Long-distance agreement

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1   Introduction

Investigations into the locality conditions that restrict movement dependencies have been at
the forefront of research in generative syntax since its inception. By contrast, the locality
of agreement has received much less interest until quite recently. One of the reasons is that
in English verb agreement correlates with nominative case assignment. There is hence little
motivation to investigate agreement independently of case theory. The first general theory
about the structural configuration that underlies agreement is Chomsky (1991, 1993), who
adopts Pollock (1989)'s proposal that agreement is established with designated agreement
phrases. Agreement was then taken to be the result of Spec–Head agreement between the head
of the agreement projection and the element in its specifier. In this theory, agreement is highly
local and its locality hard-wired into the description of the underlying operation (i.e., its being
between a head and its specifier). Constraints on agreement could then be cast as constraints on
movement: If some element cannot control a certain type of agreement, it is because it cannot
move to the specifier of the relevant projection. As a result, agreement did not constitute a
domain of investigation above and beyond syntactic movement.

   This state of affairs underwent a significant shift with the introduction of the operation Agree
in Chomsky (2000, 2001). Agree is a syntactic relation between a head bearing an unvalued
feature (the 'probe') and a constituent bearing a valued counterpart of this feature (the 'goal') in
its c-command domain. Agreement, among other relations, was now taken to be established by
Agree. Unlike Spec–Head, whose locality follows immediately from the structural configuration
it is formulated over, Agree merely requires the probe to c-command the goal. How close the
two have to be and what counts as a boundary is not evident from its definition and hence
became a matter of empirical investigation. As a consequence, Agree and with it agreement
was elevated to a topic of interest in its own right.

   The logical separation of Agree from movement sparked an interest in understanding long-
distance agreement (LDA)—agreement between a verb and the argument of another, lower, verb.
Such agreement is attested in a variety of typologically unrelated languages, including Basque,
Chukotko-Kamchatkan (Chukchee, Itelmen), Icelandic, Nakh-Daghestanian (Tsez), Indo-Aryan
(Hindi-Urdu, Kashmiri), and Native North American languages (Blackfoot, Fox, Innu-aimûn,

Passamaquoddy). Because, at least according to the surface description, the agreeing nominal appears to be located inside a different clause than the agreeing element, these constructions offer a particularly clear picture into the workings of and the restrictions on Agree. It thus comes as no surprise that the interest in long-distance agreement skyrocketed after the introduction of Agree.

The most fundamental questions that guide investigations into LDA are list in (1):

(1) a. Does LDA require the operation Agree or is it compatible with a traditional Spec–Head anaysis? Proponents of a very local conception of agreement either propose that the agreement controller has (covertly) moved into the matrix clause (Mahajan 1989; Chandra 2007) or that successive-cyclic Spec–Head agreement takes place (Koopman 2006). The majority of the literature, however, contends that cross-clausal agreement is in fact an option and that the operation Agree is corroborated by the phenomenon of LDA.

b. If an Agree system is adopted, what are the locality boundaries on Agree?

c. Are the locality constraints on Agree the same as on movement? While, e.g., Chomsky (2000, 2001) assumes that they are, Bošković (2003, 2007) argues, based on LDA, that the constraints on movement are stricter than those on agreement. On the other hand, Bobaljik & Wurmbrand (2005) propose that Agree is subject to constraints that do not apply to movement.

Despite the diversity of languages exhibiting LDA, a great majority of the literature has converged on the conclusion that LDA is possible only if the agreeing element and the agreement controller are sufficiently local. A broad desideratum, then, is that apparently non-local agreement phenomena corroborate the view that agreement, like other syntactic processes, is subject to clear locality constraints. The literature has furthermore proposed a variety of mechanisms that bring about such a local configuration. Crucially, empirical generalizations used to motivate a particular analysis for one language often do not hold in another language. It is plausible, then, that LDA is not a uniform phenomenon and that superficially similar LDA-like structures in different languages may be the result of distinct underlying configurations (also see Boeckx 2009 for the same point). The same might of course even be true of a single language (see the discussion of Basque in section 5.2).

This article is structured as follows: Section 2 describes several features that virtually all LDA systems described in the literature share. For the sake of concreteness, these universals will be illustrated with examples from Hindi-Urdu, the most well-studied LDA system to date. Section 3 lays out the main theoretical approaches to LDA and relates them to the universals identified in section 2. Most of these universals do not allow us to empirically distinguish between the various lines of accounts. Rather, these accounts differ in the predictions regarding structures that are subject to greater crosslinguistic variability. Section 4 lays out and illustrates these differing predictions, again focussing on evidence from Hindi-Urdu. Section 5 briefly illustrates two other LDA systems—those of Tsez and Basque—and highlights their theoretical implications. Section 6 concludes.

2   Universals in long-distance agreement, illustrated through Hindi-Urdu

Among the relatively rich body of literature on LDA, Hindi-Urdu (HU) has been most extensively researched and, as a consequence, a variety of different theoretical treatments have been proposed and explored on the basis of HU data (Hook 1979; Mahajan 1989, 1990; Davison 1991; Butt 1995; Boeckx 2004, 2009; Bhatt 2005; Franks 2006; Chandra 2007; Keine 2013). For this reason, we will begin our overview with HU and illustrate various families of analyses with HU data. As mentioned in the introduction, there is good reason to believe that LDA is not a unified phenomenon. The inability of a particular line of analysis to account for certain HU data serves mainly expository purposes and should hence not be taken as an indication this approach is doomed to fail for LDA-like phenomena more generally.

Before we turn to LDA proper, some remarks regarding agreement in local contexts are in order. In Hindi-Urdu, verbs can agree with either subjects or direct objects, depending on the presence of a case markers on these arguments. The verb agrees with a single argument according to the generalization in (2).

(2) *Verbal Agreement in Hindi-Urdu*   (Pandharipande & Kachru 1977)
     The verb agrees with the structurally highest non-overtly case-marked argument. If all
     arguments are case-marked, the verb shows masculine singular default agreement.

If the subject does not bear an overt case marker, it controls agreement for person, number and gender. If it is overtly case-marked agreement is instead controlled by the object if it the object does not carry an overt case marker. If the object bears a case marker as well, default agreement arises.[1]

Genuine LDA is exemplified by the example in (3). Here the finite matrix verb *caah* 'want' agrees with the embedded object *roṭii* 'bread'. This agreement is accompanied by agreement with the infinitival verb *khaa* 'eat'.

(3) Raam-ne [roṭii   khaa-nii] caah-ii
     Ram-ERG   bread.F eat-INF.F.SG want-PERF.F.SG
     'Ram wanted to eat bread.'   [*Mahajan 1989: 237*]

In accordance with (2), such agreement is possible only if the matrix subject is overtly case marked (e.g., ergative, as in (3)). If the latter lacks an overt case marker, the matrix verb has to agree with it and the embedded verb shows default agreement.

In HU, LDA is limited to infinitival clauses. Agreement into finite clauses is not an option:

(4) Firoz-ne   soc-aa/*-ii   [ki Monaa ghazal gaa-tii   hɛ].
     Firoz-ERG think-PERF.M.SG/*-PERF.F.SG that Mona.F ghazal.F sing-HAB.F be.PRS.3SG
     'Firoz thought that Mona thinks ghazal.'   [*Bhatt 2005: 776*]

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[1] HU exhibits an aspect split in its ergative case marking. Thus, the subject is overtly case-marked in the perfective but no in the imperfective. As for objects, the presence of a case marker is affected by a complex interaction of definiteness, specificity and animacy/humanness. The conditions underlying the use of these case markers is not directly relevant here as agreement can be reliably predicted given a certain distribution of case markers (see, e.g., Mohanan 1994).

In what follows we will first illustrate the various universal crosslinguistic properties of LDA on the basis of HU data. We will then turn to an exposition of several potential analyses.

2.1 Primitives of long and local Agreement

LDA targets the same elements under the same conditions as local agreement: An element can control LDA only if it is the highest zero-marked nominal in the domain of the finite verb. In other words, the generalization in (2), which is stated over local agreement, also accurately describes long-distance agreement. In the same vein, LDA applies to the same features that local agreement targets.[2]

2.2 Optionality

LDA is optional in that, in most cases,[3] it freely alternates with default agreement on both the matrix and the embedded verb, as shown in (5).

(5) Raam-ne [roṭii   khaa-⟨naa⟩] caah-⟨aa⟩
     Ram-ERG   bread.F eat-INF.M.SG want-PERF.M.SG
     'Ram wanted to eat bread.'   [*Mahajan 1989: 237*]

There are subtle semantic differences between the agreeing and the non-agreeing variant, mainly relating to scope (Hook 1979; Mahajan 1990; Davison 1991; Butt 1995; Bhatt 2005; Keine 2013). These differences will be taken up in section 4.2 below. The optionality of LDA is most remarkable because it stands in stark contrast to local agreement, which never shows any form of optionality.

2.3 Infinitival agreement

In the example in (3) both the matrix verb and the embedded verb agree with the embedded object. As (6) demonstrates, infinitival agreement is in fact required in the presence of LDA.

(6) *Raam-ne [⟨roṭii⟩   khaa-⟨naa⟩] caah-⟨ii⟩.
      Ram-ERG   bread.F eat-INF.F.SG want-PERF.F.SG
      'Ram wanted to eat bread.'

In other words, LDA entails local agreement within the infinitival clause. Whether or not it is possible for the infinitival verb to agree in the absence of LDA is a matter of dialectal variation (cf. Mahajan 1989; Davison 1991; Butt 1995; Bickel & Yadava 2000; Bhatt 2005).

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[2] A caveat is in order: LDA is never for person, for independent reasons. In Hindi-Urdu, only objects can control LDA, and 1st and 2nd person objects have to be overtly case-marked in object position. As a result, only 3rd person nominals can ever trigger LDA. This restriction also holds for local object agreement. LDA hence does not behave differently.

[3] There are some configurations in which LDA notably becomes obligatory, some of which are discussed below.

2.4 Directionality of LDA

LDA is asymmetric in that a verb may agree with an object in a lower clause but not with one in a higher one. This is shown in (7), from Mahajan (1989).

(7) Mona [kuttõ-ko   dekh -naa/*-nii]   caah-tii   tii.
     Mona.F dog.M.PL-ACC see-INF.M.SG/*-INF.F.SG want-HAB.F be.PST.F.SG
     'Mona wanted to see the dogs.'

Here the matrix subject does not bear a case marker (due to the imperfective aspect of the clause) and *caah* 'want' has to agree with it, as mentioned above. The embedded object *kuttõ-ko* 'dogs-ACC' bears on overt case marker and can hence not control agreement. It is impossible in this configuration for the infinitival verb to agree with the matrix subject *Mona*. Instead, it has to show default agreement.

2.5 Subject versus object clauses

Unlike object clauses, subject clauses are systematically opaque for LDA:

(8) [Mehnat   kar -naa/*-nii]   acch -aa/*-ii ho -taa/*-tii   hε.
     hardwork.F do-INF.M.SG/*-INF.F good-M.SG/*-F be-HAB.M.SG/*-HAB.F be.PRS.3SG
     'It is good to do hard work.'

In (8) it is attempted to agree with an element inside a subject clause. This is not possible. Note that LDA is impossible regardless of whether the infinitival verb shows feminine or default agreement. This asymmetry between subject and object clause is all the more striking because both subjects and objects themselves can control agreement. It is only when elements within subjects and objects are concerned that agreement asymmetries emerge. This mirrors well-known restrictions on movement (cf. Huang 1982's *Condition on Extraction Domain*).

3 Theoretical approaches to long-distance agreement

This section will lay out the main approaches to LDA that have been proposed in the literature.

3.1 Long movement

One influential line of analysis is that the LDA is apparent only in that the element controlling LDA has undergone (possibly covert) movement into the matrix clause, which we will refer to as 'long movement' here. The resulting structure is schematized in (9). This approach allows one to maintain the view that agreement requires a clausemate relationship between the agreeing element and one controlling agreement, including but not limited to a Spec–Head relationship:.

This is illustrated in (9), where we use the label 'agreement' to remain agnostic with regard to the exact mechanism under which agreement is established.

(9) [. . . PROBE . . . DP . . . [_embedded clause_ . . . t . . .]]
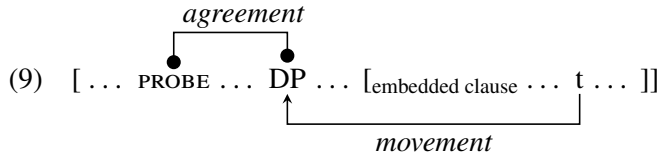
An appealing property of such a movement analysis is that agreement is established in a very local relationship. Analyses of this type have been proposed by Mahajan (1989, 1990) for Hindi-Urdu, Chandra (2007) for Hindi-Urdu, Tsez and Basque, Frantz (1978, 1980) for Blackfoot, and Bobaljik & Wurmbrand (2005) for Itelmen.

Depending on the type of the purported movement step, other properties of the agreement controller might be affected as well. Both Mahajan (1989, 1990) and Chandra (2007), for instance, correlate the movement of the embedded object with case assignment inside the higher clause. Such a connection with case does, however, not necessarily hold.

The universal properties identified above receive a rather straightforward explanation under the long movement account: First, because under a long movement analysis LDA reduces to local agreement, the fact that both target the same set of elements and the same features receives a very natural explanation. Second, the observation that LDA is generally optional reduces to the optionality of movement. Third, that LDA is accompanied by infinitival agreement can be cast in terms of successive-cyclic movement. Movement of the embedded object to a matrix position from which it triggers agreement must, by hypothesis, proceed through an intermediate position from which the element triggers agreement inside the embedded clause. Fourth, the directionality of LDA reduces to the directionality of movement, which can itself be attributed to more general principles, e.g., the Extension Condition (Chomsky 1995). If elements may only move upward, they can only trigger agreement on verbs higher than their base position, never lower ones. Finally, the systematic difference between subject and object clauses can be attributed to independently observable extraction asymmetries between the two. Object clauses allow LDA into them while subject clauses do not because only the former are transparent for subextraction.

The main challenge for a long movement account is to provide independent evidence for the purported movement of the agreement trigger.

3.2 Edge movement

A second approach related to long movement is movement of the agreement controller to the edge of the embedded clause. The concept of an edge goes back to the notion of a phase, introduced in Chomsky (2000, 2001). According to the Phase Impenetrability Condition (PIC),[4] only the edge of a phase, i.e., the phase head itself and its specifiers, are visible to operations outside the phase. This conception opens up the possibility that an element in the specifier position of a phase head inside the lower clause is visible for matrix probes whereas elements

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4   The PIC is defined as in (i):

lower than the edge are not. As a result, LDA requires movement of the object to the edge of the lower clause. This account differs from the long movement analysis in that the object does not have to raise into the matrix clause.

(10)   ... PROBE ... [embedded clause DP [... t ...]inaccessible]

Agree
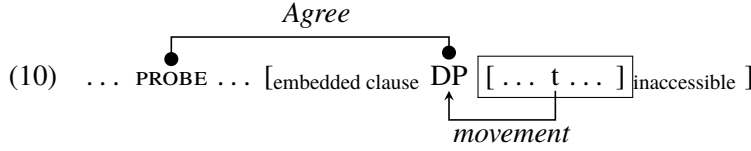
movement

Treating LDA in terms of edge movement was first proposed by Polinsky & Potsdam (2001) for Tsez and has since been employed by Bruening (2001) for Passamaquoddy, Branigan & MacKenzie (2002) for Innu-aimûn, Grosz & Patel (2006) for Kutchi Gujurati and Bobaljik & Wurmbrand (2005) and Keine (2013) for Hindi-Urdu.

   With regard to the universal properties of LDA, the optionality of LDA can be attributed to the optionality of the relevant movement step. As in the long movement account, movement to the edge must result in infinitival agreement within the lower clause. The directionality of LDA is a result of both the directionality of movement and of Agree. One might argue that the different behavior of subject and object clauses with respect to LDA is surprising. All else equal, it is not clear why an element at the edge of an object clause should be visible for a matrix probe while the edge of a subject clause should not. However, because a parallel asymmetry between subjects and objects exists for movement, independently necessary constraints that prevent the edge of a subject clause to be penetrable (e.g., Müller 2010, 2011) will arguable extend to LDA without further ado.

   As in the case of long movement, the main challenge for an edge movement account lies in motivating the assumed movement step.

3.3 Restructuring

Another line of analysis that has been explored in considerable detail is restructuring. The term 'restructuring' is somewhat ambiguous and it is therefore important to distinguish between two mutually exclusive types of 'restructuring' analyses. The first type involves literal clause union. That is, the two lexical verbs form a complex verb and all arguments relate to that complex verb. There is, in other words, only a single clause projected above a complex verbal base:

(11)   [... DP_{SUBJ} ... DP_{OBJ} ... [V_{INFIN} V_{FIN}]]

Agree

This account treats LDA in the same way as local agreement. The only difference between the two is that the verbal base is complex in the former and simplex in the latter. While clause union explains without further ado why element susceptible to LDA can also trigger local agreement,
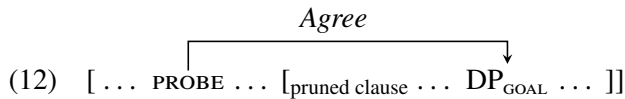

(i)   *Phase Impenetrability Condition* (Chomsky 2000: 108)
   In phase α with head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations.

the general optionality of LDA is problematic. If LDA *is* local agreement, the observation that the latter is obligatory while the former is optional is mysterious. The directionality of LDA is likewise puzzling. If agreement between the complex verb and the object is possible in (11), resulting in LDA, it is not at all clear why agreement with the subject is not. The latter would give rise to upward LDA, which, as noted above, is crosslinguistically absent.

Due to the pervasive and crosslinguistically robust differences between local and long-distance agreement, a clause union analysis has been proposed only for isolated instances of LDA. Thus, Butt (1993, 1995) adopts an analysis along these lines for the 'permissive' construction in HU. In this construction, LDA is obligatory (though this is a matter of variation, see Bhatt 2005: 795). Furthermore, the embedded verb does not show overt agreement, making it impossible to test whether upward agreement is possible. Haspelmath (1999) also pursues a clause union analysis for LDA in the Nakh-Dagestanian language Godoberi. LDA is optional in Godoberi and he takes this to show that clause union is optional in this language. Another example is Bickel & Nichols (2001), who propose a clause union analysis for the Sino-Tibetan language Belhare.

A second type of restructuring involves embedding of a functionally deficient clause (Bech 1955/1957; Evers 1975; Aissen & Perlmutter 1976; Wurmbrand 2001). Under this approach, only certain functional projections render a clause impenetrable from the outside. In the absence of these projections, the embedded object is sufficiently close to matrix material to enter into an Agree relationship. Cross-clausal agreement is acknowledged to exist under this account, albeit in a narrowly confined set of configurations only.[5] A schematized structure is given in (12).

(12) [... PROBE ... [$_{\text{pruned clause}}$ ... DP$_{\text{GOAL}}$ ...]]

with an *Agree* arc drawn from PROBE to DP$_{\text{GOAL}}$

Restructuring of this type has been proposed by Boeckx (2004) and Bhatt (2005)[6] for Hindi-Urdu, by Bošković (2003) for Tsez, and by Boeckx (2009) and Preminger (2009) for some instances of LDA in Basque. It provides a better handle on the cross-linguistic properties of LDA than literal clause union. That all elements capable of undergoing LDA are also susceptible to local agreement follows because both relationships are established with the same probe and by the same operation (Agree). Second, the optionality of LDA can be modelled in terms of the optional presence of an element inside the embedded clause that blocks agreement across it. Third, infinitival agreement is treated as the realization of a probe inside the embedded clause. If the embedded element is close enough to a matrix probe to agree (yielding LDA), it is necessarily close enough to an embedded probe (leading to local agreement). Another possibility, proposed by Bhatt (2005) and Boeckx (2004) is that matrix agreement induced Multiple Agree, which co-values embedded functional heads. Fourth, the downward directionality of LDA follows

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5   We should note that restructuring and movement of the agreement trigger are not mutually exclusive. Bobaljik & Wurmbrand (2005), for instance, propose that the absence of an optional projection requires the object to raise into the matrix clause and trigger agreement there.

6   Bhatt (2005) does not locate the structural distinction between LDA and default agreement structures in the presence of a designated functional projection but rather in the presence/absence of PRO in the infinitival clause, a view that has been criticized by Davison (2010).

from the downward directionality of Agree.[7] What is less clear, at least all else equal, is why there is an asymmetry between subject and object clauses. A restructuring analysis appears to require the stipulation that clauses in subject position cannot be functionally deficient in the same way that clauses in object position can be. Because such a stipulation is arguably required in any case to account for similar extraction asymmetries, this point might not be an argument against a restructuring account.

A crosslinguistic generalization is that while LDA is optional, the presence or absence of LDA does never correlate with the presence or absence of overt material. This, however, is what a restructuring analysis leads one to expect. The main obstacle to a restructuring analysis is, then, that the claimed structural differences appear to be necessarily covert. It is not clear why that should be the case. This problem is, of course, by no means specific to LDA.

3.4   Cyclic Agree

Cyclic Agree analysis treat long-distance agreement as arising from a sequence of local Agree steps. The underlying idea of this line of analysis is that probe features, once valued, may act as a goal for further Agree: A DP's φ-features agree with a functional head α, endowing α with φ. A higher functional head β with unvalued φ-features can then agree with α but not with the lower DP, which is blocked by locality considerations. This cyclic agreement can be iterated. In the resulting configuration β contains the same φ-features as DP, despite the fact that both elements can be very far apart. This structure is schematized in (13).

(13)   [... β ... α ... DP ...]
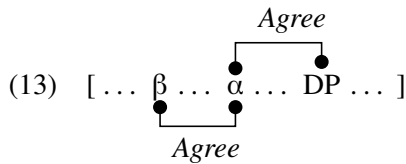
Cyclic agreement analyses have been proposed by Davison (1991),[8] Butt (1993, 1995) for HU, by Franks (2004) for Icelandic, by Franks (2006) for Tsez and HU, by Koopman (2006), by Legate (2005) for Passamaquoddy, Blackfoot, HU and Kashmiri and by Lahne (2008) for Tsez.

The crosslinguistically stable features of LDA can be handled under a cyclic agreement analysis as follows. First, that all elements that can trigger LDA can also trigger local agreement follows because LDA is built on local agreement. Note that this open up the possibility that LDA is for fewer features than local agreement, namely if the mediating head carries probes for only a subset of the nominal's φ-features. Preminger (2009) exploits this mechanism in his analysis of Basque LDA. Second, the optionality of LDA can be implemented in at least two ways. One might either invoke an optional projection that breaks the agreement chain or, alternatively, an additional operation that bleeds the first agreement step. Both options are discussed in greater detail below. Third, infinitival agreement is naturally viewed as the spell-out of the agreeing

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[7] This analysis is thus at variance with recent claims that Agree can or must proceed upward (Baker 2008; Wurmbrand 2012; Zeijlstra 2012).

[8] Davison (1991)'s analysis involves φ-feature percolation rather than proper agreement between verbal heads. The underlying intuition and the predictions of this analysis are, however, sufficiently similar to cyclic agreement to include them here.

head inside the finite clause (α in (13)). Fourth, the directionality of LDA is attributed to the directionality of Agree, just as in the restructuring analyses discussed above. Finally, the subject/object asymmetry is harder to express, especially in languages where both subjects and objects agree.

As for the optionality of LDA, Butt (1993, 1995) proposes that abstract noun incorporation in HU[9] bleeds LDA, an analysis that elegantly captures some of the interpretational correlates of LDA in the language (also see Chandra 2007 for a similar claim). A severe problem with this suggestions is that local object agreement must not be affected by this incorporation. Appealing to incorporation hence fails to explain why local agreement and LDA should differ in this regard. The alternative strategy, according to which the optional presence of a projection that induces a locality boundary (thus blocking Agree across it) but lacks probe features and hence interrupts the Agree chain does not face this problem. We would like to point out, however, that this effectively constitutes restructuring. As was the case with movement, Cyclic Agreeand restructuring are not mutually exclusive.

As illustrated by (8) above, there is an asymmetry between subject and object clauses for LDA. Only the latter allow agreement into them. While this is unsurprising in languages in which only objects ever trigger agreement (e.g., Tsez), for languages where both subjects and object can control agreement (e.g., HU) this contrast is rather difficult to express in a Cyclic Agree analysis. The reason is that it is the embedded clause itself that the matrix verb agrees with. We hence expect both subject and object clauses to be able to value a matrix probe, contrary to fact. This problem is the direct result of the conflation of subjects and elements contained within subjects that lies at the heart of a Cyclic Agree account. The desired contrast can, of course, be regained by invoking additional assumptions. The issue is not explicitly addressed in the relevant literature.

Conceptually, Cyclic Agree violates Chomsky (2000, 2001)'s Activity Condition, according to which the intermediate agreement head (α in (13) should not be visible to further syntactic operations after its features have been valued, a property that is sometimes taken as problematic (e.g., Richards 2012).[10]

3.5   Proxy agreement

A final line of analysis is so-called 'proxy' or 'prothetic' agreement. Under this approach, the matrix clause contains a covert pronoun coindexed with the embedded object and hence sharing its ϕ-features. It is this pronoun, rather than the embedded element, that controls agreement on the matrix verb. As in a long movement analysis, LDA is treated as local agreement. Unlike the movement analysis, however, no movement of the embedded element takes place. The resulting structure is schematized in (14).

agreement

(14)   PROBE ... *pro*$_i$ ... [... DP$_i$ ...]

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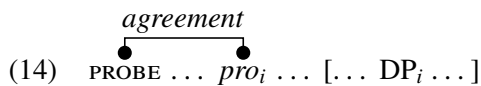
9   See Mohanan (1995) and Dayal (2011) for discussions of abstract noun incorporation in HU.

10   The Activity Condition has, however, been argued against on independent grounds (Nevins 2005).

The structures a proxy analysis is based upon are parallel to the English example in (15).

(15)   Mary know [of *Sue*] that John visited *her*.

The optionality of LDA is attributed to the optionality of the proxy pronoun. Analyses along this line have been proposed by Melčuk (1988) and Bobaljik (2008: 317, n.25) for Chukchi, by Dahlstrom (1995) for Fox and Polinsky (2003) for Blackfoot and Fox. Proxy accounts are explicitly considered and rejected by Frantz (1978, 1980) for Blackfoot, Polinsky & Potsdam (2001) for Tsez and Branigan & MacKenzie (2002) for Innu-aimûn.

That crosslinguistically all controllers of LDA can also control regular local agreement is unexpected under a proxy analysis. This is because the pronoun in the matrix clause could in principle be coreferent with an element anywhere inside the embedded clause. Consider (16) as an example:

(16)   Mary knows [of *me*] that *my* brother works as a barista.

In a structure analogous to (16) the matrix verb would bear 1SG agreement even though the language might not allow subject possessors to control local agreement. That such a state of affairs is unattested would have to be attributed to a curious conspiracy: The proxy pronoun may only be coreferent with elements that can control verbal agreement (see Frantz 1978 and Polinsky & Potsdam 2001 for a parallel argument).

Another generalization that is unaccounted for under a proxy analysis is that LDA is accompanied by infinitival agreement with the same element. Because matrix agreement is controlled by the proxy, which can not itself trigger agreement on the embedded verb, the presence of a proxy must be conditional on infinitival agreement with the element that the proxy is coindexed with. Again, it is altogether unclear why this should be the case.

Establishing whether the directionality of LDA and the subject/object asymmetry are consistent with a proxy analysis requires a detailed account of the possible anaphoric requirements that the proxy is subject to. Such an investigation, however, has not been pursued in the literature.

4   Theoretical predictions

This section lays out central predictions made by the various lines of analysis discussed in the previous section. We will illustrate the predictions and ways in which they can be assessed based on evidence from Hindi-Urdu. The domain in which the various accounts make differing predictions is exactly the domain in which crosslinguistic variation is observed. If an line of analysis make predictions that turn out to be incorrect for HU, this should not be taken to indicate that this approach is generally unsuitable for LDA.

4.1   Word order

One dimension along which the accounts outlined above differ is whether movement of the agreement trigger is involved in establishing LDA. One way of diagnosing such movement—

at least if it is overt—is by observing whether LDA correlates with surface word order. In other words, if LDA either requires or prohibits particular word orders, these restrictions can be straightforwardly expressed in a movement-based account but not in analyses that do not involve movement.

At least unless different types of movement are distinguished, long movement account predicts LDA to be obligatory if there is independent evidence that the embedded object has moved into the matrix clause. In HU the evidence is not conclusive in this regard. While Butt (1993, 1995) reports that overt displacement of the object renders LDA obligatory, Bhatt (2005) reports that overt movement has no effect on LDA. An example of the crucial configuration is given in (17), adapted from Butt (1993: 80).

(17) gaarii$_1$ Naadyaa=ko [t$_1$ calaa-naa/-%nii   aa-taa/%-tii   hai]
      car.F   Nadya.F=DAT   drive-INF.M.SG/%-INF.F.SG come-HAB.M.SG be.PRS.3SG
      'Nadya knows car-driving.'

The edge movement account makes a parallel prediction if movement into the matrix clause requires intermediate movement through the edge of the infinitival clause. The other accounts make no such prediction, at least in the absence of additional stipulations. Under restructuring, cyclic agreement and proxy agreement, LDA does not require movement of the embedded object and as such the two should not correlate.

The predictions above only arise in the absence of additional assumptions and are not necessarily applicable to more complex accounts. A movement account that distinguishes between different movement types (like A- vs. Ā-movement) does not correlate LDA with mere changes in the surface word order (Keine 2013). Conversely, a restructuring analysis might handle implicational relationships between LDA and movement by using the restructuring size as a mediator between the two. For instance, movement out of the embedded clause might require this clause to lack certain projections and this lack of projections then allows LDA into the lower clause. Yet another option, explored by Butt (1993, 1995), is that LDA is established with an object in-situ but that an optional process of noun incorporation bleeds LDA. Under this account, if the object is overtly moved, it cannot have been incorporated and LDA emerges as obligatory.

The discussion so far has focused on cases where the embedded object has undergone movement. A flipside of this test is whether LDA is possible if the embedded object demonstrably remains inside its base position. The long and edge movement accounts predict this to be impossible while such a structure is predicted to be possible under the restructuring, cyclic agreement and proxy analyses. As a matter of fact, this prediction is hard to test as languages with LDA tend to be left-branching and have a very flexible word order. The position of an element in the linear surface string is hence not a reliable diagnostics for the syntactic position of this element. One test case involves elements that are independently known not to undergo movement. Idioms are an example. For example, HU has the idiom *X-kii khuub marammat karnaa* 'give X a good beating' (lit. 'do X's many repairs'). Here the object *X-kii khuub marammat* 'X's many repairs' not only can control LDA, LDA is in fact preferred:

(18) Raam-ne Prataap-kii ⎪khuub marammat⎪ kar⎪-nii⎪/-naa
     Ram-ERG Pratap-GEN lot   repair.F   do-INF.F/-INF.M.SG

     caah-⎪ii⎪/-aa.
     want-PERF.F.SG/-PERF.M.SG
     'Ram wanted to give Pratap a good beating.'

If *knuub marammat* 'many repairs' is moved, the idiomatic reading becomes deviant (the absurd literal meaning remains readily available):

(19) #⎪Pratap-kii   khuub marammat⎪ Ram-ne   *t* kii.
      Pratap-GEN lot   repair   Ram-ERG   do.PERF.F.SG
      'Ram gave Pratap a good beating.'

That movement of *X-kii khuub marammat* decreases the availability of the idiomatic reading while LDA has no such impact is unexpected for any theory that makes movement of the agreement trigger a prerequisite for agreement with it, again at least unless additional assumptions are invoked.

Related tests that allow one to determine that an embedded element has not left the lower clause involve adverb placement (Bhatt 2005; Boeckx 2004, 2009) and extraposition (Davison 1991). The former test involves placing an adverb with embedded scope to the right of the embedded object, as in (20). The logic of the diagnostic is that if the adverb is inside the embedded clause, the object must be as well. Under a movement analysis, LDA is expected to be impossible in this configuration. In HU, this is not borne out.

(20) Vivek-ne ⎪jaldise⎪ kitaab andhereme paṛh-nii   caah-ii
     Vivek-ERG quickly book.F in.the.dark read-INF.F want-PERF.F.SG
     'Vivek wanted to read the book quickly in the dark.'   [*Boeckx 2004: 30*]

Finally, extraposition can be employed as a diagnostic in languages that allow rightward movement of clausal, but not nominal, constituents. If the embedded clause including the object appears extraposed, the object must remain inside the embedded clause. The long movement analysis then predicts that LDA is impossible in this configuration. In HU, this prediction is not borne out:[11]

(21) Mujhe zaruur t_1 aa-tii   hɛ   ⎪[saikil   calaa-nii]$_1$⎪.
     me.DAT definitely   come-HAB.F be.PRS.3SG cycle.F ride-INF.F
     'I certainly know how to ride a bicycle.'   [*Davison 1991: 12*]

As noted repeatedly above, these predictions are not necessary. A movement-based account might, for instance, claim that the movement step is covert and hence not reflected in the surface form, and hence avoid the predictions just discussed. In this case, other tests might be involved in motivating the movement step. One such possible test is scope, to which we now turn.

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[11] See Bhatt & Dayal (2007) for arguments that elements contained within extraposed clauses may not enter into syntactic relationships with matrix material.

4.2 Scope

Because movement is standardly taken to associate with quantificational scope, a movement-based approach predicts interactions between LDA and scope while restructuring, cyclic agreement and proxy agreement do not predict such a connection. In HU, this expectation is borne out (see Hook 1979; Mahajan 1990; Davison 1991; Butt 1995; Bhatt 2005; Keine 2013). As Bhatt (2005) observes the embedded object can take scope over or below the matrix predicate under LDA but is confined to low scope under default agreement. This is illustrated by the contrast in (22).

(22) a. Naim-ne [har kitaab paṛh-nii] caah-ii   thii.
        Naim-ERG every book.F read-INF.F want-PERF.F be.PST.F.SG
        every > want: 'For every book, Naim wanted to read it.'
        want > every: 'Naim's desire: to read every book'
     b. Naim-ne [har kitaab paṛh-naa   ] caah-aa   thaa.
        Naim-ERG every book.F read-INF.M.SG want-PERF.M.SG be.PST.M.SG
        *every > want: 'For every book, Naim wanted to read it.'
        want > every: 'Naim's desire: to read every book'   [*Bhatt 2005: 799*]

A long movement analysis accounts for this contrast in the following way (Chandra 2007): In the LDA structure (22a) the object *har kitaab* 'every book' is raised into the matrix clause. It may hence be interpreted in its landing site, yielding high scope, or reconstruct into its launching site, yielding low scope. In the default agreement structure (22b), by contrast, the embedded object remains inside the lower clause, and hence invariably takes low scope.

The edge movement account makes clear predictions regarding scopal effects of LDA. An element that controls LDA could have moved to either the edge of the lower clause (giving it scope below the matrix predicate) or all the way into the matrix clause (yielding matrix scope). Under default agreement, the embedded element must remain lower than the edge of the embedded clause and hence invariably take scope under the matrix verb. As we have seen in (22), this is indeed the case in HU. A notable difference between edge movement and long movement is that the former does not have to appeal to reconstruction to derive the scope facts.

Because no movement is involved in the derivation of LDA, effects of LDA on scope are either predicted not to exist under restructuring, cyclic agreement and proxy agreement analyses or require additional stipulations. The scope restriction could be integrated into a restructuring account, for instance, by stipulating that the functional projection blocking agreement across it functions as a barrier for scope-changing movement. Alternatively, abstract noun incorporation might be invoked. Both accounts are entirely parallel to the account of movement–LDA interactions discussed in the previous section.

4.3 Movement within the lower clause

The central difference between the two movement accounts is that under edge movement the embedded object does not need to leave the lower clause while it has to do so under a long

movement analysis. Information structure effects may be used to distinguish between the two. In Tsez and Innu-aimûn, for instance, LDA induces a topic interpretation of the LDA controller (see section 5). Polinsky & Potsdam (2001) and Branigan & MacKenzie (2002) suggest that this is the result of moving the element into a left-peripheral topic position within the lower clause, and that LDA can only be established with elements there.

Keine (2013) argues that in HU A-movement of the embedded object *within* the embedded clause leads to obligatory LDA. The relevant evidence is given in (23).

A-movement

(23) Raam-ne [har   billii₁ us-ke₁ baccõ-ko   t dikhaa- nii/*-naa]
      Ram-ERG every cat   it-GEN children-DAT   show-INF.F/*-INF.M.SG

      caah- ii/*-aa .
      want-PERF.F.SG/*-PERF.M.SG

      'For every cat *x*, Ram wanted to show *x* to *x*'s children.'   [*Keine 2013: 278*]

Crucially, the pronoun inside the indirect object *uske baccõ-ko* 'its children-DAT' is bound by the moved direct object *har billii* 'every cat'. This entails that the movement step of the latter must be A-movement as Ā-movement would give rise to a weak crossover violation (Wasow 1972). Importantly, LDA becomes obligatory even if the landing site of the movement is inside the embedded clause. Keine (2013) proposes that A-movement puts the object in the edge of the embedded clause, from where it is visible to the matrix probe, giving rise to obligatory LDA. Effects of this type are in line with an edge movement account but unexpected if movement must target a position inside the matrix clause to affect LDA. They are also harder to reconcile with analyses that do not involve movement of the agreement controller.

4.4 NPI licensing

A distinctive feature of the restructuring account is that LDA correlates with the size of the embedded clause. As a result, this account predicts that LDA should be correlated with independent tests for the size of the embedded clause.

One such test is NPI licensing. Bhatt (2005: 780) notes that infinitival object clauses, which allow LDA, also allow an embedded negation to license a matrix NPI. Configurations in which LDA is impossible, on the other hand, do not allow such licensing. As it turns out, the correlation is stronger than that. If an embedded negation licenses a matrix NPI, LDA is in fact forced:

(24) Ek-bhii laṛke-ne [Sita-kii   kitaab nahĩ: paṛh-nii/*-naa]
      one-NPI boy-ERG   Sita-GEN book.F not   read-INF.F/*-INF.M.SG

      caah-ii/*-aa.
      want-PERF.F.SG/*-PERF.M.SG

      'Not even a single boy wanted to read Sita's book.'

This constrast is rather straightforwardly accounted for if the projection that blocks LDA also blocks NPI licensing across it. This projection must then be necessarily absent in (24) and LDA

results. Evidence of this sort is less directly compatible with other accounts, such as long or edge movement, cyclic agreement and proxy agreement.

4.5   Restrictions on the agreement controller

A particularly strong prediction of the proxy analysis is that elements which control local agreement but cannot be doubled by a proxy pronoun should not be able to control LDA. Examples include proper names, quantificational noun phrases or idioms. A proxy pronoun cannot be coreferent with an embedded proper name due to Principle C. Likewise, a matrix proxy pronoun cannot be bound by an embedded quantifier due to the lack of c-command. Finally, noun phrases that are part of an idiom do not refer and hence cannot be coreferent with a higher pronoun. The alternative accounts do not make these predictions. In HU, as in the majority of LDA languages, these predictions are not borne out, rendering a proxy pronoun analysis implausible.

First, as shown in (18), idioms may control LDA. Second, non-referential objects like the NPI in (25) can likewise control LDA despite the fact that a coreferential proxy pronoun should be impossible (cf. *I don't want of it to read even a single book.*).

(25)   Mɛ̃-ne [ek-bhii kitaab] nahĩ: paṛh-nii]   caah-ii
       I-ERG   one-NPI book.F NEG   read-INF.F want-PERF.F.SG
       'I don't want to read even a single book.'

The prediction regarding proper names are impossible to test in HU because these elements cannot control local or non-local agreement in object position.

Another direct prediction emerging from the proxy agreement account is that, all else equal, it should be possible to overtly realize the purported pronoun in the matrix clause. Moreover, this pronoun must surface in a form that allows it to control verb agreement. It must not, e.g., be embedded inside a PP like in the English example in (15).

4.6   Case

Previous analyses that rest on movement often tie LDA to case assignment in the matrix clause (cf. Mahajan 1989, 1990; Chandra 2007 for Hindi-Urdu and Grosz & Patel 2006 for Kutchi Gujarati). Under these accounts, the embedded element is not assigned case within the lower clause and, as a result, raises, triggering matrix agreement as a side product.

While pursuing a long movement analysis does not inherently force a particular stance on case assignment, correlating the two makes an additional prediction, which we will briefly discuss here. If the case on the embedded object can in principle be valued from matrix material, modifying the case properties of the matrix clause should yield case changes on the embedded object. Interactions of this type have been argued to exist by Wurmbrand (2001) and Bobaljik & Wurmbrand (2005) for German. Building on this work, Bhatt (2005) shows that passivization of the matrix verb does not affect the case of the embedded object. This is illustrated in (26), where the pronoun may not appear in the nominative form.

(26) [Sita-ko mujhe/*mɛ̃   piiʈ-ne]   di-yaa   ga-yaa.
         Sita-DAT me.ACC/*I.NOM hit-INF.OBL give-PERF.M.SG PASS-PERF.M.SG
      'Sita was allowed to hit me.'   [*Bhatt 2005: 782*]

The resistence to matrix passivization provides evidence that the case of the embedded object is assigned within the embedded clause. If this is correct, LDA cannot be correlated with case assignment inside the matrix clause.

A general consequence emerging from these considerations is that agreement must be possible even after a nominal's case has been assigned, pace Chomsky (2000, 2001)'s Activity Condition. This conclusion is explicitly argued for on the basis of LDA by Polinsky & Potsdam (2001), Branigan & MacKenzie (2002), Bhatt (2005), Grosz & Patel (2006), Bošković (2007), Bobaljik (2008) and Boeckx (2009).

Although a connection between case and agreement has most intensively been explored within long movement analyses, neither is there an inherent connection between the two nor is such a connection restricted to long movement analyses. Movement to the edge of the lower clause may likewise be taken to either feed case assignment or not. Polinsky & Potsdam (2001), Branigan & MacKenzie (2002) and Keine (2013) assume that it does not, while Grosz & Patel (2006) propose that it does in Kutchi Gujarati. The same holds for restructuring accounts. Boeckx (2004), for instance, suggests that the embedded clause in LDA structures lacks a *v* projection and hence the ability to assign case to the embedded object. The object's case must instead be valued by matrix material, leading to LDA. As argued on the basis of (26) above, this view is problematic for HU. Bhatt (2005) and Boeckx (2009) do not connect LDA to matrix case assignment.

While considerations of case are illuminating, they are essentially orthogonal to the choice among the competing accounts. As a consequence, they do not provide clear evidence for or against a particular approach.

5   Two other representative long-distance agreement systems: Tsez and Basque

We have so far primarily focused on Hindi-Urdu. The extent of the crosslinguistic variation in LDA is best illustrated by presenting other systems that differ in key aspects from HU. This section will briefly describe the properties of LDA in Tsez and Basque and relate them to the broader theoretical questions that LDA raises.

5.1   Tsez

Tsez, a Nakh-Dagestanian language, displays an intriguing pattern of LDA where the cross-clausal agreement relationship seems to be sensitive to the topichood of the embedded agreement trigger. This pattern of agreement has been described and analyzed extensively in Polinsky & Potsdam (2001) and Polinsky (2003). In (27a), the matrix predicate long-distance agrees with the object of the embedded clause skipping over the subject of the embedded clause. (27b) illustrates the optionality of LDA.

(27) a. *Long-distance agreement*
       enir   [užā ⌷magalu⌷   b-āc'-ru-łi]   ⌷b⌷-iyxo
       mother [boy bread.III.ABS III-eat-PSTPRT-NMZ].IV III-know
       'The mother knows that the bread, the boy ate.'

   b. *Local agreement*
       enir   [užā magalu   b-āc'-ru-łi]   ⌷r⌷-iyxo
       mother [boy bread.III.ABS III-eat-PSTPRT-NMZ].IV IV-know
       'The mother knows the boy ate the bread.'   [*Polinsky & Potsdam 2001: 584*]

5.1.1 Aspects of Tsez LDA

Before we turn to the analysis of Tsez LDA, some background on the syntax of Tsez is in order. Tsez is a morphologically ergative language. The subjects of transitive clauses have ergative case, which may not be overtly expressed in all cases. Only absolutive arguments can control local agreement and do so obligatorily. Agreement is in noun class and not all verbs show agreement for phonotactic and historical reasons.

(28) a. ziya   b-ik'i-s
          COW.III.ABS III-go-PST.EVID
          'The cow left.'

   b. eniy-ā   ziya   b-išer-si
       mother-ERG   COW.III.ABS III-feed-PST.EVID
       'The mother fed the cow.'

Like the local agreement in (28), LDA is restricted to absolutive arguments; for example in (27), the embedded subject, which has ergative case, cannot control LDA.

   LDA is only possible if the clause that contains the agreement trigger is itself in an absolutive position. In (29), *kid* 'girl' is inside an adjunct clause and cannot control LDA.

(29) *[⌷kid⌷   y-āy-zał]   eni-r   xabar   ⌷b/*y⌷-x-iy-s
        girl.II.ABS II-arrive-when mother-DAT   news.III.ABS III/*II-know-PST.EVID
        intended: 'When the girl arrived, the mother found out the news.'

One important aspect of LDA in Tsez is that it is associated with embedded topicalization.

(30) *Topic condition on long-distance agreement*
       LDA occurs when the referent of the embedded absolutive NP is the (primary) topic of
       the embedded clause.   (from Polinsky & Potsdam 2001: 613)

In situations where the embedded absolutive is unambiguously the topic of the embedded clause, such as when it is marked by overt topic morphology, LDA becomes obligatory. And in situations where it is clear that the embedded absolutive is not the embedded topic, LDA is not an option. This could happen in a number of ways: something else could be the embedded

topic, as indicated by topic-fronting or topic morphology. Or the embedded absolutive might not make for a good topic due to its being non-referential or being in focus.

LDA is additionally restricted by the size of the complement clause that contains the embedded absolutive. LDA is possible out clauses marked with a nominalizing suffix (as in (27a)) but not out of clauses marked with a complementizer suffix.

(31) *enir   [užā magalu   b-āc'-si-λin]]   b-iyxo
      mother [boy bread.III.ABS III-eat-PST.EVID-COMP].IV III-know
      'The mother knows that the bread, the boy ate.'

The presence of a non-absolutive *wh*-phrase in the embedded clause also blocks LDA, irrespective of whether the *wh*-phrase is fronted or not.

(32) enir   [łu   micxir   b-ok'āk'-ru-łi]   r/*b-iyxo
      mother [who.ERG money.III.ABS III-steal-PSTPRT-NMZ].IV IV/*III-knows
      'The mother knows who stole the money.'

A final generalization is that LDA cannot be iterated. In (33) it is not possible for *iyxo* 'know' to agree with *malagu* 'bread' across an intervening clause.

(33) babiy [enir   [ŭzā magalu   bāc'rułi] b-iyxosi-łi]   r/*b-iyxo
      father [mother [boy bread.III.ABS ate]   III-know-NMZ].IV IV/*III-know
      'The father knows [the mother knows [the boy ate bread]].'

5.1.2 Theoretical approaches to Tsez LDA

As discussed for Hindi-Urdu, a number of analyses are possible for LDA in Tsez. The proxy agreement analyses faces significant problems along the lines discussed for Hindi-Urdu in section 3.5 and so we do not discuss it further here.

Next we turn to the long movement analysis (see section 3.1). According to this analysis, the embedded absolutive overtly or covertly moves into the matrix clause via A or Ā-movement. Movement out of the embedded clause for LDA purposes in Tsez would be problematic as overt cross-clausal scrambling is completely ungrammatical in this language. Nor is there any cross-clausal *wh*-movement or scopal interaction between material in the embedded clause and material in the matrix clause. Also telling is the fact that the possibility of LDA is not influenced by the surface position of the clause that contains the embedded absolutive.

(34)   a.   *S V* [... *DP*_{ABS} ...]
         enir   b-iyxo [užā magalu   b-āc'-ru-łi]
         mother III-know [boy bread.IIIABS III-eat-PSTPRT-NMZ].IV
         'The mother knows that the bread, the boy ate.'
   b.   [... *DP*_{ABS} ...] *S V*
         [užā magalu   b-āc'-ru-łi]   enir   b-iyxo
         [boy bread.III.ABS III-eat-PSTPRT-NMZ].IV mother III-know
         'The mother knows that the bread, the boy ate.'   [*Polinsky & Potsdam 2001: 623*]

Another potential analysis for Tsez LDA could involve Cyclic Agree along the lines of Butt (1995)'s proposal for Hindi-Urdu. Such an analysis would treat LDA as arising from a sequence of properly local agreement steps. The first step would take place in the embedded clause and would copy the features of the absolutive argument on to the head of the embedded clause. The embedded clause is an argument of the matrix clause and it appears in an absolutive position. Agreement in the matrix clause now targets the embedded clause yielding the appearance of long-distance agreement.

The Cyclic Agree proposal is attractive as it does not require adding to the devices we already have for local agreement. In addition, it derives straightforwardly the fact that LDA is restricted to clauses in absolutive positions. Yet Cyclic Agree as an analysis for Tsez LDA faces certain challenges. First of all, as Polinsky & Potsdam (2001: 626, n.17) note, pronominal anaphora to an embedded clause that LDA is taking place out of does not track its putative inherited features. Consider the following follow up to (27a).

(35) nełā   [ža   r-igu/*b-igu   yoł-λin] eλis
      she-ERG   this IV-good/*III-good   is-COMP   said
      'She says it (= that the boy ate bread) is good.'

(27a) involves LDA and if the clause has the features of the embedded absolutive, we might expect a pronoun that refers to that clause to likewise have the features of the embedded absolutive, contrary to fact. However, it is also possible that pronominal reference tracks semantic features rather than formal features. In that case, the contrast in (35) does not bear upon the analysis of Tsez LDA.

A bigger problem for the simple Cyclic Agree analysis outlined above comes from the apparent optionality of LDA and its correlation with the embedded topic-hood of the embedded absolutive.[12] Local agreement in Tsez is not optional and does not impose any topic requirements on the agreement triggering absolutive. However, as we have seen, embedded absolutives do not always trigger LDA; LDA correlates with the absolutive being interpreted as an embedded topic. This state of affairs is surprising given the simple Cyclic Agree analysis because it treats LDA as the sum of two local agreement steps. If each of these steps is obligatory, LDA should likewise emerge as obligatory, contrary to fact. One could imagine that there is a optional covert layer of structure that blocks the features of the embedded clause from being visible in the matrix clause. But even this move would not capture the role played by embedded topic-hood.

One way to build in the link with embedded topic-hood is to bring in a Topic projection along the lines of Polinsky & Potsdam's proposal (discussed below).[13] The embedded clause would be a TP in the absence of an embedded topic and a TopP when there is an embedded topic.

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[12] The fact that LDA in Tsez does not cross multiple clause boundaries – see (33) – is also a problem for this simple cyclic agree proposal.

[13] Lahne (2008) proposes a solution to the topic-hood problem within a Cyclic Agree analysis: She suggests that the internal argument becomes a topic as a result of V-to-T movement, which is itself a prerequisite for Cyclic Agree.

(36)   a.   Embedded Topic

T_{matrix} ... [$_{TopP}$ Top^0 [$_{TP}$ $T_{embedded}$ ...

b.   No Embedded Topic

T_{matrix} ... [$_{TP}$ $T_{embedded}$ ...

The Top head probes for an XP with the topic feature; the XP could move to the specifier of TopP covertly but this is not essential for this variant of the analysis. What is important is that if the Topic XP is absolutive, then the Top^0 acquires its φ-features. These features are now available for agreement in the matrix clause.[14] To complete the picture, we need to further assume that the embedded T/TP does not constitute a Goal for further probing but that Top^0/TopP does. LDA is mediated by the Topic projection in this analysis.

Finally, we turn to edge movement (see section 3.2), which is exemplified by Polinsky & Potsdam (2001)'s pioneering analysis of Tsez LDA. There are two core ideas behind their proposal. The first is that an embedded topic moves at LF to the edge of its clause. The second is that the edge of the embedded clause is visible to the matrix clause for purposes of agreement. Together these idea are able to derive most of the facts about Tsez LDA that we have discussed so far.

(37) T_{matrix} ... V_{matrix} [$_{TopP}$ DP_i^{Top} [$_{Top'}$ Top^0 [$_{TP}$ $T_{embedded}$ ... t_i ...]]]

That LDA triggering absolutives are interpreted as embedded topics is an empirical observation. Polinsky & Potsdam (2001) propose that topic XPs undergo LF movement to the specifier of a Topic projection. If the topic XP is absolutive, its features are visible from the matrix clause and LDA results. Because movement to TopP requires topichood, the correlation between LDA and embedded topic-hood follows. Since the embedded topic stays at the edge of its clause, it can only be seen from one clause up.

(38)   [$_{TP_1}$ ... T_1 ... V_1 [$_{TP_2}$ ... T_2 ... V_2 [$_{TopP}$ DP_i^{Top} [$_{Top'}$ Top^0 [$_{TP}$ $T_{embedded}$ ... t_i ...]]]]]

Features of DP_i^{Top} are visible from within TP_2 but not from TP_1, see (33).

The general unavailability of cross-clausal movement in Tsez prevents movement to a TopP in a higher clause. Consequently LDA cannot cross multiple clause boundaries.

Polinsky & Potsdam locate the probe for agreement on V (or associated projection). The domain of this probe is its sister; this position is occupied by absolutive DPs and clauses. The restriction of LDA to clauses that appear in an absolute position follows. Adjunct clauses, for example, would appear higher in the structure and would not be visible to the probe on V.

The proposal makes a prediction that we should never find LDA out of clausal subjects of unergative verbs. Such subjects would not be in the domain of the agreement probe. Clausal subjects of unaccusative verbs may or may not allow for LDA depending upon whether the unaccusative subject reconstructs to its base position at LF.[15]

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[14] Details concerning movement aside, this is an abstract characterization of Koopman's 2006 analysis of Tsez LDA.

[15] Polinsky & Potsdam assume that the Topic Phrase is projected only when there is an embedded topic. This seems to us to predict that when the embedded clause has an absolutive subject, we expect to get obligatory LDA. But as Polinsky & Potsdam show, this is in fact not the case. The simplest way out of this problem is to simply assume that a Topic Phrase is projected even in the absence of an embedded topic.

Polinsky & Potsdam show that LDA targets embedded topics and it seems to us that any successful treatment of Tsez LDA will need this component. Polinsky & Potsdam also show that the trigger for LDA does not move outside the embedded clause. This leaves open what configurations are involved: Agree/Government, Spec–Head, or both. Polinsky & Potsdam's analysis involves both configurations: Spec–Head for embedded topics, and Agree for matrix agreement with the embedded topic. Koopman suggests an analysis which exclusively uses Spec–Head – the embedded topic moves to the specifier of the Topic head; as a result of Spec–Head agreement, Top has the features of its specifier. The features of the Top head are visible on the TopP that it heads. The TopP then moves to the specifier position associated with agreement in the matrix clause. The analysis sketched by us above exclusively uses Agree – the Topic head agrees with the embedded topic; the whole TopP has the feature of Top, and then the head associated with matrix agreement agrees with the TopP. Finally one could also imagine a system where the Top head acquires the features of the embedded topic via Agree and then the TopP undergoes overt movement to the matrix agreement specifier position.

(39) a. *Only Spec–Head:*
          Koopman (2006)
      b. *Only Agree:*
          Lahne (2008), Bhatt & Keine (this paper)
      c. *Matrix Agree, Embedded Spec–Head:*
          Polinsky & Potsdam (2001), Chandra (2007)
      d. *Matrix Spec–Head, Embedded Agree:*
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5.1.3 Some Tsez-like systems

The overall shape of the LDA paradigm found in Tsez greatly resembles the patterns found in Innu-aimûn (Algonquian) (Branigan & MacKenzie 2002), and in Passamaquoddy (Algonquian) (Bruening 2001). See Polinsky (2003) for related discussion. The independently proposed analyses for these three languages relate LDA to Ā-movement of the embedded agreement trigger to the edge of the embedded clause. This Ā-movement can be covert. There are some differences in their LDA patterns but these can be easily handled within a system that unifies the three analyses. In Innu-aimûn, the LDA trigger can overtly appear at the edge of its clause, past *wh*-phrases in the C-domain. In such cases, LDA is obligatory. The information structure status of the LDA triggering material also varies: in Tsez, the agreement trigger has to be an embedded topic; in Innu-aimûn, it can be a topic or a *wh*-phrase; and in Passamaquoddy, it does not have to have a distinguished information structure status. Ā-movement to the edge is enough. Finally, in Tsez, only absolutives trigger local agreement and consequently only absolutives trigger LDA. There is no corresponding restriction in Innu-aimûn and Passamaquoddy and a wider range of elements can trigger LDA.

It is also instructive to compare LDA in Tsez with the closely related Nakh-Dagestanian language Khwarshi (Khalilova 2009). The positive data reported for Tsez hold for Khwarshi too but the system seems to be less restricted in a number of ways. As in Innu-aimûn and

Passamaquoddy, the LDA trigger is not restricted to being an embedded topic. It can also be a *wh*-phrase. Moreover *wh*-phrases do not block LDA. Most strikingly, Khwarshi allows for overt movement of the LDA trigger out of the embedded clause into the matrix clause. In such cases, LDA, which is otherwise optional, becomes obligatory. Khwarshi thus presents a system that seems to provide support both for an Agree based analysis like Polinsky & Potsdam's and a Spec–Head analysis like Koopman's. Khwarshi presents an intriguing combination of facts, which deserve more work.[16]

5.2 Basque

Substandard Basque offers some striking evidence that the embedded clause may be involved in establishing agreement with an embedded argument. This follows naturally under a cyclic agreement analysis. In addition, Basque has two LDA constructions with distinct properties, which are arguably the result of different mechanism. It hence offers compelling evidence that LDA may not be a unified phenomenon theoretically. Basque LDA has been studied in considerable detail by Etxepare (2006) and Preminger (2009) (also see Boeckx 2009).

We will focus first on what Preminger (2009) calls the case-marked construction. In this construction a matrix auxiliary may agree in number with an absolutive argument inside a infinitival clause, which is taken to be nominalized due to the presence of the morpheme *-tze* (Trask 2003). An example is given in (40).

(40) [Nobela erromantiko-ak   irakur-tze-a]   gustatzen
       novel(s) romantic-ART.PL(ABS) read-NMZ-ART(ABS) like(HAB)

       ∅-zai- zki -o.
       3.ABS-be- PL.ABS -3SG.DAT
       'He or she likes to read romantic novels.'

While LDA is restricted to arguments in the absolutive case, the embedded clause itself may bear different case markers due to its nominalized nature. Crucially, LDA reflects the case of the embedded clause, as shown in (41). Here the DP that triggers LDA is absolutive but the embedded clause is dative. The result is dative agreement.

(41) Uko   egin d-i-∅- e -∅   [agindu horiek
       refusal(ABS) done 3.ABS-have-SG.ABS- 3PL.DAT -3SG.ERG order(s) those.PL(ABS)
       bete-tze-a-ri].
       obey-NMZ-ART-DAT
       '(S)he has refused to obey those orders.'

A second restriction is that LDA is for number only. Person agreement with first or second person arguments is impossible:

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[16] For example, the surface position of the embedded clause also has an effect on the optionality of LDA. Khalilova (2009) notes that when the embedded clause appears post-verbally, LDA is optional but when the clause is pre-verbal, LDA is obligatory (though see ex. (899a) on page 384 of Khalilova 2009, which appears to be a counterexample). Relativization of the embedded absolutive also forces LDA (Khalilova 2009: 390–1: (909)).

(42) *[Zu   gonbida-tze-a]   baztertu za -it-u-zte.
       you(ABS) invite-NMZ-ART(ABS) refused   2.ABS -PL.ABS-have-3PL.ERG
       'They have refused to invite you.'

Because LDA cross-references the case of the embedded clause, both Etxepare (2006) and Preminger (2009) conclude that the nominalized clause is crucially involved in the establishment of agreement in the case-marked construction. They differ in how precisely this involvement is implemented. Etxepare (2006), following Rackowski & Richards (2005), proposes that agreement between a matrix probe and material inside the embedded clause requires prior agreement between the probe and the embedded clause itself. The probe thus agrees twice, and the features involved in each probing step have to be compatible (also see Anagnostopoulou 2003, 2005). The restriction that only 3rd person elements may control LDA then follows from the assumption that the embedded clause carries a 3rd person feature.

Preminger (2009)'s analysis is very similar. Instead of letting one probe agree with two goals, however, Preminger suggests a Cyclic Agree analysis, in which a functional head (D) inside the embedded clause first agrees with the embedded argument, followed by agreement between the matrix probe and the functional head. Paralleling Etxepare's analysis, the D head is taken to contain only a number probe. In an LDA configuration like (40) or (41), the D heading the nominalized clause carries a covert plural specification due to the first agreement step, and this D head then agrees with the matrix auxiliary. As a consequence, it is the case feature of the embedded clause rather than the embedded argument that determines the form of agreement. These data support the view that at least in some instances, LDA is not a simple binary relation between the matrix verb and the embedded argument.

The second point of interested here is that LDA may be the result of several mechanisms even within one language. In addition to the case-marked construction just discussed, Basque also has the so-called adpositional construction. In this construction, the embedded clause is nominalized, just as it is in the case-marked construction. In contrast to the latter, however, the clause is introduced by the postposition *-n* (Laka 2005, 2006) rather than an article. It furthermore lacks a case marker. An example is given in (43).

(43)   [Harri   horiek   altxa-tze-n] probatu   d- it -u-zte.
      stone(s) those.PL(ABS) lift-NMZ-LOC attempted 3.ABS- PL.ABS -have-3PL.ERG
      'They have attempted to lift those stones.'

A striking difference between the case-marked construction and the adpositional construction is that the latter allows for agreement in person while the former does not (recall (42)):

(44)   [Ni   altxa-tze-n] probatu   na -∅-u-te.
      me(ABS) lift-NMZ-LOC attempted   1.ABS -SG.ABS-have-3PL.ERG
      'They attempted to lift me.'

Due to differences like these, Etxepare (2006) and Preminger (2009) converge in treating LDA in the adpositional construction as direct Agree in a restructuring configuration. In other words, LDA is established directly between the matrix verb and the embedded absolutive argument. We have seen reasons to believe that this is not the case for the case-marked construction.

6 Conclusions

The phenomenon of LDA plays an important role in our understanding of the locality of agreement and for determining the mechanisms underlying it. We have seen that a number of analyses have been proposed to derive LDA. These include cross-clausal or intra-clausal movement, restructuring, cyclic agreement and proxy agreement. There are reasons to believe that not all instances of LDA are the produce of the same underlying mechanism. For example, long movement is arguably implicated in the derivation of LDA in Itelmen (Bobaljik & Wurmbrand 2005) but not in Tsez. Moreover, as the data from Basque shows, there can be more than one kind of LDA in a given language, each requiring a different kind of analysis. There are many paths to LDA.

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