoint from the c-command domain of v_{I}. We thank the reviewer, Susana Béjar, Emily Clem, Amy Rose Deal, and Milan Rezac for helpful discussion and clarification of these differences.

Finally, the structure in (i) also predicts the possibility of Agree between the topmost projection of the probe and elements within the sister of the maximal projection (i.e., the sister of vP in (i)). See Clem (2019a,b, to appear) for an argument that this is borne out. In Béjar and Rezac's (2009) structure in (ii),

propose, following bare phrase structure, that probes on a head H project along H's projection line as part of the label of the resulting constituent, as shown in (31).[14]

(31) $\text{Merge}(X_{[*F*]}, Y) \Longrightarrow$ 

Rezac (2003, 2004) and Béjar and Rezac (2009) point out that if labeling leaves the features it projects unchanged (as is standard), it follows immediately that a projected probe may launch Agree. Furthermore, we take projection of a probe as part of a label to produce several *occurrences* of a single probe. Being occurrences of the same probe, they stand in a *feature-sharing/unification* relationship: if one occurrence receives a value, all do (see Kathol 1999; Frampton and Gutmann 2000, 2006; Bhatt 2005; Legate 2005; Pesetsky and Torrego 2007; Ackema and Neeleman 2013; Haug and Nikitina 2016; Preminger 2017; and Stone 2018 for applications of feature sharing to agreement phenomena).

(32) *Feature sharing*
Valuation of one occurrence of probe [∗F∗] leads to valuation of all occurrences of [∗F∗].

Lastly, we impose an earliness condition on Agree such that if ϕ-Agree is possible at any given stage of the derivation, it must apply (see the *Earliness Principle* in Rezac 2003:156, 2004:67).[15]

the label of the maximal projection (v_{II}) does not c-command any material outside of the *v*P on a standard definition of c-command. But as Susana Béjar (p.c.) points out to us, the notion of c-command may have to be redefined on this model anyway. This is because other dependencies that require c-command between the maximal projection and an element not contained within this maximal projection (such as antecedent–anaphor binding) would otherwise be ruled out as well. A revised version of c-command, according to which v_{II} would c-command material contained in *v*P's sister, would then allow both standard antecedent–anaphor binding and the kinds of cyclic-Agree effects observed by Clem (2019a,b, to appear).

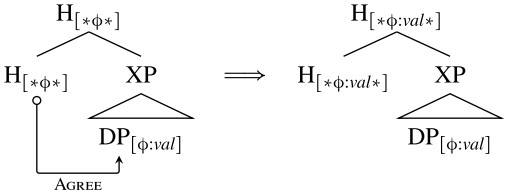
[14] As Rezac (2003, 2004) and Béjar and Rezac (2009) point out, projection of probes is an immediate consequence of the common bare phrase structure assumption that all features of a head project as part of the label (Chomsky 2000:133–134). Interestingly, there are some recent proposals that not all features of a head project to the phrasal node. Vicente (2007) and Harizanov and Gribanova (2019) propose that discourse-related features like [topic] and [focus] do not project from a head to the phrasal node. Harizanov and Gribanova (2019:495) point out that focusing a verb is semantically distinct from focusing a VP, a distinction that would be lost if a [focus] feature on a V invariably projected up to the VP. Relatedly, Chomsky's (1995a) formulation of bare phrase structure seems to acknowledge the possibility that the label is not necessarily identical to the head ("the head determines the label, though not always through strict identity"; Chomsky 1995a:398), and so it is at least conceivable that not all features of the head are inherited by the label, in line with the proposals just mentioned. While projection of ϕ-probes through labeling is certainly the null hypothesis in bare phrase structure, if not all features of a head necessarily project to the phrase level, then the question whether ϕ-probes project is at least partially an empirical one. Evidence for cyclic search-space expansion thus constitutes evidence that ϕ-probes are among the features that project.

[15] The restriction in (33) could also be implemented as an extrinsic ordering of features on a head, which might then in principle be subject to crosslinguistic variation (see, e.g., Müller 2009; Georgi 2014, 2017).

(33) If ϕ-Agree is possible at a stage of the derivation, it must apply.

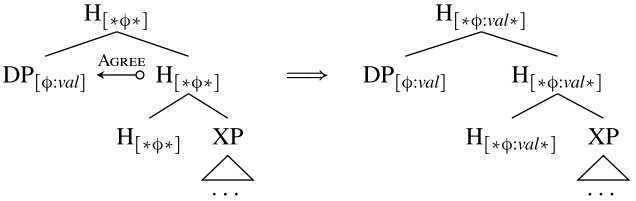
Putting these pieces together, if a head H bearing a ϕ-probe [∗ϕ∗] is merged with a complement XP, [∗ϕ∗] is projected as part of the label of the resulting constituent. Because the non-projected occurrence of [∗ϕ∗] c-commands XP, it searches XP for an accessible ϕ-goal. As shown in (34), if XP contains such a goal, Agree is established, and all occurrences of [∗ϕ∗] are valued as a result (indicated as [∗F:*val*∗] in (34)), satisfying [∗ϕ∗] and preventing subsequent Agree between [∗F∗] and any other DP.

(34) *First-cycle Agree*



Second-cycle Agree becomes possible if the first search cycle fails to locate a goal (i.e., if XP does not contain an accessible DP), leaving [∗ϕ∗] unvalued. When the specifier to H is merged, the projected occurrence of [∗ϕ∗] on the intermediate projection of H c-commands the specifier, allowing Agree with it, as shown in (35). As before, if such Agree is possible, all occurrences of [∗ϕ∗] are valued, including [∗ϕ∗]'s occurrence on H.[16]

(35) *Second-cycle Agree*



As will become important later on, because Agree requires the probe to c-command the goal and because projection of probes under labeling is bounded by the projection line of the head that hosts the probe, it follows that [∗ϕ∗] on H cannot agree with the specifier of a higher projection.

[16]This implementation differs from Clem's (2019a, to appear) with respect to the temporal relationship between labeling/projection and first-cycle Agree. Clem (2019a:104n15, to appear) assumes that first-cycle Agree applies before projection of the label (so that the projected label contains the information of whether first-cycle Agree was successful or not). On our formulation, labeling applies as a by-product of Merge, hence before first-cycle Agree is attempted. The projected occurrence of the probe still reflects whether first-cycle was established due to feature sharing (32). This difference does not affect our analysis of the Hindi pattern.

3.2 Application to local agreement

We now apply the cyclic-Agree framework to Hindi agreement patterns summarized in (29). We begin by considering local ϕ-agreement. The relevant generalizations are repeated from (29a–c) in (36) for convenience.

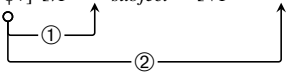
(36) a. In the absence of scrambling, the verb agrees with the structurally highest accessible DP.

b. Object agreement is not parasitic on movement of the object to a designated agreement position above the subject.

c. In local configurations, object scrambling does not feed verb agreement.

We assume that the Hindi ϕ-probe is located on T. The generalizations in (36) then follow as first-cycle Agree (see also Bhatt 2005; Keine 2019, 2020b): [∗ϕ∗] searches through its c-command domain and agrees with the structurally closest accessible DP, as shown in (37). If the subject is ϕ-accessible (i.e. if it is not overtly case-marked), it controls verb agreement (①). Otherwise, agreement is controlled by the object if the object is accessible to [∗ϕ∗] (②). In line with Davison (2004a,b) and Anand and Nevins (2006), we will assume that the subject subsequently undergoes movement to [Spec,TP], but this movement is not relevant for the agreement pattern in (37), which is established prior to such movement, as mandated by the earliness requirement on Agree in (33).

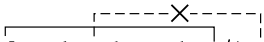
(37) $[_{TP}\ T_{[*\phi*]}\ [_{vP}\ DP_{subject}\ v\ [_{VP}\ V\ DP_{object}\ ]]]$



This account presupposes that objects in Hindi do not undergo obligatory movement to an object position outside of the *v*P but below T (masked by subsequent movement of the external argument to [Spec,TP]) because in this case objects would intervene for Agree between T and the external argument. This view is supported by the lack of empirical evidence that the object in SOV clauses in Hindi ever c-commands the subject (based on quantifier scope and weak crossover; see Sect. 2.1.1 and also the discussion in Sect. 3.4).[17]

The properties of agreement in simple clauses then follow. First, if both the subject and the object are ϕ-accessible, verb agreement is controlled by the subject, as shown in (38), repeated from (5a). This follows as a relativized-minimality effect.

[17]The absence of a *v*P-external position that objects obligatorily move to in Hindi is consistent with the previous literature (e.g., Mahajan 1989; Davison 1991, 1999, 2004a,b; Bhatt and Anagnostopoulou 1996). While some authors have argued for movement of some objects out of their base position, these arguments are compatible with (37). Bhatt and Anagnostopoulou (1996) propose that objects marked with the case marker *-ko* (which never control agreement) undergo such movement out of the VP/*v*P but bare objects do not, which is in line with (37). Mahajan (1989) proposes that agreeing objects undergo movement to a *v*P-external Agr projection for theory-internal reasons, but non-agreeing objects remain in-situ. Because Mahajan's (1989) account does not involve Agree, it cannot be directly compared to our own. But even on the structures that he assumes, it is never the case that a non-agreeing object would intervene for subject agreement.

(38)

laṛke kitaab paṛht-**e**/*-ii/*-aa hãĩ
boys.M book.F read.IPFV-M.PL/*-F.SG/*-DFLT AUX.3PL
'The boys read a book.'

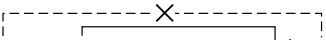
Second, because Agree is potentially long-distance, it does not require agreeing objects to move to a position above the subject, accounting for the scope and binding facts in Sect. 2.1.1. Third, because there is only a single ϕ-probe that is controlled by either the subject or the object, it follows that subject agreement and object agreement are in complementary distribution and that the agreement morphology does not reflect whether it realizes subject or object agreement.

There are a number of ways in which the invisibility of case-marked DPs for ϕ-agreement may be modeled, and the choice is insubstantial for the remainder of this paper. One possibility is that the ϕ-probe is case-sensitive (Bobaljik 2008; Preminger 2011, 2014). Another analytical option is that Hindi case markers host their own projection (either a K(ase)P or a PP), which shields the complement DP from outside probing (Butt and King 2004; Spencer 2005; Atlamaz and Baker 2018).

Recall furthermore that default agreement is a last resort in that it arises only if there is no viable agreement controller. This is in line with Preminger's (2011, 2014) obligatory-operations model, according to which Agree is mandatory if it is possible, but is allowed to fail if it cannot be established (39). On this view, default agreement is the PF realization of an unvalued ϕ-probe.

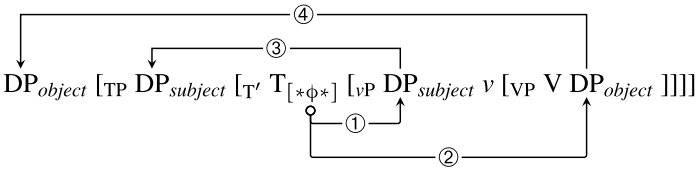
(39) If a probe can agree with a goal, it has to. Otherwise, it may remain unvalued.
[Preminger 2011, 2014]

This model also accounts for the lack of interaction between object scrambling and agreement. As noted above, scrambling of the object over the subject does not affect verb agreement (36c). In (40), repeated from (6), a ϕ-accessible object is scrambled over a ϕ-accessible subject, but verb agreement must still target the subject.

(40)

kitaab$_1$ **laṛke** ___$_1$ paṛht-**e**/*-ii/*-aa hãĩ
book.F boys.M read.IPFV-M.PL/*-F.SG/*-DFLT AUX.3PL
'The boys read a book.'

Davison (2004a,b) argues based on evidence from reflexive binding, control, and subject-oriented auxiliaries that subjects in Hindi undergo movement to [Spec,TP], a view that we adopt here (see also Mahajan 2000 and Anand and Nevins 2006). Because the object is scrambled to the left of the subject in (40), it must target a position higher than the subject—either an outer [Spec,TP] (in the case of A-scrambling) or [Spec,CP] (in the case of $\overline{\text{A}}$-scrambling); see Sect. 2.2.4. Given the cyclicity of structure-building and the earliness of Agree (33), this movement must take place after probing by [∗ϕ∗] in (37). In other words, as illustrated in (41), first-cycle Agree by [∗ϕ∗] on T (① and ②) applies before movement of the subject (③) and scrambling of the object over it (④). The exact landing site of the object in (41) depends on

whether the scrambling step is A-scrambling (in which case the DP targets an outer [Spec,TP]) or $\overline{\text{A}}$-scrambling (in which case it targets [Spec,CP]), but this difference is irrelevant as far as agreement in (41) is concerned. In either case, the scrambling takes place after first-cycle Agree has valued [∗ϕ∗] on T, and as such it does not feed or otherwise affect verb agreement.

(41) 

Note that the derivation in (41) is independent of questions about second-cycle Agree. If either the subject or the object is ϕ-accessible, [∗ϕ∗] can agree with it in its first cycle. If neither is ϕ-accessible, they will remain inaccessible after scrambling. Second-cycle Agree is therefore never at issue in these structures.

We have so far limited our attention to scrambling that lands to the left of the subject. Hindi also allows scrambling that lands to the right of the subject. To streamline the discussion, we will put such scrambling aside for now, but we will return to it in Sect. 3.4.

3.3 Application to long-distance agreement

We now turn to interactions between scrambling and agreement that arise in certain LDA configurations. The relevant generalizations are repeated from (29d,e) in (42).

(42) a. In LDA configurations with an intraposed clause, object scrambling does not feed verb agreement.

b. In LDA configurations with an extraposed clause, object scrambling may feed verb agreement:

(i) *A-scrambling:*

i. lands in a TP-internal position;

ii. feeds verb agreement, but only if the matrix subject is overtly case-marked and thus cannot control agreement.

(ii) *$\overline{A}$-scrambling:*

i. lands in [Spec,CP];

ii. never feeds verb agreement.

LDA configurations with an intraposed clause are accounted for in a manner analogous to local agreement: agreement is established with the closest accessible DP in the first cycle. There is hence a preference for agreement with the matrix subject over LDA; that is, LDA is possible only if the matrix subject is overtly case-marked.[18]

[18] As mentioned in Sect. 2.1.2, Davison (2014) argues that the permissive construction is ambiguous between an ECM structure and a control structure. On a control parse, the embedded PRO intervenes between the matrix ϕ-probe and the embedded object. We assume, following Davison (1991) and Keine (2019), that

Scrambling of the embedded object out of an intraposed clause into the matrix clause may not feed agreement because if agreement is possible, it is established in the first cycle, hence before object scrambling takes place. This derives (42a).

Next, we will consider configurations in which the embedded clause is extraposed. These are the configurations in which interactions between scrambling and ϕ-agreement appear (42b).

3.3.1 Background: The opacity of extraposed clauses

We saw on the basis of (15), repeated here as (43), that extraposed nonfinite clauses do not allow ϕ-agreement into them. At the same time, (16), repeated here as (44), shows that they allow scrambling out of them, and, if the clause is not case-marked, this scrambling may be A- or $\overline{\text{A}}$-scrambling (see (19) and (22)).

(43)

saare shikṣakõ-ne ___$_1$ diy-**aa**/?*d-**ii** [Ram-ko **kitaab** paṛhne]$_1$
all teachers-ERG let.PFV-DFLT/?*let.PFV-F.SG Ram-DAT book.F read.INF
'All the teachers let Ram read a book.' *=(15)*

(44)

kitaab$_2$ saare shikṣakõ-ne ___$_1$ d-ii/diy-aa [Ram-ko ___$_2$ paṛhne]$_1$
book.F all teachers-ERG let.PFV-F.SG/let.PFV-DFLT Ram-DAT read.INF
'All the teachers let Ram read a book.' *=(16)*

Such selective opacity of clauses to ϕ-agreement but not (A-)movement is not unprecedented. For example, Bobaljik and Wurmbrand (2005) study LDA in Itelmen and observe that LDA with an embedded object requires the object to take scope over the matrix verb (45).[19]

(45) t'-ənxta-**če?n** [**mił okno-?n** sop-es] *Itelmen*
1SG-forget-3PL.OBJ all window-PL close-INF
'I forgot to close all the windows.' (∀ ≫ *forget*; **forget* ≫ ∀)
[Bobaljik and Wurmbrand 2005:849]

Bobaljik and Wurmbrand (2005) propose that the embedded clause in (45) forms an *agreement domain*—a domain that is transparent to A-movement, but opaque to ϕ-agreement. As a consequence, genuine crossclausal agreement is impossible in Itelmen. In order for the DP *mił okno-?n* 'all windows' to control agreement on the

PRO in Hindi does not bear ϕ-features and is hence invisible to the ϕ-probe. See Keine (2019:43n22) for an argument to this effect. On an ECM parse, no problem arises because the embedded subject bears overt dative case and is hence invisible to agreement.

[19] According to the ∀ ≫ *forget* reading, all the windows are such that it was forgotten to close them—that is, no window was closed. The *forget* ≫ ∀ reading is weaker: it states that it was forgotten to close all the windows—that is, it is true in a scenario in which some but not all of the windows were closed. The sentence in (45) only has the logically stronger ∀ ≫ *forget* reading.

matrix verb, this DP has to A-move into the matrix clause and hence take scope there. While the empirical situation in Hindi is not identical to that in Itelmen (most prominently, only extraposed clauses are agreement domains in Hindi), this Itelmen locality contrast nonetheless bears a clear resemblance to the situation in Hindi.

We thus propose that extraposed clauses in Hindi constitute agreement domains in Bobaljik and Wurmbrand's (2005) sense, which allow movement out of them but block ϕ-Agree into them. The specific implementation of this restriction is irrelevant for the remainder of our proposal, and it raises interesting questions of its own, independent of the cyclicity of Agree. In the interest of space, we simply adopt (46) as a constraint.[20]

(46) In Hindi, simple (i.e., non-case-marked) nonfinite clauses that are extraposed allow A- and $\overline{\text{A}}$-scrambling out of them, but block ϕ-agreement into them.

3.3.2 A-scrambling and cyclic Agree

We now turn to the data in (47) and (48), repeated from above. They involve A-scrambling (diagnosed by pronominal binding, hence absence of weak crossover) of the embedded object out of an extraposed clause. As (47) shows, such A-scrambling obligatorily feeds LDA if the matrix subject does not constitute a viable agreement controller (i.e., if it is overtly case-marked). By contrast, if the matrix subject is a viable agreement controller, as in (48), agreement has to target the matrix subject instead of the scrambled object. There is hence a descriptive preference for subject

[20] It is not immediately obvious how to analyze this restriction, and we will not investigate it further here. But for the sake of concreteness, we offer some tentative analytical suggestions.

First, one might assume with Bobaljik and Wurmbrand (2005) that ϕ-Agree is subject to locality domains that do not constrain movement, and that extraposed clauses are such a domain.

A second analytical possibility is to invoke Keine's (2016, 2019, 2020b) *horizons* framework. In this account, probes have characteristic horizons—category labels that terminate that probe's search. For example, if a given probe has C as its horizon, then this probe's search cannot proceed into a node of category C, i.e., a CP. As a result, this probe cannot make contact with any elements separated from this probe by a CP node. Assuming that ϕ-agreement and movement are both parasitic on Agree, locality asymmetries between movement and agreement (as well as asymmetries between different types of movement and different types of agreement) are implemented as differences in the horizon settings for the probes underlying these processes. In Itelmen, for instance, the ϕ-probe would have C as its horizon (assuming that the embedded clause in (45) is a CP), but the A-movement probe would not.

We may tentatively extend this line of analysis to the Hindi extraposition facts in the following way: Because Keine (2016, 2019, 2020b) crucially assumes that movement is parasitic on an Agree dependency, an XP that undergoes a movement step must bear a corresponding feature that is attracted by the movement-inducing probe (for arguments that apparently optional syntactic movement is feature-driven, see Müller 1996, 2010; Grewendorf and Sabel 1999; and Sauerland 1999). For the sake of concreteness, let us refer to the feature that underlies extraposition as "[ξ]." An embedded clause that undergoes extraposition does so in virtue of bearing [ξ], and a clause that does not bear [ξ] does not undergo extraposition. If movement-inducing features remain present on the moved element after movement has taken place (e.g., Sauerland 1999) and if these features may constitute horizons for other probes, selective freezing effects arise. Concretely, if the ϕ-probe has [ξ] as its horizon, it cannot search into an extraposed clause. By contrast, the probes underlying A- and $\overline{\text{A}}$-scrambling by assumption do not have [ξ] as their horizons and so are able to probe into an extraposed clause, allowing scrambling out of it. If (to-be) extraposed clauses bear [ξ] both before and after movement, their selective opacity to ϕ-agreement then follows. We will leave working this analysis out in greater detail and assessing it as a task for the future. This analysis will not play a role for the remainder of our account, and alternative analyses of (46) could be adopted as well.

agreement, with agreement with the A-scrambled object being possible only if agreement with the subject is not.

(47) *Object A-scrambling feeds LDA . . .*

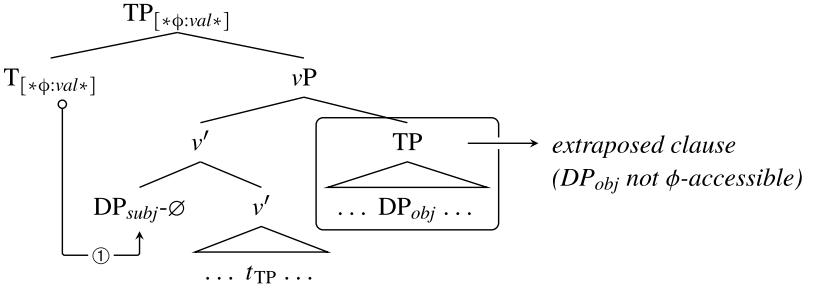
har **kitaab$_2$** [*uske$_2$* lekhakõ-ne] ___$_1$ d-**ii**/*diy-**aa**
every book.F its authors-ERG let.PFV-F.SG/*let.PFV-DFLT
[Ram-ko ___$_2$ paṛhne]$_1$
Ram-DAT read.INF
'For every book x, x's authors let Ram read x.' *=(19)*

(48) *. . . but subject agreement takes precedence when possible*

har kitaab$_2$ [***uske$_2$*** **lekhak**] ___$_1$ det-**e** hãĩ
every book.F its authors.M let.IPFV-M.PL AUX.3PL
[Ram-ko ___$_2$ paṛhne]$_1$
Ram-DAT read.INF
'For every book x, x's authors let Ram read x.' *=(20a)*

Cyclic Agree offers a principled explanation of this pattern. Let us first consider a configuration in which the matrix subject is not overtly case-marked and therefore ϕ-accessible (like (48)). As soon as matrix T is merged, [∗ϕ∗] launches a first cycle of Agree, locating and agreeing with the subject DP. This is shown in (49), where we use "-∅" to indicate that the subject is not overtly case-marked. An object inside an extraposed clause is outside of the search space of [∗ϕ∗] due to (46). Two notes about the representation in (49): First, we depict the extraposed nonfinite clause as a TP, but nothing hinges on this. Second, we show extraposition as targeting [Spec,*v*P]. Again, we make this choice for expository purposes only; the analysis does not hinge on it.

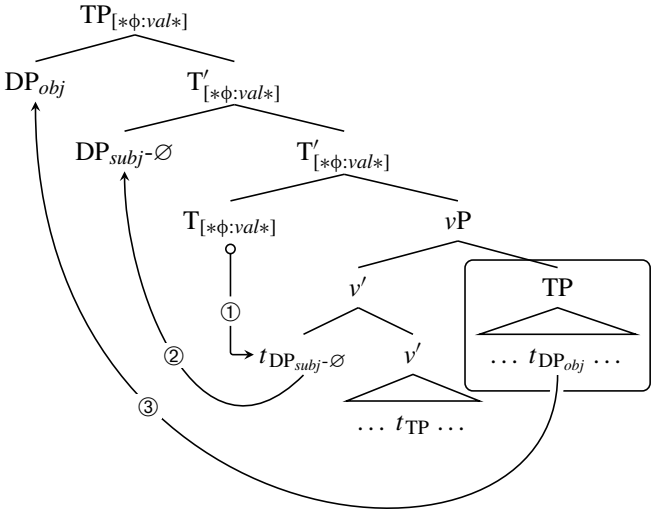
(49) *First-cycle Agree with ϕ-accessible subject in (48)*



Because [∗ϕ∗] has located a goal in (49) and agreed with it, subsequent operations will not affect verb agreement. This is shown in (50), where movement of the subject to an inner [Spec,TP] (②) and subsequent A-scrambling of the embedded object to an outer [Spec,TP] (③) apply. While it is not crucial for (50), the landing of A-scrambling in (50) is an outer [Spec,TP] given our arguments that A-scrambling must

land in a TP-internal position (see Sect. 2.2.4) and the fact that this scrambling lands to the left of the subject in [Spec,TP] in (48).

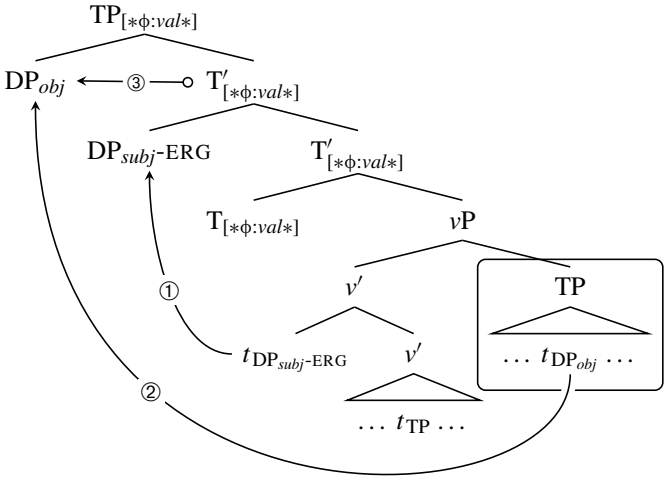
(50) *Object A-scrambling after first-cycle Agree with subject in (48)*



We now turn to a configuration in which the matrix subject bears ergative case and is hence inaccessible to [∗ϕ∗], such as (47). In this case, first-cycle Agree is unsuccessful, leaving [∗ϕ∗] unvalued. As shown in (51), [∗ϕ∗] projects as part of the label. Movement of the ergative subject to [Spec,TP] (①) does not yield a goal for [∗ϕ∗]. A-scrambling of the embedded object (②) places this object into an outer [Spec,TP] (again given the dual requirements that (i) A-scrambling must land within the matrix TP—see Sect. 2.2.4—and (ii) the object lands in a position to the left of the subject in the inner [Spec,TP]). In this outer [Spec,TP], the A-scrambled object is in the c-command domain of a projected occurrence of [∗ϕ∗] (③). [∗ϕ∗] thus establishes Agree with the scrambled object in the third cycle of Agree, producing (47).[21]

[21] For some embedding verbs (like the control verb *caah* 'want'), the infinitival clause also agrees with the embedded object in (51). See Keine and Dash (2018) for a proposal about how to incorporate such agreement into a cyclic-Agree account.

(51) *Object A-scrambling and higher-cycle Agree in (47)*



Due to the cyclicity of structure building and the earliness condition on Agree, second-cycle or third-cycle Agree is possible only if first-cycle Agree has failed. This is the case only if the matrix subject is overtly case-marked. Cyclic Agree hence derives the generalization that A-scrambling of the object is in principle able to feed verb agreement, but only if subject agreement is impossible.

More generally, a cyclic-Agree analysis accounts for the pattern that agreement with a structurally higher DP (the A-scrambled object) is possible, but only if a structurally lower DP (the matrix subject) cannot control agreement. In this respect, this pattern is similar to Basque ergative displacement, discussed in Sect. 1, where agreement with the object preempts agreement with the subject. Importantly, higher-cycle Agree in (51) is established with a specifier that is created by movement. This indicates that the effects of cyclic Agree are not limited to base-generated specifiers, but are fully general.

In line with obligatory-operations view of agreement (Preminger 2011, 2014), default agreement arises if *all* cycles of Agree fail to locate a goal, that is, as a last resort. This is illustrated in (52), which is structurally analogous to (47), but has a case-marked embedded object (*kitaab-ko* 'book-ACC'). A-scrambling of the object (diagnosed by pronominal binding) is possible in (52), but because both the subject and the object are overtly case-marked, neither can control verbal agreement. In this case, the verb has to bear default agreement.

(52) har kitaab-ko$_2$ [uske$_2$ lekhakõ-ne] ___$_1$ diy-**aa** [Ram-ko
every book.F-ACC its authors-ERG let.PFV-DFLT Ram-DAT
___$_2$ paṛhne]$_1$
read.INF
'For every book x, x's authors let Ram read x.'

Due to the lack of a ϕ-accessible goal, [∗ϕ∗] remains unvalued in (52), which is realized as default agreement at PF.

3.3.3 $\overline{\text{A}}$-scrambling and cyclic Agree

We now turn to the relationship between cyclic Agree and $\overline{\text{A}}$-scrambling. We saw in Sect. 2.2.3 that $\overline{\text{A}}$-scrambling differs from A-scrambling in that it is never able to feed agreement, even if no other viable agreement target exists. This is illustrated again in (53). Here the embedded nonfinite clause is case-marked, and it is a general property of these clauses that they only allow $\overline{\text{A}}$-scrambling out of them (see the weak-crossover effect with respect to the pronoun). In (53), the matrix subject *uske lekhakõ-ne* 'its authors-ERG' is case-marked and hence cannot control matrix agreement. Importantly, the $\overline{\text{A}}$-scrambled object *har kitaab* 'every book' may not control agreement either, leaving default agreement as the only option. The same pattern is observed with finite clauses (see Sect. 2.2.3).

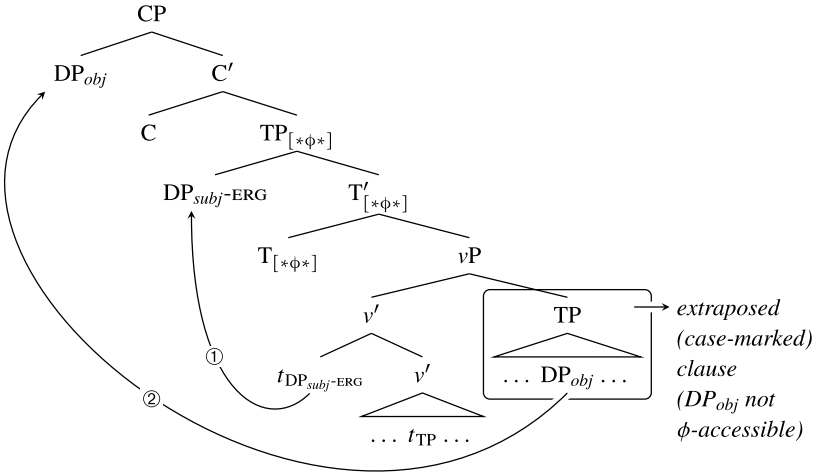
(53) *$\bar{A}$-scrambling does not feed agreement*

har	**kitaab$_2$**	[uske$_{3/*2}$	lekhakõ-ne]	___$_1$	kah-**aa**/*-**ii**	[Ram-se	___$_2$	
every	book.F	its	authors-ERG		say.PFV-DFLT/*-F.SG	Ram-INSTR		
paṛhne-ko]$_1$								
read.INF-DAT								

'Its$_3$ authors told Ram to read every book$_2$.'

Because the matrix subject bears ergative case in (53), first-cycle Agree by [∗ϕ∗] is unsuccessful. The task now is to rule out higher-cycle Agree between [∗ϕ∗] and the landing site of the $\overline{\text{A}}$-scrambled object *har kitaab* 'every book.' As we now show, a cyclic-Agree account derives this restriction without further ado. Recall from Sect. 2.2.3 that $\overline{\text{A}}$-scrambling in Hindi targets a structurally higher position than A-scrambling. Specifically, we argued that whereas A-scrambling lands in a TP-internal position, $\overline{\text{A}}$-scrambling lands in [Spec,CP]. On a cyclic-Agree analysis, this is sufficient to derive that $\overline{\text{A}}$-scrambling may not feed verb agreement in Hindi. Because cyclic search-space expansion is the result of projecting the probe under labeling, it follows that probes do not project past the maximal projection of their head. Thus, [∗ϕ∗] projects up to TP, but not higher. Because a probe must c-command the goal in order for Agree to be possible (by (30)), [∗ϕ∗] on T cannot agree with a DP in [Spec,CP], as no occurrence of [∗ϕ∗] c-commands this DP. The corresponding structure for (53) is given in (54). No occurrence of [∗ϕ∗] in (54) c-commands an accessible DP, and [∗ϕ∗] therefore remains unvalued, resulting in default agreement.

(54) *Object $\overline{A}$-scrambling with ϕ-inaccessible subject in (53)*



The same analysis applies to finite clauses, scrambling out of which also must be $\overline{A}$-scrambling (see (18b)) and cannot feed matrix ϕ-agreement (see (23)).

A cyclic-Agree account thus allows us to derive the differential ability of A- and $\overline{A}$-scrambling to feed agreement from the independently motivated differences in their landing sites and the locality of projection/labeling: higher Agree cycles can reach a DP in [Spec,TP], but not a DP in [Spec,CP]. Generalizing this account, higher-cycle Agree can reach the specifier of the head hosting the probe, but not the specifier of a higher head.[22]

Of course, it is crucial for this analysis that the object DP in (54) cannot target [Spec,TP] instead of [Spec,CP], as this would produce agreement in (53). We already saw multiple pieces of empirical evidence for this restriction. First, it is simply an empirical fact about Hindi that extraction out of case-marked nonfinite clauses and finite clauses may not be A-scrambling and so cannot target an A-position (see the crossover effects in (18b), (21), and (53)). Second, we saw direct evidence that scrambling out of case-marked clauses and finite clauses may not land in nonfinite clauses and hence may not target a TP-internal position (see (25) and (26)). As a result, any descriptively adequate account must prohibit movement out of such clauses to [Spec,TP] and only allow movement to [Spec,CP] of the matrix clause. As we just saw, a cyclic-Agree analysis then uses this restriction to also explain why such movement cannot feed matrix ϕ-agreement. A number of possible implementations of the ban on A-scrambling out of case-marked nonfinite clauses and finite clauses suggest themselves, and the choice is insubstantial for our account. One option is that

[22] A reviewer raises the question of how auxiliaries fit into the clause structures in (50), (51), and (54). Our account requires that they do not intervene between the head that hosts [$*\phi*$] and the landing site of A-scrambling. As far as our account is concerned, auxiliaries could be located either directly in T (see Bhatt 2005) or lower than T, as is standard for English. See Bhatt (2005:767–769) for an analysis that treats agreement on verbal elements lower than T as arising from *covaluation* by Agree between [$*\phi*$] on T and a DP. This aspect of Bhatt's (2005) analysis can be carried over to our account, but we will not spell out the details here in the interest of space.

extraction out of these types of clauses must proceed through an $\overline{\text{A}}$-position, and the ban on improper movement then prohibits subsequent movement to an A-position, leaving movement to the matrix [Spec,CP] as the only option. An alternative that eschews reference to A- vs. $\overline{\text{A}}$-positions entirely is to adopt Keine's (2019, 2020b) account, according to which these types of embedded clauses constitute a *horizon* for the probe that underlies A-scrambling. This prevents this probe from searching into these embedded clauses, ruling out A-extraction of a DP out of them.

An important consequence of this cyclic-Agree account is that it derives the A/$\overline{\text{A}}$-contrast in this domain without the need to make ϕ-Agree sensitive to the difference between A- and $\overline{\text{A}}$-positions as designated types of positions. We saw that, unlike A-scrambling, $\overline{\text{A}}$-scrambling cannot feed ϕ-agreement. On our account, no constraint that specifically stipulates that $\overline{\text{A}}$-positions as a type of position are invisible to ϕ-Agree is required (also see Sect. 4.1 for empirical arguments against the viability of such a constraint). Rather, the reason that $\overline{\text{A}}$-positions cannot be ϕ-agreed with (in Hindi at least) is that these positions are located outside the portion of the structure that is visible to second-cycle search by [∗ϕ∗]—which is itself determined by the locality of labeling—rather than any inherent property of these positions. What the account presented here achieves, then, is to derive the A/$\overline{\text{A}}$-asymmetry with respect to ϕ-agreement from more fundamental principles and independently motivated properties of these scrambling types. As we show in Sect. 4, this is a distinctive property of a cyclic-Agree account.[23]

A reviewer raises the question whether our account could produce ϕ-agreement between T and a DP in [Spec,CP] if cyclic-Agree dependencies can be chained together. Such a hypothetical chain is shown in (55). Here, both T and C are equipped with a ϕ-probe. By hypothesis, first-cycle Agree is unsuccessful for both, and a DP is moved to [Spec,CP]. The projected occurrence of [∗ϕ∗] on C′ can then agree with

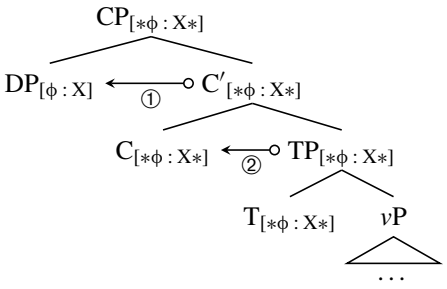
[23] While the account here derives the difference between A- and $\overline{\text{A}}$-scrambling in their ability to feed second-cycle Agree, we should note that $\overline{\text{A}}$-scrambling in Hindi also cannot feed first-cycle Agree. In (i), the embedded object *kitaab* 'book' is scrambled to the edge of the embedded finite clause, but agreement with the matrix verb is impossible. Given that (i) has a parse in which *kitaab* undergoes $\overline{\text{A}}$-scrambling to [Spec,CP], this indicates that $\overline{\text{A}}$-scrambling does not feed first-cycle Agree either.

(i) Sita-ne soc-**aa**/*-**ii** [$_{\text{CP}}$ **kitaab$_1$** Mona-ne ___$_1$ paṛh-ii thii]
Sita-ERG think.PFV-DFLT/*-F.SG book.F Mona-ERG read.PFV-F.SG AUX.3SG.F
'Sita thought that Mona had read a book.'

Whether deriving (i) requires additional assumptions depends on the status of the finite clause. As a matter of principle, finite clauses in Hindi always occur to the right of their embedding predicate. One line of account of this fact is that finite clause are obligatorily extraposed (Mahajan 1990; Dayal 1996). If so, then the impossibility of agreement into them can be attributed to the same principle that prohibits agreement into an extraposed nonfinite clause (see Sect. 3.3.1 for a proposal). Alternatively, if finite clauses are not extraposed but simply linearized to the right (Manetta 2012), then this restriction would need to be attributed to some other factor. One option is that finite clauses bear 3SG.M ϕ-features and thus intervene for agreement with *kitaab* in (i). Alternatively, one might adopt Keine's (2019, 2020b) proposal that the CP node of the embedded clause constitutes a *horizon* for the matrix ϕ-probe, terminating its search before it can contact the $\overline{\text{A}}$-scrambled DP; see fn. 20 (as a reviewer notes, this would have the consequence that a probe can have more than one horizon: [∗ϕ∗] would have both C and [ξ] as its horizon). All three approaches are consistent with the general view that impossible agreement between a ϕ-probe and a DP in an $\overline{\text{A}}$-position should not be attributed to a designated stipulation that renders elements in $\overline{\text{A}}$-positions invisible to such probes.

this DP in its second Agree cycle. By feature sharing, [∗ϕ∗] on C receives this ϕ-value. Because C is c-commanded by TP, the projected [∗ϕ∗] on TP may then agree with C's valued ϕ-feature. In this derivation, then, a feature that acts as the probe in one Agree step can subsequently act as the goal in another (see Legate 2005). The outcome of this derivation is that [∗ϕ∗] on T agrees with a DP in [Spec,CP], an $\overline{\text{A}}$-position, yielding ungrammatical agreement in (53).

(55)



Because our account eschews a designated constraint against ϕ-Agree with an $\overline{\text{A}}$-position, we cannot appeal to such a constraint to rule out (55). But there are other, independently motivated considerations that correctly exclude the derivation in (55) on our account. For Hindi, it is sufficient to assume that C does not host a ϕ-probe (rather uncontroversially, as there are no instances of agreeing C in the language). To rule out derivations like (55) in the general case, a more general explanation is needed. One possibility is to generally prohibit indirect Agree. On such an account, valued probes may never act as goals for a later Agree dependency (see Richards 2012 for arguments against indirect Agree). If so, then the derivation in (55) is ruled out on principled grounds.

Another way to rule out (55) is to require that only probes in the highest head are active for Agree. This is plausibly a consequence of a more general requirement for syntactic operations to target the root of the tree, standardly implemented as the *Strict Cycle Condition* (Chomsky 1973; Perlmutter and Soames 1979; et seq.).[24] For the sake of concreteness, we adopt here the formulation in (56).

(56) *Strict Cycle Condition*
If Σ is the root of the current phrase marker, then no operation can take place exclusively within Ω, where Ω is properly dominated by Σ. [Heck 2016:11]

In (55), Agree between TP and C is prohibited by (56) because it takes place exclusively within C′ (that is, CP = Σ and C′ = Ω).

Whichever solution is adopted, indirect Agree between T and [Spec,CP] as in (55) is ruled out on principled grounds. The crucial asymmetry between A-scrambling and $\overline{\text{A}}$-scrambling in their ability to feed ϕ-Agree is therefore accounted for without the need to invoke a designated constraint that specifically prohibits ϕ-Agree with DPs in $\overline{\text{A}}$-positions.

[24] Also see the *Extension Condition* in the domain of movement, as well as Chomsky (2000:132) and Collins's (2003) *Locus Principle*. For discussion of the Locus Principle in the context of a cyclic-Agree account, see Rezac (2004:102–108).

3.4 Additional predictions

Our discussion and analysis so far has focused on scrambling that lands above the matrix subject. Hindi scrambling may also target a position to the right of the subject (see for example the discussion of scrambling of the direct object over an indirect object in Bhatt and Anagnostopoulou 1996 and Bhatt 2016). Such scrambling is illustrated in (57). Here, the object *ek kavitaa* 'one poem' is scrambled over the adjunct PP *Sita-ke liye* 'for Sita' but still lands below the subject *laṛkiyãã* 'girls.' Such scrambling does not affect verb agreement; that is, the verb must still agree with the subject (*laṛkiyãã*) if the subject is not overtly case-marked.

(57) *Scrambling to the right of subject does not affect verb agreement*

laṛkiyãã **ek** **kavitaa**$_1$ Sita-ke liye ___$_1$ paṛhẽg-**ĩĩ**/*paṛheg-**ii**
girls.F one poem.F Sita-for read.FUT-F.PL/*read.FUT-F.SG
'The girls will read a poem for Sita.'

Our cyclic-Agree analysis requires that the scrambled object not intervene between T and the base position of the subject in [Spec,*v*P] when ϕ-probing takes place, hence a structure like (58).

(58)

$$[_{\text{TP}}\ \text{DP}_{subject} \ldots\ \text{T}_{[*\phi*]}\ [_{v\text{P}}\ \langle\text{DP}_{subject}\rangle \ldots\ \text{DP}_{object} \ldots\ \text{PP} \ldots\ \langle\text{DP}_{object}\rangle\ \text{V}\ ]\ ]$$

The landing site of the object DP in (58) could be either an inner [Spec,*v*P] or the specifier of a projection lower than *v*P altogether. In either case, the external argument is the closest goal to [∗ϕ∗], and subject agreement is obligatory. Our analysis is incompatible with a derivation of (57) in which the object scrambles to a position between T and the base position of the subject, followed by movement of the subject to [Spec,TP]. In such a derivation, the scrambled object would intervene between T and the external argument, requiring that [∗ϕ∗] agree with the object instead. The crucial difference between such a structure and that in (58) is that in (58), the object does not c-command the subject at any stage of the derivation. Familiar tests for c-command support this view. As (59) and (60) show, the object may not bind a subject-internal pronoun, and it may not take scope over the subject.[25]

[25]We use a future-tense verb in (60) because imperfective aspect in Hindi typically receives a habitual interpretation. The quantification over situations inherent in the habitual aspect can create scope illusions of the kind investigated by Fox and Sauerland (1995) and Lohndal (2010). Use of the future tense with an episodic interpretation helps avoid this confound (the agreement pattern in (57) also obtains with the future tense). We also note that Anand and Nevins (2006) report somewhat different scope judgments for SOV sentences. They claim that SOV configurations allow inverse scope if the subject is not overtly case-marked (as in the imperfective). Their analysis involves QR of the object to a position above [Spec,vP] and below [Spec,TP] combined with reconstruction of the subject, and this analysis potentially conflicts with our account here. However, their generalization conflicts with evidence presented in Mahajan (1997:199) and Kidwai (2000:52) as well as with (60). As an alternative, Anand and Nevins's (2006) inverse-scope facts might be amenable to a scope-illusion analysis, which does not involve movement of the object (thanks to Rajesh Bhatt for pointing this out to us). While Anand and Nevins (2006) argue against a scope-illusion

(59) [*uskaa*$_{2/*1}$ lekhak] **har** **kavitaa**$_1$ Sita-ke liye ___$_1$ paṛheg-aa
its author.M every poem.F Sita-for read.FUT-M.SG
'Its$_{2/*1}$ author will read every poem$_1$ for Sita.'

(60) *koii* *ek* *laṛkii* **har** **kavitaa$_1$** Sita-ke liye ___$_1$ paṛheg-ii
some one girl.F every poem.F Sita-for read.FUT-F.SG
'Some girl will read every poem for Sita.' (∃ ≫ ∀; *∀ ≫ ∃)

All else being equal, if the object in (59) and (60) had moved to a position above the base position of the subject, we would expect binding and inverse scope to be possible under reconstruction of the subject. While it is of course possible to negate this prediction by stipulating that movement to [Spec,TP] does not reconstruct in Hindi (unlike A-movement in English, which allows reconstruction; see e.g., Romero 1997; Fox 2000; Sportiche 2006; and Lebeaux 2009), the fact remains that standard diagnostics for c-command do not indicate that the object c-commands the subject in (57) at any stage of the derivation. This is in line with (58) being the only possible structure for (57) and hence sufficient to derive the verb-agreement facts in (57) on our account as first-cycle Agree.

The same pattern is observed with scrambling out of an extraposed nonfinite clause to a position below the matrix subject. An example is provided in (61), where the embedded object *kavitaaẽ* 'poems' is moved to a position below the matrix subject. (61a) shows that such scrambling can give rise to LDA with this object if the subject is overtly case-marked. (61b) demonstrates that if the subject is not overtly case-marked, agreement with the subject bleeds agreement with the moved object.

(61)

a. Anu-ne **kavitaaẽ$_2$** ___$_1$ d-**ĩĩ** [Sita-ko ___$_2$ likhne]$_1$
Anu.F-ERG poems.F let.PFV-F.PL Sita-DAT write.INF
'Anu let Sita write poems.'

b. (i) **Anu** kavitaaẽ$_2$ ___$_1$ de-**tii** hai [Sita-ko ___$_2$ likhne]$_1$
Anu.F poems.F let.IPFV-F.SG AUX.3SG Sita-DAT write.INF
'Anu lets Sita write poems.'

(ii) *Anu **kavitaaẽ$_2$** ___$_1$ de-**tĩĩ** hãĩ [Sita-ko ___$_2$ likhne]$_1$
Anu.F poems.F let.IPFV-F.PL AUX.3PL Sita-DAT write.INF
'Anu lets Sita write poems.'

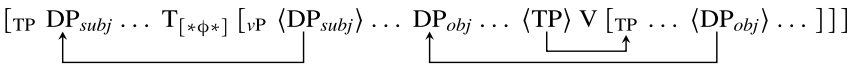
Our analysis of (61) is analogous to that of (57): the object scrambles to a position below the base position of the matrix subject (either to an inner [Spec,*v*P] or to a

analysis, the critical data points for their argument (their ex. (19–22)) are not shared by our informants, so further work is warranted.

With quantifier scope thus being potentially confounded to some degree, the pronominal-binding configuration in (59) provides a clearer test case. As far as we know, the judgment in (59) is not contested, and it receives a principled explanation on the structure in (58).

projection lower than *v*P), as shown in (62). As a result, both subject and object agreement in (61) are the result of first-cycle Agree, with the probe being able to reach the object only if the matrix subject is not a possible agreement controller.

(62)



As in (58), the scrambled object does not c-command the subject at any stage of the derivation in (62). This again predicts that the object should not be able to bind into the matrix subject or take scope over it. Both predictions are borne out, as (63) and (64) illustrate.

(63) [*uskaa*$_{2/*1}$ lekhak] **har** **kavitaa$_1$** ___$_2$ det-aa hai
its author.M every poem.F let.IPFV-M.SG AUX.3SG
[Sita-ko ___$_1$ paṛhne]$_2$
Sita-DAT read.INF
'Its$_{2/*1}$ author lets Sita read every poem$_1$.'

(64) *koii ek adhyaapak* **har** **kitaab$_1$** ___$_2$ deg-aa [Anu-ko ___$_1$
some one teacher.M every book.F let.FUT-M.SG Anu-DAT
paṛhne]$_2$
read.INF
'Some teacher will let Anu read every book.' (∃ ≫ ∀; *∀ ≫ ∃)

Another empirical question that arises from our account is whether scrambling of elements other than an embedded object has the same effect on LDA. A reviewer notes that our proposal predicts that any DP that is accessible to agreement and scrambled out of an extraposed clause should in principle be able to control agreement in the matrix clause, not just the embedded object. Unfortunately, it is largely impossible to evaluate this prediction because of independent properties of case marking in the language. An external argument of a verb embedded in the permissive construction always bears dative case (*-ko*) and is hence invisible to ϕ-agreement. Other LDA predicates (like *caah* 'want') embed a control infinitive, whose external argument cannot be overt. Therefore, in both of these configurations, the prediction cannot be tested. The only configuration that we are aware of that has the right properties involves embedding of an unaccusative predicate in the permissive construction. The sole argument of such unaccusative predicates can control agreement (Bhatt 2005: 795). This is also the case if the embedded clause is extraposed and this argument scrambled into the matrix clause, as (65) shows. This is of course compatible with our account.

(65) **saare** **per̤$_2$** Nadia-ne ___$_1$ diy-**e** [___$_2$ kaṭne]$_1$
all trees.M.PL Nadia-ERG let.PFV-M.PL cut$_{unacc}$.INF
'Nadia let all the trees get cut.'

Thus, while independent factors of the language constrain our ability to assess this prediction, we are not aware of configurations that are in conflict with it.

Relatedly, in light of the generality of the cyclic-Agree mechanics, A-movement should be able to feed agreement quite generally in Hindi. For example, a reviewer asks whether A-movement feeds agreement in passive or raising constructions in Hindi. It is difficult to answer this question directly due to independent constraints of the language. First, it is not clear to us whether Hindi has English-style raising constructions. Second, a non-case-marked subject of a passive does indeed control ϕ-agreement, as shown in (66).

(66)
yeh	**kitaab**	Ramesh-dwaraa	paṛh-**ii**	gay-**ii**
this	book.F	Ramesh-by	read.PFV-F.SG	PASS-F.SG

'This book was read by Ramesh.'

But such examples do not directly establish whether this ϕ-agreement was established before A-movement (i.e., as first-cycle Agree) or after. Given the cyclicity of structure building and the resulting derivational primacy of first-cycle Agree that our analysis rests on, it stands to reason that (66) involves first-cycle Agree. Passive constructions like (66) are therefore fully compatible with our account, but it is the LDA configurations with an extraposed clause that provide the clearest empirical support for it.

Furthermore, passives of permissive constructions require their subject to retain dative case *-ko* (Davison 2014:141–142), and so agreement is independently impossible. This is illustrated in (67), where omitting the *ko*-marking on *Sita* would lead to ungrammaticality, regardless of verb agreement.

(67)
Sita-ko	mujhe	piiṭne	diy-**aa**	gay-**aa**
Sita-DAT	I.ACC	hit.INF	let.PFV-DFLT	PASS-DFLT

'Sita was allowed to hit me.'

These facts are fully in line with our account, but they do not provide clear evidence in support of cyclic Agree in this domain.

Finally, while we have focused on agreement in configurations with two non-case-marked DPs, our account makes principled predictions about configurations with three ϕ-accessible DPs.[26] Our account predicts an intricate hierarchy of agreement goals in such configurations. Agreement should be controlled by the highest null-marked DP c-commanded by the ϕ-probe. If no such DP exists, an A-scrambled object should be able to control agreement. Unfortunately, we are not aware of configurations in Hindi that contain three null-marked DPs. First, as noted above, it is not possible to have two null-marked DPs within a nonfinite clause. Second, if a verb that embeds a nonfinite clause also takes a DP object, this DP object bears dative or instrumental case and is hence not a possible agreement controller. Third, embedded subjects of transitive nonfinite clauses are either PRO (hence invisible to ϕ-agreement; see fn. 18) or overtly case-marked. Fourth, subjects of embedded finite clauses can

[26] Thanks to two reviewers and Athulya Aravind for helpful comments on these predictions.

occur without overt case marking, but finite clauses do not allow A-scrambling out of them. As a result, general independent constraints active in Hindi prevent the configurations that would be required to assess these expectations.

3.5 Section summary

In this section, we have shown how a cyclic-Agree account derives the intricate agreement facts of Sect. 2. Crucial to this account is that Agree is cyclic and may be fed by movement, but only if certain conditions are met. First, first-cycle Agree must be unsuccessful (that is, the *v*P must lack an accessible goal for [∗ϕ∗]). This derives the overall preference for subject agreement. Second, the landing site of the movement must be within the c-command domain of an occurrence of [∗ϕ∗]. This derives the contrast between A-scrambling (which lands in a TP-internal position and hence may feed agreement) and $\overline{\text{A}}$-scrambling (which lands in [Spec,CP] and hence may not feed agreement) from differences in the height of their respective landing sites. There is hence no need for a designated stipulation that bans ϕ-Agree with $\overline{\text{A}}$-positions, a point to which we return in the next section.

The key novelty of the Hindi pattern is that the specifier that is targeted by higher-cycle Agree is created by movement. As noted in Sect. 1, it is generally difficult to find clear evidence for higher-cycle Agree with a specifier created by movement. While agreeing specifiers created by movement are of course not new, it is generally possible that Agree with such DPs was established with the base position of the DP, hence before movement, as first-cycle Agree. The Hindi pattern allows us to circumvent this limitation because the base position of an embedded object inside an extraposed clause cannot be reached by first-cycle Agree due to the opacity of such clauses to ϕ-Agree. In other words, the fact that LDA with an object *inside* an extraposed clause is not possible, but LDA with an object A-scrambled *out of* an extraposed clause is possible, constitutes evidence that agreement in these configurations is indeed fed by movement. This is of course precisely what is predicted on the cyclic-Agree model. Hindi therefore not only provides novel support for cyclic Agree, it also offers evidence that a generalization of cyclic-Agree effects to movement dependencies is empirically warranted.

4 Further issues and alternative analyses

In this section, we compare our account to alternative analyses that do not involve cyclic Agree. Our goal here is not a comprehensive discussion of these alternative conceptions of Agree, but rather to explore how they differ with respect to the Hindi generalizations here. This discussion highlights the role of cyclic Agree for our explanation of the Hindi generalizations.

4.1 Non-cyclic downward Agree

We first consider an alternative account that also involves standard downward Agree (i.e., requiring that the probe c-command the goal; see (30)) but that does not appeal

to projection of probes under labeling. The crucial difference between such an account and a cyclic-Agree analysis is that a probe on head H can agree only with DPs that H c-commands, not a DP in [Spec,HP]. In other words, such an analysis of the Hindi facts does not make use of higher-cycle Agree. This section will evaluate the prospects of such an account, and we argue that an analysis in terms of cyclic Agree offers a more principled account of the relevant generalizations.

Consider first the observation that A-scrambling may feed ϕ-agreement in Hindi. The relevant example is repeated in (68), where A-scrambling of *har kitaab* 'every book' leads to obligatory ϕ-agreement with it. As we saw, such agreement is possible only if the matrix subject is overtly case-marked and hence not ϕ-accessible. If it is not overtly case-marked, the matrix subject must control agreement instead, as shown again in (69).

(68) *Object A-scrambling feeds LDA . . .*

har **kitaab$_2$** [*uske$_2$* lekhakõ-ne] ___$_1$ d-**ii**/*diy-**aa**
every book.F its authors-ERG let.PFV-F.SG/*let.PFV-DFLT
[Ram-ko ___$_2$ paṛhne]$_1$
Ram-DAT read.INF
'For every book x, x's authors let Ram read x.' *=(19)*

(69) *. . . but subject agreement takes precedence when possible*

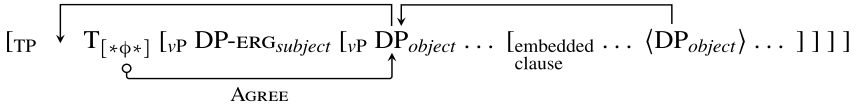
har kitaab$_2$ [***uske$_2$*** **lekhak**] ___$_1$ det-**e** hãĩ [Ram-ko
every book.F its authors.M let.IPFV-M.PL AUX.3PL Ram-DAT
___$_2$ paṛhne]$_1$
read.INF
'For every book x, x's authors let Ram read x.' *=(20a)*

On a non-cyclic-Agree account, the fact that A-scrambling feeds ϕ-agreement in (68) entails that the landing site of the object that agrees with [∗ϕ∗] must be c-commanded by T (assuming, as before, that [∗ϕ∗] is located on T). We first consider the possibility that this landing site is the *final* landing site of the scrambled object. On a non-cyclic-Agree account, this view would give rise to conflicting requirements: on the one hand, the fact that the subject intervenes for ϕ-agreement in (69) would require that the matrix subject intervenes between T and the A-scrambled object. On the other hand, it is clear that the overt position of the object is higher than the subject in (69) (based on the linear string and the c-command relations required by pronominal binding). Put differently, the challenge is that the scrambled object is clearly located higher than the subject in (68) and (69), but that the ϕ-probe must find the subject first in order to account for the subject-agreement preference. A cyclic-Agree account reconciles both requirements because first-cycle Agree, looking downward, locates the subject, and higher-cycle Agree with the object is possible only if first-cycle Agree has been unsuccessful. Such an explanation is not available on an account that does not involve the cyclic application of Agree.

To reconcile these conflicting structural requirements, a non-cyclic-Agree account might assume that agreement in (68) is established with an *intermediate* position of

the scrambled object.[27] Thus, suppose that A-scrambling proceeds as in (70). A first movement step takes the object to a position in the matrix clause below the subject (e.g., an inner [Spec,*v*P]), followed by a second movement step to its surface position. Agree with [∗ϕ∗] is then by hypothesis established with this intermediate landing site, which is c-commanded by T.

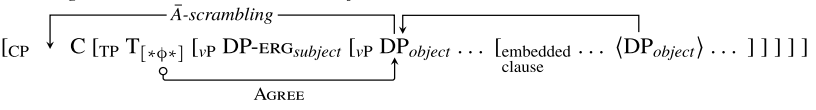
(70) *Hypothetical two-step scrambling chain*



Assuming furthermore that the object's intermediate landing site obligatorily tucks in below the subject, it also follows that the subject constitutes a closer goal to [∗ϕ∗] and hence controls agreement if it is ϕ-accessible. In this way, this alternative analysis derives the crucial facts in (68)–(69) without invoking cyclic Agree.

While this account prima facie constitutes a viable alternative to our cyclic-Agree analysis, developing it more fully requires a number of additional and problematic stipulations that are unnecessary on a cyclic-Agree analysis. The principal challenge for such an account is to explicate and derive the properties of the intermediate landing site in (70). Note first that if agreement with an A-scrambled object is established with the intermediate landing site in (70), this intermediate landing site must be obligatorily present in examples like (68) because agreement with the object is obligatory. This is not unreasonable in light of the common view that *v*P constitutes a phase, which requires extraction out of it to proceed through its specifier. But the $\overline{\text{A}}$-scrambling facts pose a serious challenge to such an account because $\overline{\text{A}}$-scrambling should have to pass through this [Spec,*v*P] as well. If matrix agreement is established with this intermediate landing site, as hypothesized in (70), then $\overline{\text{A}}$-scrambling should likewise trigger agreement from this intermediate position, as schematized in (71).[28] This is not the case: scrambling that ultimately targets an $\overline{\text{A}}$-position cannot trigger agreement, as shown in (72). If the derivation in (71) were possible, LDA in (72) would incorrectly be predicted to be possible.

(71) *Illicit agreement with $\bar{A}$-scrambled object*



[27] We are grateful to the reviewers, Amy Rose Deal, Julie Legate, and Wei Wei for insightful comments on this possibility.

[28] For the sake of readability, we do not depict movement of the subject to [Spec,TP] in (71).

(72) *Ā-scrambling does not feed agreement*

har **kitaab$_2$** [uske$_{3/*2}$ lekhakõ-ne] ___$_1$ kah-**aa**/*-**ii** [Ram-se ___$_2$
every book.F its authors-ERG say.PFV-DFLT/*-F.SG Ram-INSTR
paṛhne-ko]$_1$
read.INF-DAT
'Its$_3$ authors told Ram to read every book$_2$.' *=(53)*

The underlying problem is that, empirically, it is the terminal A- or $\overline{\text{A}}$-landing site of the scrambled element that determines whether it may control agreement or not. All else equal, if agreement were established with an intermediate landing site, it should obtain regardless of whether the object continues to move to an A- or to an $\overline{\text{A}}$-position. The striking A/$\overline{\text{A}}$-asymmetry would then remain unaccounted for.

As a reviewer notes, one way to address this challenge would be to stipulate that A-scrambling, but not $\overline{\text{A}}$-scrambling, proceeds through this intermediate landing site in the inner [Spec,*v*P]. Note that this would require that movement types differ in whether they must exit a domain (in this case, a *v*P) in a successive-cyclic manner or in one-fell-swoop. But this would be ad hoc. First, we are not aware of independent evidence that A-scrambling in Hindi proceeds successive-cyclically through [Spec,*v*P], but $\overline{\text{A}}$-scrambling does not. Second, we also do not know of crosslinguistic evidence that the distribution of successive cyclicity differs across types of movement (i.e., that one and same domain may require successive cyclicity out of it for one movement type but allow one-fell-swoop movement for another movement type). Third, it is far from clear how to implement such a difference between A- and $\overline{\text{A}}$-scrambling in the distribution of intermediate landing sites analytically. Phase theory (the standard account of successive-cyclic movement) crucially does not differentiate between types of movement. If *v*P is a phase in (70)—thus requiring the intermediate landing site of A-scrambling in [Spec,*v*P]—then this phasehood should also require the intermediate landing site of $\overline{\text{A}}$-scrambling in (71), incorrectly producing LDA with $\overline{\text{A}}$-scrambling. If *v*P is not a phase, then neither A- nor $\overline{\text{A}}$-scrambling should be required to stop in [Spec,*v*P]. For a non-cyclic-Agree account to be viable, these various empirical and analytical problems would need to be resolved. Importantly, these obstacles do not arise on a cyclic-Agree analysis because agreement is determined entirely based on the final landing site, which A- and $\overline{\text{A}}$-scrambling demonstrably differ in.

Another possible way of reconciling the derivation in (70) with the A/$\overline{\text{A}}$-scrambling difference with respect to agreement would be to assume that both A- and $\overline{\text{A}}$-scrambling proceed through an intermediate landing site in [Spec,*v*P], to impose a restriction that requires that the intermediate landing site have the same type as the final landing site, and to furthermore stipulate that $\overline{\text{A}}$-positions are invisible to ϕ-agreement. Concretely, suppose that [Spec,*v*P] can be either an A- or an $\overline{\text{A}}$-position. The ban on improper movement requires that the intermediate landing site be an A-position if the object undergoes further A-scrambling (rendering the intermediate landing site visible to the ϕ-probe in (70)). By contrast, in (72), where the embedded case-marked nonfinite clause only allows $\overline{\text{A}}$-scrambling out of it, this intermediate landing site must be an $\overline{\text{A}}$-position (and hence invisible to the ϕ-probe in (71)).

This line of analysis would indeed be able to capture the Hindi facts above, but it too encounters a number of obstacles. First, the crucial assumption that A-positions are visible to a ϕ-probe but $\overline{\text{A}}$-positions are not, would merely be stipulated. As such, this account would seem to offer little more than a restatement of the empirical generalization. Our cyclic-Agree analysis attempts to go deeper than that, by deriving the A/$\overline{\text{A}}$-contrast in this domain from independently motivated differences in where they land ([Spec,TP] vs. [Spec,CP]).

A second challenge to an account that simply stipulates that $\overline{\text{A}}$-positions are invisible to agreement is that doing so would be too strong empirically. The literature has by now uncovered a number of languages in which elements in $\overline{\text{A}}$-positions *are* visible to ϕ-agreement. One example is long-distance agreement in Tsez (Polinsky and Potsdam 2001), Passamaquoddy (Bruening 2001), and Innu-aimûn (Branigan and MacKenzie 2002); also see Khalilova (2008, 2009) and Forker (2010) for discussion of related facts in the Caucasian languages Khwarshi and Hinuq, respectively. For example, Polinsky and Potsdam (2001) argue that matrix ϕ-agreement in Tsez can be fed by embedded $\overline{\text{A}}$-movement (also see Polinsky 2003). This is the case for DPs that, they argue, undergo covert topicalization to embedded left periphery, and they tentatively note that it also seems to hold for elements that are wh-moved, as shown in (73).

(73) enir [**šebi** y-āk'iruɬi] **y**-iy-x-ānu *Tsez*
mother wh.II.ABS II-go II-know-PRES-NEG
'The mother does not know who [of women] left.'
[Polinsky and Potsdam 2001:638n20]

Polinsky and Potsdam (2001) furthermore show that elements that are neither topics nor wh-elements cannot trigger LDA. They attribute this fact to the $\overline{\text{A}}$-nature of the movement that feeds the agreement. Tsez thus provides an example of ϕ-agreement with an $\overline{\text{A}}$-position.

Similar facts hold in Innu-aimûn. Branigan and MacKenzie (2002) argue that elements that undergo $\overline{\text{A}}$-movement to the embedded [Spec,CP] are visible to the matrix ϕ-probe.

(74) Tshi-tshissenim-**âut**-a **tân tât** **innût** tshe-takushinit? *Innu-aimûn*
2-know-3PL-Q how many people FUT-arrive
'Do you know how many people are coming?'
[Branigan and MacKenzie 2002:394]

For discussion of similar facts in Passamaquoddy, see Bruening (2001:290–292). Agreement configurations of this type cast serious doubt on any blanket prohibition against ϕ-agreement with $\overline{\text{A}}$-positions.

A further example of agreement with an $\overline{\text{A}}$-position is upward complementizer agreement in Lubukusu, as analyzed by Diercks (2013). In Lubukusu, it is possible for an embedded complementizer to agree with the subject of a matrix clause (see (75), where the complementizer *ba-li* agrees with the matrix subject *babandu* 'people'). Diercks (2013) shows that this agreement is independent of subject agreement

on the verb, and he provides evidence that this agreement is mediated via a null operator in the embedded [Spec,CP]. He argues that this operator is semantically bound by the matrix subject—entailing identity of ϕ-features—and that the embedded C establishes agreement with this operator, as shown in (76).[29]

(75) **Ba-ba-ndu** ba-bol-el-a Alfredi **ba-li** a-kha-khil-e. *Lubukusu*
2-2-people 2S-said-APPL-FV 1Alfred 2-that 1S-FUT-conquer
'The people told Alfred that he will win.' [Diercks 2013:358]

(76) $[_{TP}\ \text{Subject}_1 \ldots [_{CP}\ \text{Op}_1\ [\ldots\ \text{C}\ldots\ ]\ldots\ ]\ldots\ ]$
Binding *Agree*

Like the LDA example in (74), agreement as in (76) suggests that it cannot be the case that $\overline{\text{A}}$-positions are simply inaccessible to ϕ-agreement as a universal principle.

A final example of ϕ-agreement with an $\overline{\text{A}}$-position is wh-agreement, in which DPs that have undergone wh-movement control verb agreement that differs morphologically from agreement with non-wh-moved DPs. While such patterns have been analyzed in a variety of ways (see e.g., Schneider-Zioga 2007; Henderson 2013; Baier 2018), at least one line of approach attributes the effect to agreement between C and the element in its $\overline{\text{A}}$-landing site (e.g., Henderson 2013). To the extent that these approaches are on the right track, they provide further motivation that ϕ-agreement with $\overline{\text{A}}$-positions is in principle a possibility.[30]

We conclude from this range of evidence that any general ban on agreement with an element in an $\overline{\text{A}}$-position is too restrictive empirically. Recall now that precisely such a ban was necessary for an account of Hindi that establishes agreement with an A-scrambled object in an intermediate landing site (see (70)) because such an account must rule out agreement with the intermediate landing site of $\overline{\text{A}}$-scrambled elements, as in (71). If $\overline{\text{A}}$-positions are not generally invisible to ϕ-agreement, then the fact that agreement with the intermediate landing site in (71) is impossible would

[29]Though see Carstens (2016) and Diercks et al. (2020) for different approaches.

[30]In addition to these empirical arguments, it is also not clear how a constraint on ϕ-agreement that specifically refers to A- vs. $\overline{\text{A}}$-positions can even be formulated in bare phrase structure. This problem is particularly pressing in light of theories of the A/$\overline{\text{A}}$-distinction such as Van Urk (2015), who dispenses with the distinction between A- and $\overline{\text{A}}$-*positions* and instead locates the distinction in the type of *feature* that attracts the moving element (see also Chomsky 2008:150). At least if it is assumed that movement-inducing features are eliminated on the attracting head as a result of the movement, it is not clear how to formulate a principle that selectively blocks ϕ-agreement with $\overline{\text{A}}$-positions on a Van Urk (2015)-style account. Note incidentally that we suggested in fn. 20 that a movement-inducing feature remains present on the moving element. But this too is insufficient for accurately formulating $\overline{\text{A}}$-opacity because the movement-inducing feature is present on the moving element before movement as well. In other words, elements that bear a feature that enables them to undergo movement to an $\overline{\text{A}}$-position would then be inaccessible to ϕ-agreement even before they undergo this $\overline{\text{A}}$-movement step. This would clearly be too strong. The analysis we proposed in Sect. 3 circumvents this problem because it does not make reference to movement-inducing features at all when accounting for $\overline{\text{A}}$-opacity. This analysis can hence be viewed as a way of reconciling the facts here with Van Urk's (2015) basic approach to the A/$\overline{\text{A}}$-distinction.

remain unexplained, and with it the striking contrast between A- and $\overline{\text{A}}$-scrambling with respect to their ability to feed agreement in Hindi.[31]

To summarize, the principal challenge for a non-cyclic-Agree account on which agreement with an A-scrambled object is established in an intermediate landing site along the lines of (70) is to explain the fact that only A-scrambling may feed agreement in this way, but $\overline{\text{A}}$-scrambling may not. On such an account, this crucial split between A- and $\overline{\text{A}}$-scrambling needs to be stipulated in one way or another. While it is possible to do this, no such stipulation is required on a cyclic-Agree analysis. On a cyclic-Agree account, agreement is established with the final landing site of A-scrambling, which demonstrably differs from the final landing site of $\overline{\text{A}}$-scrambling. Because probes project through labeling and because labeling is bounded by the maximal projection of a head, the split between A- and $\overline{\text{A}}$-scrambling with respect to ϕ-agreement is derived in a non-stipulatory manner. In particular, our cyclic-Agree account does *not* require a stipulation that bans ϕ-Agree with $\overline{\text{A}}$-positions as such and instead derives this effect in Hindi from the fact that the final landing site of $\overline{\text{A}}$-scrambling ([Spec,CP]) is located outside the portion of the structure that is accessible to T's ϕ-probe. As a consequence, not only is this account compatible with the arguments in this section, it also derives this split between A- and $\overline{\text{A}}$-scrambling from more fundamental principles of the account, rather than from a designated stipulation to this effect.

Our argument against (70) as an account of ϕ-agreement in crossclausal A-scrambling configurations has a more general consequence for the distribution of phases. Assuming, for the reasons just given, that a general constraint prohibiting ϕ-Agree with $\overline{\text{A}}$-positions is undesirable, the fact that $\overline{\text{A}}$-scrambling does not feed ϕ-agreement (see (72)) indicates that $\overline{\text{A}}$-scrambling does not pass through an intermediate landing site in [Spec,*v*P], given that [Spec,*v*P] is c-commanded by [∗ϕ∗] and Agree would then be possible. This in turn implies that *v*P must not be a phase. We will not discuss this question further here, but see Keine (2020b) for independent arguments that *v*P is not a phase in Hindi; and Grano and Lasnik (2018); Keine (2020a,b); and Mendes and Ranero (2021) for additional arguments from other domains.

4.2 Bidirectional Agree

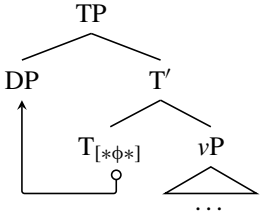
A second family of accounts of Agree contends that Agree is bidirectional. In these accounts, Agree is possible if either the probe c-commands the goal (standard downward Agree) or if the goal c-commands the probe (so-called "upward Agree"); see e.g., Adger (2003); Merchant (2006); Baker (2008); Carstens (2016); and Bjorkman and Zeijlstra (2019).

Such proposals make available an alternative to the analysis proposed in Sect. 3. On this alternative, a first application of Agree involves downward search of [∗ϕ∗] into its c-command domain, just like on our account. If this first cycle of Agree is unsuccessful, [∗ϕ∗] can then agree with a DP in [Spec,TP] through upward Agree. The

[31] Familiar poverty-of-the-stimulus considerations also discourage an analysis in which $\overline{\text{A}}$-positions are stipulated to be visible to a ϕ-probe in Tsez, Innu-aimûn, and Lubukusu, but invisible in Hindi.

crucial difference to our proposal is that such upward Agree would not be dependent on projecting the probe via labeling; rather, [∗ϕ∗] on T directly agrees with a DP in its specifier. This is schematized in (77). See, e.g., Carstens (2016) for an account that allows this type of derivation.

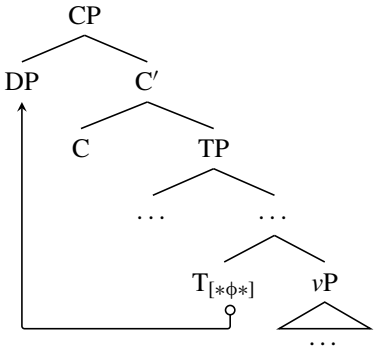
(77) *Upward Agree with [Spec,TP]*



Although this conception of Agree differs significantly from the one assumed here, it shares the same fundamental analytical intuition as our cyclic-Agree account: [∗ϕ∗] first searches downward into the *v*P, and if this search is unsuccessful, the search space is expanded upward, allowing Agree with a DP in [Spec,TP]. As such, this alternative account would still be compatible with our core proposal that Agree applies cyclically and that this cyclicity interacts with movement in the same way it does with external Merge. But the two accounts are not equivalent, and there are a number of respects in which they differ in substance, to which we now turn.

One point of divergence is that a cyclic-Agree account is more restrictive than an upward-Agree account. This is because on a cyclic-Agree account, the locality of higher-cycle Agree is tightly constrained: because Agree requires an occurrence of [∗ϕ∗] to c-command the goal, and because projection of a probe under labeling does not extend past the maximal projection of a head, specifiers of projections higher than TP are inaccessible to Agree by [∗ϕ∗] (see Sect. 3.3.3). An upward-Agree analysis does not share this constraint, at least unless additional assumptions are made. For example, all else equal, an upward-Agree account allows Agree between [∗ϕ∗] on T with a DP in [Spec,CP] because a DP in [Spec,CP] c-commands a probe on T, hence allowing upward Agree. This is shown in (78).

(78) *Upward Agree with [Spec,CP]*



As a reviewer notes, this makes a cyclic-Agree account in principle easier to falsify. At least for Hindi, the expressive power of a cyclic-Agree account is sufficient, and so appealing to full-blown upward Agree is not necessary.

Second, the additional expressive power of an upward-Agree account is in fact undesirable for Hindi. Recall that $\overline{\text{A}}$-scrambling, which lands in [Spec,CP], may not feed higher-cycle Agree. As discussed in Sect. 3.3.3, a cyclic-Agree account offers a simple explanation: because [∗ϕ∗] does not project past TP, no occurrence of [∗ϕ∗] c-commands a DP in [Spec,CP], ruling out Agree. By contrast, an upward-Agree analysis imposes no such constraint. The lack of interaction between $\overline{\text{A}}$-scrambling and agreement therefore requires an additional stipulation. For example, one might impose a constraint that renders $\overline{\text{A}}$-positions invisible to ϕ-Agree. But we already saw in Sect. 4.1 that such a constraint would be too strong crosslinguistically. No such constraint is necessary on a cyclic-Agree analysis.[32]

Third, a number of authors have argued against upward ϕ-Agree more generally (see Preminger 2013; Preminger and Polinsky 2015; Polinsky and Preminger 2019; Rudnev 2020, 2021). We will not discuss these arguments here, but note that our proposed account is compatible with these arguments (also see Bjorkman and Zeijlstra 2019:559–564 for a reply to Preminger and Polinsky's 2015 and Polinsky and Preminger's 2019 arguments).

Because much of the evidence for upward Agree in Zeijlstra (2012); Carstens (2016); and Bjorkman and Zeijlstra (2019) comes from dependencies other than ϕ-agreement (e.g., case assignment and negative concord), we do not take these considerations to be a general argument against upward Agree as such, and an analysis of the Hindi generalizations that involves cyclic application of downward and upward Agree as proposed by Carstens (2016) is in line with our core claim that Agree cycles

[32] A reviewer and Mathieu Paillé (p.c.) note another conceivable way of ruling out the [∗ϕ∗]–[Spec,CP] Agree step in (78), which draws on Keine's (2019, 2020b) *horizons* account (see fn. 20). If C is a horizon for [∗ϕ∗], then [∗ϕ∗] cannot agree with any node that is separated from it by a C-bearing node, including a DP in [Spec,CP], thus ruling out (78). This analysis thus extends horizons, which Keine (2019, 2020b) motivates on the basis of downward Agree, to upward Agree. In spite of this, there are still reasons that favor a cyclic-Agree analysis. A first, and somewhat tentative, argument is that it is crucial that horizons are subject to variability, both across probes and across languages (see Keine 2020b). While the assumption that Hindi [∗ϕ∗] has C as its horizon derives the desired locality of upward Agree in Hindi, other languages (with other horizon settings) are still expected to allow for long-distance upward ϕ-Agree. If such ϕ-Agree is crosslinguistically absent (Polinsky and Preminger 2019), then such an analysis might still overgenerate. A reviewer notes that clearer evidence might come from ϕ-probes that are located in a structurally low position (e.g., *v*). Hindi does not seem to have such ϕ-probes, so we will not investigate such configurations here.

Second, and more importantly, an account in terms of upward Agree plus horizons does not obviate the need for projection of probes. What Keine (2019, 2020b) proposes is that the horizons for [∗ϕ∗] in Hindi is T, not C, with CP becoming horizons by inheritance (taking T to be the horizon is motivated by the observation that some clauses that lack a CP layer are still impenetrable to agreement). This has the effect that local upward Agree between [∗ϕ∗] on T and a DP in [Spec,TP] is ruled out as well, given the intervention by T′. In other words, (77) is then ruled out in exactly the same way as (78). Clearly, this would be undesirable. It is possible to circumvent this problem by assuming that [∗ϕ∗] projects to T′, from where it agrees with the DP in [Spec,TP], hence cyclic Agree. If cyclic Agree is necessary in any case, then a combination of upward Agree and horizons does not constitute an alternative to cyclic Agree because it does not obviate the need for projection of probes and cyclic Agree. Thus, on an account that incorporates horizons, the Hindi evidence does not constitute evidence against upward Agree, but nothing is gained by invoking upward Agree either since cyclic Agree is required in any case.

may be fed by movement. But at least within the domain of the Hindi generalizations discussed here, a cyclic-Agree analysis is more parsimonious because it derives the impossibility of ϕ-Agree between [∗ϕ∗] on T and a DP in [Spec,CP] from the independently motivated locality of labeling. Thus, on a cyclic-Agree account, the split between A- and $\overline{\text{A}}$-scrambling in their ability to feed agreement follows for free from the basic principles of the theory, whereas an upward-Agree is not similarly constrained and so requires additional assumptions to achieve this result (or might not replace the need for cyclic Agree in the first place; see fn. 32).

5 Summary and outlook

Cyclic Agree has originally been motivated based on hierarchy effects between co-arguments that involve the cyclic interaction between external Merge and Agree (Rezac 2003, 2004; Béjar and Rezac 2009). In this paper, we have argued that analogous facts may be observed for movement (hence Move or internal Merge) under the right circumstances. Our analysis shares the key features of cyclic Agree: first, higher-cycle Agree becomes available only if first-cycle Agree into the c-command domain of the probe is unsuccessful. Second, higher-cycle Agree is tightly bounded in its locality—it may target the specifier of the head hosting the probe, but not the specifier of a higher head. Both are crucial to our account: the former derives the subject-agreement preference; the latter derives the distinction between A- and $\overline{\text{A}}$-scrambling with respect to its ability to feed agreement. The appeal of a cyclic-Agree analysis thus lies in the fact that these two central empirical generalizations follow from the basic principles of the model.

The cyclic-Agree calculus employed here is mostly identical to Rezac's (2003, 2004) and Béjar and Rezac's (2009) original proposal (for some technical differences, see fn. 13 and 16). Because their calculus rests on the cyclicity of Agree and Merge, our extension to movement in many ways constitutes the null hypothesis on the theory they propose. The Hindi data provide evidence that such an extension is empirically warranted. Correspondingly, our analysis extends cyclic Agree to a novel empirical domain and in doing so it provides a new type of empirical support for cyclic Agree.

Another consequence of our proposal (and cyclic Agree more generally) is that agreement must be established in the syntax and not solely at PF (pace Bobaljik 2008).[33] This is because the precedence of first-cycle Agree is derived through the derivational interleaving of Merge and ϕ-Agree: there is a stage of the derivation that contains the complement of a head but not yet its specifier(s) and ϕ-Agree applies at this stage.

[33] A number of recent proposals have argued that the phenomenon of ϕ-agreement in fact straddles multiple components. For example, Deal (2010:228–229, 397–399); Arregi and Nevins (2012); Bhatt and Walkow (2013); Marušič et al. (2015); and Atlamaz and Baker (2018) argue that the Agree dependency between two elements is established in syntax, but that the actual feature copying (that is, the valuation) occurs at PF. Such models are compatible with the conclusions reached here because what is crucially required is that *some* operational component of ϕ-agreement is interspersed with structure building and hence syntax-internal.

Finally, we showed that our account of the directionality and locality of valuation sheds new light on the general difference between A- and $\overline{\text{A}}$-movement with respect to their ability to feed ϕ-agreement. We demonstrated that at least in Hindi, this asymmetry can be derived without the need for a designated constraint that renders $\overline{\text{A}}$-positions invisible to ϕ-probes. On the strongest version of this view, all DPs within the search space of a ϕ-probe are accessible (modulo relativized minimality), and the reason that $\overline{\text{A}}$-positions cannot control ϕ-agreement is that they are located outside the portion of the tree that is visible to higher-cycle Agree, as determined by the locality projection/labeling. $\overline{\text{A}}$-opacity to ϕ-agreement thus follows as an epiphenomenon from principles that determine a probe's search space. This conclusion contributes towards efforts to derive the A/$\overline{\text{A}}$-distinction in this domain from more general syntactic principles.

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