

# Agree to Agree

## Agreement in the Minimalist Programme

Edited by

Peter W. Smith

Johannes Mursell

Katharina Hartmann

Open Generative Syntax 6



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# Contents

<b>Acknowledgments</b>	<b>iii</b>
<b>1 Some remarks on agreement within the Minimalist Programme</b> Peter W. Smith, Johannes Mursell & Katharina Hartmann	<b>1</b>
<b>2 Labeling, selection, and feature checking</b> Hedde Zeijlstra	<b>31</b>
<b>3 Concord and labeling</b> Vicki Carstens	<b>71</b>
<b>4 Object agreement and grammatical functions: A re-evaluation</b> Peter W. Smith	<b>117</b>
<b>5 Opacity in agreement</b> Laura Kalin	<b>149</b>
<b>6 Distributed agreement in participial sandwiched configurations</b> Franc Lanko Marušič & Andrew Nevins	<b>179</b>
<b>7 The AWSOM correlation in comparative Bantu object marking</b> Jenneke van der Wal	<b>199</b>
<b>8 Agreement across the board: Topic agreement in Ripano</b> Roberta D'Alessandro	<b>235</b>
<b>9 Long distance agreement and information structure</b> Johannes Mursell	<b>271</b>
<b>10 Long-distance agreement and locality: A reprojection approach</b> Kristin Börjesson & Gereon Müller	<b>307</b>
<b>11 Agree probes down: Anaphoric feature valuation and phase reference</b> Michael Diercks, Marjo van Koppen & Michael Putnam	<b>347</b>

*Contents*

<b>12 The morphosyntax of allocutive agreement in Tamil</b>	
Thomas McFadden	<b>391</b>
<b>13 Distinct featural classes of anaphor in an enriched person system</b>	
Sandhya Sundaresan	<b>425</b>
<b>Index</b>	<b>463</b>

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## Chapter 1

# Some remarks on agreement within the Minimalist Programme

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Agreement has been of great theoretical interest in the Minimalist Programme. Since Chomsky (2000; 2001), agreement has been largely handled by the operation AGREE, which is the operation responsible for moving feature values from one element to another. Despite there being a general consensus that AGREE exists within the minimalist literature, various issues surround how to formulate it, and where it fits in with the grammar. In this chapter, we overview some of the central debates surrounding AGREE, and provide summaries of how the chapters in this book aim to answer some of the outstanding questions.

## 1 Introduction

Agreement is a pervasive phenomenon across natural languages (Corbett 2006). Depending on one's definition of what constitutes agreement, it is either found in virtually every natural language that we know of, or it is at least found in a great many. Either way, it seems to be a core part of the system that underpins our syntactic knowledge.

Since the introduction of the operation of AGREE in Chomsky (2000), (1), agreement phenomena and the mechanism that underlies agreement have garnered



a lot of attention in the Minimalist literature and have received different treatments at different stages.

- (1) AGREE (taken from Zeijlstra 2012)  
 $\alpha$  can agree with  $\beta$  iff:
- a.  $\alpha$  carries at least one unvalued and uninterpretable feature and  $\beta$  carries a matching interpretable and valued feature.
  - b.  $\alpha$  c-commands  $\beta$
  - c.  $\beta$  is the closest goal to  $\alpha$
  - d.  $\beta$  bears an unvalued uninterpretable feature.

While the most common mechanism to handle feature dependencies at a distance in current work is still the operation AGREE introduced in Chomsky (2000), the landscape of approaches to this operation has become very large, with there being prominent debates surrounding various aspects of the formulation of AGREE. Some of these debates are addressed below, where they are relevant for our collection.

1. Should agreement be handled by a dedicated operation of AGREE, which is a primitive operation of the syntactic component like Merge?
2. If so, what is the direction of the AGREE operation?
3. Is AGREE fully syntactic, fully post-syntactic, or spread across both domains?
4. Are AGREE relations restricted to certain feature types?
5. What is the relevant locality domain of AGREE?
6. What phenomena should be handled by AGREE?
7. Is agreement parasitic on other factors, or can it apply freely?
8. What is the interaction of AGREE with other operations (e.g. labelling, merge)?

The papers that are collected together in this volume collectively address these debates. Throughout the rest of this introduction, we summarise some of the major viewpoints that have factored into the questions given above. The introduction is not intended as a comprehensive survey of agreement patterns in natural languages, nor is it intended as an overview article on the history of agreement

throughout the Minimalist Programme.<sup>1</sup> Rather, we simply aim to highlight current theoretical points of interest to give some context to the rest of the papers in this book.

All of these debates remain active in the literature to this day. This volume collects various papers to explore these topics and contribute to the ongoing debates surrounding agreement. The goal of this book and the collected papers is not to present a single perspective of how AGREE should operate in Minimalism; rather the goal is to explore these debates from a variety of perspectives.

## 2 Current theoretical debates surrounding agreement

### 2.1 Features used in agreement and the phenomena accounted for

When looking at the nature of agreement it is of course necessary to first define what it is that we are investigating, i.e. what phenomena of languages should be classed as agreement. This area is open to debate as we will see, but it is crucial to engage this problem, so that we can answer the question of which features can participate in the AGREE relation.

Traditionally, and in its most narrow sense, agreement is used to describe the variation of the verbal form depending on features, such as Person, Number and Gender, traditionally also grouped together as phi-features, of its arguments (Preminger 2014). These features often, but not always, interact with the Tense, Aspect and Mood features of the verb to produce a variety of different verb forms. English has a quite impoverished morphological system, but one can see that the form of the verb differs in the present tense, depending on whether the subject is 1SG or 3SG, (2).

This is a pattern seen frequently across languages, but sensitivity to more than one argument is also possible, for example (3) from Swahili, where phi-feature agreement takes place between the verb, the subject and the object.<sup>2</sup>

- (2) a. I see the seagull over there.  
b. He sees the seagull over there.

- (3) Mbuzi a-li-u-ona mti.  
1.goat 1.S-PST-3.O-see 3.tree  
'The goat saw the tree.'

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<sup>1</sup>For the former, we refer the reader to Corbett (2006), and for the latter, we refer the reader to discussions in Fuß (2005); Baker (2008); Miyagawa (2010); Preminger (2014).

<sup>2</sup>This type of agreement is very often linked to case, but see the discussion in Section 2.5.

Verbal agreement is not the only syntactic process where the sharing of phi-features between elements seems to be involved. Another prominent case, this time in the nominal domain, is nominal concord, i.e. the sharing of phi-features between a head noun and its modifiers (4). However, even though the same types of features seem to be involved in nominal concord, there are important differences to verbal agreement (but see Carstens 2001 and Baker 2008 for a different point of view). Thus, for example, according to Norris (2014: 7), while agreement is expressed on several loci in Concord, it is only expressed once in verbal agreement. Similarly, where verbal agreement involves agreement between two different extended projections (nominal and verbal), Concord is only part of one extended projection, the nominal one.

This of course raises the question whether these differences can be accounted for while still assuming an underlying AGREE operation, or whether these differences suggest a completely different mechanism (Norris 2014).

- (4) Swahili  
ki-tabu ki-pya ki-zuri  
7-book 7-new 7-nice  
'a nice new book'

Soon after the introduction of the AGREE operation by Chomsky (2000; 2001), it became clear that this mechanism provided a powerful tool to model dependencies between syntactic elements far beyond phi-feature agreement.<sup>3</sup> In addition, work in the Minimalist Programme abandoned general transformations of the type *Move  $\alpha$*  regulated by certain filters, instead introducing the assumption that movement processes needed to be triggered by features. An early hypothesis was that these movement processes needed to be based on prior agreement processes. Consequently, many different phenomena involving dependencies between elements in syntax, including movement or not, have been accounted for using AGREE.

Looking outside of verbal and nominal agreement, other processes seem to share the same properties. At its core, such nominal and verbal agreements have in common that there is a dependent element that changes its form based on the features of another item. If we define "agreement" in such a broad manner, then another obvious candidate for an analysis in terms of agreement would be anaphoric binding (5). The main problem for such a theory appears to be the c-command relations between the elements involved, as the dependent element

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<sup>3</sup>This possibility is also inherent in older definitions of agreement (Steel 1978; Kayne 1989).

seems to be c-commanded by the element providing the features. Various proposals to overcome this problem can be found in the literature, ranging from movement of the anaphor (Rooryck & Vanden Wyngaerd 2011) to the postulation of functional heads regulating the agreement processes (Reuland 2001; 2011) to a reversal of the agreement relation (Bjorkman & Zeijlstra 2019).

Another, well-known phenomenon that has received an analysis in terms of phi-feature agreement is Control. Starting with Hornstein (1999), it has been argued that Control involves agreement between the matrix verb and the embedded subject, based on phi-features, with subsequent movement of the embedded subject to the matrix spec-TP (6b), comparable to raising (6a). Whether this analysis is on the right track is still debated (see Landau 2013 for an overview), but it shows yet again how AGREE can be employed in analysing very diverse phenomena.

- (5) a. Frank saw himself in the mirror.
- b. \* Frank saw herself in the mirror.
- (6) a. John seems to Mary [<sub>TP</sub> ⟨John⟩ to have seen himself in the mirror.]
- b. John expects [<sub>TP</sub> ⟨John⟩ to see himself in the mirror.]

While nominal concord can be analysed as sharing of phi-features, other types of concord seem to involve other kinds of features that are shared between the different elements, suggesting agreement processes based on features other than those participating in nominal concord. Thus, Zeijlstra (2004) has argued that negative concord and even NPI licensing can be analysed as agreement processes based on sharing [NEG] features (7) (Haegeman & Zanuttini 1991). In a very similar fashion, Zeijlstra (2012) has suggested to analyse Sequence of Tense, where the embedded tense is dependent on the matrix tense, as agreement based on tense features between the various T-nodes involved (8). Again the issue here is not whether these analyses are correct but simply to show the very general applicability of the operation AGREE to a variety of different phenomena requiring different types of features to participate in the operation.

- (7) a. Italian, (Zeijlstra 2004)  
Gianni non ha telefonato a nessuno.  
Gianni NEG has called to nobody  
'Gianni didn't call anybody.'
- b. Gianni *Op*<sub>[NEG]</sub> non<sub>[NEG]</sub> ha telefonato a nessuno<sub>[NEG]</sub>
- (8) [John T<sub>[PAST]</sub> [said<sub>[PAST]</sub> [Mary was<sub>[PAST]</sub> ill]]] (Zeijlstra 2012)

Turning to cartographic approaches of sentence structure, it has been mentioned above that in current syntactic theory, movement crucially depends on prior agreement as all movement has to be triggered by agreeing features. Consequently, cartographic approaches towards syntax combined with movement of elements in dedicated projections require a wealth of features to participate in the necessary agreement processes. Focusing on information structure and the sentential left periphery as outlined in Rizzi (1997), it has often been observed, even before Rizzi's seminal work, that information structure, i.e. topic and focus, is very frequently encoded by left-dislocating the respective element to a sentence initial position.

Rizzi (1997) conclusively showed for Italian that topics and foci, when moved to the left periphery, target different functional projections, sandwiched below Force, which encodes the clause type, and above Fin, which encodes finiteness. As movement of topics and foci targets different projections, specifiers of TopP and FocP respectively, the different movements are due to agreement relations established between topic features for moved topics and focus features for moved foci.

Miyagawa (2010; 2017) capitalises on the idea of agreeing information-structural features in a different way. Following the idea of feature inheritance introduced in Chomsky (2008), the idea that T inherits all its features from the phase head C, Miyagawa argues that in discourse configurational languages, T does not inherit phi-features from C, but information-structural, so-called  $\delta$ -features. In these languages then, agreement relations based on information structural features actually replace those based on phi-features, suggesting again that agreement and AGREE play a much more important and much more general role than just in phi-agreement.

Instead of listing more types of features for which agreement relations have been proposed in the literature, we want to briefly discuss a different perspective from which the features participating in agreement relations can vary, namely the actual specification or shape of the various features. Initially Chomsky (1995) proposed that agreement must necessarily involve a spec-head configuration. Whether this configuration needs to be established overtly or covertly was dependent on the strength of the features involved: strong features required an overt spec-head configuration, for weak features, this configuration could be established at LF. This dichotomy between strong and weak features was largely abandoned with the introduction of the AGREE mechanism in Chomsky (2000; 2001). Instead, features were assumed to differ along two dimensions, interpretability and valuation. In Chomsky's original proposal, interpretability referred to features which are legible to the interfaces or not, i.e. interpretable features could

survive until LF while uninterpretable features had to be checked during the syntactic derivation, with this being dependent on agreement with an interpretable counterpart. Since interpretability is a semantic property and therefore not visible to syntax, it was assumed that the interpretable features also always carried a value while the uninterpretable features were initially unvalued and had to acquire their value through agreement.

Even though this approach to agreement and AGREE is still used, many modifications have been discussed in the literature. For example, Pesetsky & Torrego (2007) proposed to abandon the correlation between valuation and interpretability, so that all four possible combinations of these properties can be found in syntax. A different modification has recently been defended in Smith (2015; 2017b), namely that at least for phi-features, the same feature consists of a morphological and a semantic part, which can both be valued and which are subject to different restrictions on AGREE.

## 2.2 Locality of agreement

Before the introduction of AGREE, feature checking was assumed to take place in the most local configuration, i.e. a specifier-head configuration (Chomsky 1995). This configuration was either established in narrow syntax or at LF, depending on the so-called strength of the feature, strong or weak, respectively. With the introduction of AGREE in Chomsky (2000; 2001), it became possible for features to interact over a distance and movement into spec-head configurations for agreement was assumed to be triggered by something additional to AGREE, for example the EPP.

Allowing features to establish relations across a distance of course raised the question whether this distance was constrained in any way. The formulation of AGREE in Chomsky (2000; 2001) does not contain any locality restrictions except that the probe needed to c-command the goal. On the other hand, it was well-known that movement, another operation that applied across a certain distance, was subject to rather strict locality constraints. These locality constraints for movement are often subsumed under the term “phases” – certain projections in the clausal spine that delimit local syntactic domains – and movement out of those projections is only possible from their edge, which is the highest head of the projection and its specifier.

This of course raises the question whether the locality domain of agreement is the same as for movement, i.e. the phase (see Bobaljik & Wurmbrand 2005 for discussion). Most cases of agreement do indeed seem to be maximally clause bound. However, there does seem to be possibility of agreeing with the edge of a

lower phase. A famous example of this is seen in Tsez (Polinsky & Potsdam 2001), where in the first example the agreement on the matrix verb is class IV, ostensibly controlled by agreement with the embedded clause as a whole. However, in the second example, the matrix verb shows class III agreement, which reflects the interpretation of ‘the bread’ being a topic. Polinsky & Potsdam (2001) argue that *magalu* moves into the embedded left-periphery at LF, and being in the edge of the lower phase, is close enough for agreement to succeed.

- (9) a. enir uḷā magalu bāc’ruli r-iyxo.  
 mother boy bread.III.ABS ate IV-know  
 ‘The mother knows that the boy ate bread.’  
 b. enir uḷā magalu bāc’ruli b-iyxo.  
 mother boy bread.III.ABS ate III-know  
 ‘The mother knows that the boy ate bread.’

Several proposals similar to that of Polinsky & Potsdam (2001), which treat long-distance agreement comparable to long-distance *wh*-movement as successive cyclic, can be found in the literature (Legate 2005; Frank 2006; Bjorkman & Zeijlstra 2019). Under this approach, AGREE is subject to the same locality constraints as movement, so that agreement across a phase boundary has to proceed through an intermediate agreement step in the phase edge.

On the other hand, Bošković (2007) takes similar data from long-distance agreement, more specifically from Chukchee, (10), to indicate that AGREE is not subject to the same locality constraints as movement, in that it is not subject to the phase impenetrability condition (PIC). In (10), the matrix verb, *regret* seems to agree at least in number with the object, *reindeers*, of the embedded clause. Since the embedded clause appears to be finite, it is likely a CP with the agreement relation between the matrix verb and the embedded object crossing the CP phase boundary, clearly a violation of PIC if no intermediate agreement step is assumed.

- (10) Chukchee (Bošković 2007)  
 ənan qəlyḷu ləŋərkə-nin-et [iŋqun Ø-rətəmŋəv-nen-at qora-t.]  
 he regrets-3-PL that 3SG-lost-3-PL reindeer-PL  
 ‘He regrets that he lost the reindeer.’

In addition, there might be even more complex interactions between AGREE, movement and phases. Thus, Branan (2018), in part based on Rackowski & Richards (2005), argues that if AGREE with a phase as a whole takes place, this agreement unlocks the phase for movement out of this phase bypassing the phase

edge. While not discussed explicitly, this, under a standard approach to movement, then also supposedly licenses agreement without the intermediate step of agreeing with the phase edge. While this prediction is in need of further investigation it again highlights the non-trivial relation between AGREE, movement and locality domains.

### 2.3 The timing of AGREE

A further question surrounding the formulation of AGREE is whether it should be seen as an operation that takes place purely in the “narrow” syntax, or has a wider domain. AGREE is standardly seen as a primarily syntactic operation, due to its apparent interaction with other syntactic processes, however, in recent years Bobaljik (2008) has argued that agreement should be seen as an operation of the post-syntactic component, whilst there are other approaches that argue for the operation to be divided over the two components (Benmamoun et al. 2009; Bhatt & Walkow 2013; Marušič et al. 2015). This view of agreement requires a particular view of the syntax-morphology interface, namely that morphology follows the syntax, such as is assumed in Distributed Morphology (Halle & Marantz 1993; Arregi & Nevins 2012). In such a view, there is a set of operations that take place after the syntax proper, such as linearisation of hierarchical structure, certain manipulations of features (fusion, fission) and so on. If agreement takes place in the post-syntactic component, then we expect there to be interactions with these operations, which we do not expect if it is an operation solely of the syntax proper.

It seems clear that AGREE is sensitive to properties familiar from the syntactic component, such as *c*-command and locality, however, it also seems to be occasionally not subject to such considerations. Studies of Closest Conjunct Agreement have suggested that agreement can, at least in part, involve linear relations without *c*-command, hinting at being in part post-syntactic. There are a number of clear examples of agreement being, in some cases, sensitive to linear properties as opposed to hierarchical ones, and we illustrate here with data from Tsez (Benmamoun et al. 2009):

- (11) a. kid-no            uži-n            Ø-ik'i-s.  
           girl.ABS.II-and boy.ABS.I-and I-went  
           ‘A girl and a boy went.’
- b. y-ik'i-s kid-no            uži-n.  
           II-went girl.ABS.II-and boy.ABS.I-and  
           ‘A girl and a boy went.’

The agreement prefix on the verb changes according to what is the linearly closer of the two conjuncts. In (11a), the agreement prefix is null, indicating agreement with the second conjunct *uži-n* ‘boy’ which is gender class I. By way of contrast, we see agreement with the closer conjunct *kid-no* in (11b), where the verbal prefix *y-* agrees for gender class II.

Note that the only difference is the position of the coordination relative to the verb. In (11a) it is preverbal and the second of the two conjuncts is closer to the verb, whereas in (11b) the coordination is postverbal, and so the first conjunct is closer to the verb. Coordinations are especially relevant, since following Munn (1993) a.o. they are commonly – though not universally (see Borsley 2005) – assumed to involve an asymmetric structure whereby the first conjunct is structurally higher than the second. If this structure is correct, then whether the conjunction is postverbal or preverbal, the first conjunct will always be structurally highest, and it becomes very difficult to account for the positional sensitivity of the agreement prefix without making reference to linear order.<sup>4</sup>

Benmamoun et al. (2009), and others following in their footsteps (including a.o. Arregi & Nevins 2012; Bhatt & Walkow 2013; Smith 2015; 2017a,b), propose that AGREE is decomposed into two sub-operations, such as in the following (adapted from Arregi & Nevins 2012):

- (12) Agreement between a controller and target proceeds in two steps:
- a. AGREE-LINK: in the syntax, a target has unvalued phi-features that triggers AGREE with controller. The result is a link between controller and target.
  - b. AGREE-COPY: the values of the phi-features of controller are copied onto target linked to it by AGREE-LINK.

The first, AGREE-LINK takes place in the syntax proper and operates on hierarchical structures, matching the elements carrying the probe and the goal. The second operation, AGREE-COPY, leads to a transfer from goal to probe. AGREE-COPY can,

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<sup>4</sup>It is possible that one can handle the Tsez data without recourse to linearly motivated agreement, by assuming that the hierarchical structure of the coordination can differ (cf. Johannessen 1996). Namely, when one sees agreement with the leftmost conjunct, the coordination phrase branches in the familiar rightwards manner, where the leftmost conjunct asymmetrically *c*-commands the rightmost conjunct. On the other hand, where agreement is shown with the rightmost conjunct, this structure would be the converse, i.e. a leftward branching structure where the rightmost conjunct asymmetrically *c*-commands the leftmost one. Varying the structure in such a way will always allow agreement to be with the highest conjunct, and as such offers no evidence for agreement taking place after the syntactic structure has been linearised. This proposal is considered, and ruled out by Benmamoun et al. (2009).

but need not, take place in the post-syntactic component after the point of linearisation. If AGREE-COPY happens after the point of linearisation, then in principle, we expect there to be interactions between AGREE-COPY and linear order, since linear order is established prior to AGREE-COPY. In the Tsez data, just discussed, then AGREE-LINK is assumed to take place, and links the verbal agreement head to the conjunction, delimiting the search space for AGREE-COPY (cf. Bhatt & Walkow 2013). AGREE-COPY takes place after the structure has been linearised, and copies the features from the closest DP in the conjunction. If the conjunction is postverbal, then the leftmost conjunct is closest, and if it is preverbal, then the rightmost conjunct is closest.

There have been notable attempts to account for last conjunct agreement in a purely structural manner (Johannessen 1996; Bošković 2009), however, the case for linear sensitivity here is strong and has been confirmed in a number of languages, and we refer the reader to Marušič et al. (2015) and Willer-Gold et al. (2017), as well as Marušič & Nevins (2020 [this volume]) for further discussion. Furthermore, the appeal to linear sensitivity is supported by converging evidence from agreement phenomena unrelated to conjunction agreement that support the bifurcation of AGREE into AGREE-COPY and AGREE-LINK, such as interactions of morphemes in the Basque auxiliary system (Arregi & Nevins 2012), semantic agreement (Smith 2015; 2017a), and further interactions between agreement and morphological operations (for example Kalin 2020 [this volume]).

## 2.4 The direction of AGREE

Another debate is over what the direction of the AGREE operation is. In its original formulation, Chomsky proposed that AGREE should be formulated in such a way that the probe c-commanded the goal. This was motivated in large part by the desire to have AGREE as the first step of the movement operation that would raise the subject into Spec,TP from Spec,vP, and so implicating agreement in satisfying the EPP. There are also clear cases where AGREE does seem to look down in the structure. In nominative object constructions, such as the following in Icelandic for instance, agreement is clearly with the object, and there is little evidence to suggest that the object ever raises above Spec,TP (see Zaenen et al. 1985 for arguments that the nominative object is not the subject in such sentences).

- (13) Það líkuðu einhverjum þessir sokkar.  
EXPL liked.PL someone.DAT these socks.NOM  
'Someone liked these socks.'

Though this view has remained by and large the more widely accepted view, there have been a variety of proposals which seek to weaken this viewpoint, and allow AGREE to look upwards in the structure, more or less easily depending on the proposal in question. For instance, Béjar & Řezáč (2009), on the basis of person hierarchy effects in agreement, argue that if AGREE fails to fully value a probe looking downwards, it is allowed to look upwards in the structure, at least to the specifier of the probe. Other accounts have also taken the view that AGREE can look upwards in the structure, but not as a last resort. Some work that is based on agreement patterns in Bantu languages has argued that agreement on T must be able to look upwards to its specifier, since agreement in Bantu is uniformly with the element that is in Spec,TP (cf. the Icelandic example in 13).

- (14) Kinande (Baker 2003)  
Omo-mulongo mw-a-hik-a mukali.  
18.LOC-3.village 18s-T-arrive-FV 1.woman  
'At the village arrived a woman.'

However, data like (14), though certainly suggestive of AGREE being able to look upwards, cannot be taken as proof. As Preminger & Polinsky (2015) point out, in such cases, we cannot definitively rule out a derivation whereby the controller of agreement moves to some functional position FP just beneath TP, before moving to the specifier of TP itself. No evidence is offered to this effect for the data in (14), but since the derivation cannot be ruled out, their argument is that such sentences offer no concrete proof of agreement being able to look upwards.

Thus, in order to make the argument that agreement can look upwards, what is needed is a configuration whereby  $\alpha$  is the controller of agreement,  $\beta$  the target, and there is no point in the derivation whereby  $\beta$  c-commands  $\alpha$ . It is difficult to find such configurations with any certainty when looking at phi-agreement.

Since Koopman & Sportiche (1991), it is widely assumed that subjects are merged in Spec,vP, and so will always begin the derivation lower than T, the usually assumed locus of subject, verb agreement. Thus, we would need the locus of subject agreement to be on  $v$ , or lower. Béjar & Řezáč (2009) present a compelling case that Basque has (some) verbal agreement on  $v$ , however, this does not seem to be a common configuration for verbal agreement, and the usual case seems to be that agreement is higher in the structure.

If we look beyond verbal-agreement, then a range of phenomena have been documented suggesting that agreement can look upwards, such as participial agreement, binding, negative concord, sequence of tense and semantic agreement (see for instance Wurmbrand 2012; Zeijlstra 2012; Smith 2015). Though

many of these cases provide the requisite configuration for upwards agreement to be tested, there does not seem to be a current consensus over what exactly these phenomena show.

Take binding for instance, such as the simple examples in (15).

- (15) a. I saw myself in the mirror.  
b. You saw yourself in the mirror.  
c. \*I saw yourself in the mirror.  
d. \*You saw myself in the mirror.

As mentioned earlier, it is clear that there is a relationship of feature sharing between the antecedent and the anaphor, given that the morphological shape of the antecedent is determined by the features of the antecedent. Specifically, in English, the pronominal base of the anaphor must agree with the features of the antecedent. This feature sharing relation makes binding seem like a prototypical AGREE relation, an idea which is further strengthened by binding relations often showing locality effects that are similar to, if not always exactly alike with locality relationships in agreement. If this does involve AGREE, then it seems to be the ideal proving ground for the claim that AGREE can look upwards, given that the target of agreement (the anaphor) is c-commanded by the controller (the antecedent) at all levels, given that the antecedent is a subject, and so generated higher than the antecedent, an object.

Yet, we must take care before concluding that even if it *is* an AGREE relation, we are truly dealing with an upwards AGREE relation.<sup>5</sup> The reason to be cautious here, is that a variety of proposals have been offered for binding that require a step of downwards agreement. Rooryck & Vanden Wyngaerd (2011) for instance argue that the anaphor rises to a position above the antecedent early in the derivation, before the subject raises to Spec,TP. This allows the reflexive to probe downwards and take features of the antecedent in a downward manner. Independently, both Reuland (2001; 2011) and Kratzer (2009) argue that binding is done by a series of intermediate relations through functional heads and the arguments, and between the functional heads themselves, crucially all done in a downwards manner. Thus, the apparent upwards character of the AGREE relation is in fact a series of three separate AGREE relations, all going downwards, creating a chain between the antecedent and the anaphor, which in turn allows features to be shared between the two.

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<sup>5</sup>Preminger (2013) and Preminger & Polinsky (2015) have cast doubt on whether other phenomena truly share the same mechanism that underlies phi-agreement. We do not take any stance on this here, only pointing out that there is controversy over whether data not exhibiting phi-agreement can be used to bear on the nature of AGREE.

## 2.5 How closely is AGREE linked to other items?

Another question is whether AGREE, and agreement in general, should be seen as something that can apply freely, or whether there are preconditions as to whether it can apply. When Chomsky (2000; 2001) first introduced the AGREE operation, agreement between T and the subject seemed to be part of a wider operation that would assign case to the subject and would raise the subject to Spec,TP. In this model, the agreement mechanism in some sense led to the case assignment: the subject DP needed to have phi-features so that it would be visible to the probe, and thus form a suitable goal for T. However, this in some respects set up a situation where case assignment was parasitic on agreement, but this conclusion has been rejected in more recent work, on three grounds: (i) where there is a connection between case and agreement, it is agreement that is dependent on case and not the other way around (Bobaljik 2008; Preminger 2012; 2014); (ii) for some languages, there is no requirement that the element that undergoes agreement with T is assigned case by it (Baker 2008); (iii) agreement is a wider phenomenon than subject-verb agreement, and for other types of agreement, case does not play a role – notably, in object agreement, it is Information Structure that is the most important determiner of agreement relations (Dalrymple & Nikolaeva 2011).

Regarding the first point, in the original formulation of the AGREE mechanism, it was the agreement features of the subject DP that ultimately allowed T to get into the appropriate relationship with the subject in order to assign it case. What is then unexpected on this account, is that the agreement patterns on the verb should be sensitive to the type of case that is assigned to the arguments. Yet this is exactly what seems to be the case when we look at cross-linguistic patterns of what can serve as the controller of subject–verb agreement. Bobaljik (2008) charts very clearly that once we look beyond languages that have a nominative–accusative case alignment, and consider ergative–absolutive alignments, then we find two very interesting patterns. Firstly, in every language whereby the verb will agree with an ergative argument, the verb also has the ability to agree with an absolutive argument. Similarly, for every language that allows verbal agreement with a dative argument, that language also allows agreement with ergatives and absolutives. Thus, there is a hierarchy such that the ability to agree with an absolutive argument is a precondition for agreeing with an ergative argument, and so on for dative. Secondly, there are languages where the verb can only agree with absolutive arguments, and will not agree with ergative arguments. Subject–verb agreement is thus a misnomer in these languages, because in a transitive clause, the verb will agree with the absolutive object, and not the ergative subject.

- (16) Absolutive > Ergative > Dative  
       Tsez, Hindi  
       Eskimo-Inuit, Mayan  
       Basque, Abkhaz

Bobaljik demonstrates very clearly that agreement is determined according to the structurally highest DP that bears an available morphological case, with languages picking morphological case according to the dependent case hierarchy of Marantz (1991).<sup>6</sup>

- (17) Unmarked Case > Dependent Case > Lexical/Oblique Case

The conclusion that Bobaljik draws from this is that agreement is determined after the assignment of case. Earlier models where agreement was a precondition to case assignment naturally struggle to account for this conclusion. Bobaljik goes one step further, and argues that his findings show that agreement takes place post-syntactically, given that m-case (the morphological realisation of case) is also determined post-syntactically, following Marantz (1991). This last conclusion is, however, not without its detractors. Preminger (2012; 2014) accepts Bobaljik's conclusion that agreement is dependent on case, but argues that this is as far as one can push things, and that agreement can well follow case, but both can be syntactic processes in the traditional sense.

As to the second of the arguments, that agreement on T is not connected to case, instructive data comes from the Bantu languages. Above, we said that T will agree with whatever element lies in its specifier. This in itself seems to confirm that agreement is not connected to case. The case of the element – which in itself would need to be purely abstract, since most Bantu languages show little evidence for case on lexical nouns – does not seem to play a role in determining whether it agrees with T or not. However, a stronger argument can be made, given that agreement with T can be determined by a PP. The following examples from Kinande illustrate, where the agreement prefix determined by the preverbal subject is boldfaced:

- (18) a. Abakali **ba**-a-gul-a amatunda.  
       woman.2 2S-T-buy-FV fruit.6  
       ‘The woman bought fruits.’

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<sup>6</sup>Bobaljik shows that nominative–accusative languages are consonant with this generalisation, building on earlier work by Moravcsik (1974).

- b. Omo-mulongo mw-a-hik-a mukali.  
 LOC.18-village.3 18S-T-arrive-FV woman.1  
 ‘At the village arrived a woman.’
- c. Olukwi si-lu-li-seny-a bakali (omo-mbasa).  
 wood.11 NEG-11S-PRES-chop-FV women.2 LOC.18-axe.9  
 ‘WOMEN do not chop wood (with an axe).’

Since PPs are not nominal phrases, they do not require case. Yet, they bear agreement features (but see Carstens 1997 for an analysis of these PPs as being DPs). Thus, agreement features, and the agreement process in general, must be independent from case.

Finally, it is not possible to maintain the view that AGREE necessarily requires a connection to case once we look at object agreement. Dalrymple & Nikolaeva (2011) study object agreement at length, and conclude that it is overwhelmingly dependent on information structure, notably, topicality, such as with the following examples from Khanty. In the first example, *kalaŋ-ət* ‘reindeer.PL’ is interpreted as a topic, and has been preestablished in the discourse. The verb agrees with the plurality of the object in this case. However, in the second sentence, the object is in focus, given that it is being questioned. As such, there is no agreement with the object:

- (19) a. (ma) tam kalaŋ-ət we:l-sə-l-am.  
 I this reindeer-PL kill-PAST-PL.O-1SG.S  
 ‘I killed these reindeer.’
- b. u:r-na mati kalaŋ we:l-əs/\*we:l-s-əlli?  
 forest-LOC which reindeer kill-PAST.3SG.S/kill-PST.3SG.S.SG.O  
 ‘Which reindeer did he kill in the forest?’

What is interesting here is not just the argument that agreement is independent from case. However, it also can be sensitive to the information structure features on elements. The question of how deeply this is encoded is of course open for debate. In the approach set out by Dalrymple & Nikolaeva (2011), the connection is direct, since the information structure features are part of the lexical entry of the agreement affixes. However, there are approaches to Differential Object Marking that argue that the syntactic position of the object is the crucial determinant as to whether it is case marked or not (Woolford 1999; 2001; Baker 2015 amongst many others), and then the features of Information Structure are implicated indirectly in the agreement here. They force the movement to the higher position, which

in turn allows the agreement, however, there is no direct connection between, say, a [+Topic] feature and object agreement. In his contribution to this volume, Smith discusses this connection in Khanty, arguing in favour of the structural approach.

### 3 Overview of this book

#### 3.1 Zeijlstra

In his paper, Hedde Zeijlstra tackles the question of labelling of syntactic structure, notably, in a case of merger between  $\alpha$  and  $\beta$ , which projects a label to the mother node. This question has attracted attention in recent work, with a variety of proposals to answer the question. Zeijlstra proposes to follow the *projection by selection* approach (Adger 2003), where it is commonly held that the element that does the selecting (i.e. the head of the object) is the one that projects its features. Zeijlstra identifies six issues for this approach, such as finding an appropriate motivation for the grammar to work this way, handling cases of adjunction, ordering of merges amongst others. Issues such as these have caused people to have doubts about the overall approach and propose alternative mechanisms in recent years. Of particular relevance to this volume is that such a system is extremely local, since labels are determined at the relationship of sisterhood. Agreement on the other hand does not appear to work in such a strictly local manner. Zeijlstra offers a system of labelling whereby the determiner of the label is not solely the one that does the selecting, but rather labelling is effectively set union: all the features that are carried on the two objects project upwards. The exception is features that have already been checked by a matching feature. AGREE in such a system can be seen as a case of delayed selection, in the sense that the features of the goal percolate up to the tree until they meet the features on the probe. As Zeijlstra puts it, “[w]hat looks like a non-local long-distance checking relation is nothing but postponed selection under sisterhood.” Zeijlstra shows that by handling labelling in this way allows for the challenges to the *projection by selection* approach to be overcome, and offers an interesting perspective on other phenomena, such as the nature of grammatical features, differences amongst lexical categories, as well as the difference between argumental and adjunct PPs.

#### 3.2 Carstens

In her contribution, Vicki Carstens discusses how nominal concord in Bantu languages relates to the operation of labeling (Chomsky 2013; 2015). Specifically,

she explores the impact of nominal gender and how this relates to the position of possessors within the DP. Carstens identifies two sets of languages that stand in opposition to each other in how they behave with possessor structures. On the one hand, are languages of the Bantu type (also Hausa, and speculatively the Romance languages, Hindi/Urdu and Old and Middle Egyptian), that all have grammatical gender and a low position of possessors introduced by an *of*-type morpheme that shows gender concord with the head noun. On the other side are languages like Turkish, Yu'pik, Chamorro and Hungarian that show a relatively high position of the possessor that controls concord on the head noun, and no *of* introducing the possessor. Crucially all of these languages of the second type lack gender concord on the possessor DP or on K of a KP housing the possessor.

Carstens proposes that the raising of the possessor in the second group of languages is analogous to raising of the subject when it merges with vP. Specifically, Chomsky (2013) has argued that the configuration [XP YP] cannot be labelled, as there is no clear head of the construction that lacks a defined head. One way to save this is to move, XP away, which will leave Y as the sole remaining candidate for the label. In nominal constructions, the possessor, merged in Spec,nP moves to a higher position in order to allow labelling of [DP nP]. For languages that have gender concord however, an AGREE relation happens between *n* and the possessor DP. This provides a shared feature that can serve as the label of [DP nP], in the same way that Chomsky proposes the shared phi-features on T and the subject DP percolate to label phiP after subject raising.

Along with deriving the differences between the two sets of languages, Carstens proposes that her data offer evidence that agreement should be taken as a syntactic operation, and not as a postsyntactic phenomenon, given that labelling is assumed to be syntactic.<sup>7</sup> Furthermore, Carstens argues that her analysis lends support to the idea that concord (DP-internal agreement) should be viewed as the same operation as agreement proper (DP-external), pace Chomsky (2001); Chung (2013); Norris (2014); Baier (2015).

### 3.3 Smith

Peter W. Smith looks at the patterns of object agreement in Khanty, which has been discussed in detail in work by Irina Nikolaeva, and also by Nikolaeva in cooperation Mary Dalrymple. According to the previous analyses of Khanty differential object marking, whether agreement arises or not is sensitive to the Grammatical Function of the object. Such a claim is interesting for numerous reasons,

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<sup>7</sup>Cf. the discussion in Section 2.3 above.

chiefly that the existence of Grammatical Functions or the lack thereof is a key point of contention between different theories of generative syntax. Furthermore, in the narrower interest of this volume, the data bear on the issue of the types of features and items that agreement can be sensitive to (see the discussion above). Smith offers a reanalysis of the Khanty data that is more in harmony with the assumptions of the Minimalist Programme, where Grammatical Functions are eschewed in favour of phrase structural configurations.

Specifically, Smith argues that whether an object determines agreement on the verb is the result of different structural positions for different types of objects. This analysis follows a tradition of previous analyses of Differential Object Marking, whereby marking of the object is contingent on a high position in structure (e.g. Baker & Vinokurova 2010; Woolford 2001). However, Smith does not assume a specific single position for objects in the structure, and instead develops the approach to DOM given in Baker (2015), whereby DOM in Khanty arises due to phases being hard in Khanty, which disallows agreement across a given phase boundary. The approach that Smith presents removes the need to assume that it is Grammatical Functions that are responsible for agreement in Khanty, and he shows that a range of other effects connected to object agreement in the language naturally follow from the approach that he presents.

### 3.4 Kalin

Laura Kalin discusses complex agreement patterns in Senaya, a Neo-Aramaic language. Based on different agreement configurations in progressive clauses, she concludes that agreement cannot be treated as a primitive, purely syntactic operation but instead consists of three distinct parts that are spread across the syntactic and post-syntactic domain.

Progressive verbs with two agreeing arguments in Senaya provide three different agreement slots, two supplied by the verb directly and one supplied by the affixal auxiliary. While the slots in which subject and object agreement surface are fixed outside the progressive, different agreement configurations can be found inside the progressive, however, with the agreement markers not distributed in an arbitrary but highly constrained fashion.

To account for the complex agreement patterns, Kalin argues that it is necessary to analyse agreement as consisting of three distinct operations that occur at different points of the derivation. “Match” takes place in syntax and establishes a connection between a probe and a goal based on an unvalued feature on the probe. “Value” in the early post-syntax then copies a values from the goal to the probe and “Vocabulary Insertion” in the late post-syntax then provides

the phonetic exponent. Combined with a slightly revised version of the Activity Condition, Kalin derives the different possible agreement patterns in Senaya, strongly suggesting that AGREE should not be treated as a unified operation.

### **3.5 Marušič and Nevins**

Lanko Marušič and Andrew Nevins investigate gender agreement in “sandwiched” configurations in Slovenian, where a coordinated noun phrase is located between two agreeing participles. The authors make two claims arguing that (i) the two participles may differ in phi-features with the effect that they probe independently of each other; (ii) agreement shows linear order effects, which can be captured by assuming that AGREE-COPY, the second operation in the two-step agreement theory outlined in Arregi & Nevins (2012), may apply after linearisation, hence at PF. The paper presents results from an acceptability judgement study. The results show that sandwiched agreement follows exactly the same patterns as preverbal and postverbal subject agreement in non-sandwiched configurations. The available patterns are closest and highest conjunct agreement on the higher probe, and closest, highest, and default agreement on the lower probe. Other, logically possible options are not available. The results are statistically compared providing comparisons between certain pairs of conditions. The authors reach the conclusion that placing AGREE-COPY in PF makes the surface order in sandwiched configurations all that matters for determining double or highest conjunct agreement by the second participle, in terms of two derivational choices: (i) whether default agreement is chosen, and (ii) whether AGREE-COPY precedes or follows linearisation.

### **3.6 Van der Wal**

Jenneke van der Wal argues that object marking in Bantu languages involves an AGREE relation between a probe on a lower functional head (v, APPL) and a defective goal. She offers an account for the AWSOM correlation, which establishes an interdependence between type and number of object markers allowed on the verb. Concerning type, Bantu languages either mark only the highest object (asymmetric languages) or they mark any object (symmetric languages) on the verb. Concerning number, some languages only allow the highest object to appear on the verb, others allow several object markers to co-occur. The AWSOM correlation states that asymmetric languages want single object marking. Languages with multiple object markers are overwhelmingly symmetric. In accounting for this correlation, van der Wal assumes that the distribution of phi-features is parameterised in that the multiple object markers of the symmetric

languages are indicative of additional sets of uninterpretable phi-features on the lower clausal heads. A typological exception to the AWSOM correlation is represented by Sambiaa, a language which is asymmetric but has multiple object markers. It is assumed that Sambiaa has multiple sets of phi-features as well, the asymmetric behaviour resulting from the fact that both probes are located on v.

### 3.7 D'Alessandro

In her contribution, Roberta D'Alessandro discusses agreement in Ripano, an Italo-Romance variety spoken in Ripatransone, in central Italy. Several occurrences of agreement set it apart from other Romance languages/varieties. Focussing on all the elements that can show phi-feature agreement first, it quickly becomes clear that Ripano is an unusual variety, as adverbs, prepositions, nouns, gerunds and and infinitives can all show agreement. This agreement, however, is not determined by the subject, but, as D'Alessandro argues, by a topical element in the clause. While topic-oriented agreement is not uncommon for languages/varieties in this area, the extent to which the phi-features of the topic spread to the different elements just mentioned is exceptional. In addition to being topic-oriented, the second crucial assumption for the analysis of agreement in Ripano is the presence of an additional set of phi-features (“ $\pi$ ” in D'Alessandro's notation) that can be merged on different, parametrically determined elements (D'Alessandro 2017), which can also be observed in other languages. In Ripano, this extra set of phi-features is bundled with a  $\delta$ -feature, more specifically a topic feature (Miyagawa 2017), which forces agreement based on this extra set of phi-features to be topic-oriented.

### 3.8 Mursell

Johannes Mursell discusses the phenomenon of long-distance agreement. In a first step, the author provides a typological overview of the languages for which long-distance agreement has been discussed. Based on these languages from the Altaic, Algonquian, and Nakh-Dagestanian language families, it is concluded that the decisive factor that unites all occurrences of long-distance agreement is information structural marking of the embedded agreement goal. A generalisation that emerges from this overview is that whenever a language allows long-distance agreement with embedded foci, it is also possible for embedded topics, but not vice versa.

The analysis presented in the second step capitalises on this observation. Based on Feature Inheritance (Chomsky 2008) and Strong Uniformity (Miyagawa 2010;

2017), it is assumed that information structural features are merged together with phi-features on the same phase head, C in this instance. Differing from the literature just mentioned, Mursell assumes that the two features can become bundled on the same information structural head, so that they act as one probe, probing for a goal that fulfils both requirements at the same time, i.e. having valued phi-features and the appropriate information structural feature. Thus, if the embedded C head then finds an appropriate goal in its c-command domain, it values not only its information structural features but also its phi-features. This set of phi-features on the embedded C-head then in turn serves as the agreement goal for the probing matrix verb, as the matrix verb also hosts a set of unvalued phi-features, for which the embedded C-head provides the closest matching goal.

This approach analyses long-distance agreement as successive-cyclic agreement through the phase edge of the embedded clause (Legate 2005), in accordance with the PIC. It captures the behaviour of long-distance agreement discussed for the various languages and accounts for the important role of information structure. In general the analysis suggests that information structural encoding is part of narrow syntax and can influence agreement relations.

### **3.9 Börjesson and Müller**

Kristin Börjesson and Gereon Müller discuss long distance agreement (LDA), a phenomenon directly relevant to questions concerning the locality of agreement processes. The two authors propose a new approach to tackle the typical cases of LDA, in which a matrix verb optionally agrees with an element in a lower clause. They assume that agreement is as local as possible, and that the element that ends up as the matrix verb is actually merged in the embedded clause together with the embedded verb as a complex predicate. Before presenting their analysis, however, the authors extensively discuss problems with different earlier approaches to LDA that leads them to conclude that none of them present an acceptable solution to the problem.

The fundamental background assumption of the approach presented in the paper is that head movement is movement by reprojection. A head moves out of a projection, takes this projection as its complement, and projects anew itself at the landing site. This movement is triggered by features that could not be satisfied in the initial position of the head, and does not need to be local in the sense of the Head Movement Constraint, but is restricted by phases.

In LDA, matrix and embedded verb are thus actually merged as a complex predicate in the embedded clause. Both verbs, however, carry a set of phi-features and

agree with the embedded argument, which necessarily carries information structural features to remain active after the first agreement cycle. The lower verb's structure building feature is satisfied after agreement with the argument in the embedded clause. However, the matrix verb carries a structure building feature that requires it to merge with a CP and this feature then triggers the reprojection movement of this part of the complex predicate into the matrix clause.

### 3.10 Diercks, van Koppen and Putnam

Michael Diercks, Marjo van Koppen and Michael Putnam engage the general question of the directionality of agreement and argue based on complementiser agreement that AGREE should generally be downwards and that cases of apparent upwards agreement are actually composite operations that involve an initial movement step.

They focus on complementiser agreement in Lubukusu, in which the phi-features of the complementiser introducing the embedded clause are valued by the subject of the matrix clause. This stands in stark contrast to complementiser agreement in Germanic languages, where the phi-features of the complementiser are valued by the embedded subject, and provides an apparent counter-example to the claim that agreement always probes downward. To account for this pattern, the authors assume that complementiser agreement in Lubukusu involves anaphoric feature valuation, which in turn always involves a movement step of the anaphor to the edge of the vP, from where it c-commands the subject.

Based on this, the authors formulate a principle, the PAPA (Principle for Anaphoric Properties of Agreement) that states that anaphoric (interpretable, unvalued) phi-features always need to move to the edge of the vP. The reasons for the existence of this principle are then extensively discussed, and related to the assumption that phasal reference can be increased if phase internal elements are moved to its edge (Hinzen & Sheehan 2013). Thus, the paper does not only engage in the discussion of the fundamental properties of AGREE, but also contributes to the study of phases and their properties.

### 3.11 McFadden

Thomas McFadden studies patterns of allocutive agreement in Tamil. Allocutive agreement refers to the phenomenon where agreement on the verb references properties of the addressee, and in Tamil, whether the addressee should be spoken to with the polite form or not. Allocutive agreement, as shown by McFadden, provides evidence that features of the addressee should be represented in

the syntactic structure. After outlining the properties of allocutive agreement in more detail than has been done in previous literature, and establishing that it is a genuine case of agreement, rather than, say, vocativity. McFadden argues that the features of and other information relating to the speech act participants are held on Speech Act Phrases high in the clausal spine, above ForceP. Allocutive agreement represents a functional head between T and Force undergoing agreement with those features. Finally, McFadden discusses the interaction of allocutive agreement with the phenomenon of monstrous agreement in Tamil (Sundaesan 2012), whereby agreement in an embedded context (where the embedded subject is an anaphor) reflects the features of the subject of the same speech act and not those of the speech act of the overall utterance. McFadden shows that in case of monstrous agreement, allocutive agreement in the lower clause must reflect the relationship of the author of the embedded speech act to the addressee *of that same speech act*, and not the addressee of the overall speech act. All this put together offers further evidence for the recent trend of including speech act features in the syntactic spine, rather than being merely part of the semantico-pragmatic background to utterances (Haegeman & Hill 2013; Zu 2015; Miyagawa 2017).

### **3.12 Sundaesan**

Sandhya Sundaesan tackles fundamental questions about anaphors, about their defining properties and their composition, arriving at the conclusion that what has so far been collectively called anaphors does not form a coherent class and that different types of anaphors must be distinguished based on their actual feature content.

Starting out from the by-now traditional view that anaphors are phi-deficient, she shows that neither variant of this wide-spread approach (distinguished by what feature the anaphors are deficient for) can account for all of the observed effects related to anaphora. Her main types of evidence that seem incompatible with the view of anaphors as phi-deficient elements are perspectival anaphora, which are sensitive to grammatical perspective and require a perspective holder, as well as PCC effects involving anaphors, suggesting a somehow privileged status of [PERSON]. Thus, anaphors cannot form a homogeneous class of elements, since some types seem to be deficient for phi-features, while others seem to be specified for person in ways others are not, and even others show sensitivity to properties completely unrelated to phi-features, like perspective.

To account for a variety of observable behaviour of anaphors, Sundaesan proposes a more articulated feature system that adds the privative feature [SEN-

TIENCE] to the binary features of [AUTHOR] and [ADDRESSEE]. This complex feature system, together with the [DEP] feature from Sundaresan (2012) to derive perspective sensitivity, is then shown to be able to derive the various kinds of anaphors discussed in the paper without any additional assumptions for the underlying agreement process.

## Abbreviations

Arabic numerals not followed by SG or PL refer to noun classes.

ABS	Absolutive	NEG	Negation	PST	Past
DAT	Dative	NOM	Nominative	s	Subject
EXPL	Expletive	O	Object	SG	Singular
FV	Final Vowel	PL	Plural		
LOC	Locative	PRES	Present		

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## Chapter 2

# Labeling, selection, and feature checking

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In this paper, I sketch the outlines of an approach to labeling, selection and feature checking that brings minimalist syntax closer to categorial grammar. The central idea is that the distribution of every syntactic element is fully determined by the unordered set of its independent and dependent formal features. Upon merger, every feature on both of the merged elements percolates, unless an independent feature [F] and a dependent feature [uF] stand in a sisterhood relation; then, neither of these two features percolate. This provides a proper labeling algorithm that can also account for the labeling of adjunction. The proposal further reinstalls c-selection and explains the effects traditionally attributed to structural case in terms of DP-selection. It also reduces the set of categorial features to a few primitive independent features ([D], [T], [Pred]). In the final part of this paper, it is discussed how this proposal relates to, or even derives, syntactic operations, such as Agree, movement or valuation.

## 1 Labeling: The question

### 1.1 Projection by selection

Since Chomsky (1995), labeling has become a widely discussed topic within minimalist syntax. Since Merge applies to features, labeling amounts to determining what feature should appear on the top node. The central question has been if, why, and how the merger of F and G, {F, G}, should receive a label. What is it that determines what needs to be inserted in the  $\_$  slot in (1)?

(1)



In Chomsky (1995), it was argued that, in every instance of Merge, the selector would project its (categorical) features to the top node, a position further elaborated by Adger (2003) (see also Boeckx 2008 and Cecchetto & Donati 2010 for similar proposals). Under this approach what selects projects. Canonical cases of projection by selecting heads are presented in (2) (for the sake of convenience denoted in bracket and traditional X-bar notations).

(2) Head–complement configurations

- a. [<sub>V</sub> [V DP]]
- b. [<sub>D</sub> [D NP]]
- c. [<sub>P</sub> [P DP]]

In (2a), the verb's theta-grid selects an internal argument; hence V (or, to be more precise, the feature [V]), having merged with DP (or more precisely, an element carrying [D]), has its theta-requirement satisfied, and thus projects up to the top node (yielding a feature [V] at the top node). Similarly, in (2b), D selects for an NP-complement, and in (2c), P selects for a DP-complement. Since V, D, and P are the selectors, V, D, and P (or, to be more precise, the [V], [D] and [P] features) percolate up.

A major advantage of such a labeling mechanism is that it is not restricted to head-complement relations (see Adger 2003). Also, the label of what is traditionally referred to as the merger of a specifier and a bar-level is captured under this approach, both for elements that are base-generated in and for elements that are raised into the specifier position, as is shown in (3).

(3) Specifier–head–complement configurations

- a. [<sub>vP</sub> DP [<sub>v</sub> v VP]]
- b. [<sub>TP</sub> [<sub>T</sub> T vP]]

In (3a), v first merges with VP and then this merger merges with DP (in the specifier position). Since it is v that selects both its VP-complement and its DP-specifier, it is v that projects in both cases. In cases of Internal Merge, the same principle applies. In (3b), T selects for a verbal complement (either vP or VP) and for a DP in its specifier position. Since T's selectional requirements have been met by means of External Merge with vP and Internal Merge with DP, the label of the entire constituent is again T.

At the same time, there are various challenges that such a labeling approach faces and that have given rise to a variety of alternatives to this approach. In this paper I will discuss what I consider the six major challenges against the view

on labeling that say that what selects projects. However, I will not argue that, as is currently often done, this should call for an alternative view on labeling. Rather, I will present a view on labeling and selection, building forth on insights presented in Adger (2003), that derives projection by selection by assuming that upon Merge every feature of both merged elements percolates, unless a pair of matching interpretable and uninterpretable features stand in a sisterhood relation; then neither of these two features percolate. In this paper I argue that such an account of labeling remedies the challenges (and even a few more problems) that the original selection by projection approach faces.

## 1.2 Six challenges

Despite these advantages, *projection by selection* as labeling algorithm has currently been replaced by other alternatives (cf. Collins 2002, Chomsky 2008; 2013; 2015). This is partially due to the fact that *projection by selection* faces at least six major challenges. In short, these are:

- (4) Challenges for *projection by selection*:
  - a. Motivation
  - b. Adjunction
  - c. Free ordering
  - d. C-selection vs. s-selection
  - e. Mutual selection
  - f. Differences between (long-distance) Agree and local selection.

Let's discuss each challenge in turn. Under the original *projection by selection* approach, the link between projection and selection is not well motivated. Rather, it is stipulated that elements that enter the structure with selectional properties must project. There is nothing in the theory that explains why the selecting element should also be the projecting element.

Second, even though the original proposal can handle labeling of both head-complement configurations and of the merger between a specifier and a bar-level (in traditional terms), labeling of adjuncts is not captured by it. Adjuncts are problematic for this proposal in two ways. First, if the label of the merger of an adjunct and some element X has the same label as X itself, the adjunct should have been selected by X, but adjuncts, by definition, are not selected by the elements they modify. A second problem is that (phrasal) adjuncts modify elements that count as maximal projections but then continue to project. Why is X in (5) allowed to

further project *after* merging with the adjunct if it already acts as a maximal projection *before* merging with the adjunct?

- (5) Adjunction  
[<sub>X-MAX</sub> YP [<sub>X-MAX</sub> XP]]

For these and other reasons, adjuncts are often left out of the core structure of sentences, and are said to undergo late merger (cf. Lebeaux 1988) or not to establish regular mergers with their modifiees (cf. Chomsky 2001; Hornstein & Nunes 2009). This way, their unexpected phrasal status no longer forms a problem for the general labeling algorithm, but, of course, the question is left open as to what generates the label of an adjunct and its sister, and why adjuncts are exceptional in this sense.

A third challenge for *projection by selection* concerns the ordering of mergers (cf. Adger 2013). Looking again at (3), what would prevent structures like [<sub>VP</sub> VP [<sub>V</sub> v DP]] or [<sub>TP</sub> vP [<sub>T</sub> T DP]], where the head v/T takes a DP-complement and where VP/vP end up in the specifier position? Such vPs/TPs should of course be ruled out, but if projection simply results from selection, and selectional requirements are not ordered on functional heads, nothing forbids such constructions.

Perhaps more importantly, one of the core cases of selection, namely theta-role assignment, has nowadays been relegated to the domain of semantics. Argument selection rather seems to be a semantic requirement (*s-selection*) and not a syntactic one (*c-selection*). This is shown in (6). *Know* needs a complement to which it assigns a theta-role, but the syntactic status of this complement is underdetermined. It can either be a DP, a PP, or a CP.

- (6) *to know*
- a. [<sub>VP</sub> *know* [<sub>DP</sub> *Mary*]]
  - b. [<sub>VP</sub> *know* [<sub>PP</sub> *about Mary*]]
  - c. [<sub>VP</sub> *know* [<sub>CP</sub> *that Mary has left*]]

This shows that semantic and not syntactic properties of the complement determine whether theta-role assignment can take place or not. But if the verb does not syntactically select its complement, how can syntax determine that it is the selecting element? This would trigger a look-ahead problem. Unless *c-selection* can be reinstalled in the theory, *projection by selection* cannot account for the labeling of VPs.

A fifth challenge comes from mutual selection. Take the following structure.

- (7) Mutual selection  
 [PP *with* [DP *Mary*]]

In (7), the preposition *with* selects a DP-complement. This would call for PP being the label of the merger, instead of DP. However, under fairly standard versions of structural case, the case feature of the DP has been checked in return by (in this case) the P-head. Case assignment can also be thought of as a selectional requirement: every DP needs to be assigned structural case. But then one could just as well argue that *Mary* in (7) has selected its case assigner (which is P in this case, and could be *v* or finite T in other cases). However, the [D]-feature of *Mary* does not project up.

Finally, more needs to be said about selectional features. Unless one stipulates an independent set of selectional features as part of the set of formal features, selectional features should be reduced to already existing features that encode syntactic dependencies. Such features are well known and are often referred to as uninterpretable or unvalued features. These features have their “selectional” requirements satisfied by means of the operation Agree. Since Chomsky (2001), however, it is generally assumed that Agree can take place in long-distance fashion, whereas the kind of selectional requirements that are said to be responsible for projection under the *projection by selection* approach can only take place in a strictly local fashion. Hence, either projection should follow from something else, or selectional features should be separated from uninterpretable or unvalued features, even though they both encode formal dependencies.

### 1.3 Alternative labeling algorithms

In short, in order to maintain the *projection by selection* approach, various problems need to be remedied, and it has not become clear so far how this can be achieved. For these and other reasons, various scholars have proposed alternative labeling algorithms.

For instance, Collins (2002) argues that a merger of F and G, as in (1), does not need a label at all. Chomsky (2013; 2015), going back to Chomsky (2008), has argued that there is no uniform labeling algorithm. The label of the merger of two elements may be determined by either relativized minimality (in head-complement configurations), shared features (in specifier-bar-level configurations involving External Merge) or movement (in specifier-bar-level configurations involving Internal Merge, where a moved element cannot be the source of the label in any of its positions). Other labeling algorithms have been proposed by Cecchetto & Donati (2010; 2015), who argue that, in principle, both daughters

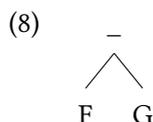
can project their features, and Adger (2013), who argues that labeling is not endocentric at all, and that a label is not projected by its daughters, but “read off” from a functional sequence of formal features.

All these approaches have their benefits, while, at the same time, facing several problems. Unfortunately, space considerations prevent me from doing full justice to all these proposals by discussing them in detail. What all these proposals share, however, is that they take Merge not to be an operation that inherently gives rise to a label; therefore, either Merge should apply in a labelless way (as Collins has proposed) or an additional labeling algorithm has to be formulated in order to prevent structures from appearing without labels – either for formal reasons or because such structures would be banned at the interfaces. It is, however, questionable whether Merge is indeed an operation that does not inherently yield labels.

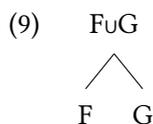
## 2 Proposal

### 2.1 Labeling, Merge, and feature percolation

Let’s look again at the case where F and G merge. Under the conception of the above-mentioned theories, Merge applies as in (8), leaving a position (–) to be filled by a label. The question addressed in all current approaches to labeling then is if, why, and how the merger of F and G, {F, G}, should receive a label.



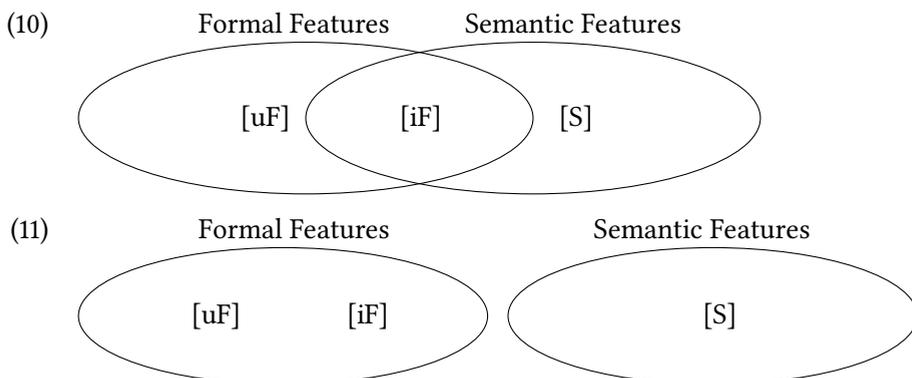
But there is a different view on Merge. If Merge combines two sets of formal features, why would this not be a set that contains all formal features that the merged elements consist of? Why is merger of F and G not the union of the feature sets of F and G? In other words, why is the label not F, G or, in set-theoretical terms,  $F \cup G$ , as in (9)?



The idea that all features percolate up to the top node is in a way the mirror image of the Inclusiveness Condition, which states that the output of a system does not contain anything beyond its input (Chomsky 1995: 225). Given Inclusiveness, no new material may be included in the tree except for the input from the lexicon. But Inclusiveness can be said to follow from a more general constraint according to which formal information should neither disappear nor be added in the structure (see also Neeleman & van der Koot 2002). It would then follow that in principle all features percolate up, unless there is a mechanism where the features of one daughter prevent the features of the other daughter to percolate. If the labels in the structures in (2) are indeed correct, a mechanism would then be needed under this approach that makes the features of the sisters of V, D and P not percolate.

## 2.2 Formal and categorial features

In order to see whether a principled mechanism is available where features can prevent other features to percolate, one should first identify the types of formal features available. In the aftermath of the introduction of the Minimalist Program, various types of features have been proposed: categorial features, selectional features, interpretable and uninterpretable features, edge features, EPP-features, fully uninterpretable features, etc. Naturally, under any minimalist perspective, the taxonomy of formal features should be reduced as much as possible. One attempt in doing so is to unify (un)interpretable features with categorial features. Zeijlstra (2014) argues that the set of (un)interpretable features does not intersect with the set of semantic features, as Chomsky (1995) had proposed. For Zeijlstra, unlike Chomsky, interpretable formal features are purely formal features that have the capacity to check off uninterpretable features, but that lack any semantic interpretation. The fact that elements with a particular formal feature [iF], sometimes also denoted as [F], often also carry the semantics of F (e.g., an element with particular interpretable formal  $\varphi$ -features also often, but not always, receives a semantic interpretation of these  $\varphi$ -features), he takes to be a result of a learnability algorithm, which states how such formal features are acquired. Evidence for this more indirect correspondence between formal and semantic features comes from mismatches between the two (e.g. an element that carries a formal plural feature, but receives a singular semantic interpretation). The taxonomy of formal (un)interpretable features and semantic features would then be as in (11), and not as in (10), which reflects Chomsky's original proposal:



The major distinction between the proposals in (10) and (11) is that in (11), unlike (10), both types of formal features lack semantic content. Consequently, the only thing that such formal features determine is the syntactic behavior of the elements that they are part of. But if that is the case, such formal features are the same as categorial features, which also lack semantic content and also only determine the syntactic behavior of the elements that they are part of. This does not only apply to what are called interpretable formal features, but also to what are called uninterpretable features. These names are actually misnomers. A more proper way to refer to them would be using “independent” and “dependent” formal or categorial features. Independent features determine the categorial status in a traditional way (a verb has a feature [V], etc.); dependent features encode dependencies on other features. For instance, a feature [uD] encodes the dependency on an element carrying [D].

But if categorial information comes from the joint set of both dependent and independent features, there is no need anymore to allude to additional selectional features: a selectional feature encodes the requirement to be merged with an element that carries a particular independent feature – and that is exactly what a dependent feature does.

### 2.3 Feature checking and feature percolation

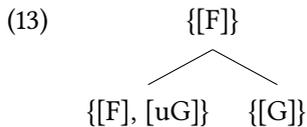
Every lexical item can be said to consist of at least two set of features (ignoring the question whether the set of phonological features is really lexically encoded): semantic features, and formal features, where the latter come about in two types: dependent and independent formal features. Both types of formal features determine the lexical item’s syntactic behavior. Now, let’s see what happens when two elements merge, where merger should fulfill a featural dependency.

Suppose some element  $\alpha$  that carries the formal features  $[F]$  and  $[uG]$  merges with an element  $\beta$  that carries the formal feature  $[G]$ , where  $[X]$  represents a formal interpretable/independent feature and  $[uX]$  a formal uninterpretable/dependent feature. Now the categorial status of  $\alpha$  is that of an element of type  $F$  that needs an element of type  $G$  to survive. If  $F$  is  $V$  and  $G$  is  $D$ ,  $\alpha$  would be a verb that needs to merge with a DP. The result of merging a verb that needs a DP-complement (say a transitive verb) with such a DP is a verb that no longer needs this DP-complement (an intransitive verb). In categorial terms: after merger, both the dependent feature and the element that satisfies the dependency, are cancelled out against each other. That should not come as a surprise. In fact, the hallmark of categorial grammar is that the combination of the elements  $a/b$  and  $b$  yield an element of category  $a$ , just as, in semantic type theory, the mother of a daughter with type  $e$  and a daughter with type  $\langle e,t \rangle$  is of type  $t$ .

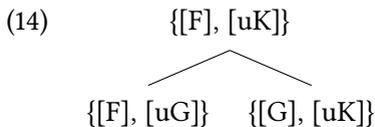
Let us therefore formulate the following rule, which essentially integrates the basic tenets of categorial grammar into minimalist syntax:

- (12) *Rule 1:* Let  $A$  and  $B$  be two sets of formal features. If  $A$  merges with  $B$ , for any pair  $\langle [F]-[uF] \rangle$  such that  $[F] \in A$  and  $[uF] \in B$ , or  $[F] \in B$  and  $[uF] \in A$ , neither  $[uF]$  nor  $[F]$  percolates; all other features do percolate.

Given Rule 1, merger of  $[F]$  and  $[G]$  then immediately yields the required result, as is shown in (13) below.



Note, though, that if the right sister contains any other feature, say an additional dependent feature, nothing stops this feature from percolating up:



One thing that still needs to be prevented, though, is the configuration below, where two independent features would both yield to the top node, giving rise to elements whose syntactic behavior is never attested. One would not want to allow grammar to recursively create novel categories in the course of the derivation.

$$(15) \quad *{\{F\}, \{G\}}$$

$$\begin{array}{c} *{\{F\}, \{G\}} \\ \swarrow \quad \searrow \\ {\{F\}} \quad {\{G\}} \end{array}$$

This, however, can be prevented by assuming a second rule that is very similar to Pesetsky & Torrego (2006)'s Vehicle Requirement on Merge, or Wurmbrand (2014)'s Merge Condition.

- (16) *Rule 2:  $\alpha$  merges with  $\beta$  iff at least one featural dependency is resolved as a result of this merger.*

Informally, (16) states that Merge must involve feature checking. Note that the proposal spelled out above essentially reinstalls *projection by selection*, albeit in a different way. Everything projects except the selecting and selected features. This also means that the various challenges that *projection by selection* met do apply to this proposal as well. Therefore, it needs to be shown how, under this proposal, those challenges can be overcome. Moreover, even though the proposal, in essence, is very simple, the consequences, as will turn out in the next section, are far from trivial and sometimes also far from intuitive. Let's therefore look at the application of the proposal now.

### 3 Application

#### 3.1 Motivation

As already outlined above, the fact that the selecting element projects is now no longer stipulated but follows directly. Every feature except for the selecting and the selected features project (Rule 1), and Merge, and therefore feature percolation, only takes place if it leads to resolving a featural dependency. Essentially, selectional requirements that are satisfied result in the satisfier and the satisfiee no longer percolating, as is standardly assumed in categorial grammar.

#### 3.2 Labeling configurations

With respect to two of the three labeling configurations in question (head–complement, specifier–bar-level and adjunction), the proposal does not work differently from previous versions of the *projection by selection* approach. Assuming that heads like D or P select by means of carrying an uninterpretable feature that can be checked off by their complements (P contains a feature [uD]; D contains

a feature [uN]), the labels of the following configurations are directly accounted for. In (17a), neither [N] nor [uN] percolate up; so the only feature that ends up on the top node is [D]. Similarly, [P] is the only feature that percolates up in (17b); neither [D] nor [uD] do.

(17) Head-complement configurations

- a.  $\{[D]\} [D\{[D], [uN]\} N\{[N]\}]$
- b.  $\{[P]\} [P\{[P], [uD]\} D\{[D]\}]$

Under the assumption that specifiers are secondary selected constituents, the picture can be extended to specifiers, again much in the same vein as the original *projection by selection* approach. To see this, look at the following structures of vP and TP (to ensure that no differences arise due to whether the specifier is externally or internally merged).

(18) Configurations involving specifiers

- a.  $[D\{[D]\} [v\{[v], [uV], [uD]\} V\{[v]\}]]$
- b.  $[D\{[D]\} [T\{[T], [uv], [uD]\} v\{[v]\}]]$

In (18a), v contains two selecting uninterpretable features, [uV] and [uD]. After merging v with VP, the only features percolating up are [v] and [uD] ([V] and [uV] don't). The next step is merger of the feature set {[v], [uD]} with {[D]}, resulting in a top node {[v]}. In exactly the same manner, merging T, the feature set {[T], [uv], [uD]}, first with vP ([v]) and then with DP ([D]) will result in a top node with the feature set {[T]}.

As discussed in Section 1.2, now the question naturally arises as to what determines that v first merges with VP (or T with vP) and only then with DP? Why wouldn't or couldn't the orderings be the reverse? However, in order to answer that question, it should first be determined whether this problem should be solved within a labeling algorithm at all.

At first sight, there appear to be two kinds of solutions to this problem. The first solution would be to impose an ordering on the selecting features, for instance by assigning ordering diacritics ( $\{[uV]\}_1, \{[uD]\}_2$ ), or to think of features sets as being ordered ( $\langle\langle [uV], [uD] \rangle\rangle$ ). The alternative solution would be to say that syntax can deliver both orders. In that case, both  $[_{TP} DP [_T T vP]]$  and  $[_{TP} vP [_T T DP]]$  can be syntactically fine, but only the first, and not the second, can receive a semantic interpretation. Under this view, syntax overgenerates, and the interfaces filter out unwanted structures. Each solution has its benefits, but also comes with

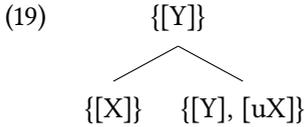
clear disadvantages. Ordering solutions require extra complications in the mechanics of the system (either novel subfeatures, or more complex rules of feature percolation). Interface solutions have to allude to existing semantic or phonological modes of interpretation that rule out the unwanted structures, and it is far from clear whether, for every unwanted structure, a semantic/phonological solution is available. For the selection by functional heads, a semantic solution, arguably, is available, as these are in general the result of grammaticalized scopal relations, but in other cases, semantics and/or phonology may not be able to rule out such reverse merger orderings. Note, though, that it is also possible that certain reverse orderings are ruled out for syntax-internal reasons. For instance, if in (18) DP were the complement of  $v/T$  and VP/vP its specifier, V-to- $v$ , or  $v$ -to-T movement would be forbidden as the target head position ( $v$  or T) would not c-command the base position of the adjoined head (V or  $v$ ).

However, before further evaluating these two types of solutions, let's first look at what kind of empirical predictions they make. Ordering solutions require that reverse selectional orderings may never take place. Interface solutions predict that, when two different orderings are semantically or phonologically non-anomalous, both should be fine. This gives the interface solution a step ahead: if it turns out that such flexible orderings do exist, the ordering solution can already be discarded, and the absence of structures like  $[_{TP} vP [_{T'} T DP]]$  or  $[_{vP} VP [_{v'} v DP]]$  should, in turn, be semantically or phonologically ruled out. In Section 3.3, I show that such flexible orderings can indeed be attested.

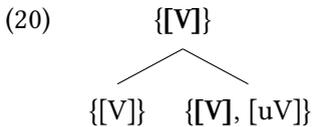
This, then, leaves us to adjunction. The question that arises is why the merger of an adjunct, say YP, with another phrase, XP, yields the label XP. To make this more concrete, let's think of XP as a VP and of YP as an AdvP. Why would merger of VP and AdvP yield a label VP, where both instances of VP are maximal projections? Under the standard *projection by selection* approach, this could never be straightforwardly accounted for. Why would the lowest instance of VP be a maximal projection? And, moreover, to the extent that selection is involved in adjunction, it is the adjunct that needs to stand in a particular configuration with its modifiee, not the other way round. Adverbs need VPs; VPs do not need adverbs.

The solution to the problem, I think, lies in the fact that every known category is generally thought of as a primitive feature. Adverbs carry [Adv], just like prepositions carry [P] and verbs carry [V]. But it may very well be the case that certain categorial features should be replaced by sets of more primitive features, an idea already entertained in Chomsky (1970; 1981). Now, under the assumption that V is indeed a primitive feature (just carrying [V], though see Section 3.7 for

a refinement of that assumption), the presented proposal offers a heuristic to determine the featural status of a sister, if the features of the other sister and the mother are known. Abstractly, this is shown in (19):



If the top node carries  $\{\mathbf{Y}\}$  and one sister carries  $\{\mathbf{X}\}$ , it must be the case that the other sister carries  $\{\mathbf{Y}, [\mathbf{uX}]\}$ . Now, adjunction is nothing but an instance where  $\{\mathbf{Y}\}$  is identical to  $\{\mathbf{X}\}$ . But if that is the case, the featural status of the other sister should be  $\{\mathbf{X}, [\mathbf{uX}]\}$ . Turning to our example, an adverb modifying a VP should not be said to carry a feature  $[\mathbf{Adv}]$ , but rather a feature set  $\{\mathbf{V}, [\mathbf{uV}]\}$ .

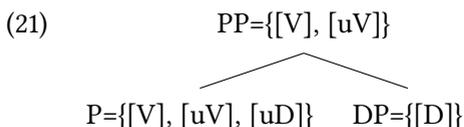


Now, everything follows. Not only is it explained why the top node is  $\{\mathbf{V}\}$ , but, more importantly, the fact that the configuration contains two maximal projections of VP is also accounted for. If an adverb carries  $\{\mathbf{V}, [\mathbf{uV}]\}$  and merges with a feature set  $\{\mathbf{V}\}$ , it is the  $[\mathbf{V}]$ -feature of the VP and the  $[\mathbf{uV}]$ -feature of the adverb that cannot percolate up. The only feature percolating up is the (boldfaced)  $[\mathbf{V}]$  feature on the adverb. But that means that the left sister is a maximal projection (the highest projection of the feature  $[\mathbf{V}]$ ), as is the top node (the highest projection of the feature  $[\mathbf{V}]$ ). Naturally, the question arises how syntax knows which element carrying  $[\mathbf{V}]$  should raise or receive inflection. In other words, how are verbs distinguished from adverbials, now that they are both taken to carry  $[\mathbf{V}]$ ? I will address this issue in the following subsection.

### 3.3 Prepositional adjuncts and selectional ordering

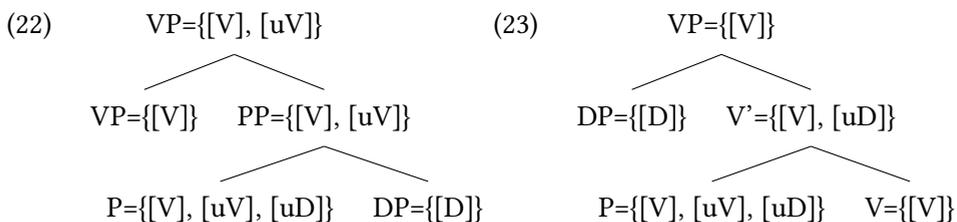
Now, the idea that adjuncts that modify VPs are feature sets  $\{\mathbf{V}, [\mathbf{uV}]\}$  may work well for adverbs, but does not extend to other verbal adjuncts. Take, for instance, PPs. First, PPs do not only modify VPs, but also NPs ( $[_{NP} \textit{sausages} [_{PP} \textit{from Italy}]]$ ) or (predicatively used) APs ( $[_{AP} \textit{afraid} [_{PP} \textit{of the doctor}]]$ ). Moreover, PPs cannot be reduced to feature sets  $\{\mathbf{V}, [\mathbf{uV}]\}$ , as PPs are internally complex. If PPs are feature sets  $\{\mathbf{V}, [\mathbf{uV}]\}$  these features must have percolated up from the inside.

Let's first aim at the latter question (What is the internal feature structure of a PP?), and save the former question for later (Section 3.7). The question that then needs to be addressed is what the consequences are for assuming that PP adjuncts, or at least PP adjuncts modifying VPs, are indeed feature sets  $\{[V], [uV]\}$ . In that case, the question emerges as to what prepositions themselves are. Again, our heuristic to determine categorial features can be of help. If PPs are feature sets  $\{[V], [uV]\}$ , then Ps must be feature sets  $\{[V], [uV], [uD]\}$ .



Under this view, prepositions are elements that, once merged with a DP, behave like adverbials. That seems only partially correct, though. Prepositions merged with a DP can behave adverbials (like *in the garden* in *Mary is walking in the garden*). However, they can also function as arguments. That means that, unless the argument–adverbial distinction can be encoded somewhere in the syntax (i.e., when it is recognizable which element carrying  $\{[V], [uV]\}$  is argumental and which one is not), this proposal is not complete.

However, before further investigating this, there is another issue that emerges: selectional ordering. Given the proposal, it should not only be possible to derive a VP-adjunct as in (22), but the structure in (23) (where a preposition selects a verbal element first and only then a DP) should also be fine.

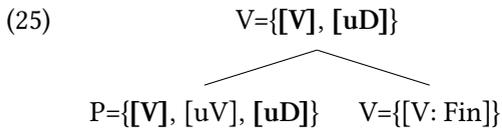


But this prediction is indeed correct. It is well known that many languages exhibit so-called particle-verb constructions, where a combination of a preposition and a verb yield a complex verb. Examples are in (24) below.

- (24) Particle-verb constructions
- a.  $[_V \textit{ eat up}] [_{DP} \textit{ the sandwich}]$
  - b.  $[_{CP} \textit{ Ich rufe}_i] [_{VP} \textit{ Marie an } t_i]$

According to Riemsdijk (1978), Baker (1988), Koopman (1995), Neeleman (1994; 2002), and Zeller (2001), among many others, particle verbs are complex verbal heads. In particular, Zeller (2001) argues that particle verbs are complex heads where the verbal subfeatures of the verb do not percolate to the verb–particle complex. This is motivated by examples like (24b): why would the C-head not target the complex but closer *V an-rufe*, instead of the more deeply embedded *rufe*? Under the assumption that C targets a finite verb and that the finite features under V do not percolate up to the head of the verbal complex, this pattern becomes clear. *Rufe* is the closest finite verb, and therefore raises to C.

Zeller’s assumption is predicted by this proposal. Let’s zoom in on how the complex verb is created, using again boldface to indicate which features project.



Since the [V]-feature on the preposition (which lacks any finiteness subfeatures/values) is the feature that percolates, and not the [V]-feature on the verb (which is valued for finiteness, indicated by [V: Fin]), the complex verb does not carry any subfeatures/values for finiteness either, and can therefore not be targeted by C. Note that this also addresses the question raised at the end of Section 3.2, namely how syntax can distinguish verbs from non-verbs when both carry a feature [V]? As the verbal feature of proper verbs may have a value, unlike adverbs or prepositions, syntax is indeed able to distinguish between the two.

The fact that, under this proposal, prepositions can merge with (or select) both DPs and Vs can be taken as evidence in favour of the proposal. Moreover, it also shows that selectional ordering in certain cases is flexible. And if that is the case, as concluded in the previous subsection, it should not be a property of syntax proper to rule these out. Hence, in cases where selectional ordering seems fixed, this fixedness should indeed be brought about extra-syntactically (i.e., at the interfaces).

Naturally, the question remains open as to (i) how the argument–adjunct distinction can be derived in the syntactic structure if every (VP-modifying) PP is a feature set {[V], [uV]}; and (ii) how the proposal applies to cases where PPs modify other phrases.

### 3.4 C-selection vs. s-selection

The question of how PP argumenthood can be syntactically encoded in this system is a question that depends on the way in which arguments are selected in general. It is clear that the selection of arguments has a semantic, theta-theoretical component, which explains why elements of different syntactic categories can be merged inside the VP: arguments can be DPs, CPs, or PPs.

Setting aside PP-arguments for the moment, the question then arises as to why the label of a merger of V and either D or C yields a label V (and not D/C). Naturally, one could assign various optional selectional features for C- or D-arguments (a verb would be ambiguous or underspecified with respect to carrying either a [uD]- and/or a [uC]-feature), but that would not be more than a formal description of the fact that elements can select both DP and CPs. Moreover, it would not be clear how that would extend to PP-arguments.

More importantly, such optional feature assignment would miss certain striking correspondences between CP- and DP-arguments. To see this, let's focus on CP-arguments (starting with *that*). The first observation is that CPs can control 3<sup>rd</sup>-person-singular (default) agreement, as is shown in (26a). The second parallel is that every CP-argument can be referred to by a single pronoun (26b). The third parallel is that, in terms of (morphological) case computation, CPs behave as if they were DPs. As illustrated for German in (26c), whenever the subject is a CP the object cannot carry default nominative case, but should rather carry dependent accusative case. But if dependent case can only appear on a DP-object when there is a higher nominative, the conclusion must be that the CP-subject behaves nominative-like. Finally, arguably a side effect of the second parallel, even though there are verbs which crucially lack a CP-argument (e.g., *to eat*), the reverse seems hardly to hold: predicates that select CP arguments almost always allow for DP-arguments (at least pronouns referring to a CP-antecedent), with a few notable exceptions, such as *inquire* (cf. Jane Grimshaw p.c.).

(26) CP-arguments

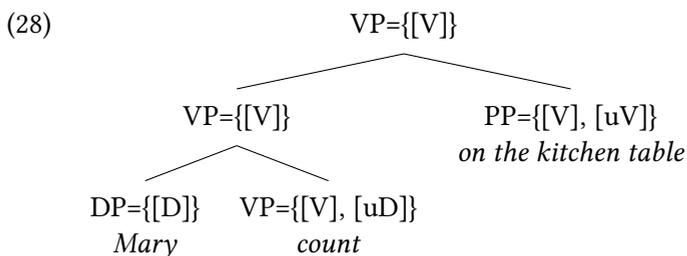
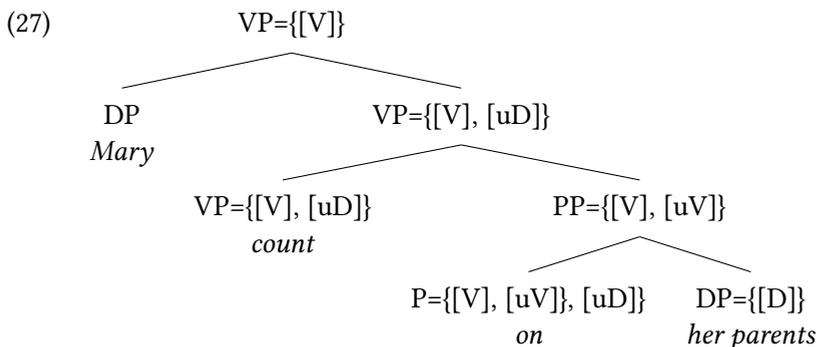
- a. *That Mary is ill, is/\*am/are sad*
- b. *I know {that Mary is ill / that}*
- c. *Dass Marie krank ist, überrascht mich/\*ich*  
that Marie ill is, surprises me/I

What this suggests is that CPs are actually remarkably close to DPs. In fact, if carrying case and controlling (default) agreement are defining properties of DPs, CPs must be DPs of a special kind (see also Kayne 2010, a.o.). For this reason, I take complementizers such as *that* to be complementizers in the most literal way. Complementizers turn TP-clauses into DPs. That means that a *that*-complementizer is actually a feature set  $\{[D], [uT]\}$ , where both  $[D]$  and  $[uT]$  can have additional specific subfeatures, such as  $[Assertive]$  or  $[Finite]$ .

This means that every verb that selects a DP- or CP-argument can be said to carry a  $[uD]$ -feature. Now, syntactically, every verb that carries a feature  $[uD]$  can be merged with either a DP or a CP and yield a label V. Naturally, semantic constraints further restrict the selectional properties of a predicate. That *\*I ate that Mary left* is out, simply follows from the fact that *that Mary left* cannot properly satisfy the semantic theta requirements of the predicate *eat*. The fact that verbs can have c-selectional requirements of course does not exclude that they also have s-selectional requirements.

So far, this explains the labeling properties of CP-, DP-, and PP-arguments. DPs, and therefore CPs, are selected by the verb's  $[uD]$ -feature (where the verb should then be a features set  $\{[V], [uD]\}$ ). PPs (being features sets  $\{[V], [uV]\}$ ) select VPs and also yield a V-label. This, however, treats PP-arguments and PP-adverbials alike. The question as to how these two can be syntactically distinguished is still open. Of course, one could argue that the distinction between PP-arguments and PP-ad adjuncts lies completely in the semantics (and that syntax does not distinguish between the two), but that would be incorrect. It is a well-known fact that PP-arguments trigger different syntactic effects than PP-ad adjuncts, for instance with respect to extraction and (pseudo-)passivization (and subsequent raising of their DP-complements, which is restricted to argumental PPs only).

However, under the assumption that a predicate must first merge with its arguments before it can merge with an adjunct, and under the assumption that every verb selects at least one DP-argument (if not an object, then a subject), the following should hold: if a verb has not been merged with all its DP-arguments when it merges with a PP, this PP must be argumental. A PP-ad adjunct can only merge with a VP after all of the latter's (DP-)arguments have been merged in. That means that the argument PP in (27) is in a different configuration than the adjunct PP in (28). Formally, a PP-argument is the daughter of a verbal element carrying  $[uD]$ ; the mother of a PP-ad adjunct cannot bear  $[uD]$ .

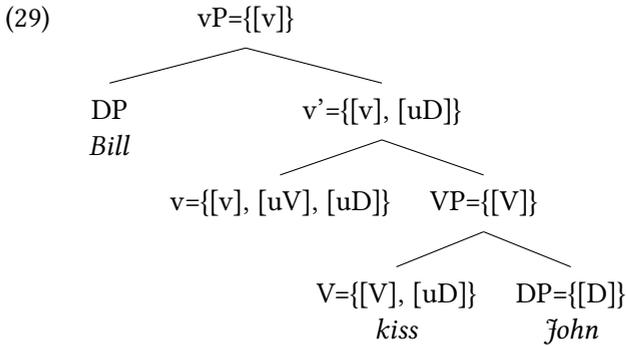


Note that now the proposal reinstalls c-selection for DP/CP-arguments, while having PP-arguments distinguished in syntax as well (the difference between a PP argument and a PP adjunct is that the former, but not the latter is immediately dominated by a feature [uD]), even though PPs always select their sisters rather than being selected by them.

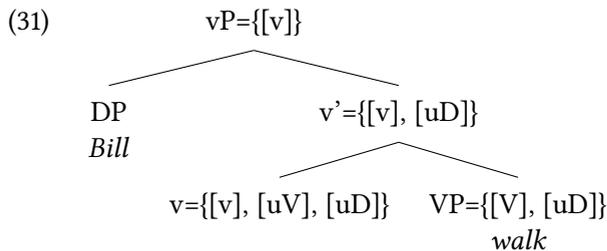
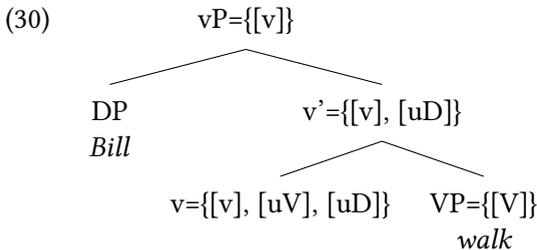
### 3.5 Multiple arguments

As shown in the discussion of (27–28), the subject appears to be selected by the [uD]-feature on the verb. This seems too naive, though, given that *count* is an unergative verb and *Mary* an external argument. The solution to this problem, however, is part of a more general concern, namely that, under the current version of the proposal, a verb is unable to select more than two DP-arguments. The reason is that, if feature sets that constitute categories are unordered, no feature set can contain more than one [uD]-feature:  $\{[V], [uD], [uD]\}$  is formally the same as  $\{[V], [uD]\}$  (as every set  $\{a,a\}$  is formally identical to  $\{a\}$ ).

The solution to this problem is straightforward and goes back to Larson (1988), Hale & Keyser (1993), and Kratzer (1996), who argue that different arguments are selected (or theta-role assigned) by different verbal heads in a layered vP. The structure of a transitive verb, like *kiss*, would then be:



The introduction of an extra DP-selecting head, a pure transitivity head, now follows naturally; without it, no second argument could merge with a verb into the syntactic structure. Just as in other syntactic approaches, the usual verb types can now be derived. Unaccusative verbs are feature sets  $\{[V], [uD]\}$ , where the internal argument starts out as an object. Transitive verbs are as in (29), with both  $v$  and  $V$  selecting one DP-argument each. Unergative verbs, finally, could be analyzed in two ways, as illustrated in (30–31). Either only  $v$  and  $V$  carries a  $[uD]$  feature, as in (30), or both  $v$  and  $V$  carry a  $[uD]$  feature that is jointly checked off by the subject (as percolation of a  $[uD]$  feature from  $v$  and  $V$  yields only one  $[uD]$  on the top node  $v$ :  $\{[v], [uD], [uD]\} = \{[v], [uD]\}$ , as in (31)).



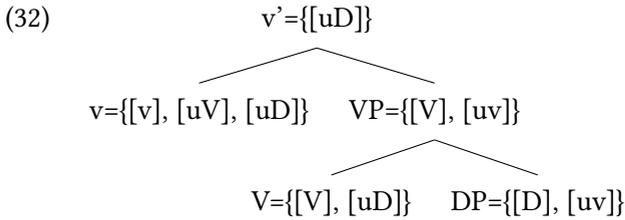
The question is whether the original unergative verb carries a [uD]-feature or not. Although nothing crucially hinges on this, I tend to favour the structure in (31) for the following two reasons: first, it treats all verbs uniformly – every verb carries a feature [uD], which may even end up being a defining property of verbs; second, it explains why cognate objects (such as *a dream* in *I dreamed a dream*), which arguably do not satisfy any additional theta role, can still be merged into the structure – in a structure like (30), that would be impossible.

Note that this assumption makes different predictions for different types of verbs with respect to the modifiability of VPs by adjuncts. A verb can never be modified by a (PP-)adjunct before having selected its DP argument. This means that every VP with an internal argument can be modified by an adjunct-PP after having selected this internal argument; the merger of this V and DP does not carry [uD], rendering the PP it merges with an adjunct. By contrast, the VP projected by an unergative verb still carries [uD] and can thus not be modified by an adjunct-PP.

Let me finish this subsection by making one more remark on the nature of *v*. So far, *v* has been treated as a category of its own, but nothing would speak against a categorial reduction of *v* to more basic features by analyzing it as {[V], [uV], [uD]}, i.e., as a purely verbal preposition. There are three major advantages to this step. First, it simplifies selection by T. T does then not have to be specified for selecting vP or VP. It simply carries [uV]. Second, it shows that vP is really a layer of verbal heads. Third, it unifies the two traditional assigners of case (P and v), as *v* is now prepositional in nature as well. Note that, this may even extend to the applicative head Appl that is generally thought of as another type of *v*, as well as other auxiliaries that may host functional head in the extended verbal projection.

### 3.6 Abstract Case

An additional question arises with respect to the syntactic status of case features and case assignment. Under the view that abstract Case is assigned by particular verbal heads, it becomes unclear why a DP that requires (and, thus, selects) a case feature would not label the merger. In fact, under the present proposal, where verbs select DPs, the reverse selection would not even be possible. To see this, let's assume that accusative case would be [uv] (ignoring the previous remark that *v* is actually a feature set {[V], [uV], [uD]}). Then, merger of *v*, V, and D would yield a structure with only an uninterpretable feature on the top node (and once this node would merge with the DP it selects, its top node would end up without any feature):



Hence, accusative case, under this proposal, cannot be thought of as  $[uv]$ . Of course, one could argue that case features are independent. The accusative DP could have an additional feature  $[uCase]$  and  $v$  a feature  $[Case]$ , which at PF gets morpho-phonologically realized as an accusative, but such additional feature assignment lacks any independent motivation.

The obvious alternative is to adopt a perspective that takes case to be purely morphological. Under this view (originally proposed in Marantz 1991), case assignment takes place post-syntactically. DPs are assigned a particular case form at PF (default case, dependent case, oblique case), dependent on their syntactic context. Under this alternative, case assignment is independent of feature checking in the syntax. Naturally, if that is the case, the problem mentioned above vanishes.

However, as pointed out by Legate (2008) and many others, morphological case does not replace abstract Case. Morphological case assignment determines the form that a particular DP takes in a particular environment; abstract Case assignment determines where in the sentence a DP may occur. Classical structural case theory states that DPs may only appear in the complement position of a verb or preposition, or in the specifier position of a particular functional head ( $v$ , Appl, finite T). The assumption that a DP carries a feature that needs to be checked by one of these heads accounts for their structural distribution (cf. Chomsky 1995; 2001). At the same time, such feature checking is hard to conceptualize. After all, a DP would then have to carry a feature that is a member of the set  $\{[uP], [uv], [uApp], [uT: Fin]\}$ . However, what determines that a DP should carry one of these features? There is nothing principled from which this follows. Moreover, under the perspective of this paper, features such as  $[uP]$  or  $[uv]$  cannot even exist, as  $v$  and  $P$  are not primitive categories, but are complex categories that consist of more primitive interpretable and uninterpretable features. Note that there is also no interpretable feature that overarches every  $P$ ,  $v$ , Appl, or finite T (and only those). Hence, assuming that a DP stands in a feature-checking relation with these heads seems implausible, at least if such a head carries an interpretable feature and the DP a matching uninterpretable feature.

However, the reverse perspective is less implausible. What P, v, Appl, and finite T share (and what any other category lacks) is that they all select a DP: they all have a feature [uD] in their featural make-up. Now, given the two rules in (12) and (16), every instance of Merge should result in feature checking; so, if a particular element (P, v', Appl', finite T') has a [uD]-feature, DPs can only be merged in this position. This rules out, for instance, a merger of an NP and a DP (\*[*the* [*destruction* [*the city*]]]), a DP and a DP (\*[[*the destruction*] [*the city*]]), or a non-finite T' and a DP (\*[<sub>TP</sub> *Mary* [<sub>T'</sub> *to* [<sub>vP</sub> *win the race*]]]). Note that the latter entails that subject raising goes in one fell swoop from spec,vP to its the landing site. Hence, what structural case amounts to is the necessity of a DP to be merged into the structure. A so-called abstract Case assigner is nothing but a DP-selector. Given that the distribution of DPs is constrained as it should be, there is no reason to allude to abstract Case as a separate grammatical principle, and morphological case assignment itself can proceed in a Marantzian way.

### 3.7 Lexical (super)categories

The assumptions made so far provide a solution for most challenges to labeling approaches in terms of projection by selection. Most challenges (motivation, adjunction, free selectional ordering, c-selection vs. s-selection, and mutual selection) have indeed been addressed. However, the assumptions that were necessary to resolve these challenges, as always, bring in novel problems or give rise to new questions. One such question, already addressed in Section 3.3, concerns the fact that PPs can also modify NPs or certain APs, and not only VPs. However, assuming that prepositions carry a feature set {[V], [uV], [uD]} can only account for the VP-modification, and not for NP/AP-modification. Hence, the question remains open as to why all examples in (33) are fine, and not only (33a).

(33) PP-modification

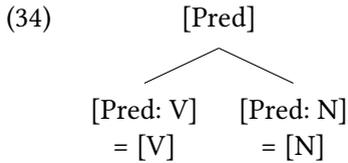
- a. [<sub>VP</sub> [<sub>VP</sub> *meet Mary* [<sub>PP</sub> *in the park*]]]
- b. [<sub>NP</sub> [<sub>NP</sub> *man* [<sub>PP</sub> *in the park*]]]
- c. [<sub>AP</sub> *afraid* [<sub>PP</sub> *of the doctor*]]]

Note, though, that in English, and most other languages, only predicatively used APs can be modified by PPs; attributively used APs cannot: \**the afraid of the doctor patient*.

One solution would be to take every PP to be three-way ambiguous. Prepositions would then either be {[V], [uV], [uD]}, {[N], [uN], [uD]} or {[A], [uA], [uD]}.

But such an application of brute force does not explain anything, especially not why every preposition is always exactly three-ways ambiguous in this way.

An alternative solution would be to assume that verbs and nouns (ignoring predicatively used adjectives for the time being) are actually both subcategories of a single lexical supercategory, which I will dub “Pred(icate)” for reasons that will come clear soon. A verb is then an element with a feature [Pred: V] (where [Pred] carries a subfeature [V]), and a noun would be [Pred: N]. The lexical feature hierarchy would then be as in (34):



There are at least three reasons to assume such a superfeature. First, many Oceanic and South East Asian languages systematically allow for elements that can be modified by verbal morphology to also be modified by nominal morphology and vice versa. The example below, taken from Don & van Lier (2013), illustrates this for Samoan *alu* (‘the going’/‘to go’).

- (35) Samoan
- a. E alu le pasi i Apia  
     PRED go the bus to Apia  
     ‘The bus goes to Apia.’
  - b. Le alu o le pasi i Apia  
     the go of the bus to Apia  
     ‘The bus goes to Apia.’

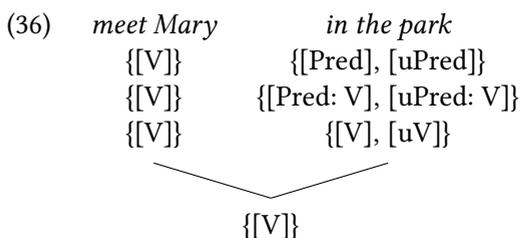
Even though this argumentation is far from uncontroversial (see, for instance Croft 2005), various scholars (Hengeveld 1992; 2005 and Mosel & Hovdhaugen 1992; Gil 2013; and Zeijlstra 2017) take this as evidence that not every language exhibits a noun–verb distinction, but may rather display elements of this lexical supercategory (sometimes also called “contentives”).

Second, in contemporary morphology it is standardly assumed that roots are categoryless, and only become categorial after merging with a verbal or nominal head. The noun *cat*, for example, has an underlying derivation [n  $\sqrt{\text{CAT}}$ ]. Note that this is very close to assuming that the root category is an element that is

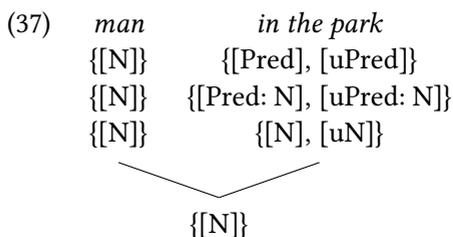
supercategorial (a predicate) that needs to be further specified for being either a verb or a noun.

Third, in standard versions of semantic type theory, intransitive verbs, nouns and adjectives are taken to be elements of the same type ( $\langle e, t \rangle$ ): predicates (hence the suggested name). Even though more advanced semantic theories with an enriched ontology may assign other types to nouns or verbs, it illustrates that, semantically, nouns and verbs do have a similar core. This shared core is then what is morpho-syntactically reflected in the feature hierarchy in (34).

Applying this to prepositions, the necessary step to make is to assume that prepositions carry a feature set  $\{[\text{Pred}], [\text{uPred}], [\text{uD}]\}$ . Then, it follows why PPs may modify both nouns and verbs (still ignoring PP-modification of predicatively used adjectives). In (36), the unspecified PP first merges with an element with a feature  $[\text{V}]$ . This  $[\text{V}]$ -feature then values both the  $[\text{Pred}]$ -feature and the  $[\text{uPred}]$ -feature on the PP (as both are in need of a specific value) with a subfeature/value  $[\text{V}]$ . Since  $[\text{Pred}: \text{V}]$  is identical to  $[\text{V}]$ , the PP now becomes a feature set  $\{[\text{V}], [\text{uV}]\}$ , and the label of the merger can become  $[\text{V}]$ :



Mutatis mutandis the same happens in (37) for PP-modification of NPs:

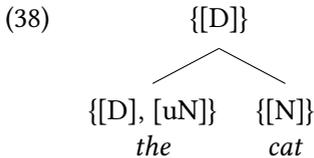


In a way, the PP-modifiability of VPs and NPs can be taken as a further argument for a lexical supercategory. Since other categories, like DPs, cannot be modified by PPs ( $*[Mary \textit{ in the park}]$ ), Vs and Ns, but not Ds, must share some syntactic property. This shared property can then be said to be  $[\text{Pred}]$ .

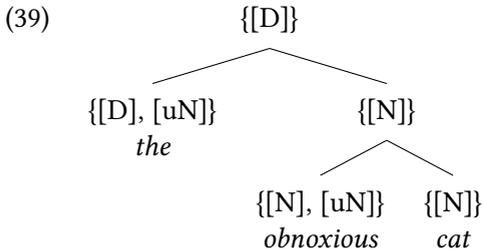
Naturally, this proposal, which takes PP-modification of NPs and VPs to be fully on a par, gives rise to many questions, for instance, why prepositions cannot select nouns instead of verbs, or how PP-modification of adjectives works. However, before these questions can be addressed, we must first look at the syntax of DP-internal selection.

### 3.8 DP-internal selection

So far, not much has been said about the internal syntax of the DP. Here, it turns out that much more needs to be said about the relation between predicates and adjectives. The reason is the following. Take a simple determiner–noun merger. If the assumption that the D is the head of this merger is correct (standardly assumed since Abney 1987), the determiner must carry the feature set  $\{[D], [uN]\}$ .



But if that is correct, every attributively used adjective must, in full analogy to adverbs being feature sets  $\{[V], [uV]\}$ , be a feature set, a feature set  $\{[N], [uN]\}$ :



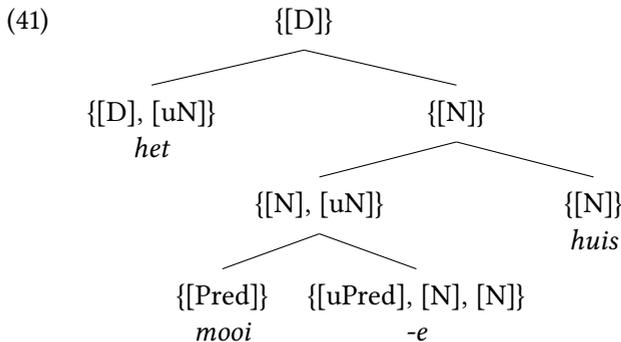
The idea that attributively used adjectives are feature sets  $\{[N], [uN]\}$  seems, at first sight, at odds with the idea that predicatively used adjectives must be elements carrying  $[Pred]$ , evidenced by the fact that these can be modified by PPs. Remaining ignorant about what the subfeatures of this  $[Pred]$  can be (if any; it may very well be that predicatively used adjectives are default or unvalued instances of  $[Pred]$ ), the question arises as to how predicatively and attributively used adjectives appear to be very different in terms of their categorial status, despite being quite similar in form.

In various languages, predicatively and attributively used adjectives, however, receive different forms. In Dutch and German, for instance, attributively used adjectives are affixed by an inflectional marker (that agrees in number, gender, and definiteness with the noun and the determiner), whereas predicatively used adjectives are not, as is shown for Dutch in (40) below:

(40) Dutch

- a. *het mooi-e huis / een mooi-∅ huis*  
 the beautiful-DEF.SG.NEUT house / a beautiful-INDEF.SG.NEUT house  
 ‘a / the beautiful house.’
- b. *Het / een huis is mooi(\*-e)*  
 the / a house is beautiful-(IN)DEF.SG.NEUT  
 ‘The / a house is beautiful.’

This suggests that the attributively used adjective is structurally richer than the predicatively used adjective, which, in turn, opens up the possibility to assume that the morpheme that is realized by the inflectional affix is actually a category changer. If this inflectional marker would underlyingly be a feature set  $\{[uPred], [N], [uN]\}$ , the structure of the first example in (40a) would then be:



Evidence for this structure comes from the properties of PP modification. In Dutch (and many other languages), attributively used adjectives cannot be modified by PPs in the way predicatively used adjectives can:

(42) Dutch

- a. *De dokter is verliefd op haar patient*  
 the doctor is in.love on her patient  
 ‘The doctor is in love with her patient.’

- b. \* de verliefd(-e) op haar patient dokter  
 the in.love on her patient doctor  
 Int. ‘the doctor who is in love with her patient’

However, an attributively used adjective can be modified by a left-attached PP (and so can predicatively used adjectives, although some people mark these constructions as slightly degraded):

- (43) Dutch  
 de op haar patient verliefd-e dokter  
 the on her patient in.love doctor  
 ‘the doctor who is in love with her patient.’

These patterns, which thus far have not been satisfactorily explained (see Sheehan 2017 for an overview, discussion and references), are naturally accounted for under the presented perspective. Assuming that the inflectional marker must select an element that is a feature set  $\{\{\text{Pred}\}\}$ , this feature set can be the predicatively used adjective itself, but also a merger of the predicatively used adjective ( $\{\{\text{Pred}\}\}$ ) with a feature set ( $\{\{\text{Pred}\}, [\text{uPred}]\}$ ). If it is further assumed that this inflectional marker must morpho-phonologically right-attach to the predicatively used adjective, the grammaticality of (42a) and the ungrammaticality of (42b) follow immediately:

- (44) a.  $[_{\text{A-AttrP}} [_{\text{PredP}} [_{\text{PP}} \textit{op haar patient}] \textit{verliefd}] -e]$   
 b. \*  $[_{\text{A-AttrP}} [_{\text{PredP}} \textit{verliefd} [_{\text{PP}} \textit{op haar patient}]] -e]$

I take this to be preliminary evidence for the conjecture that, at least in languages like Dutch and German, attributively used adjectives are derived predicatively used adjectives, or, rather, derived predicates. It is still an open question to what extent this analysis applies to languages where both types of adjectives are inflected (like Russian) or uninflected (like English), or where predicatively used adjectives appear to be structurally richer than attributively used adjectives (like Basque). However, the facts from Dutch show that it is at least possible that nominal modifiers are actually derived predicates. Note that, fully analogously to the inflectional marker, adverbial morphological markers, like English *-ly*, can equally well be analyzed as affixes that derive predicates into verbal modifiers (and that would therefore be feature sets  $\{\{\text{uPred}\}, [\text{V}], [\text{uV}]\}$ , although for now that leaves open the question why some of such adverbs (e.g., *annoyingly*) can still modify adjectives, as pointed out to me by Brooke Larson, p.c.).

As a final remark, I add that thinking of inflectional morphology in these cases as category-changers also offers a formal explanation for the existence of inflectional morphology in at least some cases, not an unwelcome result, as the existence of formally and functionally redundant markers has formed a longstanding puzzle in linguistic theory.

### 3.9 Summing up

In this section, we have seen that most of the challenges to the original *projection by selection* approach have been circumvented. The approach deals with selection and projection in a way that is reminiscent of categorial grammar, albeit with the difference that categorial features form (unordered) sets. This, in turn, gives rise to a degree of flexibility that seems to be required for analyzing natural language. In addition, under the current approach, the number of primitive syntactic categories has been severely reduced to predicates ([Pred]), determiners (D) and tense ([T]); crucially, verbs and nouns, (attributively used) adjectives complementizers, prepositions and adverbs are no longer to be taken to be primitive syntactic categories. Due to these basic assumptions, c-selection, structural case, and verbal and nominal (PP) adjunction have received a natural explanation within this program.

## 4 Other syntactic operations

So far, most of the challenges addressed in Section 1.2 have been circumvented, but, of course, at the expense of all kinds of other assumptions. However, one challenge has remained unaddressed so far, namely the fact that, even though selection/labeling (under the proposed perspective) and the well-known syntactic operation Agree both employ the same kind of features ((un)interpretable/(un)valued/(in)dependent features), selection must take place in a strictly local fashion, whereas Agree is known to be able to apply on a distance. Hence, the question arises as to why Agree (or those effects attributed to Agree) and selection/labeling can work on distinct lengths while essentially being based on the same types of features. Moreover, since Agree is (sometimes) also said to be a trigger for movement and/or valuation, which means that movement and/or valuation are then also dependent on (un)interpretable/(un)valued/(in)dependent features, questions concerning their relation to selection naturally arise as well. In this section, I discuss how selection/labeling should interact with or underlie Agree, movement, and valuation.

## 4.1 Agree

One of the core properties of the syntactic operation Agree, in the sense of establishing a probe-goal relation, is that it is structurally asymmetric. Under the standard, traditional version of Agree, a probe needs to c-command the goal (in order for checking and/or valuation to take place), a version of Agree known as Downward Agree. Recently, but not uncontroversially, Wurmbrand (2012a,b), Zeijlstra (2012), and Bjorkman & Zeijlstra (2019) have argued that this relation (at least for feature checking) should be taken to be reverse. Under this view, dubbed Upward Agree, the goal should c-command the probe. Nowadays, there is a fair amount of consensus that the two types of Agree co-exist and the discussion centers around the question as to how exactly the two operations should be delineated.

What both approaches have in common, though, is that this relation has to be asymmetric. Under neither approach, the question of why that should be the case has been fully satisfactorily addressed.

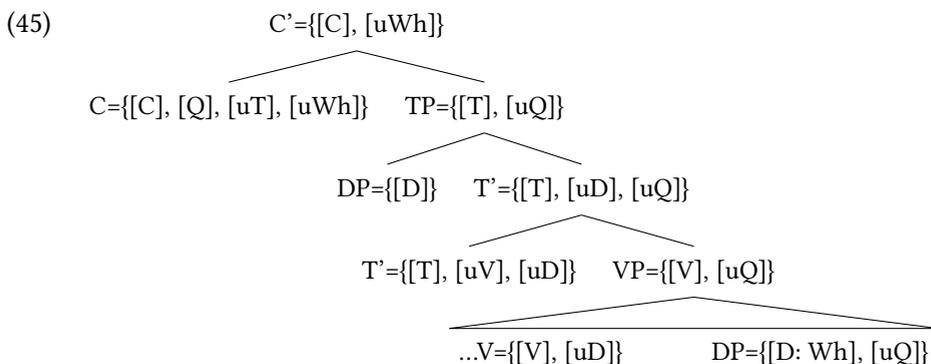
The present proposal can be seen as an attempt to answer this question for the Upward Agree approach, which essentially aims at addressing under which configurations feature checking can take place. The reasoning is the following. Given that all features have been reduced to categorial features, what look like traditional projection lines are nothing but percolations of interpretable/independent features. That also means that, by definition, interpretable (or independent) features are not able to percolate beyond their maximal projections (as maximal projections are defined in terms of feature percolation of independent features). A [V]-feature cannot percolate beyond the VP it projects.

However, such restrictions do not hold for uninterpretable/dependent features. No such feature is blocked from percolating at XP-level. In fact, if an element carrying [uF] does not merge with an element carrying [F], [uF] will percolate to the top node, independent of whether its original position is an XP, X' or X°.

This derives the asymmetry that underlies Upward Agree. What happens is that every uninterpretable feature will percolate upwards until it stands in a sisterhood relation with a matching interpretable feature.

This is illustrated in (45) below for Agree between an interrogative C-head and a *Wh*-term. Under the assumption that the interrogative C-head carries an interpretable [Q]-feature and an uninterpretable *Wh*-feature [uWh], and that the *Wh*-term carries an interpretable *Wh*-feature [Wh] and an uninterpretable [uQ]-feature, it follows that the [uQ]-feature on the *Wh*-term can be checked in situ. The [uQ]-feature percolates all the way up to TP, where it is the sister of C. Nei-

ther [Q] on C nor [uQ] on TP further percolate. See (45) for an illustration (ignoring the vP-layer):



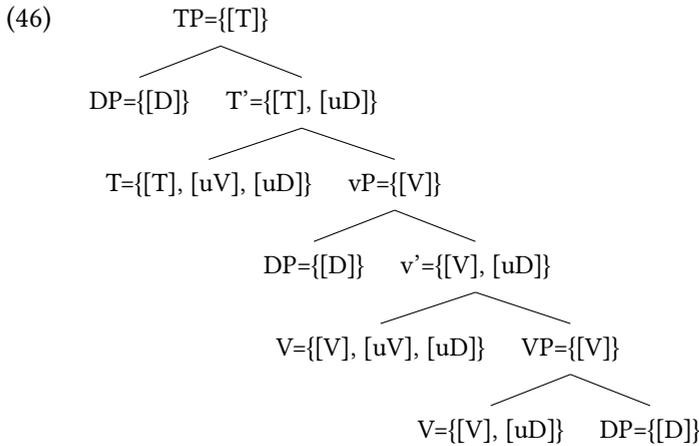
In this sense, Agree (or rather feature checking) and selection amount to the same underlying relation. What looks like a non-local long-distance checking relation is nothing but postponed selection under sisterhood.

At the same, various questions still arise. Some of these questions concern movement, others, valuation. These questions will be addressed, slightly more speculatively, in Sections 4.2 and 4.3 respectively.

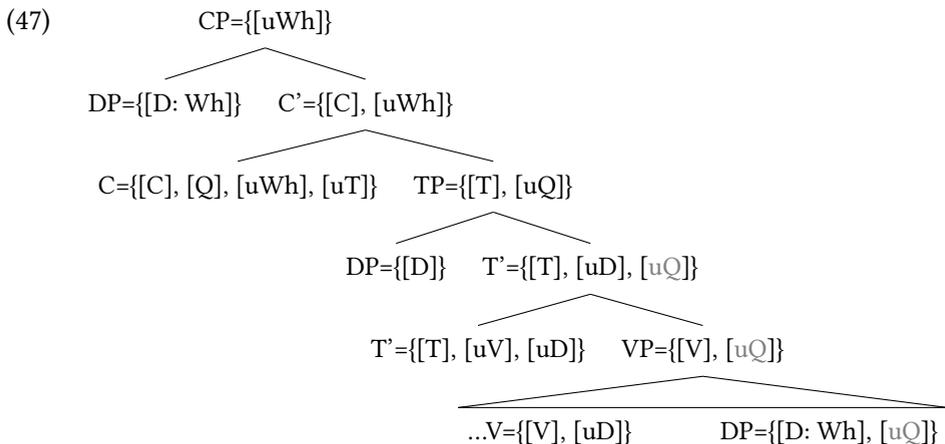
## 4.2 Movement

It is clear that (45) is not a grammatical structure, as the [uWh]-feature on C/C' has not yet been checked. Naturally, checking will be accomplished by raising the *Wh*-term into its specifier. Similarly, subjects raise from a vP/VP-internal position into Spec,TP. Again, this movement should be triggered by T's [uD]-feature.

In the case of subject raising, after merger of T with V (note that v is the feature set {[V], [uV], [uD]}, so that vP is a second VP, as discussed in Section 3.5), T' still carries a feature [uD]. If there is no DP left in the numeration, the closest DP present in the structure (provided that such a DP is in the same local domain) can be remerged with T', and thus check the [uD]-feature on T'. The entire TP then no longer contains any unchecked features and thus yields a grammatical structure. This is illustrated in (46) below:



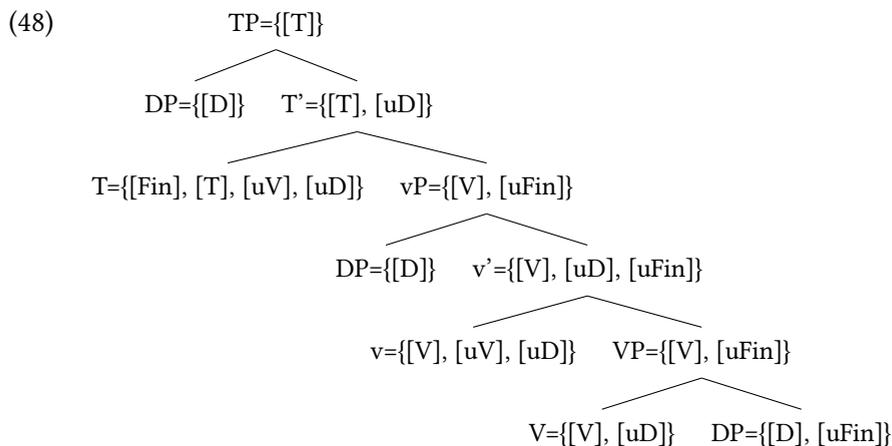
Things work differently in the case of (45). Here, a novel question emerges: in order for the derivation not to crash, the remerged DP should no longer carry the feature [uQ], as otherwise the top node would carry a feature [uQ] as well, and the sentence would be ungrammatical. Hence, [uQ] on the (lower) DP should either be removed or be marked for already having been checked. There are two ways of encoding this: either, one could argue that if a particular element carries an uninterpretable feature in a position from which this feature can percolate, this feature is no longer visible when the element undergoes Rmerge; or, whenever a percolated feature is checked (i.e., when it no longer percolates), it marks all its lower features for having been checked as well. The structure would then be as in (47), where gray denotes the inactivity of the [uQ] feature:



A major difference between the two types of movement discussed above is that, in cases of *Wh*-C Agree/movement, two features are involved  $[(u)Q]$  and  $[(u)Wh]$ , whereas, in the case of subject raising, only one feature is involved  $[(u)D]$ . The question is whether two instances of movement that both yield spec-head configurations can be formally so different.

There are at least two reasons to assume not. First, looking at the movement in (46), the DP involved in raising lacks any uninterpretable feature of its own. That would predict, contrary to fact, that a DP would be a fully grammatical element that can be uttered out of the blue. Therefore, more needs to be said about subject raising, and since things seem to work well for *Wh*-C Agree/movement, one could try, as is standardly done, to model subject-raising accordingly.

To do that, one would have to say that, just as the DP in (47) carries a feature that must percolate and be checked by a feature that starts out in the head of the specifier position it raises to, the DP in (46) should do so as well. In that case (following ideas by Pesetsky & Torrego 2004; 2007), every DP could be said to carry a feature  $[uFin]$  (which makes every DP essentially a nominative). However, that would have as a consequence that  $[T]$  cannot be the only interpretable/independent feature present in T, as otherwise T would lack any interpretable/independent features that can project. One way to remedy this is to split up T into two features:  $[Fin]$  and  $[T]$  (cf. Koenenman & Zeijlstra 2017). If that is the case, T's  $[T]$ -feature would no longer project, but T's  $[Fin]$ -feature would. An implementation of this idea is given in (48), where  $[T]$  and  $[Fin]$  are separate features present on T.



The idea of a second feature involved also solves another problem. Suppose the subject DP did not carry any other feature. Then, this DP could be base-gener-

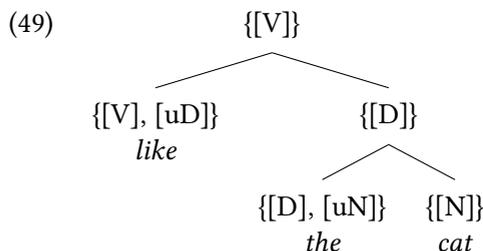
ated in Spec,TP and all relevant uninterpretable/dependent features could still be checked under sisterhood. The same holds for (47). If the *Wh*-term did not carry any additional uninterpretable/dependent feature (such as [uFin], given that it is a DP), the *Wh*-term could also be base-generated in Spec,CP. Only if a *Wh*-term has a feature that needs to be checked before merger with CP, it is guaranteed that *Wh*-term moves into Spec,CP. This also means that elements that arguably lack such a feature (and only carry {[Wh], [uQ]}) in fact do not move into Spec,CP. I speculate that a *Wh*-term like *whether* might be such an element, since there is no evidence of it undergoing any movement. Similarly, if particular DPs would lack a feature [uFin], they can still be base-generated in Spec,TP, as, depending on one's theoretical assumptions, may be the case for expletives (cf. Chomsky 2000; Bošković 2002; Deal 2009; Wu 2018 for discussion and overview).

A problem, though, of this solution to the second problem is that it must be ensured that this second uninterpretable/dependent feature may not be checked in the target position either. This is not a problem for *Wh*-movement as in (47), but can be a problem for subject movement. If no other DP, carrying [uFin], is present in the clause, the subject DP can still be base-generated in Spec,TP. It is the [uFin] feature of the object DP in (48) that makes that [uFin] will always be present on vP and therefore will result in its absence on T', the sister of Spec,TP. In order to solve this problem (which would pop up in every intransitive clause), one would have to say that every verb also carries a feature [uFin], perhaps to ensure that at least one verb in the clause will be marked for finiteness. The exact implementation of this idea, as well as the many other questions and consequences it brings in, however, I leave open for further research.

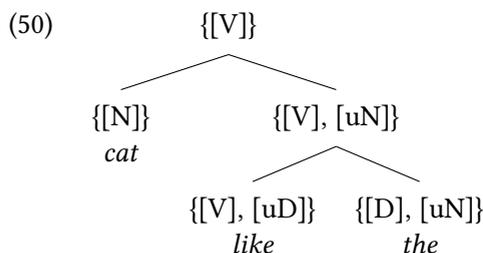
### 4.3 Valuation

Valuation, as we saw it in the case of immediate valuation of [Pred]-features by their complements, plays an important role in narrow syntax (see also Bjorkman & Zeijlstra 2019). Even though valuation satisfies requirements at PF, that does not mean that valuation can only apply at PF. Rather, one could state that valuation takes place as soon as possible, at PF at the latest. And, if valuation plays a role in syntax, valuation has an additional function. It prevents overgeneration, as it can act as a way of ruling out possible configurations that would otherwise be fine for syntax proper. It would, thus, be another way of restricting the overgeneralization that appears due to the fact that feature sets are unordered, and that therefore selectional requirements are also unordered. Unlike other cases of overgeneration that are filtered out at LF, valuation requirements may result in particular configurations being ruled out at PF.

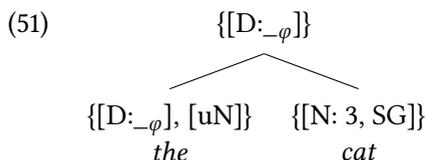
To see this, take again the following structure (where I will not assume [uFin] to be present on [D], for the sake of easy exposition).

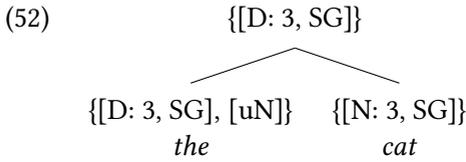


Given the feature architecture, another configuration that is incorrectly predicted to be grammatical is the structure in (50):

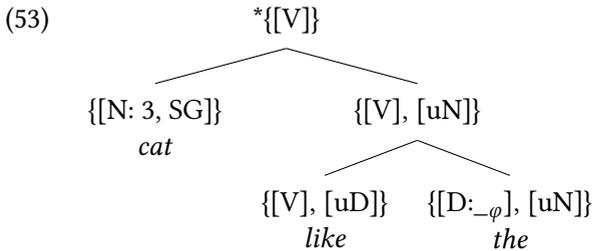


Instead of trying to account for this in semantic terms (which would be far from trivial), it may be more intuitive to rule out (50) under valuation. Generally, determiners agree with the nouns they combine with in person, number and gender (or a subset thereof). Presuming that nouns are equipped with such features (which, at least for the case of gender, is fairly uncontroversial), the noun should value the [D]-feature of the determiner. This is indeed possible under sisterhood in (49), but not in (50). To see this, let's include feature-(un)valuedness in these trees, which is shown in (51) and (52) (where [D:  $_{-\varphi}$ ] means that the [D]-feature needs to be valued for  $\varphi$ -features). Here, I will assume that all  $\varphi$ -features start out on N, though there is nothing crucial that hinges on that. (51) is what the tree looks like before valuation, and (52) after valuation.



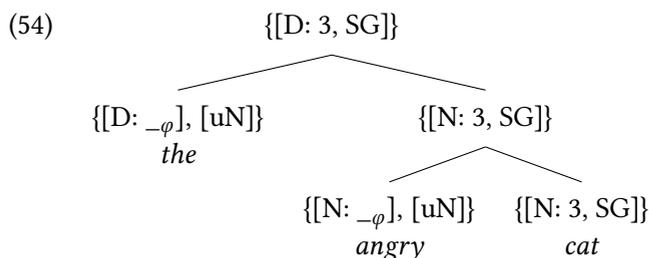


There is no straightforward way in which, in a tree like (53) (based on the one in 50), the unvalued feature  $[D: \_ \varphi]$  on D can be valued under sisterhood. The structure will consequently be ruled out:

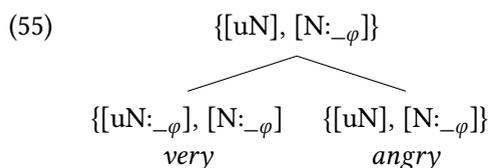


The idea that the notion of valuedness should be included in the feature architecture has a number of additional advantages that I will only discuss very briefly here for reasons of space. Most notably, it concerns the fact that the system can now distinguish between features that seek a value and those that do not.  $[uN: \_ \varphi]$  would be a feature that seeks to merge with an element carrying a still unvalued feature  $[N: \_ \varphi]$ . Such an unvalued feature  $[N: \_ \varphi]$ , which still needs to be valued, can then only check against  $[uN: \_ \varphi]$ . Consequently,  $[uN]$  can only be checked by a valued feature  $[N: \varphi]$  or a feature  $[N]$  that lacks a value slot altogether.

This allows us to distinguish between attributively used adjectives and adverbs, such as *very*, that may modify such adjectives. An attributively used adjective can then be further analysed as  $\{[uN], [N: \_ \varphi]\}$ : it seeks a nominal feature that is not in need of valuation, and its own  $[N: \_ \varphi]$  feature is still to be valued. The  $[N]$ -feature of an attributively used adjective can only be valued by the  $\varphi$ -values of the noun, so it must be inherently unvalued by itself as well as be in need of such features. A construction like *the angry cat* would then be as in (54).  $[N: 3, SG]$  on *cat* values  $[N: \_ \varphi]$  on *angry*, which, being valued for 3<sup>rd</sup> person singular percolates, and  $[uN]$  *angry* and  $[N: \_ \varphi]$  on *cat* are cancelled out. In turn, the  $\varphi$ -values on *angry cat* value D's unvalued  $[uD: \_ \varphi]$ -feature.



An adverb like *very* can now be analyzed as {[N:  $-\varphi$ ], [uN:  $-\varphi$ ]}:



In (55), *very*'s feature [uN:  $-\varphi$ ] must be checked against an inherently unvalued feature [N:  $-\varphi$ ] on *angry*. By contrast, *angry*'s feature [uN] cannot be checked against *very*'s [N:  $-\varphi$ ], as [uN] selects for features that are not in search of a value, and *very*'s [N:  $-\varphi$ ] is. Consequently, only *very*'s [[N:  $-\varphi$ ] and *angry*'s [uN] percolate, yielding {[uN], [N:  $-\varphi$ ]}, the same features that are present on *angry*. Without this (un)valuedness distinction, *very* could not be analyzed in terms of [N]/[uN] features, while being distinct from attributively used adjectives.

## 5 Conclusions

In this paper, I have sketched the outlines of an approach that brings minimalist syntax closer to categorial grammar. The essential ingredient is that the distribution of any grammatical category is fully determined by the unordered set of interpretable and uninterpretable (or: independent and dependent) formal features. Upon merger, every feature on both of the merged elements percolates, unless an independent feature [F] and a dependent feature [uF] stand in a sisterhood relation; then, neither of these two features percolate.

In the remainder of this article, I have argued that this simple mechanism accounts for numerous effects: it provides a proper labeling algorithm that also includes adjunction; it accounts for the rather unexpected behavior of prepositions; it reinstalls c-selection in syntactic theory; and it can account for the effects traditionally attributed to abstract Case. Moreover, feature checking under

sisterhood plus feature percolation replaces notions like (long-distance) Agree, while still triggering Rmerge in a standard way, and providing the necessary configurations under which valuation can take place.

The approach presented in this paper is brief, sketchy, and presumably raises many more questions than I can ever answer. Nevertheless, I do think that, given the ultimately very simple basic assumptions of this approach, even if it turns out to be completely wrong, the pathway entered here is worth pursuing and opens the question as to whether minimalist syntax should be conceived of as a categorial grammar of a special kind.

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## Chapter 3

# Concord and labeling

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In DPs of some languages, possessors and external arguments of nouns that have them surface in low positions introduced by ‘of’. In others, this is impossible or highly restricted. I argue that nP-internal possessors/external arguments give rise to the [XP, YP] configuration that thwarts the labeling algorithm of Chomsky (2013; 2015), forcing them to raise to Spec of an agreeing head such as D. But shared features of gender-number/noun class concord on ‘of’ can label nP with possessor or EA in situ. In addition to explaining contrasting word orders this analysis provides novel evidence that concord is a syntactic phenomenon: it feeds labeling, and bleeds possessor/EA-raising in DP.

## 1 Introduction

### 1.1 The labeling issue

Chomsky (2013; 2015) proposes that categories are labeled not by projection but by an algorithm applying at the phase level. The algorithm takes as label for a category the features of its head, but cannot determine the head in an [XP, YP] configuration. If, however, Agree has applied between XP and Y, the features that they share serve as label.

The principal case that Chomsky considers in this connection is a clause with an external argument (EA). Merge of EA to its vP-internal base position creates the problematical [XP, YP] configuration (see 1a). Raising of EA rectifies this because EA’s low copy is invisible to the algorithm, so vP can be labeled by its head, *v* (see 1b). Finally, the Agree relation (T, EA) makes it possible for EA to surface in TP, which is labeled by the features that T and EA share (see 1c and 1d). Phi-features and agreement thus play a pivotal role in labeling, under Chomsky’s proposals.



- (1) a.  $\alpha$  cannot be labeled  
        $[\alpha \text{ [DP the girl] } [_{vP} \nu \text{ [VP feed [DP the dog]]}]]]$   
 b. after EA raising,  $\alpha$  labeled  $\nu$ P based on its head  $\nu$   
        $[_{\nu P} <\text{the girl}> [_{\nu P} \nu \text{ [VP feed [DP the dog]]}]]]$   
 c. ...but first, Agree (T, SU)  
        $[\text{T}_{u\phi} [_{\nu P} \text{ [DP the girl]}_{\phi}] [_{\nu P} \nu \text{ [VP feed [DP the dog]]}]]]$   
 d. shared prominent features label  $\phi$ P  
        $[_{\phi P} \text{ [DP the girl]}_{\phi}] \text{ will}_{\phi} [_{\nu P} <\text{the girl}> \nu \text{ [feed the dog]}]$

Assuming this analysis is correct, similar effects should be discernible in any syntactic domain where comparable configurations arise. An important domain to consider is the extended nominal projection in the sense of Grimshaw (2005), henceforth DPs. Possessors and, for nouns that have them, EAs<sup>1</sup> have been argued to merge as specifiers of  $n$ , a nominal counterpart to  $\nu$  within the DP (for possessors this projection is sometimes labeled PossP; for expository convenience I treat both cases alike):

- (2) a.  $[\alpha \text{ the enemy } [_{nP} n \text{ [nP attack on the city]}]]]$   
 b.  $[\alpha \text{ Mary } [_{nP} n \text{ [nP book]}]]]$

But a special factor relevant to labeling inside DPs is that unlike  $\nu$ /V,  $n$ /N of languages with grammatical gender bears intrinsic phi-features. Given that these features may participate in agreement, it stands to reason that their presence might impact labeling possibilities.

My paper claims that this is indeed the case. In particular, possessor and EA “subjects” introduced by an ‘of’-like morpheme bearing gender concord are able to surface in low,  $n$ P-internal positions within DPs (see the Chichewa 3). This pattern is very common across the 500+ languages of the Bantu family, where there is concord in noun class.<sup>2</sup>

- (3) Chichewa (Carstens 1997: 372, 374)  
 a. chi-tunzi ch-abwino ch-a Lucy  
    7-picture 7-nice     7-of 1Lucy  
    ‘Lucy’s nice picture’ (Lucy = possessor, agent, or theme)

<sup>1</sup>On this issue see brief remarks and citations in Section 1.4.

<sup>2</sup>In glosses, numerals indicate noun classes unless followed by s or PL, in which case they indicate person features. Unless otherwise indicated, data in examples is drawn from my own research.

b. Structure of possessor or agent reading:

[<sub>DP</sub> chitunzi+n+D ... [<sub>nP</sub> ch-abwino [<sub>nP</sub> ch-a Lucy ... <chitunzi+n> ... ]]]  
 7picture                      7-nice                      7-of 1Lucy

In contrast, genderless Turkish, Chamorro, Hungarian, Yupik, and Tsutujil wear the need for alternative labeling on their sleeves, as it were: a possessor or external argument must value agreement on a high functional category in DP and undergo raising to its Spec (see Abney 1987 among others).<sup>3</sup> Compare (3) to (4), where (4b) is an approximate representation for Turkish:<sup>4</sup>

(4) Turkish

a. Ahmet ve Ali-in resm-i  
 Ahmet and Ali-GEN picture-3PL

‘Ahmet and Ali’s picture’

b. (adapting Abney 1987)

[<sub>DP</sub> Ahmet ve Ali-in D<sub>uPhi</sub> ... [<sub>nP</sub> <Ahmet ve Ali> n resm]]

Raising of the possessor DP and agreement with it in (4) mirror subject agreement and subject raising at the clausal level in permitting *nP* to be labeled by its head *n*, and shared prominent features to label the category of the possessor’s landing site.

## 1.2 Where is concord?

In addition to presenting a study of labeling inside DP, my paper contributes to an ongoing debate regarding the relationship between concord and canonical agreement processes and relatedly, the place of concord in the grammar. One analytical trend in generative syntax has been to approach concord as a subtype of

<sup>3</sup>In Turkish, *any* argument must do this, suggesting that even themes are merged as specifiers rather than complements, giving rise to the [XP, YP] configuration. I will not pursue this here.

<sup>4</sup>(4b) is based on Abney’s (1987) proposal that agreement with possessors is a feature of D, though a lower locus for this is possible; see Section 4. Bošković & Şener (2014) argue that Turkish nominal expressions are NPs, not DPs, with possessors surfacing in NP-adjoined positions (they do not discuss possessor agreement). But significantly, left branch extraction from nominal expressions is not available, unlike in the prototypical NP-language, Serbo-Croatian (Bošković 2005). A major source of evidence for their proposal is rather the ability of a genitive to bind something outside the DP. If DP is a suite of functional projections, one D- (or other functional) head bearing possessor agreement might be present, and a higher DP layer crucial to constraining binding possibilities might still be absent. Alternatively, Turkish possessors and the agreement might surface in a lower FP (see discussion of Hungarian in Sections 2.2 and 4). I leave this aside.

agreement, derived through shared mechanisms (see Carstens 1991; 2000; 2011; Koopman 2006; Baker 2008; Danon 2011; Toosarvandani & van Urk 2014 among others). On the other hand, there have long been suggestions to the effect that concord and agreement may be the product of quite different processes or relations, perhaps taking place in distinct grammatical domains (Chomsky 2001: fn 6; Chung 2013; Norris 2014; Baier 2015). And while mainstream Minimalism treats canonical agreement as syntactic, Bobaljik (2008) argues that it belongs to the post-syntactic morphology, opening up the possibility that this is true of both relations.

Based on my proposal that gender concord labels *nP* and bleeds the DP-internal counterparts to clause-level subject raising and subject agreement, I argue that both belong to the same domain of the grammar, which I take to be narrow syntax. Since number concord accompanies gender concord, I assume that the conclusion generalizes to it as well.

While my primary focus in this paper is gender concord, I will consider briefly whether Case concord plays the same role, pointing out what evidence is needed for future research to make a determination.

### **1.3 Exclusions and limitations**

The internal workings of DP vary along many dimensions. This paper is narrowly focused and does not attempt a comprehensive treatment of DP syntax, even for languages with gender.

I do not address systematic differences some languages exhibit between alienable and inalienable possession (see in particular den Dikken 2015).

I ignore interesting evidence that an articulated DP includes both A' and A-landing sites (Szabolcsi 1983; Gavruseva 2000; Alexiadou 2001; Haegeman 2004 among others).

Most importantly, I acknowledge that many languages do not neatly fit the dichotomous typological groupings that are my focus here. The close attention this paper gives to polar opposite types of morpho-syntactic patterns is not intended to deny or exclude the existence of different patterns of facts and alternative strategies for labeling [XP, YP] configurations within DP, but rather to lay out the issues and two contrasting ways that languages may address them. Section 6 will explore a small number of cases that diverge in certain ways from the two patterns, in the process identifying some contributing morpho-syntactic factors that may be useful in future research on the workings of DP-internal labeling. We will see that gender concord and a variety of possessor agreement may co-occur within the same DP when the possessor is bare, that is, neither the possessor

nor a KP that contains it is inflected for concord. We will also see an additional option predicted by the system: raising of the possessum *nP* or NP. In a language where the possessum has intrinsic gender features, this is both compatible with the concordial labeling strategy and a viable alternative to it. Future research may uncover other strategies.

#### 1.4 Theoretical assumptions

This study is carried out within the Minimalist framework of Chomsky (2000; 2001) and adopts the labeling algorithm proposed by Chomsky (2013; 2015).

I assume that Bantu noun class consists of grammatical gender and number features (Corbett 1991; Carstens 1991). Odd numbered classes are typically singulars of a given gender, and even ones are usually plurals. That many Bantu nouns have semantically arbitrary gender assignments can be captured in a lexicalist model by analyzing gender as a listed property of nominal roots (*-doo* ‘bucket’ is class 9/10; *-kapu* ‘basket’ is class 7/8). A popular alternative in Distributed Morphology (DM) views gender a little differently – as added to categorially neutral roots by varying flavors of the categorizer *ns* which select them (see Lecarme 2002; Ferrari 2005; Kihm 2005; Acquaviva 2009; Kramer 2015). In Acquaviva (2009) and Kramer (2015), licensing conditions ensure that roots which surface only as nouns of gender  $\alpha$  must combine with *n* of flavor  $\alpha$ . Though the choice between approaches is not crucial to this paper’s proposals, for simplicity’s sake my representations include the labels N and NP. I will assume that *n* and N always share intrinsic gender features as a consequence of N-to-*n* raising and incorporation. Chomsky (2015) proposes that affixation of *v* to a root renders *v* invisible, giving its phasal properties to its host. My approach to labeling within DP seems translatable under similar assumptions about affixation of *n* (with some technical adjustments), but I leave that to future work.

I assume that concord reduces to the Agree relation (Carstens 2000; Koopman 2006; Baker 2008; Danon 2011; Toosarvandani & van Urk 2014, among others). Following Carstens (2010; 2011), there are principled reasons why gender concord iterates. A noun’s intrinsic grammatical gender is a valued but uninterpretable formal feature,<sup>5</sup> permitting its bearer to meet the Activity Condition of Chomsky (2001) whether or not it also bears unvalued Case (see Pesetsky & Torrego 2007

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<sup>5</sup>See Kramer (2015) for arguments that some grammatical gender is interpretable. Semantic features clearly determine the mappings of some groups of nouns to genders, as do phonological properties of borrowings, in Bantu, such as Swahili *kitabu/vitabu* ‘book/s’; *msikiti/misikiti* ‘mosque/s’; other gender assignments are arbitrary. I assume that regardless of the mapping factor responsible in a given case, grammatical gender enters the syntax a valued uF on nouns.

on the independence of valuation and interpretability). Agree does not determine the value of *n*/*N*'s intrinsic gender like it does a DP's uCase, and for this reason there are no "deactivation" effects: a single nominal expression can value concord on many bearers<sup>6</sup> (see Nevins 2005 on the causal relation between valuation and deactivation effects, though in contrast with Nevins, I accord Activity a role in Agree). Section 3.2 fleshes out the mechanics of concord more fully.

Turning to the structure of DP, I adopt Figure 1 as representing the common architecture (using traditional, pre-labeling-theoretic category labels for convenience). There are functional projections (FP) in the middle field of a DP, including at least Num(ber)P (Carstens 1991; Ritter 1991; Elizabeth 1992) and probably other FPs whose precise identities will not be important here. There may be different projections, PossP vs. *n*P, associated with the thematic roles and merge locations of possessors and agents, but this will not be crucial.

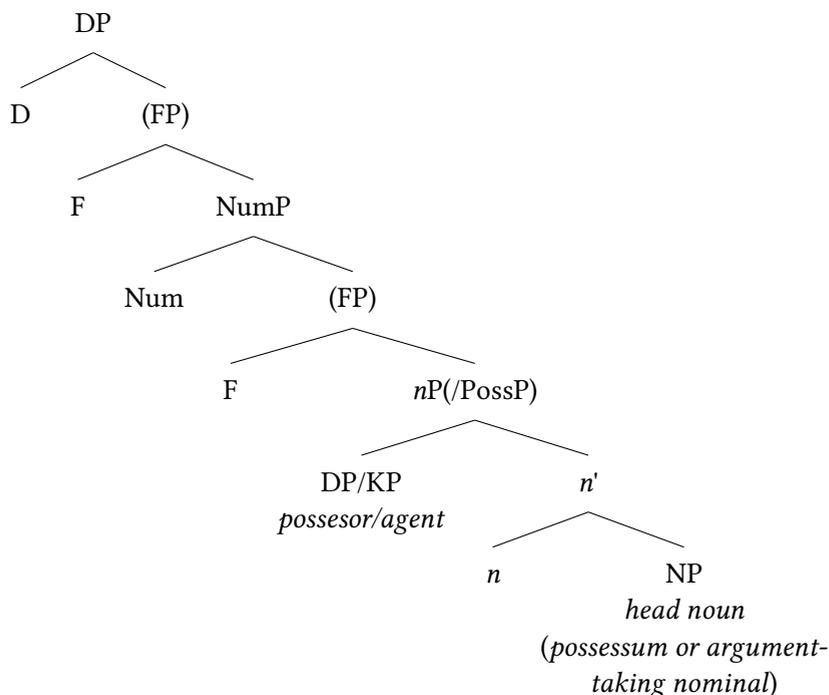


Figure 1: Common DP architecture

<sup>6</sup>This accounts also for the availability of multiple agreement with a single DP when that agreement includes gender, as is true of past participle agreement in Romance and subject agreement in Bantu and Semitic (where N-to-D adjunction makes gender accessible to all clause-level probes; see Carstens 2011 and note 13).

Researchers into argument structure in nominals have argued that event/process nominals include verbal and aspectual projections (see Borer 1993; Hazout 1995, among others), and that most or all nominals lack true EAs (Picallo 1991 and Alexiadou 2001, among others). But López (2018) shows that Spanish process nominals that don't entail a change of state have EAs (see 5).

- (5) a. (López 2018: 86)  
 El ataque del perro a Juan fue sorprendente.  
 the.MASC attack(MASC) of.the dog DOM Juan was surprising  
 'The dog's attack on Juan was surprising'
- b. (López 2018: 91)  
 El miedo de Juan a las arañas  
 the.MASC fear(MASC) of Juan DOM the.FEM-PL spiders  
 'Juan's fear of spiders'

I assume that the labeling-related phenomena associated with possessors are shared by DP-internal EAs, for those nominals whose properties of argument structure and Case allow them.

Other assumptions will be introduced and discussed as they become relevant.

## 1.5 Structure of the paper

Section 2 proposes that the presence or absence of gender concord has correlates in terms of where possessors and EAs of *n* may surface. Section 3 presents my proposal that shared features of concord can label *nP* with a possessor or EA in situ. Section 4 looks at DP-internal possessor raising and agreement, arguing that it is a means of addressing the impossibility of labeling [XP, YP] configurations within *nP* in languages where there is no gender concord “freezing” effects (Rizzi 2006; Rizzi & Shlonsky 2007), showing that bearers of concord may move, but do not value phi-agreement. Section 6 explores some further issues that arise in Maasai, Hausa, and Hebrew in relation to labeling and concord. Section 7 takes a brief look at Case concord, and Section 8 concludes.

## 2 A typological divide in genitive constructions

### 2.1 Concord and low possessors

The foundation of my argument is a set of contrasts distinguishing two opposing patterns of DP-internal morpho-syntax.

At one end of the spectrum are the Bantu languages. As noted in Section 1, lexical possessors surface to the right of adjectives in Bantu, and hence by assumption are low in the structure. They are introduced by the so-called associative *-a* morpheme, which agrees in noun class with the possessed noun (see the Chichewa 6a and its representation in 6b) on these points. Concord and its controller are underlined; the possessor phrase is boldfaced). Pronominal possessors also bear noun class concord, but surface higher, to the left of APs (see 6c and 6d). Lexical possessors are barred from this higher position, as (6e) demonstrates. Carstens (1991; 1997) situates the genitive pronouns in Spec of the mid-level functional category NumP (as shown in 6f).

- (6) Chichewa (Carstens 1997: 372, 374)
- a. chi-tunzi **ch-abwino** ch-a Lucy  
7-picture 7-nice 7-of 1Lucy  
'Lucy's nice picture' (Lucy = possessor, agent, or theme)
  - b. [<sub>DP</sub> N+n+Num+D [<sub>NumP</sub> <Num> [<sub>nP</sub> AP [<sub>nP</sub> cha Lucy <N+n> ...]]]]  
7-of Lucy
  - c. chi-tunzi ch-anga ch-abwino  
7-picture 7-my 7-nice  
'my nice picture'
  - d. \* chi-tunzi ch-abwino **ch-anga**  
7-picture 7-nice 7-my
  - e. \* chi-tunzi **ch-a** Lucy ch-abwino  
7-picture 7-my 1Lucy 7-nice
  - f. [<sub>DP</sub> N+n+Num+D [<sub>NumP</sub> ch-anga <Num> [<sub>nP</sub> AP [<sub>nP</sub> <changa> <N+n>...]]]]  
7-my

This pattern of genitive constructions is pervasive in the 500+ Bantu languages. Examples in (7–8) illustrate its presence in Swahili and Kilega. (9–10) provide representative examples from Zulu and Shona, showing concord on 'of' and Shona NSO word order.

- (7) Swahili (Carstens 1991: 100)
- a. gari ji-pya l-a Hasan  
5car 5-new 5-of 1Hasan  
'Hasan's new car'
  - b. gari l-ake ji-pya  
5car 5-3s.POSS 5-new  
'his/her new car'
  - c. \* gari la Hasan ji-pya  
5car 5-of 1Hasan 5-new
  - d. ? gari ji-pya l-ake  
5car 5-new 5-3s.POSS

- (8) Kilega (Kinyalolo 1991 & p.c.)
- a. bishúmbí bi-sóga **bi-á Mulonda**  
 8chairs 8-beautiful 8-of 1Mulonda  
 ‘Mulonda’s beautiful chairs’
- b. luzi lu-nene **lu-á Sanganyí**  
 1basket 11-big 11-of 1Sanganyí  
 ‘Sanganyí’s big basket’

- (9) Zulu
- a. abantwana **ba-ka Thandi**  
 2children 2-of 1Thandi  
 ‘Thandi’s children’
- b. ihashi **li-ka Jane**  
 3horse 3-of 1Jane  
 ‘Jane’s horse’

- (10) Shona
- a. zvipunu zvi-kuru **zv-a Tendai**  
 8spoons 8-big 8-of 1Tendai  
 ‘Tendai’s large spoons’
- b. nyaya **y-a Tendai** ye-udiki wake  
 9story 9-of 1Tendai 9.of-11childhood 11.s.POSS  
 ‘Tendai’s story about his childhood’

Looking outside of Bantu, a similar pattern of possessives is present in the Chadic language Hausa, which has masculine and feminine genders.<sup>7</sup>

<sup>7</sup>The *na* and *ta* genitive morphemes for masculine and feminine respectively often undergo reduction and contraction (as described in Tuller 1986), surfacing as the suffixed forms *-n* and *-r*. I assume with Tuller (1986) that the syntax associated with the suffixes is essentially the same as for their independent counterparts. Aspects of DP-internal order in Hausa are suggestive of NP-raising (see (i) from Tuller 1986: 30). Discussion of this and of similar fronting in Maasai and Semitic languages appears in Section 6.

- (i) a. buhun haatsi na Ali  
 sack millet of Ali  
 ‘Ali’s sack of millet’
- b. [sack (of) millet] of Ali <sack of millet>

- (11) (Newman 2000: 301)
- |   |  |
|---|--|
| <p>a. <u>riga</u> bak'a ta Lawan<br/> gown black of.FEM Lawan<br/> 'Lawan's black gown'</p> | <p>b. <u>litafi</u> guda na Lawan<br/> book one of.MASC Lawan<br/> 'one book of Lawan's'</p> |
|---|--|

I will refer to languages with the low possessor and concordial 'of' profile as Type 1 languages. Their characteristics are summarized in Table 1.<sup>8</sup>

Table 1: Canonical Type 1 Languages *i.e.* Bantu, (Swahili, Zulu, Shona, Kilega,...)

Canonical Type 1 languages	Grammatical gender/noun class
i.e. Bantu	Possessors and EAs may remain low, introduced by 'of'. Head noun (the possessum) controls concord on 'of'.

Additional languages in which the possessor bears concord with the possessum, hence potentially Type 1 languages, include Hindi-Urdu (Bögel & Butt 2013), Albanian (Spencer 2007), and some Afro-Asiatic languages including central Cushitic languages (Hetzron 1995) and Old and Middle Egyptian (Haspelmath 2015). I exclude them from discussion here for lack of sufficient information about the syntax of their DPs, though the concord facts are promising.

## 2.2 Possessor agreement languages

Languages such as Turkish and Yu'pik instantiate the other end of the spectrum. Lacking grammatical gender, they also lack concord sharing features of N with the possessor. Since Abney (1987), it has been widely considered that their DP-internal morpho-syntax resembles that of clauses in familiar SVO languages: possessors and agents surface in high, typically prenominal positions and control agreement in person and number. Examples (12a) and (13) are reproduced from Abney (1987), who cites Underhill (1976) for (12a) (see also Gavruseva 2000 and Haegeman 2004 for discussion). This agreement is henceforth referred to as *possessor agreement*, though the thematic role of its controller varies along the same lines as that of clausal subject agreement.

<sup>8</sup>See Giusti (2008) for observations along similar lines about languages with concord in gender and number.

## (12) Turkish

- a. Ahmet ve Ali-in resm-i  
 Ahmet and Ali-GEN picture-3PL  
 ‘Ahmet and Ali’s picture’
- b. (Kornfilt, personal communication)  
ben-im yeni resm-im  
 I-GEN new picture-1s  
 ‘my new picture’

## (13) Yupik

- angute-t kuiga-t  
 man-PL river-PL  
 ‘the men’s river’

Abney (1987) proposes that possessor agreement is a feature of D, analogous to clausal subject agreement in Infl. Recognition of additional functional structure in nominals opens up other options including the possibility of variation in this regard. Following Chung (1982), Chamorro has possessor agreement that is the counterpart to subject-verb agreement, shown in (14a) and NSO order corresponding to VSO. The agent argument raises to a mid-level functional projection within DP, followed by N-raising across it to D (14b).

## (14) Chamorro

- a. (Chung 1982: 127)  
 i-bisitana si Francisco as Teresa  
 the-VISIT.AGR3S UNM Francisco of Teresa  
 ‘Francisco’s visit to Teresa’
- b. [DP N+n+D [FP si Francisco <F<sub>uφ</sub>> [nP...<N+n>...]]]

Hungarian is also widely described as having possessor agreement (see Szabolcsi 1983; 1994); (15b–15c). Since the possessor in these examples surfaces to the right of an article, I assume that it occupies a position in the DP’s middle field as shown in (15d). (15e) shows that an argument introduced by ‘of’ can have only a theme reading in Hungarian (this judgment from Éva Dékány and Huba Bartos, personal communication), unlike in Bantu; thus raising of a possessor or agent argument is obligatory.<sup>9</sup>

<sup>9</sup>Den Dikken (2015) argues that Hungarian possessor inflection is not actually agreement but a clitic (see also den Dikken 1999; Bartos 1999; Kiss 2002 on the crucial facts). Section 4 provides brief discussion.

- (15) Hungarian (Szabolcsi 1983: 90)
- a. *agreement with pronominal possessor*  
 az én-∅ vendég-e-m  
 the I-NOM guest-POSS-1s  
 ‘my guest’
- b. (den Dikken 1999: 139)  
*agreement with pronominal possessor*  
 az ő(k) kalap-ja-i-k  
 the they hat-POSS-PL-3PL  
 ‘their hats’
- c. (den Dikken 1999: 139)  
*lexical possessor; no agreement*  
 a nők kalap-já-/\*juk  
 the women hat-POSS-\*3PL  
 ‘the women’s hat’
- d. [DP az [FP én F<sub>uφ</sub> [nP <az> n vendég-e-m ]]]  
 the I-GEN guest-POSS-1s
- e. *no agent/possessor reading for ‘of’ DP*  
 (a) kep Mari-rol  
 (the) picture Mary-of  
 ‘the picture of Mary’  
 \*‘the picture of Mary’s’

Tzutujil too shows possessor agreement as Abney notes, and lacking grammatical gender, it has no gender concord between N and the possessor. Dayley (1985: 286) provides the following example.<sup>10</sup>

- (16) Xinwiji [jun rwach [rxjab’ [rk’aajool [nb’eesino. ]]]]  
 3SABS.1SERG.found a its.strap his.shoe his.son my.neighbor  
 ‘I found a strap of my neighbor’s son’s shoe.’

The word order and agreement facts suggest that these are all languages in which possessors cannot appear nP-internally and must raise (see the Turkish structure (4b), repeated below).

- (4b) [DP Ahmet ve Ali-in D<sub>uPhi</sub> ... [nP <Ahmet ve Ali> n resm ]]

<sup>10</sup>Possessors (and clausal subjects) in Tzutujil appear to occupy right-hand Specs, presenting questions in relation to antisymmetry theory (Kayne 1994) that lie outside this paper’s scope.

I will refer to languages with this profile as Type 2 languages. Their characteristics are summarized in Table 2.

Table 2: Canonical Type 2 Languages *i.e. Turkish, Chamorro, Tsutujil,...*

Canonical Type 2 languages	No grammatical gender
<i>i.e. Turkish</i>	Concord is absent Highest argument raises out of <i>nP</i> to Spec of a functional category Highest argument controls <i>possessor agreement</i> (PossAgr)

### 2.3 Interim summary

I have introduced two opposing patterns of genitive constructions. On the one hand, Type 1 languages have grammatical gender and possessors are introduced by ‘of’-like morphemes bearing concord with the head noun. On the other hand, Type 2 languages lack gender and hence gender concord, and their possessors surface high, controlling possessor agreement.

In Figure 2, I flesh out the syntax I assume for a possessive construction in a Bantu language in pre-labeling-theoretic terms, *i.e.* with traditional category labels.

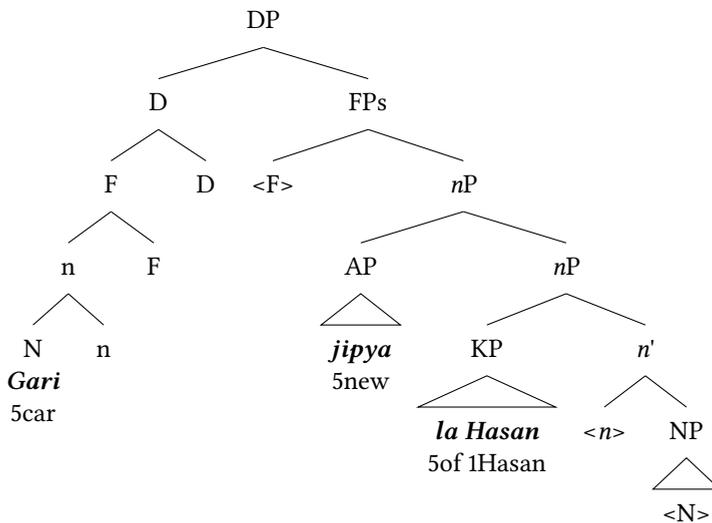


Figure 2: Bantu: Poss stays low (see 7a)

As proposed in Abney (1987), possessors appear higher in DPs of Type 2 languages. They raise out of *nP* to Spec of a functional category as shown for Turkish in Figure 3 where, following Abney, I represent the landing site for Turkish possessors as Spec, DP.

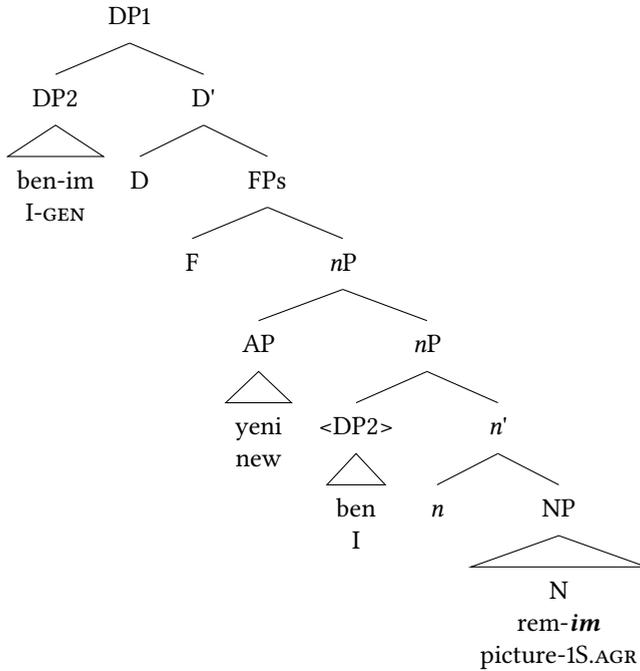


Figure 3: Turkish: Poss raises high (see 12b)

In Section 3.3 I will suggest that Romance languages may be covert Type 1 languages, yielding the groupings in Table 3, where speculative members are parenthesized.

Table 3: Two Groups Distinguished Possessive Syntax

Type 1	Type 2 <sup>a</sup>
Bantu languages	Turkish
Hausa	Yu'pik
(Romance languages)	Chamorro
(Hindi/Urdu)	Hungarian
(Old and Middle Egyptian)	

<sup>a</sup>See Abney 1987 on this pattern.

### 3 Concord and labeling

#### 3.1 Overview

The theoretical question that arises in relation to these patterns is whether a principled reason can be found for the clustered properties of agreement and possessor location that distinguish the two groups. I propose that the core, underlying factor involved is the presence or absence of grammatical gender – a parametric choice with syntactic implications. In particular, the presence of gender in a language makes possible gender concord, which in turn permits concordial licensing of low possessors. In the absence of gender concord on possessors, we find the alternative strategy of possessor-raising to a category whose head bears possessor agreement (other strategies of course exist, on which see Section 6 for a small sample).

Let us suppose, following Chomsky (2013; 2015), that labels are assigned by an algorithm applying at the completion of a phase. Where there is a unique head, the algorithm takes its features as the label (see 17). It is accordingly straightforward to label the constituents in (18).

(17) in  $[_\alpha \text{ H XP}]$ ,  $\alpha$  is labeled with the features of its unique head:  $[_{\text{HP}} \text{ H XP}]$

(18)  $[_\alpha \text{ buy } [_\beta \text{ a } [_\gamma \text{ n book}]]]$  is labeled  $[_{\text{VP}} \text{ buy } [_{\text{DP}} \text{ a } [_{\text{nP}} \text{ n book}]]]$

But recall from Section 1.1 that when a configuration  $[\text{XP}, \text{YP}]$  is encountered, labeling is thwarted by ambiguity over the identity of the head. The labeling hypothesis predicts that one of two things must then happen for labeling to become possible: (i) XP or YP must raise,<sup>11</sup> or (ii) features that XP and YP share must be available to function as the label (see (19), based on Chomsky 2013: 44).

- (19) a. impossible labeling configuration  
 $[_\alpha \text{ XP YP}]$   
 b. XP raises.  $\alpha$  can be labeled YP or  
 $[_{\text{YP}} \langle \text{XP} \rangle \text{ YP}]$   
 c. XP and YP may be labeled by shared prominent features  
 $[_\phi \text{ XP}^\phi \text{ YP}^\phi]$

Example (1) (repeated below) illustrates how the labeling hypothesis predicts EA raising, and how agreement makes it possible for EA to surface in Spec of (the category otherwise known as) TP.

<sup>11</sup>Chomsky (2015) suggests that raising Y's complement may also allow labeling to proceed. I defer discussion until turning to Maasai NPs in Section 6.2.

- (1) a.  $\alpha$  cannot be labeled  
        $[\alpha \text{ [DP the girl] } [_{vP} \nu \text{ [VP feed [DP the dog]]}]]]$   
 b. after EA raising,  $\alpha$  labeled  $\nu P$  based on its head  $\nu$   
        $[_{\nu P} <\text{the girl}> [_{\nu P} \nu \text{ [VP feed [DP the dog]]}]]]$   
 c. ...but first, Agree (T, SU)  
        $[\text{T}_{u\phi} [_{\nu P} \text{ [DP the girl]}]_{\phi} [_{\nu P} \nu \text{ [VP feed [DP the dog]]}]]]$   
 d. shared prominent features label  $\phi P$   
        $[_{\phi P} \text{ [DP the girl]}]_{\phi} \text{ will}_{\phi} [_{\nu P} <\text{the girl}> \nu \text{ [feed the dog]}]$

The [XP, YP] configuration arises when possessors and EAs of nouns are merged, but there is a significant difference: unlike  $\nu$ ,  $n$  has a phi-feature that it can share.

It is safe to assume that  $n$  has the intrinsic gender feature of the associated head noun, whether because  $n$  is the gender feature's source (Lecarme 2002; Kihm 2005; Kramer 2015) or by inheritance upon head-movement and morphological merger of N to  $n$ .<sup>12</sup> Overt gender/noun class morphology on 'of' in Bantu and other Type 1 languages shows clearly that arguments within the extended nominal projections in these languages obtain the concordial gender feature (see 6–11). Leaving the mechanics of concord for Section 3.2, I illustrate its effects for a Chichewa possessor schematically in (20a–20d). Concord shares the features of  $n$  with the KP headed by associative *-a* 'of' as shown in (20c). When the labeling algorithm applies, their shared features are taken as the label. The same for the Hausa masculine feature of *gidaa* 'house' in (21) (Chichewa N-raising and Hausa NP-raising derive surface word orders; on the latter see note 7).

- (20) a. Chichewa  
       chi-tunzi **ch-a** Lucy  
       7-picture 7-of 1Lucy  
       'Lucy's picture'  
 b. *pre-concord*:  $[\alpha \text{ [of Lucy] } [n_7 \text{ [picture}_7]]]$   
       labelling impossible  
 c. *post-concord*:  $[\alpha \text{ [agr}_7 \text{ of Lucy] } [n_7 \text{ [picture}_7]]]$   
       *in situ* poss acquires noun class concord (realized on 'of')  
 d. *post-labelling*:  $[\text{C}_{7P} \text{ [agr}_7 \text{ of Lucy] } [n_7 \text{ [picture}_7]]]$   
       shared features label  $\alpha \text{ C}_{7P}$

---

<sup>12</sup> As noted in Section 1.4 I abstract away from the possibility that roots are acategorial and from related proposals in Chomsky (2015).

- (21) a. gidaa        na        **Aisha**  
          house(masc) of.masc Aisha(fem)  
          ‘Aisha’s house’
- b. *pre-concord*: [[of Aisha]  $n_{\text{masc}}$  [house<sub>masc</sub>]]
- c. *post-concord*: [[<sub>agr.masc</sub> of Aisha]  $n_{\text{masc}}$  [house<sub>masc</sub>]]
- d. *post-labelling*: [<sub>MascP</sub> [<sub>agr.masc</sub> of Aisha]  $n_{\text{masc}}$  [house<sub>masc</sub>]]

The proposals for gender and labeling are summarized in (22) and (23). Positive answers to the two linked parametric choices in (22) result in the possibility of labeling by concord in (23).

- (22) Gender parameters:
- a. Does language L have grammatical gender? If yes, then:
- b. Does L share the gender feature of the possessum with the possessed, by concord?
- (23) *Labelling by concord*: In the configuration [XP, YP] where X or Y has intrinsic gender, concordial gender features shared between XP and YP may serve as label.

### 3.2 Mechanics of concord and concordial labeling

As noted in Section 1.4, I assume that concord is a subcase of feature valuation via the Agree relation of Chomsky (2000; 2001). Recall my proposal that the grammatical gender of nouns is a formal, uninterpretable feature, satisfying Chomsky’s Activity Condition. Unlike a DP’s uCase, nominal gender never deactivates because Agree does not determine its value (Carstens 2010; 2011, adapting the view of deactivation in Nevins 2005). For this reason, concord is iterable.

Following Hiraiwa (2001), there are no intervention effects for many-to-one probe-goal relations like in Figure 4a and b (= a partial derivation for 3a, which I reproduce in 24).<sup>13</sup>

<sup>13</sup>This account assumes that only intrinsic phi-features may value unvalued phi-features. In contrast, Danon (2011) assumes (simplifying slightly) that once valued, uPhi on a probe P may value that of a higher probe P+1; hence clause-level agreement on a head like T may include gender features because D bears gender concord. But Carstens (2011) observes that with few cross-linguistic exceptions, heads sensitive to person do not agree in gender unless N and D amalgamate morphologically, as in Bantu and Semitic languages. Carstens (2011) takes this to indicate that there is no Agree-with-agreement. D’s [person] intervenes between T and  $n/N$ , blocking access by clause-level heads to the lower [gender] unless there is N-to-D raising. Romance participles can agree in gender because they are systematically insensitive to person and therefore Agree ( $\text{Prti}_{\text{uPhi}}$ ,  $n$ ) may reach across it. See Carstens & Diercks 2013 and Wasike 2007 for other evidence from Lubukusu.

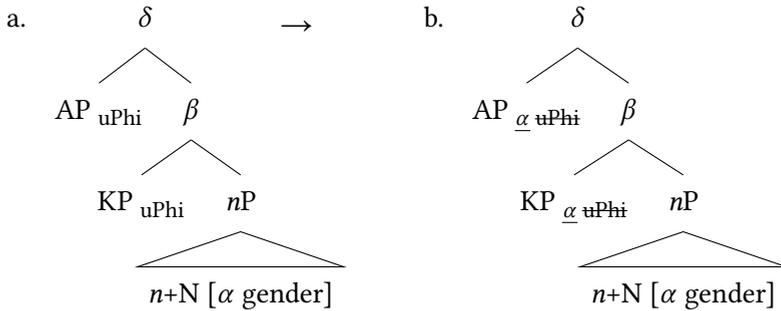


Figure 4: Multiple concord valuation

- (24) chi-tunzi ch-abwino ch-a Lucy  
 7-picture 7-nice 7-of 1Lucy  
 ‘Lucy’s nice picture’

Following Béjar & Āezáč (2009), Toosarvandani & van Urk (2014), and Carstens (2016), uPhi valuation by something c-commanding a probe is possible where nothing in the probe’s c-command domain can provide a value. This accounts for the inclusion of number features in concord on K, though Num is merged higher than nP.

I illustrate step-by-step below how gender concord works to yield labeling in nP, beginning in Figure 5a at a point where the possessum noun and *n* are present but their projections unlabeled. In Figure 5b, the possessor is merged, creating a new node  $\gamma$  (I pre-label the associative *-a* and its possessor complement as K(P) and DP respectively, for expository convenience). Concord provides KP with Class 7 features matching those of nP, as shown in Figure 5c. These features suffice to label  $\gamma$ ; the remaining nodes are labeled by their unambiguous heads (see Figure 5d; successful labeling is indicated by the notation  $X \rightarrow Y$ ).

An important agreement-theoretic question arises in connection with concord on *-a*: why does it not agree with its complement, the class 1 DP *Lucy*? Can this be reconciled with an analysis of concord as syntactic agreement?

Toosarvandani & van Urk (2014) consider the same question with respect to concord on the *ezafe* morpheme in Zazake. They propose that this state of affairs indicates that the complement to the concord-bearer is actually a null PP whose

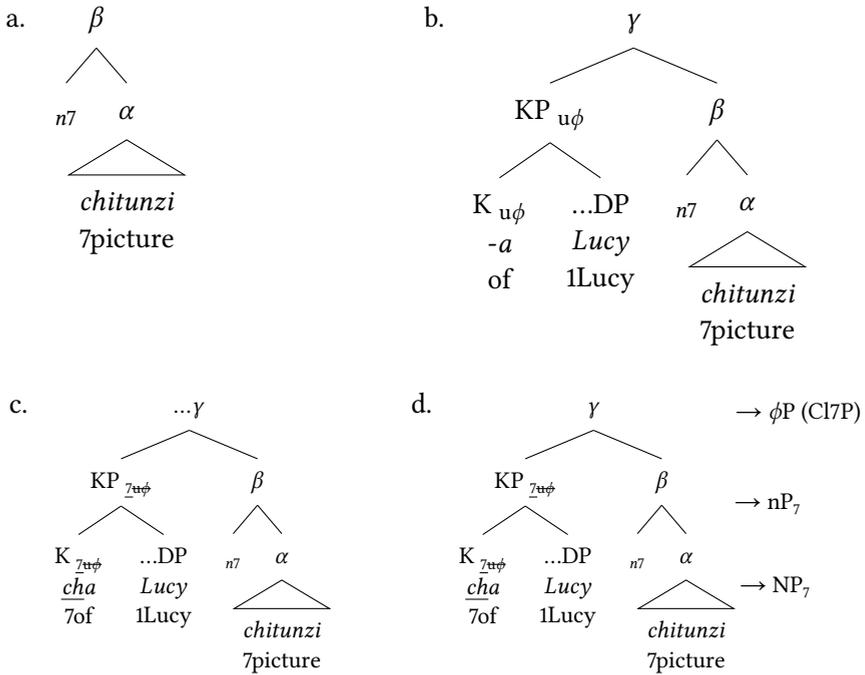


Figure 5: Gender concord labeling an in situ possessor

head induces phasal spell-out, making the DP within it inaccessible for agreement with K. For Toosarvandani & van Urk (2014) following Řezáč (2008), this is the syntax associated with oblique Case as shown in Figure 6.<sup>14</sup>

In a configuration like in Figure 6, unvalued  $u\phi$  of K become part of the label KP. Recall that  $u\phi$  valuation by something merged higher in the tree is possible when downward Agree fails (Béjar & Řezáč 2009; Toosarvandani & van Urk 2014; Carstens 2016). This enables KP to obtain concordial features from the possessum and Num, and permit labeling of  $\gamma$  (this concord is borne by the head K).

<sup>14</sup>The status of Case is controversial in Bantu (see Diercks 2012). I propose that its utility in providing a unified account of the agreement in Bantu and Zazake is a bit of evidence that at least some Cases are present, though perhaps only “special” ones (lexical and inherent) as opposed to the structural Cases which Diercks presents evidence against. See Carstens & Mletshe (2015) for some proposed Xhosa Cases associated with post-verbal focus, and with arguments of experiencer verbs.



Spanish *de* does not inflect for gender, nor do its counterparts in other Romance languages. Still, the morpho-syntactic facts are striking in their conformity to the canonical Type 1 pattern in all other ways. I therefore suggest that *de* and its cognates bear concordial gender features but are idiosyncratically non-inflecting on the surface. For functional heads lacking intrinsic phi-features and local to those of the head noun, there is no obstacle to the acquisition of concordial features. The syntactic parallels are easily explained if they have such features but do not spell them out (though see Section 6.4 on a potential alternative).

## 4 Possessor agreement

Absent any gender concord in *nP*, possessors and EAs of nouns are in essentially the same boat as *vP*-internal subjects. Merge of these arguments gives rise to an illicit [ $_{\alpha}$  XP, YP] configuration:

(26) \* [ $_{\alpha}$  [*XP* possessor] [*YP* *n* [possessed]]]

What we find in Type 2 languages is a strategy for surmounting this via possessor raising. We've seen that the Turkish possessor surfaces high, to the left of adjectives in a position that Abney (1987) analyzed as Spec, DP (see Figure 3 on page 84).

The pattern of facts seems to perfectly mirror the syntax of subject raising to Spec, TP at the clausal level. Raising of the possessor facilitates successful labeling of *nP*, and shared agreement features label the category in which the possessor surfaces. The derivation is shown in (27).<sup>15</sup>

(27) Turkish

- a. ben-im yeni resm-im  
 I-GEN new picture-1s  
 'my new picture'
- b. [ $_{\beta}$  ben *n* [ $_{\alpha}$  resm]]  
 my picture

<sup>15</sup>For convenience I label the node above an AP as *nP* in (27d) and elsewhere, ignoring the question of how adjuncts like the APs interact with the labeling algorithm. See Oseki (2014) for an analysis under which adjuncts either spell out immediately or are labeled through (abstract) feature-sharing.



to which the person-case constraint applies, ruling out its occurrence in first and second person.

Whether Hungarian possessive constructions involve agreement or cliticization, the phenomena pattern with those of possessor agreement languages like Turkish in that no overt “subject” argument occupies Spec, *nP*. The principal difference arises in FP, depending on whether the lexical possessor adjoins to it or raises via internal Merge, and accordingly how labeling proceeds at this point. See Preminger (2014) for a phi-probing approach to clitic doubling, and Oseki (2014) for a proposal that some adjuncts enter into Feature-Sharing relations and trigger labeling, while others must be immediately spelled out. I leave it to future research on Hungarian to confirm whether the lexical possessor doubles a raised clitic or values agreement, and hence what mechanics are appropriate.

## 5 Genitive pronouns, absence of freezing effects, and a typological gap

### 5.1 Pronouns bearing concord aren’t frozen

The proposals presented in Sections 3 and 4 are not intended to make a biconditional claim about word order. We have already seen word order evidence that the noun raises across the possessor in Chamorro, and I have indicated that an NP-fronting option will be explored in Section 6 for certain languages which otherwise have the characteristics I’ve associated with *nP*-labeling by concord.

In addition, the raised position of genitive pronouns argues that possessors bearing concord are mobile, and not “frozen in place”; that is, labeling of *nP* by feature-sharing between the genitive pronoun and *n* does not preclude the pronoun’s movement (see examples from (6), reproduced in (29), and for influential ideas on freezing see Rizzi 2006; Rizzi & Shlonsky 2007). I assume that no phase boundary is crossed by raising of the pronoun, and therefore there is no “delabeling”, that is, the label for *nP* based on shared features of (KP, *n*) is unaffected (Chomsky 2015: 11).

(29) Chichewa

- a. chi-tunzi ch-abwino ch-a Lucy  
    7-picture 7-nice     7-of 1Lucy  
    ‘Lucy’s nice picture’ (Lucy = possessor, agent, or theme)
- b. chi-tunzi ch-anga ch-abwino  
    7-picture 7-my     7-nice  
    ‘my nice picture’

- c. \* chi-tunzi ch-abwino ch-anga  
       7-picture 7-nice       7-my
- d. \* chi-tunzi ch-a Lucy ch-abwino  
       7-picture 7-of Lucy 7-nice

Regarding the nature of this movement and its potential landing sites, it is significant that while genitive pronouns in some of the relevant languages might turn out to be clitics, this is clearly not true of them all. A Chichewa or Swahili genitive pronoun can stand alone as in (30).

- (30) Chichewa (Carstens 1997: 295)  
       Ndi-ma-konda ch-anga [e]  
       1SSA-ASP-like 7-my  
       \*'I like my' (e.g. picture)

We must therefore recognize that genitive pronouns can raise as XPs and consider what features are involved in labeling where they surface.

## 5.2 A typological gap

Giusti (2008) proposes that genitive pronouns which raise out of *nP* value silent possessor agreement in person features in their landing site projection (see also Sichel 2002). I hesitate to adopt this reasonable-seeming view because an apparent typological gap argues that it may not be correct. In none of the languages surveyed for this study does a concord-bearing DP control possessor agreement.<sup>16</sup> The constructed examples in (31) illustrate the missing pattern. Raised genitive pronouns in Romance languages typically inflect for number (+gender), but are not agreed with. In Bantu languages, genitive pronouns inflect for concord with the head noun and raise to the left of adjectives as we have seen, but never control a phi-agreement relation.

- (31) a. \* *my-Masc.PL sons-1S* (pseudo-Romance)  
       b. \* *chitunzi-ni ch-anga* (pseudo-Chichewa)  
           7picture-1S 7AGR-my  
           ' my picture'

<sup>16</sup>Section 6 explores the syntax of bi-directionally agreeing possessive morphemes in Maasai, showing that they are fully consistent with the generalization established here.

In contrast, both Bantu and Romance language families exhibit robust subject-verb agreement which I take to be the clause-level counterpart to possessor agreement. The absence of possessor agreement therefore cannot be attributed to an incompatibility with the general directionality of Agree in these languages.

The strongest statement of this pattern of facts is the general ban in (32):

- (32) *Agreement-Mixing Constraint*: an expression bearing concord cannot value possessor agreement.

Recall the proposal that ‘of’ selects a null phasal PP, inducing the overt DP that is the apparent complement to ‘of’ to spell out. Since genitive pronouns show concord with the head noun, let’s assume they have a complex structure that includes this phase-head (see 33 and Figure 7).<sup>17</sup> It follows that they won’t be accessible to value possessor agreement.

- (33) Chichewa  
chi-tunzi ch-anga ch-abwino  
 7-picture 7-my 7-nice  
 ‘my nice picture’

The original motivation for the null phasal PP hypothesis was that K itself cannot agree with the DP that it introduces. The inability of the same DP to value possessor agreement on a different head provides further evidence of its inaccessibility.

### 5.3 Labelling by number concord where pronouns surface

I conclude that the category where a raised genitive pronoun surfaces is not labeled by shared phi-features in the sense of possessor agreement. This leaves us with a puzzle: When the pronoun raises, what features can label the [XP, YP] configuration this gives rise to ( $\beta$  in Figure 8)?

Recall that Number heads a projection in the DP’s middle field, and genitive pronouns are hypothesized to surface in their Specs in Bantu (see (6f), repeated below).

- (6f) [<sub>DP</sub> N+n+Num+D [<sub>NumP</sub> ch-anga <Num> [<sub>nP</sub> AP [<sub>nP</sub> <changa> <N+n>...]]]]  
 7my

<sup>17</sup>Spencer (2007) also proposes that Bantu genitive pronouns incorporate the concord-bearing *a-*.

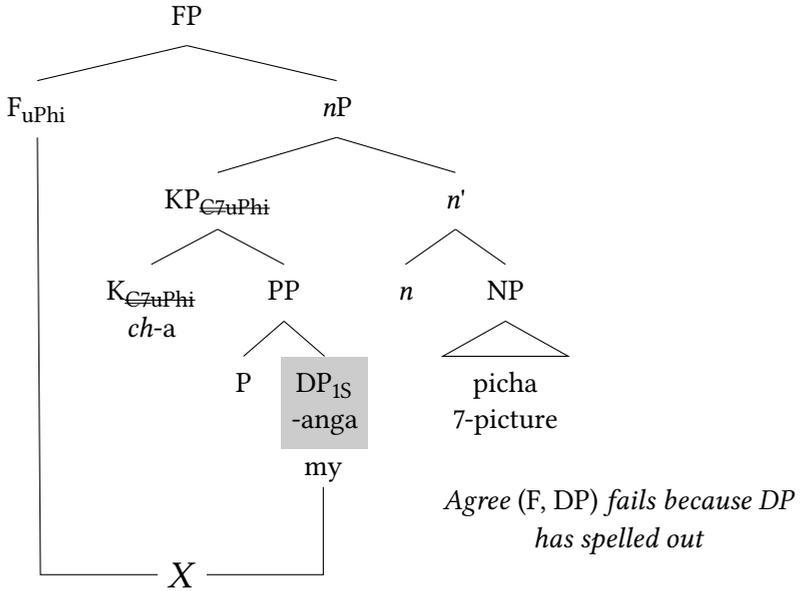


Figure 7: Structure of a Chichewa genitive pronoun

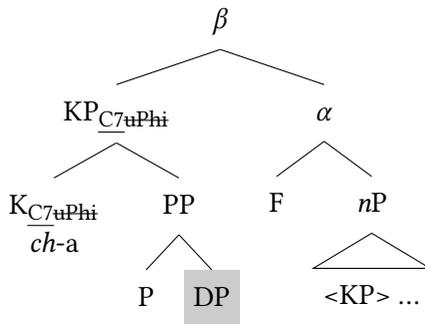


Figure 8: How is the constituent  $\beta$  labeled?

Genitive pronouns in Bantu inflect for noun class, which (as previously noted) is composed of gender+number features. Assuming that F in Figure 8 is the head Num(ber), number features shared via concord will label  $\beta$  as  $\phi$ P (see Figure 9).

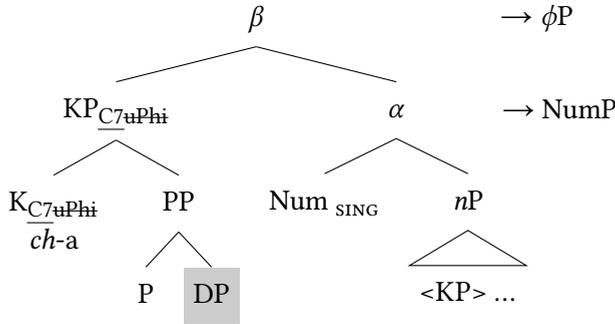


Figure 9: F is Num; number concord labels  $\beta$

In Romance languages as well, number inflection on genitive pronouns is common: *mi libro/mis libros* ‘my book/s’ (Spanish), so the analysis likely extends to them.

It’s important to make clear the distinction drawn here between possessor agreement in  $\beta$  of Figure 9, which is predicted to fail, and on the other hand concord in number, which I propose can succeed in labeling  $\beta$ . Possessor agreement must fail because the phase-head P in Figures 8 and 9 transfers the possessor, rendering it inaccessible. The possessor therefore cannot value uPhi on a functional head such as Num. But unvalued uPhi of K in Figure 9, lacking a source of valuation in K’s c-command domain, becomes part of the label of KP, and takes its values from *n*/N and Num. The result is successful noun class “concord” on K/KP, including number features. Since the head of  $\beta$  is Num, there are shared features to label  $\beta$ .

#### 5.4 Interim conclusions: pronouns versus lexical possessors

I have argued that possessors and EAs in Type 1 languages are not required to move for labeling of *n*P, given that they share phi-features with *n*P in the form of concord on KP. And assuming that they transfer before the K head that introduces them merges they cannot value its features, or the features of possessor agreement on a higher head. The result is a tendency for lexical arguments that bear concord to surface low, through a conspiracy of factors. But pronouns inflected for concord undergo raising without valuing phi-agreement. This lends support for the idea that labeling does not necessarily lead to freezing of the

syntactic objects that contribute a label in the form of shared features (Chomsky 2015).

I have also argued that the landing site of pronouns is NumP, labeled by concordial number features. It remains to consider why pronouns must raise, while lexical arguments cannot.

It is well-established that many languages require object pronouns to undergo object shift out of VP; see Diesing (1992; 1997), Diesing & Jelinek (1995), Roberts & Shlonsky (1996), Cardinaletti & Starke (1999), and Holmberg (1999) on pronoun raising in a variety of languages. Diesing & Jelinek (1995) tie this to the unambiguous definiteness of pronouns. They present data from a range of languages including English demonstrating that even if full DP objects optionally shift, object pronouns must do so obligatorily (see 34).

- (34) a. Bert looked **the reference** up.  
b. Bert looked up **the reference**.  
c. Bert looked **it** up.  
d. \* Bert looked up **it**.

- (35) Pronouns must vacate VP (Diesing 1992; 1997; Diesing & Jelinek 1995).

Genitive pronoun raising is thus a subcase of a broad phenomenon. I suggest that like VP, *nP* is not a licit domain for (most) pronouns to surface in. But lexical genitives, under no comparable pressure to raise, remain in the Merge positions where labeling by concord is successful.

## 6 Complex cases

### 6.1 Introduction

This section briefly considers a few complex cases from Maasai, Hausa, and Hebrew. My purpose is to provide a sketch of how certain less transparent syntax and agreement phenomena in DP can be understood through the lens of labeling issues. As noted in the introduction, the labeling algorithm is hypothesized to be a general property of the grammar and as such must apply within DP as it does at the clausal level. Examining additional patterns is an important test of the validity of the hypothesis.

We will see in this section that concord and agreement with possessors may co-occur when a possessor is bare. This leaves its features accessible, and possessor agreement proceeds without violating the Agreement Mixing Constraint.

We will also see instances of possessum-raising in languages with grammatical gender; I hypothesize that agreement with a [+gender] possessum can label its landing site much as possessor agreement does.

## 6.2 Maasai

### 6.2.1 The facts and Brinson's 2014 analysis

Maasai shows bidirectional agreement in possessive constructions: a possessive agreement morpheme (henceforth PAM) agrees in gender with the possessum, but in number with the possessor (see Storto 2003; Brinson 2014 for details). Thus PAM is feminine singular in examples (36a) and (36b) though the possessum in (36b) is feminine plural, because PAM matches only the gender of the possessum, and takes its number from the (masculine) singular possessor. In both (36c) and (36d) PAM is masculine, matching the gender of the possessum 'dog', but it is plural in (36d), where the possessor 'friends' is plural.

(36) Maasai (Brinson 2014; glosses adapted)

- |                          |                    |                          |          |             |
|--------------------------|--------------------|--------------------------|----------|-------------|
| a. embenejio ε           | altfani            | c. oldia                 | le       | oltfere     |
| leaf.F.SG                | PAM.F.SG tree.M.SG | dog.M.SG                 | PAM.M.SG | friend.M.SG |
| 'the leaf of the tree'   |                    | 'the dog of the friend'  |          |             |
| b. imbenek ε             | altfani            | d. oldia                 | loɔ      | oltfarweti  |
| leaf.F.PL                | PAM.F.SG tree.M.SG | dog.M.SG                 | PAM.M.PL | friend.M.PL |
| 'the leaves of the tree' |                    | 'the dog of the friends' |          |             |

Several questions arise, among them: Does PAM agree with a possessor that it selects, unlike 'of'-type morphemes in Type 1 languages? If so, why does it take its gender feature from the possessum, and number from the possessor? How do these phenomena mesh with the labeling-theoretic approach I have introduced?

Brinson (2014) provides an elegant account of these facts. She argues that Maasai PAM is merged as the functional head Poss, taking the possessum NP as its complement (I use Brinson's category labels). PAM has uNum, uGen features which probe upon Merge, finding only the intrinsic gender feature of the possessum to agree with. Given the architecture of DPs, the number feature of the possessum has not yet entered the derivation (see Figure 10 for the first derivational step of 37).

- (37) imbenek ε            altfani  
leaf.F.PL PAM.F.SG tree.M.SG  
'the tree's leaves'

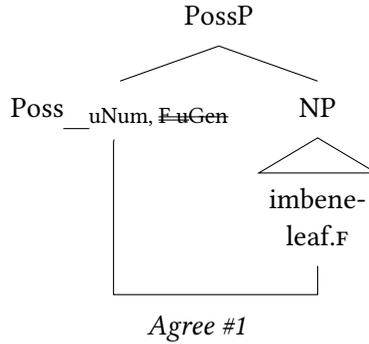


Figure 10: Maasai possessum values *ugender* feature of PAM

The possessor DP is merged next. At this point, Brinson argues that PAM’s *uNum* can receive “delayed valuation” (Carstens 2016), that is, valuation deferred until an expression with appropriate features is merged higher in the same phase (see also Béjar & Řezáč 2009). This is shown in Figure 11.

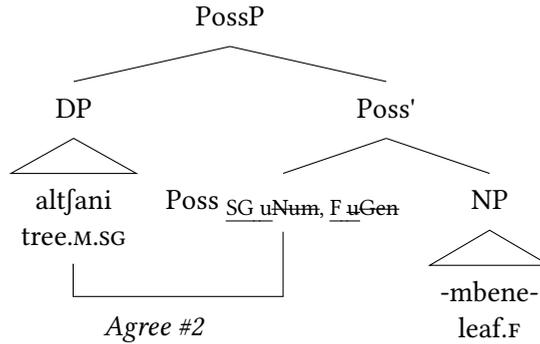


Figure 11: Maasai possessor values *unumber* feature of PAM

In Brinson’s account, by the time the number head associated with the possessed noun is merged, the features of PAM have already been valued (see Figure 12). Surface order results from raising Poss to Num to D, and the possessum to Spec, DP (see Figure 13).<sup>18</sup>

<sup>18</sup>Brinson does not specify how the plural morphology attaches to the (raised) possessed noun. Given that Poss + Num adjoin to D in her account, I assume number inflection on the noun is agreement with Num.

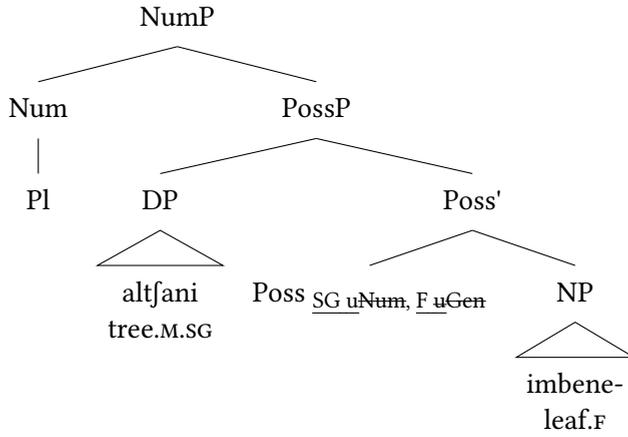


Figure 12: Num merges after valuation of PAM is complete

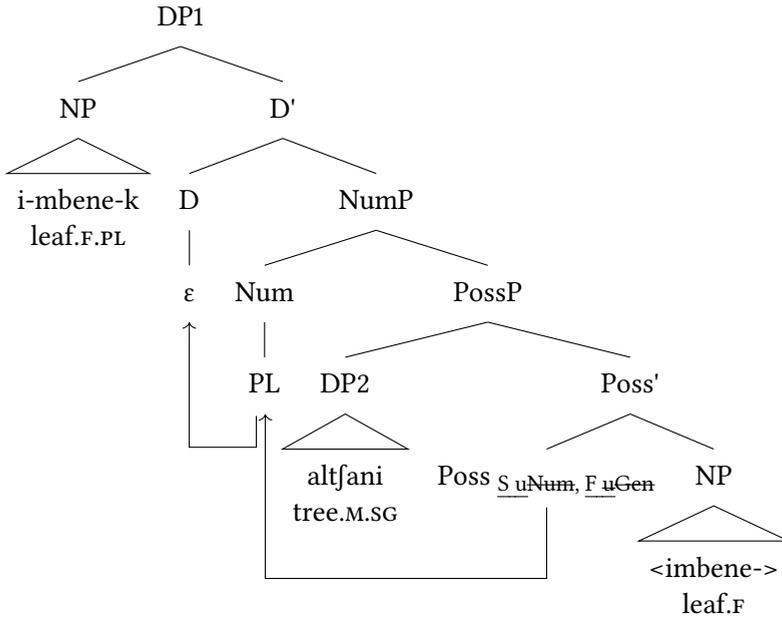


Figure 13: Raising Poss-to-Num-to-D and possessum to Spec, DP yields surface order

## 6.2.2 Maasai vs. canonical Type 1

Brinson's analysis nicely accounts for the pattern of concord in Maasai possessive constructions. The linker-type element PAM is not analogous to Bantu 'of', in Brinson's analysis; though both have  $u\text{Phi}$  features, PAM does not select the possessor or a projection dominating the possessor. Thus unlike in Bantu, the possessor DP is bare, and its features are therefore syntactically accessible. Its  $i\text{Num}$  feature is a closer source of valuation for the  $u\text{Num}$  of Poss than is  $i\text{Num}$  of the overall DP, merged higher.<sup>19</sup>

A question arises as to how exactly labeling works in Maasai possessive constructions. The movement and agreement processes yield some ambiguity. For the constituent  $\alpha$  in Figure 14 created by merge of the possessum and the head that Brinson identifies as Poss (=  $n$  of previous sections), a label can readily be taken from the unambiguous head.

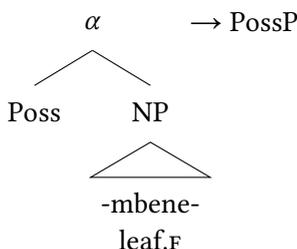


Figure 14: Labeling of PossP

Ultimately though, much of the lower part of the tree winds up empty. The possessum raises to Spec, DP and Poss itself raises to Num and thence to D, as was shown in Figure 13. These movements and the nodes whose labels remain to be determined are shown in Figure 15.

I propose that  $\beta$  is labeled PossP because raising NP eliminates the [XP, YP] configuration here, so Poss is unambiguously the head (see also discussion of Figure 16 in section 6.4). Though Poss moves out to adjoin to Num, de-labeling does not result. This is expected if no phase boundary is crossed: following Chomsky (2015: 11), there is phasal memory of successful labeling.<sup>20</sup> The nodes  $\delta$  and  $\gamma$  are labeled NumP and DP respectively because they have unambiguous heads.

<sup>19</sup>When Maasai adjectives modifying the possessum inflect for number, it is the number of the possessum head noun and not that of the possessor. Brinson locates them within the NP projection because they immediately follow the possessum, preceding PAM and the possessor. This pattern seems to support the hypothesis that adjuncts merge late (Lebeaux 1988; Chomsky 1993): by the time an AP is added to the raised constituent in Spec, DP, it is closer to the number feature of the possessum than it is to the possessor.

<sup>20</sup>I leave it to future research to identify any phase-heads within DP.

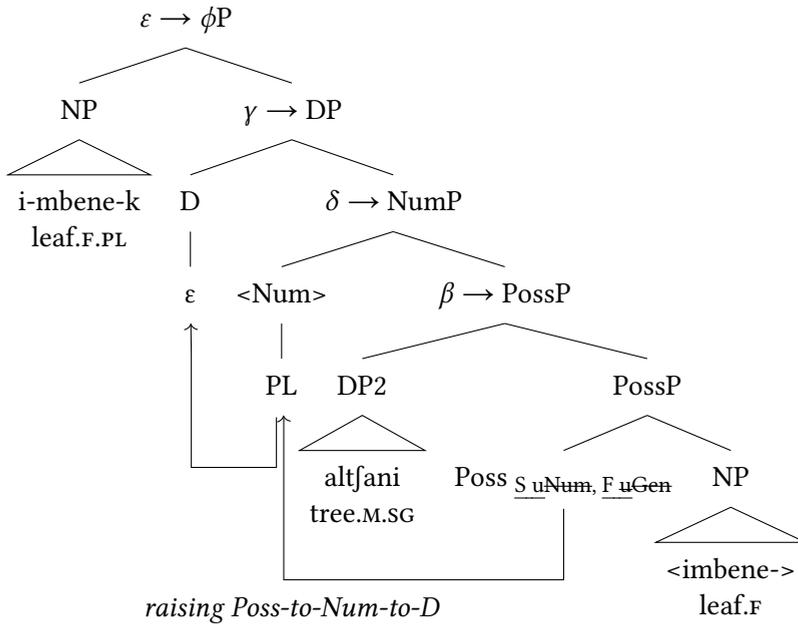


Figure 15: Labeling in Maasai DP

As for  $\varepsilon$ , it is labeled by the shared gender feature of the possessum and D (inherited from the adjoined Poss head). What forces the raising of the possessum is not clear, but assuming with Chomsky (2015) that Merge is free, nothing precludes it, and labeling in the possessum's landing site is freely available since it has the sharable phi-feature of grammatical gender.

### 6.3 Hausa predicate fronting in DP

We saw in (11) (repeated below) that Hausa possessors are introduced by a morpheme showing concord with the head noun, as in Bantu.

- (11) (Newman 2000: 301)
- a. riga bak'a ta Lawan  
 gown black of.FEM Lawan  
 'Lawan's black gown'
- b. litafi guda na Lawan  
 book one of.MASC Lawan  
 'one book of Lawan's'

But additional facts suggest that the possessum raises across the possessor, as in Maasai. Consider (38) (= (i) of note 7) in which a noun and its complement both precede the possessor, and the possible representation in (38b).

- (38) a. *buhun haatsi na Ali*  
       sack millet of Ali  
       ‘Ali’s sack of millet’  
       b. [*sack (of) millet*] of Ali <sack of millet>

The examples in (39) support a possessum raising analysis. They show that [adjective–noun–possessor] order is an alternative to the [N–adjective–possessor] order in (11); this is in fact the neutral order for the speakers I consulted. Like (38a), it indicates that there is not just a noun but a larger, phrasal constituent preceding the possessor, though some elements of NP may be “stranded” to the possessor’s right, as is *guda uku* ‘three’ in (39c) (so are PPs, not exemplified here). The contrast between examples (39d) and (39e) shows that definiteness is expressed in a nasal nominal suffix.<sup>21</sup>

- (39) a. *sabo-n gida-n Aisha*  
       new-MASC house-MASC.GEN Aisha  
       ‘Aisha’s new house’  
       b. *sabuwa-r mota-r Ali*  
       new-FEM car-FEM.GEN Ali  
       ‘Ali’s new car’  
       c. *sabobi-ŋ mototfi-ŋ Aisha guda uku*  
       new-MASC car-MASC.GEN Aisha count three  
       ‘Aisha’s three new cars’  
       d. *karami-ŋ fari-ŋ gida*  
       small-MASC white-MASC house  
       ‘a small white house’  
       e. *karami-ŋ fari-ŋ gida-n*  
       small-MASC white-MASC house-DEF  
       ‘the small white house’

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<sup>21</sup>There is homophony of adjectival concord, definiteness markers, and genitive markers, but only the latter can be replaced by a free-standing genitive marker. Note also that plurals are masculine, hence the shift between (39b) and (39c). Lastly, note that some varieties of Hausa are losing or have lost grammatical gender. Perhaps a remnant constituent including number but excluding an evacuated possessor is able to raise and label DP. I leave this to future research.



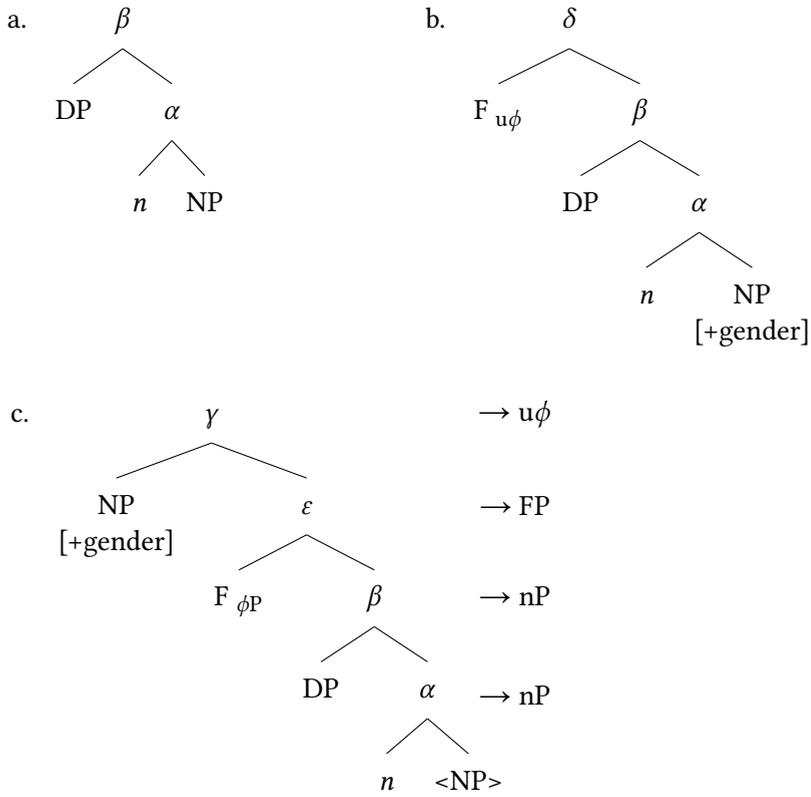


Figure 17: Labeling in Semitic DPs

I proposed in Section 3.3 that Romance ‘of’ inflects covertly, based in part on similarities between the DP-internal word order of Bantu and Romance languages. But the option of raising the possessum opens up another possibility. It has been argued for Romance languages that NP-raising places nouns in the DP’s middle field, based on aspects of modifier order (see Laenzlinger 2005 among others). If this is true, then labeling of *nP* in Romance does not rely crucially on covert inflection of ‘of’.

The NP-raising analysis has also been pursued for Semitic languages. As in Romance, there is no overt concord on the possessor KP (40).

- (40) (Shlonsky 2004: 1470)
- |  |                  |           |             |
|--|------------------|-----------|-------------|
| ha-hafgaza                                       | fel xel ha-‘avir | ‘et       | ha kfar     |
| the-bombardment of                               | the air          | force ACC | the village |
| ‘the bombardment of the village by the airforce’ |                  |           |             |

All adjectives are post-nominal, and exhibit the mirror image of English modifier order (41).

- (41) (Shlonsky 2004: 1485; glosses added)
- |  |  |
|--|--|
| COLOR > NATIONALITY/ORIGIN<br>a. a brown Swiss cow<br>b. * a Swiss brown cow | NATIONALITY/ORIGIN > COLOR<br>c. * para xuma svecara<br>d. para svecarit xuma<br>cow Swiss   brown |
|--|--|

Shlonsky (2004) proposes that phrasal movement with pied-piping inverts the order of constituents in Semitic DPs. There would seem to be no obstacle to labeling the result, since what raises will contain *n/N* and have its gender feature. The left-behind category with possessor in situ will be labeled *nP*, as shown in Figure 17c.

### 6.5 Interim summary

This section provided a brief look at three cases that differ from the two polar opposite groupings presented in Sections 2–4. The goal has been to illustrate a few alternatives to the core labeling strategies that those sections introduce.

An exploration of Maasai showed that concord with the possessum and agreement with the possessor can coincide in a language. But crucially, the possessor is bare. The expression bearing concord is not the possessor itself, nor does it select the possessor or a projection that includes it.

The facts of Hausa and Hebrew argue that possessum-raising feeds successful labeling, much as EA- and possessor-raising does.

## 7 Case concord

Before concluding, it is worth considering the question of whether Case concord has the same consequences as gender concord with respect to labeling. The two types of morpho-syntactic feature-sharing have enough in common that it is reasonable to seek unitary treatment, a path pursued in Norris (2014).

Norris analyzes nominal concord as “largely morphological and not indicative of a relationship between the element bearing features and some other element in its c-command domain” (Norris 2014: 98). For Norris, concord results from a universal process of feature-spreading within a local domain. Whether or not a language exhibits concord is not determined until the morphological component (Norris 2014: 132). Norris accordingly takes the strong position that there is no syntactic difference between a language with concord and one without. I

have argued at length that this is not true of gender concord. But is Norris's hypothesis correct for Case concord? Or does Case concord interact with aspects of the syntax as I have argued to be true of gender and (to a lesser extent) number concord?

I begin this brief exploration by following up on a test of his hypothesis that Norris himself suggests. Norris observes that under his proposal, assuming agreement and concord are distinct operations in different grammatical domains, there should be no prohibition on concord co-occurring with possessor agreement. He suggests that Case concord and possessor agreement combine in Finnish DPs. In (42), from Norris (2014: 163), inflection for inessive Case (INNE) concord and for the features of the first person singular possessor co-occur (possessive morphology is precluded on an adjective, or anything other than the head noun).

- (42) *I*ss<sup>o</sup>-ss<sup>a</sup>(\*-ni) talo-ss<sup>a</sup>-ni  
big-INNE(\*-1SG) house-INNE-1SG  
'in my big house'

While there is nothing in principle within my account to prevent possessor agreement from occurring in a language with concord (witness Maasai), the phenomena are potentially of interest, given my claim that a possessor KP bearing gender concord cannot value possessor agreement. Following Toosarvandani & van Urk (2014), I attributed this to an oblique Case configuration. If some bearers of (oblique) Case concord can control possessor agreement, that will suggest a structural difference associated with the two concord varieties and/or a difference in their grammatical status.

In fact, though, while the Finnish possessum inflects for person and number of the possessor as shown in (42), possessum and possessor do not have a Case concord relationship. The possessed noun and its modifiers inflect for the Case associated with the syntactic position of the containing DP as the inessive inflection in (42) shows, but the possessor does not share this Case. Only lexical possessors show Case inflection. They are genitive (compare 43a with 43b and 43c below), and unlike possessive pronouns they do not control possessor agreement.<sup>23</sup>

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<sup>23</sup>Toivonen (2000) argues persuasively that the Finnish possessor inflection is a clitic pronoun rather than agreement (as in den Dikken 2015's analysis of Hungarian). This does not impact the (absence of) conclusions regarding Case concord, so I leave it aside. I leave open also the account of how labeling works in (43b) and (43c), apart from noting that genitive Case on the possessor is compatible with an approach under which the possessor has an abstract Agree relation with a functional category like D and raises to its Spec, as must be assumed for English Saxon genitives (i.e. *John's book*).

- (43) (Toivonen 2000: 582–583)
- a. Pekka näkee hänen ystävä-nsä.  
Pekka sees his/her friend-3PossAGR  
'Pekka sees his/her friend.'
  - b. Pekka näkee Jukan ystävän.  
Pekka sees Jukka.GEN friend.ACC  
'Pekka sees Jukka's friend.'
  - c. Pekka näkee pojan ystävän.  
Pekka sees boy.GEN friend.ACC  
'Pekka sees the boy's friend.'

Norris notes that Skolt Saami may also have both Case concord and possessor agreement, but Miestamo (2011) reports, "possession is double marked ... possessive suffixes on the possessee and genitive case on the possessor, but they are not simultaneously present ... head and dependent marking are in complementary distribution." Thus, in Skolt Saami as well as Finnish, there is possessor agreement and Case concord in the same language, but the controller of possessor agreement does not bear Case concord. It is genitive, and overt genitive marking cannot co-occur with possessor agreement.

Summing up, these facts do not support Norris's claim that Case concord and possessor agreement mix freely. More importantly, for present purposes, they also do not tell us whether the labeling algorithm can in principle "read" Case concord as shared prominent features. What is needed is insight into the syntax of DPs in languages where possessors show Case concord with the head noun. Lardil as described in Richards (2007) provides such examples as (44).

- (44) Ngada latha karnjin-I marun-ngan-ku maarn-ku.  
I spear wallaby-ACC boy-GEN-INSTR spear-INSTR  
'I speared the wallaby with the boy's spear.'

We need to know where in the structure a possessor like *marun-ngan-ku* 'the boy-GEN-INSTR' surfaces, since it is the possessor of the spear, but also has instrumental Case concord with *maarn-ku* 'spear-INSTR'. If the two stand in the [XP, YP] relation and there is no evidence of phi-agreement, then it is plausible that Case concord labels (though alternative accounts may be possible, connected with genitive Case on 'boy'; see note 23).

If Case concord (especially where it appears without accompanying number concord) can be shown to interact with agreement and labeling possibilities in

the way that I have argued gender and number features do, it will open up interesting timing issues since, as often noted, a DP's Case value does not arrive until its source (such as *v*, T, or P) is merged. The findings potentially have implications regarding the module and mechanics of the Case concord relation.

## 8 Conclusion

Phi-features play a pivotal role in Chomsky's (2013; 2015) labeling hypothesis, because when agreement establishes shared phi-features between two expressions and they appear in the [XP, YP] configuration, labeling can proceed.

Unlike *v/V* and other clause-level projections, *n/N* and Num have intrinsic phi-features. This means that there are more phi-features available in nominal syntax than in clausal syntax: arguments introduce some, and the heads around them introduce others. I have argued that this impacts the labeling possibilities in interesting ways.

My paper has considered aspects of the syntax of possessors and agents within DPs in a group of languages with gender-number concord and another group which lack it, and which exhibit possessor agreement. I have argued that gender concord bleeds possessor agreement and possessor raising. I have proposed that this is because gender concord provides labeling for *nPs* with in situ subjects, and concord on these arguments is not compatible with additional Agree relations. Possessor agreement labels higher projections in the DP domain, when (bare) possessors and EAs must raise.

## Abbreviations and symbols

ABS	absolutive	INSTR	instrumental
ACC	accusative	MASC	masculine
DEF	definite	NOM	nominative
DOM	differential object marking	PL	plural
ERG	ergative	POSS	possessive
FEM	feminine	SA	subject agreement
GEN	genitive	S	singular

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## Chapter 4

# Object agreement and grammatical functions: A re-evaluation

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This paper discusses object agreement in the Uralic language Khanty (also known as Ostyak). The availability of object agreement in this language has been linked (Dalrymple & Nikolaeva 2011) to the grammatical function that the object bears, an analysis that if correct, would provide a strong argument in favour of the presence of grammatical functions in Universal Grammar. I provide a critical re-evaluation of the object agreement data, and show that they can be equally handled in a configurational account. This paper has further consequences for what constitutes a spell-out domain. Following Baker (2015) I argue that differential object marking properties can come about due to the position of the object and what counts as a spell-out domain in that language, which is determined by the strength of the lower phase head *v*.

## 1 Introduction

One of the fundamental assumptions of the Minimalist Programme, and its predecessor Government and Binding Theory (GB), is that grammatical functions such as SUBJECT and OBJECT, whilst they make a great deal of intuitive sense, play no formal role in the grammars that underlie natural language. This assumption is not universally shared, with the degree to which a framework relies on GFs, differing depending on framework. Some frameworks are relatively ambivalent on the matter, such as Head-Driven Phrase Structure Grammar (Pollard & Sag 1994), whereas in others GFs are a deep and fundamental part of the system, for instance Lexical Functional Grammar (LFG, Dalrymple 2001) and Relational Grammar (Perlmutter & Postal 1983).



In contrast to these frameworks, the work handled by grammatical functions (GFs) in Minimalism/GB has been shifted to other aspects of the theory, notably structural configurations (see McCloskey 1997 for a detailed overview). Under this view, the properties that appear to derive from a supposed SUBJECT role come instead from the positions in the structure that the subject has passed through.

There is a vast amount of literature that goes to the heart of these questions, far too big for me to even come close to discussing here. However, for the purposes of this paper, I will focus on the claim made by Dalrymple & Nikolaeva (2011) that object agreement in Khanty (also known as Ostyak) is sensitive to the GF of the object.<sup>1</sup> Specifically, their claim, which I will elaborate on in greater detail below, is that there are two types of objects in Khanty which can be distinguished in terms of their GF: OBJECT and OBJECT<sub>θ</sub>, and only the former type of object is able to enter into object agreement in the language. The appeal to GFs is supported by the clustering of syntactic properties that accompany object agreement.

This paper is organised in the following way. In Section 2 I discuss purported cross-linguistic connections between GFs and agreement, before I look at Khanty and the specifics of Dalrymple & Nikolaeva (2011)'s claim in Section 3. In Section 4 I show that the agreement facts of Khanty can be handled under a theory without referencing GFs, drawing particularly on an analysis of differential object marking effects in Baker (2015) with some minor additions and changes. However, this leaves a residue of properties to be accounted for, which will be the focus of Section 5. I then conclude the paper in Section 6.

## 2 Grammatical functions and agreement

### 2.1 Subject agreement

As mentioned earlier, the debate surrounding the status of GFs in grammatical theory is far too complicated and long to go into here, but – especially in a volume about agreement – it is worthwhile briefly looking at how the issue relates to agreement. As Corbett (2012) carefully notes, whilst GFs can provide a useful heuristic of determining which elements are able to enter into agreement relations in a language, it is not possible to describe all agreement patterns in terms of GFs. For instance, English looks on the surface like a language where agreement could be characterised as taking place between verb and subject, given that overwhelmingly the subject of the sentence agrees with the verb (assuming that

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<sup>1</sup>Predecessors of this claim can be found in Nikolaeva (1999a,b; 2001).

there is verbal agreement). However, there are known instances where agreement between the verb and subject fails, such as in (1), where the plural subject fails to control plural agreement (see Pollard & Sag 1994 for discussion on these types of nouns). Thus, if we would grant that the SUBJECT function exists in the grammar of English, it is not the case that all and only elements with the SUBJECT function enter into verbal agreement.

- (1) Human resources is on the phone.

Putting such cases aside, which constitute exceptions to the general rule, the interesting question is whether GFs should be appealed to in the formulation of agreement rules. Moravcsik (1974; 1978) proposes that the notion of GF plays a role in determining what is able to control agreement in a language and it is possible to formulate implicational statements on the basis of these. In short, Moravcsik states that if there is agreement in a language, subjects are always able to be agreement controllers. If there are two elements that are able to control agreement, it will be subject and object. If there are three, it will be subject, object and indirect object. Bobaljik (2008) refers to the following as the *Moravcsik Hierarchy*:

- (2) Moravcsik hierarchy:  
Subject > Object > Indirect Object > Adverb

Bobaljik's discussion of the Moravcsik Hierarchy is relevant here because, as he discusses in detail, in a language with a nominative–accusative case alignment, Moravcsik's hierarchy competes with an alternate characterisation of what determines the agreement controller, namely morphological case. It will generally be the case that in a nominative–accusative alignment, the subject is in nominative case whilst the direct object is in accusative case. Thus, we could formulate Moravcsik's hierarchy in these languages in terms of morphological case.

Things become interesting in languages with an ergative–absolutive case alignment. In this instance, there is no longer a clear match between GF and morphological case: subjects are sometimes absolutive and sometimes ergative, depending on transitivity. Crucially, Bobaljik shows that there is no language that will agree with an ergative subject, but not an absolutive object. That is, whilst there are languages with agreement that is triggered by only absolutive arguments, and languages where agreement is either with absolutive or ergative arguments, there does not seem to exist a language that will agree only and exclusively with subjects. Thus, framing the rules for subject agreement in terms of morphological case, rather than GF, better captures the cross-linguistically attested patterns.

## 2.2 Differential object agreement

The question of whether GFs play any role in the grammar is also important for object agreement as well, due to a proposal by Dalrymple & Nikolaeva (2011) who argue for an analysis of object agreement in Khanty that crucially appeals to GFs, which will be the focus of Section 3 onwards in this paper. Their analysis of Khanty forms part of a wider theory of differential object marking (DOM) that is couched in Lexical Functional Grammar, and incorporates the use of GFs. I do not intend to provide a critical discussion of all aspects of Dalrymple & Nikolaeva's proposal – I could not hope to do credit to their work in the space provided here – but I wish to focus on this claim and how it relates to DOM that is expressed through agreement.

Differential object marking refers to the phenomenon where objects are marked with special morphology that signals that the object of a sentence fulfils certain conditions, usually related to specificity and definiteness (though not always, see the discussion of Khanty in Section 3). This can be illustrated by the following, from Sakha (Turkic). In (3a), the object is specific, and marked for accusative case, whereas in (3b), the object is non-specific and does not receive case marking.

- (3) Sakha (Baker 2015: 126)
- a. Masha salamaat-y türgennik sie-te.  
Masha porridge-ACC quickly eat-PAST.3SGS  
'Masha ate the porridge quickly.'
  - b. Masha türgennik salamaat sie-te.  
Masha quickly porridge eat-PAST.3SGS  
'Masha ate porridge quickly.'

Differential object agreement (DOA) is clearly related to differential object marking and is plausibly the same phenomenon. Dalrymple & Nikolaeva treat it as such, and since I do not wish to take a stance on this here I will follow them in this regard. DOA is seemingly less widely attested than DOM, but attested across various unrelated languages nonetheless. The difference between DOM and DOA is simply that the marking in DOM is realised on the object itself, usually by a case morpheme, whereas in DOA the special marking is carried on the verb by way of an agreement affix. In Ruwund (Bantu, Woolford 2001) verbs will agree with a specific animate object, but not a non-specific one:<sup>2</sup>

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<sup>2</sup>Woolford notes that object agreement is obligatory with GOAL arguments, which is somewhat in accordance with Khanty below. She gets her examples from Nash (1992: 565).

(4) Ruwund (Woolford 2001: 4)

- a. ku-kimb muntu  
     INF-look.for person  
     ‘to look for a (any) person’
- b. ku-mu-kimb muntu  
     INF-O-look.for person  
     ‘to look for a/the person’ (with a particular person in mind)

DOM and DOA stand as excellent testing grounds for the existence of GFs, given that they refer specifically to a property of objects, with DOA providing a useful base for testing their role in agreement relations.

GB/Minimalist approaches to DOM, where there is no sense that a function “object” exists, have tended to characterise it as an alternation between different positions for the object in the structure. The idea, in brief, is that objects that are marked have moved into a higher structural position, which in turn causes or licenses the marking that they carry. Objects that carry the features that are prototypical of DOM (such as being definite or specific) have been documented to move to a higher position than their indefinite or non-specific counterparts (Diesing 1992). If marking is then restricted to higher positions, then we expect definite and specific objects to be marked, but indefinites/non-specific objects not to be. Such movement accounts are supported by instances whereby marking on the object is clearly correlated with a difference in syntactic position, as can be seen in the Sakha data above: Baker notes that the accusative morpheme is obligatory in (3a), where the object appears to the left of the adverb, but impossible in (3b), where the object appears to the right of the adverb, suggesting that movement to a higher position does play a role.

A movement approach has been applied to DOA in Woolford (1999; 2001), who accounts for this by assuming that objects that show agreement lie in a higher structural position in the clause than objects that do not agree. Woolford’s analysis for Ruwund, couched within Optimality Theory, proposes exclusion constraints that prevent objects with certain features from remaining within the VP. For the data in (4b), Woolford proposes that the object bears the features [+specific,+animate], and that there is an exclusion constraint operative in the language that prevents objects from bearing those features from remaining in VP. Woolford further proposes that objects that have moved to Spec,AgrOP agree with the verb. This, coupled with a general condition of economy (“move only if you need to”), predicts that only objects bearing these features will trigger agreement. Whilst there are a couple of shortcomings of Woolford’s analysis (for instance, it has been to my mind fairly conclusively demonstrated that Spec-Head

agreement is not necessary for agreement to take place; see for instance long distance agreement phenomena, Polinsky & Potsdam 2001), the general thrust of Woolford's analysis is consistent with a prominent account of DOM taken in GB/Minimalist approaches: high objects get a special marking (only expressed on the verb) by virtue of moving out of the VP domain.<sup>3</sup>

### 3 Khanty and the properties of objects

Khanty (also known as Ostyak) is a Uralic language spoken in Siberia by around 10,000 people (Simons & Fennig 2018). It is a fairly typical member of the Finno-Ugric branch of the Uralic languages, showing a mix of agglutinative and fusional morphology. There are a variety of different dialects (Nikolaeva 1999b), but in this paper, all the data comes from Nikolaeva (1999a; 2001) and Dalrymple & Nikolaeva (2011), and so I discuss only the northern dialect.

#### 3.1 Object agreement in Khanty

First I outline the relevant properties that are crucial for the discussion. Khanty has obligatory subject agreement with both intransitive and transitive verbs.

(5) Dalrymple & Nikolaeva (2011: 142)

a. (ma) je:lən o:məs-l-əm.

I at.home sit-PRES-1SGS

'I am sitting at home.'

b. (ma) tam kalaŋ we:l-s-əm.

I this reindeer kill-PAST-1SGS

'I killed this reindeer.'

Object agreement appears to be optionally available for transitives if we compare (5b) with (6). Note the vowel change in the agreement suffix. Nikolaeva (1999a) claims that in this case, where the object is singular, we can view the agreement morpheme as a portmanteau that expresses both subject and object agreement.

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<sup>3</sup>One of the criticisms levied against this type of approach is that evidence that movement takes place is often lacking, or it is difficult to determine (Dalrymple & Nikolaeva 2011; Baker 2015), and sometimes there is evidence against such movement having taken place (Kalin & Weisser 2019). There are a variety of proposals regarding DOM that are not based on the movement account (Bossong 1991; Aissen 2003; de Swart 2007; Keine & Müller 2014; Kalin 2015), but a complete overview of the field will take us too far afield from the core purpose here. Since my major focus is on the supposed role that GFs play, and I base my account (partly) by appealing to movement, I restrict my attention to this approach.

- (6) Dalrymple & Nikolaeva (2011: 142)  
 (ma) tam kalaŋ we:l-s-e:m.  
 I this reindeer kill-PAST-1SGS.SGO  
 ‘I killed this reindeer.’

Notably, if the number of the object changes to either plural or dual, then a clear object agreement suffix arises. Only the number of the object is registered on the agreement, not person. The full paradigm of object marking for the verb *we:r* ‘make/do’ is given in Table 1, with the morpheme carrying object agreement in italics.<sup>4</sup>

- (7) Dalrymple & Nikolaeva (2011: 142–143)  
 a. (ma) tam kalaŋ-ət we:l-sə-l-am.  
 I this reindeer-PL kill-PAST-PLO-1SGS  
 ‘I killed these reindeer.’  
 b. (ma) tam kalaŋ-ŋəŋ we:l-sə-ŋil-am.  
 I this reindeer-DL kill-PAST-DLO-1SGS  
 ‘I killed these two reindeer.’

Table 1: The objective conjugation in Khanty (Nikolaeva 1999b)

Subject		Object number		
Number	Person	SINGULAR	DUAL	PLURAL
SINGULAR	1	we:r-l- <i>e:m</i>	we:r-l-ə- <i>ŋil</i> -am	we:r-l-ə-l-am
	2	we:r-l- <i>e:n</i>	we:r-l-ə- <i>ŋil</i> -an	we:r-l-ə-l-an
	3	we:r-l-ə- <i>lli</i>	we:r-l-ə- <i>ŋil</i> -li	we:r-l-ə-l-ə-lli
DUAL	1	we:r-l- <i>e:mən</i>	we:r-l-ə- <i>ŋil</i> -mən	we:r-l-ə-l-ə-mən
	2	we:r-l-ə- <i>lən</i>	we:r-l-ə- <i>ŋil</i> -lən	we:r-l-ə-l-ə-llən
	3	we:r-l-ə- <i>lən</i>	we:r-l-ə- <i>ŋil</i> -lən	we:r-l-ə-l-ə-llən
PLURAL	1	we:r-l- <i>e:w</i>	we:r-l-ə- <i>ŋil</i> -uw	we:r-l-ə-l-uw
	2	we:r-l-ə- <i>lən</i>	we:r-l-ə- <i>ŋil</i> -lən	we:r-l-ə-l-ə-llen
	3	we:r-l- <i>e:l</i>	we:r-l-ə- <i>ŋil</i> -al	we:r-l-ə-l-al

Nikolaeva (1999a) carefully shows that neither definiteness nor specificity are the relevant factor that controls object agreement in Khanty. This can be seen

<sup>4</sup>The form of the verb morphology here is  $\sqrt{\text{MAKE-PAST-EP-OBJ-SUBJ}}$ .

already in the contrast between (5b) and (6) above, as well as in (8). In both sets of examples, the definiteness and specificity remain constant, but object agreement is not seen in the (a) sentences, but is seen in the (b) ones.

(8) Nikolaeva (1999a: 337)

- a. ma nəŋ-en/nəŋ xot-en wan-s-əm.  
I you-ACC/your house-2SG see-PAST-1SGS  
'I saw you/your house.'
- b. ma nən-en/nəŋ xot-en wan-s-e:m.  
I you-ACC/your house-2SG see-PAST-1SGS.SGO  
'I saw you/your house.'

The determining factor in object agreement is topicality, according to Nikolaeva (2001). Using corpus data, she shows that object agreement is found overwhelmingly when the object is salient and/or pre-established in the discourse. Furthermore, objects that agree are existentially presupposed by the speaker. This trait can be most easily seen by looking at the class of objects that do *not* control agreement. Objects in focus generally do not control object agreement, as shown in the following, where the object is a *wh*-item (9a), the object serves as the answer to the question (9b) (new information in the sense of Lambrecht 1994), and the object is associated with a focus sensitive particle *only* (9c). All of the objects in these sentences fail to trigger object agreement.

(9) Dalrymple & Nikolaeva (2011: 143)

- a. u:r-na mati kalaŋ we:l-əs/\*we:l-s-əlli?  
forest-LOC which reindeer- kill-PAST.3SGS/kill-PAST-3SGS.SGO  
'Which reindeer did he kill in the forest?'
- b. u:r-na tam kalaŋ we:l-əs/\*we:l-s-əlli.  
forest-LOC this reindeer kill-PAST.3SGS/kill-PAST-3SGS.SGO  
'He killed the reindeer in the forest.'
- c. tamxatl tup wul a:n wa:n-s-əm/\*wa:n-s-e:m.  
today only big cup see-PAST-1SGS/see-PAST-1SGS.SGO  
'Today I only saw the/a big cup.'

Furthermore, non-specific objects do not control agreement. Note that the object in (10) is crucially *not* in focus: focus in Khanty (as in many head final languages) is associated with an immediately preverbal position. In (10), the question word *xalśa* 'how' is in focus, but agreement is still not seen between the verb and the

object *mu:tra*. Thus, it is not that case that the lack of object agreement correlates with the object being in focus.

- (10) Nikolaeva (2001: 20)  
 ma mu:tra xalśa u:ś-l-əm/\*u:ś-l-e:m?  
 I miracle how know-PRES-1SGS/know-PRES-1SGS.SGO  
 ‘How may I know a miracle?’

Nikolaeva (2001) and Dalrymple & Nikolaeva (2011) propose that object agreement is mediated by information structure, and in order for an object to show agreement, it must be interpreted as a topic.<sup>5</sup>

Yet, this only holds for objects bearing the THEME role. When the object bears the GOAL or the CAUSEE theta role, then object agreement is always obligatory, irrespective of information structure (clearly shown in (11a) where the causee argument is in focus).<sup>6</sup>

- (11) Dalrymple & Nikolaeva (2011: 149)
- a. xoj xollə-ptə-s-li?  
 who cry-CAUS-PAST-3SGS.SGO  
 ‘Whom did he make cry?’
- b. ma:ne:m zo:lə-ptə-s-li/\*xo:llə-pteə-s.  
 I.ACC cry-CAUS-PAST-3SGS.SGO/cry-CAUS-PAST-3SGS  
 ‘He made me cry.’

Similarly, when the GOAL argument is the (primary) object, then verbal agreement is obligatory, contrasting it with when the THEME plays the same role. This is observed with the following sentence pair.

<sup>5</sup>This is simplifying somewhat. In actual fact, Nikolaeva (2001) argues that agreeing objects are secondary topics, as opposed to subjects which are the primary topic of the sentence. The distinction between primary and secondary topics is relevant for Nikolaeva (2001) and Dalrymple & Nikolaeva (2011), since the subject GF is assigned the primary topic role, and thus, a coarse notion of topic is not sufficient to draw the line between elements that control object agreement on the verb or not. Rather, secondary topic is introduced to allow for a distinction between which elements are mapped to ОВЪЕКТ and which are mapped to ОВЪЕКТ<sub>θ</sub>, see the discussion in Section 3.2. This distinction is not immediately relevant to our purposes here, and I refer the reader to the discussion in these works for further elaboration.

<sup>6</sup>In a ditransitive construction with a goal argument, the goal argument will control agreement on the verb when the THEME is unavailable for agreement, such as being in focus. This is because Khanty allows only one “primary” object per clause, in the sense that only one object can be unmarked whilst the other must be an oblique. Khanty thus shows both indirective and secundative alignments in ditransitives (see Haspelmath 2005; Bárány 2015).

(12) Dalrymple & Nikolaeva (2011: 148)

- a. ma a:n Pe:tra e:lti ma-s-e:m/ma-s-əm.  
 I cup Peter to give-PAST-1SGS.SGO/give-PAST-1SGS  
 ‘I gave a/the cup to Peter.’
- b. ma Pe:tra a:n-na ma-s-e:m/\*ma-s-əm.  
 I Peter cup-LOC give-PAST-1SGS.SGO/give-PAST-1SGS  
 ‘I gave Peter a/the cup.’

### 3.2 Other properties connected to object agreement

In addition to providing the distribution of where object agreement is necessary and where it is impossible, the ability of triggering object agreement is apparently connected to other syntactic properties. For these properties, objects that show agreement show a commonality with subjects that is lacking with objects that do not show agreement. The various properties of objects, and how they compare to subjects, are summarised in Table 2. Objects are divided into two categories to reflect the fact that some objects share properties in common with subjects, but other objects do not.<sup>7</sup> I do not wish to go into the details of all the properties here for space reasons, and I refer the reader to Nikolaeva (1999a) for further elaboration. As can be seen, with respect to the phenomena of verbal agreement, control in participial clauses, quantifier float, possessive reflexivisation and possessor topicalisation, subjects and agreeing objects form a natural class to the exclusion of non-agreeing objects.

Table 2: Properties of subjects and objects in Khanty

	Subjects	Object 1	Object 2
Verbal agreement	✓	✓	✗
Control in converbial clauses	✓	✗	✗
Control in relative clauses	✓	✗	✗
Control across clauses	✓	✗	✗
Control in participial clauses	✓	✓	✗
Quantifier float	✓	✓	✗
Control of possessive reflexivisation	✓	✓	✗
Possessor topicalisation	✓	✓	✗

<sup>7</sup>Object 1 can be replaced with ОБЪЕКТ, and Object 2 with ОБЪЕКТ<sub>θ</sub>, once the reader is familiar with the discussion in Section 3.3.

For instance, both subjects (13a) and agreeing objects (13b) can enter into the possessor topicalisation construction (where the possessor is split from the possessum), whilst non-agreeing objects cannot (13c):

(13) Nikolaeva (1999a: 346)

- a. imi ijolti lik-əl et-əl nawəriŋ pela  
 woman always anger-3SG come-PAST.3SGS frog to  
 The woman, she is always angry with the frog'  
 (lit: her anger always comes to the frog)
- b. Juwan motta xot-əl kǎśalə-s-e.m.  
 John before house-3SG see-PAST-1SGS.SGO  
 'I saw John's house before.'
- c. \*Juwan motta xot-əl kǎśalə-s-əm.  
 John before house-3SG see-PAST-1.SGS  
 'I saw John's house before.'

I will return to a discussion of these properties in Section 5 below, as well as quantifier float and possessive reflexivisation.

### 3.3 Agreement by grammatical function

The challenge posed by the Khanty data as outlined in Section 3.1 is clear. Khanty shows a fairly typical DOM pattern since some objects are marked and others are not, but it is a system that is only partially based on topicality. On the one hand, THEMES vary according to their information structure role, whilst on the other, GOALS and CAUSEES must obligatorily control agreement, independently of whether they are topics or not. Furthermore, the ability to control object agreement is linked to a range of other syntactic properties.

The key to the explanation offered by Dalrymple & Nikolaeva (2011) is that objects that agree and ones that do not agree are mapped to different grammatical functions. To do this, they make use of the restricted object function in LFG, which limits the class of elements that can combine with a particular GF to only those bearing a specified thematic role. Dalrymple & Nikolaeva propose that objects in a sentence come in two types. Firstly, there is OBJECT, which is unrestricted in terms of which types of semantic roles can be mapped to it. Secondly, there is OBJECT<sub>θ</sub>, which is restricted. Whilst the GF OBJECT is able to be a controller of agreement on the verb, OBJECT<sub>θ</sub> is not (see also Butt & King 1996). The key part of the proposal is that the OBJECT<sub>θ</sub> function is limited to THEMES, whilst

the OBJECT function is unrestricted, and places no restriction on the semantic role of the argument that it is mapped to. To make the theory complete there is a bidirectional relationship concerning THEMES and GF: THEMES that are topical cannot be mapped to OBJECT<sub>θ</sub>, and must be mapped to the OBJECT function, and themese that are *not* topical must be mapped to OBJECT<sub>θ</sub>, and not OBJECT. Table 3 summarises.

Table 3: Summary of how functions are assigned

Function	Thematic role	Information structure
OBJECT	THEME	+TOPIC
	PATIENT	+TOPIC
	GOAL	<i>any</i>
	CAUSEE	<i>any</i>
OBJECT <sub>θ</sub>	THEME	-TOPIC
	PATIENT	-TOPIC

To make this clearer, we will consider a couple of examples. Firstly, consider a monotransitive sentence where there is no object agreement. The object is non-topical, and in keeping with Dalrymple & Nikolaeva’s generalisation, it does not trigger object agreement. Since the object is a THEME in this sentence, and is not topical, it will be mapped to the OBJECT<sub>θ</sub> function. The f-structure is given in (14b).<sup>8</sup>

(14) Dalrymple & Nikolaeva (2011: 142)

- a. (ma) tam kalaŋ we:l-s-əm.  
 I this reindeer kill-PAST-1SGS  
 ‘I killed this reindeer.’

<sup>8</sup>Information structural roles are not represented in the following, since it is the GF that is crucially linked to object agreement in Khanty. There is a separate level of information structure with mappings to f-structure in Dalrymple & Nikolaeva (2011), which regulates that THEMES when topics are assigned to the OBJECT<sub>θ</sub> function, but to the OBJ function when not a topic. For reasons of space I must gloss over this here, but the f-structures are sufficient to make the point. For a fuller treatment, I refer the reader to Dalrymple & Nikolaeva (2011: especially ch. 4).

#### 4 Object agreement and grammatical functions: A re-evaluation

b. 
$$\left[ \begin{array}{l} \text{PRED} \\ \text{SUBJ} \\ \text{OBJ}_\theta \end{array} \begin{array}{l} \text{'kill' } \langle \text{subj, obj}_\theta \rangle \\ \left[ \begin{array}{l} \text{PRED} \\ \text{PERS} \\ \text{NUM} \end{array} \begin{array}{l} \text{'pro' } \\ 1 \\ \text{sg} \end{array} \right] \\ \left[ \begin{array}{l} \text{PRED} \\ \text{NUM} \end{array} \begin{array}{l} \text{'reindeer' } \\ \text{sg} \end{array} \right] \end{array} \right]$$

In the corresponding sentence with object agreement, one can see that because the object is topical, it gets mapped to the OBJECT function.

(15) Dalrymple & Nikolaeva (2011: 142)

- a. (ma) tam kalaŋ we:l-s-e:m.  
 I this reindeer kill-PAST-1SGS.SGO  
 'I killed this reindeer.'

b. 
$$\left[ \begin{array}{l} \text{PRED} \\ \text{SUBJ} \\ \text{OBJ} \end{array} \begin{array}{l} \text{'kill' } \langle \text{subj, obj} \rangle \\ \left[ \begin{array}{l} \text{PRED} \\ \text{PERS} \\ \text{NUM} \end{array} \begin{array}{l} \text{'pro' } \\ 1 \\ \text{sg} \end{array} \right] \\ \left[ \begin{array}{l} \text{PRED} \\ \text{NUM} \end{array} \begin{array}{l} \text{'reindeer' } \\ \text{sg} \end{array} \right] \end{array} \right]$$

Finally, consider a ditransitive construction. Here, object agreement is obligatory. Note this time, though, that the GOAL argument is mapped to the OBJECT function, whilst the THEME is mapped to an oblique argument.

(16) Dalrymple & Nikolaeva (2011: 148)

- ma Pe:tra a:n-na ma-s-e:m/\*ma-s-əm.  
 I Peter cup-LOC give-PAST-1SGS.SGO/give-PAST-1SGS  
 'I gave a/the cup to Peter.'

(17) 
$$\left[ \begin{array}{l} \text{PRED} \\ \text{SUBJ} \\ \text{OBJ} \\ \text{OBL} \end{array} \begin{array}{l} \text{'give' } \langle \text{subj, obj, obl} \rangle \\ \left[ \begin{array}{l} \text{PRED} \\ \text{PERS} \\ \text{NUM} \end{array} \begin{array}{l} \text{'pro' } \\ 1 \\ \text{sg} \end{array} \right] \\ \left[ \begin{array}{l} \text{PRED} \\ \text{NUM} \end{array} \begin{array}{l} \text{'Peter' } \\ \text{sg} \end{array} \right] \\ \left[ \begin{array}{l} \text{PRED} \\ \text{NUM} \end{array} \begin{array}{l} \text{'cup' } \\ \text{sg} \end{array} \right] \end{array} \right]$$

At this point the GFs that are assigned to each of the arguments become crucial. They do so in the formulation of the agreement affixes for Khanty, which refer specifically to the GF. A subset of the rules of agreement are given in (18). (18a) refers to the agreement affix that expresses only agreement with a 1st person singular SUBJECT (applicable to 14a), (18b) refers to the agreement affix that expresses agreement with a 1st person singular SUBJECT *and* a singular OBJECT (applicable to 15a and 16), whilst (18c) refers to the agreement affix that expresses agreement with a dual OBJECT (see Table 1).

What is crucial is that there is no affix in the lexicon in Khanty that expresses agreement with OBJECT<sub>θ</sub>.

- (18) a. Agreement specifications for the agreement affix *am*:  
(↑ SUBJ PERS) = 1  
(↑ SUBJ NUM) = SINGULAR
- b. Agreement specifications for the agreement affix *em*:  
(↑ SUBJ PERS) = 1  
(↑ SUBJ NUM) = SG  
(↑ OBJ NUM) = SINGULAR
- c. Agreement specification for the agreement affix *nil*:  
(↑ OBJ NUM) = DUAL

### 3.4 Summary

Given the complexity of the conditions that determine where objects agree, which vary according to both the information structure and thematic interpretation of the argument, the appeal to GFs provides an elegant solution to an extremely complex problem. Notably, the theory is able to provide an analysis as to why the agreeing objects show the syntactic properties that they do and why they cluster with subjects in this regard: agreement is just one syntactic property that is linked to the OBJECT function (and the SUBJECT function) but not the OBJECT<sub>θ</sub> function. The differences between topicalised THEMES and non-topicalised THEMES is because the former are mapped to OBJECT, whilst the latter are mapped to OBJECT<sub>θ</sub>. Furthermore, given that OBJECT<sub>θ</sub> is limited to THEMES, we can see why other thematic roles must obligatorily control object agreement irrespective of their agreement structure: they must get mapped to OBJECT.

## 4 Khanty agreement without GFs

In this section I present a configurational account of object agreement in Khanty that eschews the use of GFs.<sup>9</sup>

### 4.1 DOM caused by spell-out domains

As mentioned above, many GB/Minimalist proposals regarding DOM have appealed to a difference in phrase-structural position between the objects that are marked (or here, agreed with), and those that are unmarked (not agreed with). Baker (2015) discusses DOM in the context of formulating a version of dependent case (Marantz 1991), and specifically proposing that VP may form a domain where dependent case is evaluated. If we consider once more the Sakha examples, from above, repeated in (19), we see that the difference in marking of the object is dependent on whether the object appears to the right or to the left of the adverb.

(19) Sakha (Baker 2015: 126)

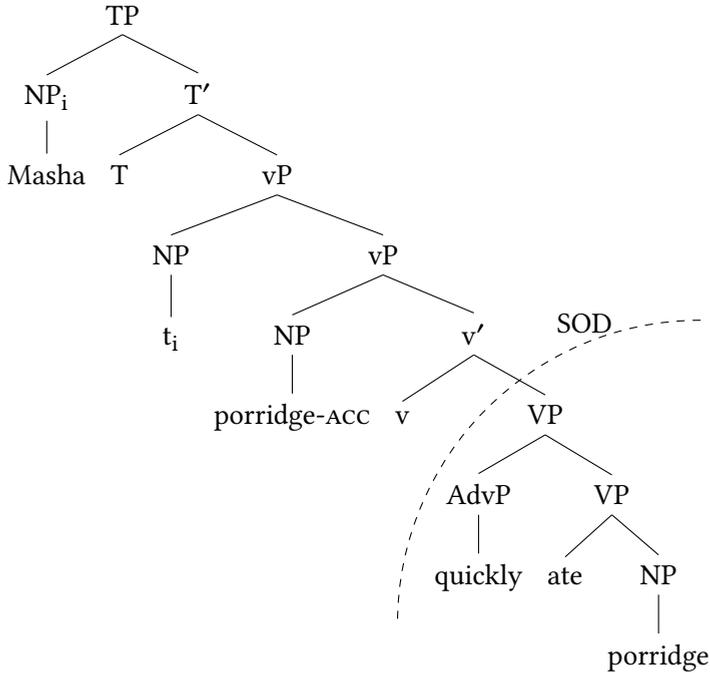
- a. Masha salamaat-y türgennik sie-te.  
Masha porridge-ACC quickly eat-PAST.3SGS  
'Masha ate the porridge quickly.'
- b. Masha türgennik salamaat sie-te.  
Masha quickly porridge eat-PAST.3SGS  
'Masha ate porridge quickly.'

Baker proposes that here, the accusative case appears on the object in (19a) because the object enters into a dependent case configuration with the subject. According to Baker, dependent accusative case can be assigned only when an argument is c-commanded by another argument within a local domain. In (19a), this happens because the object DP is c-commanded by the subject DP. However, in (19b), though the object DP remains c-commanded by the subject DP, the two are split by a spell-out domain (SOD), that is initiated by the phase head (following the standard view in phase theory that phase heads spell out their complements). Crucial here is that dependent case in Sakha cannot be assessed across a spell-out boundary, and so when the object remains within VP it is the only argument within its domain, and dependent case is unable to be assigned. However, when it moves to Spec,vP it is c-commanded by another argument in its domain, and hence receives dependent case.<sup>10</sup>

<sup>9</sup>A configurational account is also offered in Bárányi (2016).

<sup>10</sup>Sakha, like Khanty, is a verb final language, but I represent the trees throughout this paper as left-headed.

(20) Adapted from Baker (2015: 126)



Yet, high movement of objects to receive dependent case cannot be the universal pattern, since there are languages that license a dependent case on all objects, irrespective of specificity, for instance in Cuzco Quechua:

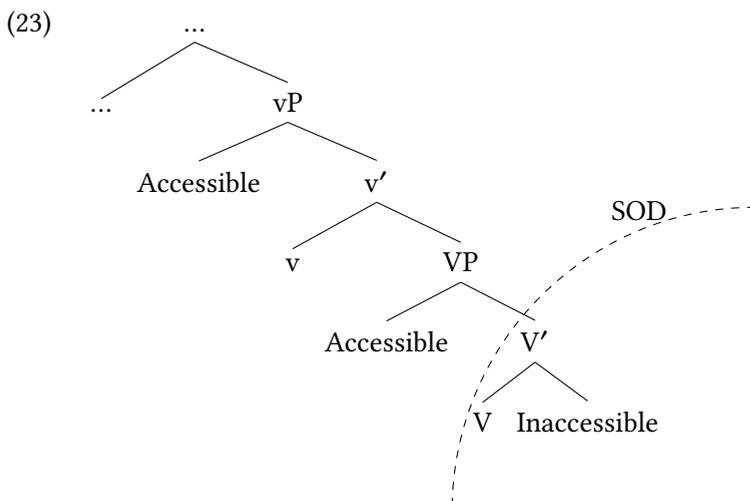
- (21) Cuzco Quechua (Baker 2015: 146)  
 Juan wawakuna-man miski-\*(ta) qunpuni.  
 Juan children-DAT candy-ACC give.HAB.3S  
 ‘Juan gives candy to the children.’

It is unappealing in these cases to assume that *all* objects in these languages move to a high position, so Baker proposes that the permeability of the spell-out domain varies across languages, such that in some languages like Sakha, a spell-out boundary between two arguments will not allow dependent case relationships to be formed. However, in others, the spell-out boundary creates no such inhibition, and arguments that are split by a spell-out boundary can enter into a dependent case relationship.

As to why the spell-out boundary should be permeable in some languages but not in others, Baker offers an explanation based on the notion that phase heads can be either *hard* or *soft*. If a phase head is hard, then the spell-out domain is blocked off for further syntactic operations. On the other hand, if the phase



is the right approach, and thus the specifier position in the complement of a hard phase boundary remains syntactically visible to higher operations, whilst all other elements within the spell-out domain are closed off. To see this graphically, the following tree structure demonstrates the relevant boundary. Important for our purposes is that AGREE relationships can be established in any position above the SOD, including Spec,VP. To preview the analysis: objects that undergo agreement have moved above the SOD, whereas objects that do not remain beneath it.



Before continuing further, I should offer a short word on case assignment, which I remain agnostic about throughout. Nikolaeva (1999b) notes that for lexical nouns, there are three cases in Khanty: nominative, locative and translative. Pronouns by way of contrast, have three cases: nominative, accusative and locative. Object agreement is crucially disassociated from case, which can be seen when there is a pronominal object. In the following, object agreement is both seen and not seen when the object has accusative case.

- (24) Nikolaeva (1999b: 65)  
 ma naŋ-e:n wa:n-s-ə-m/wa:n-s-e:m.  
 I you-ACC see-PAST-1SG/see-PAST-1SGOSG  
 ‘I saw you.’

It is clear from such examples that (accusative, at least) case is not intimately connected to agreement in Khanty, and so we should not strive to have them handled by the same mechanism (see Baker 2008: ch. 5 for more discussion). However, such data also pose a problem for what I claim: I propose below that object

agreement is possible only if the object moves to Spec,VP (or higher). Case assignment must be independent of this restriction, given that objects can remain low, as it does by assumption in (24), but still be able to receive accusative case.

I do not have a fully worked out solution to this issue here, but allow me to sketch a possibility.<sup>12</sup> It is possible that the spell-out domains that I propose here are created *after* the point at which case is assigned. Specifically, assuming that phases, and by consequence SODs are created dynamically, rather than being statically fixed (see for instance Bobaljik & Wurmbrand 2005; 2013; Bošković 2014), then the merger of *v* is in the usual case responsible for both the determination and creation of the SOD. Thus, at the point at which *v* is merged into the derivation, there is a small window of opportunity where *v* could license accusative case on the object, before the SOD is created. To the extent that this is correct, then all that needs to be said is that agreement is not open to the same possibility, in the sense that there must be no possibility for agreement in Khanty to happen before the SOD is created. Given that the head that is responsible for object agreement is high in the structure, then it seems eminently reasonable that the SOD will not be able to remain open at the relevant stage when agreement happens.

#### 4.2.2 Monotransitive constructions

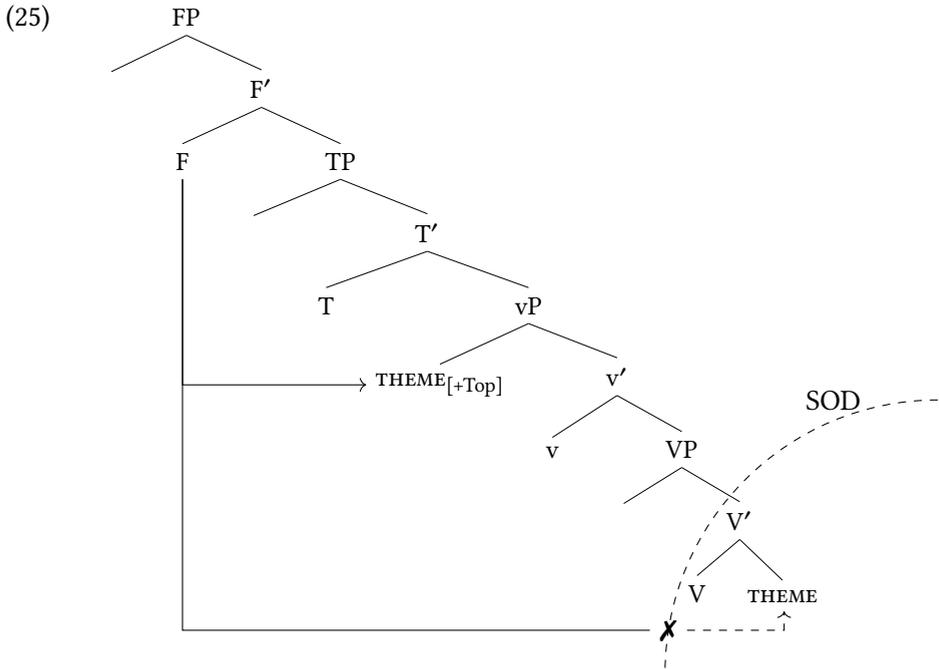
First I will focus on monotransitive constructions involving a THEME object.<sup>13</sup> Recall from above that the difference between the two here is that object agreement is triggered if and only if the THEME argument is interpreted as a (secondary) topic. I will assume that the THEME is base generated as the complement of V. I further assume that arguments that carry the interpretation of being a topic must move to the left periphery of the lower domain. For convenience here I assume that it raises to the specifier of vP.<sup>14</sup> In the higher position, they are able to be accessed through an AGREE relation initiated by F. However, since *v* is a hard phase head in Khanty, it will create a spell-out boundary that prevents an AGREE relation being established across it. Thus object agreement is only possible with a THEME that has moved out of its base position into (at least) Spec,vP.<sup>15</sup> In the tree below, and what follows, a solid arrow indicates an AGREE relation.

<sup>12</sup>Thanks to András Bányi (p.c.) for pushing me to clarify my assumptions regarding case assignment.

<sup>13</sup>I assume the same analysis holds for arguments bearing the PATIENT role.

<sup>14</sup>However, it could well be the case that there are low information structure positions that merge above vP (cf. Belletti 2004; 2005). The argument bearing the [+Topic] feature could then be attracted to this head.

<sup>15</sup>Note that it is further needed that THEMES cannot move to the edge of VP. Such a movement from the complement to the specifier of the same phrase is widely considered to be too short, and as such would be ruled out through considerations of anti-locality: see Abels (2003) and Grohmann (2011) and references therein.



This difference in the positioning of *THEMES* that are interpreted as topics or not is supported by the behaviour of the two regarding floating quantifiers. Nikolaeva argues herself that agreeing objects are VP external and that they do not form a syntactic constituent with the verb based on a variety of tests (see Nikolaeva 1999a, and especially Nikolaeva 1999b: 67–69). She further shows that quantifier float is possible with objects that show agreement. In (26a), the quantifier *äsa* ‘all’ can appear either to the left of the object, or to its right. In contrast, when object agreement is absent in (26b), the only possible place for the quantifier is to the left of the argument.

- (26) Nikolaeva (1999a: 345)
- a. *lüw (äsa) anət (äsa) il pajət-sə-lli.*  
 he all cups all down drop-PAST-3SG.PLO  
 ‘He dropped all the cups.’
  - b. *lüw äsa anət (\*äsa) il pajt-əs.*  
 he all cups all down drop-PAST-3SGS  
 ‘He dropped all the cups.’

On the assumption that quantifier float is created when the noun moves away and strands the quantifier (see Sportiche 1988; McCloskey 2000; Bošković 2004) but the position to the right indicates either lack of movement or pied piping

of the quantifier, then these data support the account of movement to a higher position. In (26a) the quantifier is either pied piped with, or left behind by, the object when it moves to Spec,vP. However, when there is no movement of the object as in (26b) the quantifier cannot appear to the right of the noun, since there is no step of movement that will strand the quantifier in the original place.<sup>16</sup>

#### 4.2.3 Ditransitive constructions and causees

I now turn attention to GOAL arguments. Recall that they obligatorily trigger object agreement when they bear the primary object role in the clause (secundative alignment). Regarding the clause structure of GOAL arguments in Khanty, I assume that ditransitive constructions in Khanty are formed through a high applicative head (ApplH, Pylkkänen 2008) which introduces the goal argument. On this approach, the GOAL is introduced in the Specifier of ApplHP.

(27) [<sub>VP</sub> ... [<sub>v</sub> v [<sub>ApplHP</sub> GOAL [<sub>ApplH'</sub> ApplH [<sub>VP</sub> [<sub>V</sub> V THEME ] ] ] ] ] ] ]

Above, we said that THEMES can only trigger object agreement when they are topics, and forced to leave their base position to lie in a position outside the SOD created by v. With the addition of ApplHP, VP is no longer the complement of v, and the spell-out domain becomes every node dominated by ApplH', as shown in (28).<sup>17</sup> This draws a line between GOALS and THEMES: the former are introduced in specifiers, whereas the latter are introduced as complements of V. Once this is adopted, then we keep the insight that agreement is impossible with non-shifted THEME arguments since they are within a lower spell-out domain, the edge of a spell-out domain is visible, and hence GOALS will be accessible for agreement.<sup>18</sup>

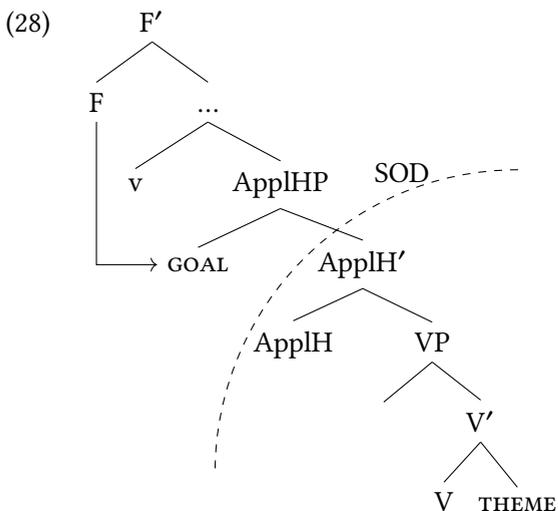
<sup>16</sup>A point should be made here about THEME objects that are in focus, which recall never trigger object agreement. Khanty is an SOV language which has a preverbal focus position, such that elements that are in focus lie immediately before the verbs. This is a fairly common pattern in SOV languages, as Nikolaeva (1999a) notes, and for this I will follow the proposal of Şener (2010) for Turkish, which Şener proposes that this type of language is derived through foci staying in-situ, and all other elements moving out of the way. Thus, a THEME that is in focus will not move to the left periphery of the lower domain, and hence be unavailable for agreement.

<sup>17</sup>Note that to save space, irrelevant projections in the tree are omitted here.

<sup>18</sup>For readers who are uncomfortable with the proposal that the edge of the spell-out domain should remain accessible, and that what should be inaccessible ought to be the entirety of what undergoes spell-out (and there are clear conceptual reasons for thinking that this would be the case), there is another option. One could assume that in Khanty ApplHP is a phase in itself (McGinnis 2001), and stipulate the following condition, which would effectively void the spell-out domain status of ApplHP (assuming that phasehood takes preference when (i) applies).

(i) A head X cannot head both a phase and a spell-out domain.

This would retain the benefit that v is a hard phase head in Khanty, and always determines that



Finally, I turn to causee arguments, which again obligatorily trigger object agreement. Following Pylkkänen (2008) once more, I assume that in causative constructions, there is a CAUSP that introduces the causation. Furthermore, I assume that CAUS is endowed with an EPP feature that requires something to move into its specifier. Note then that even for verbs that are unaccusative, this means that the internal argument will raise out of the VP and be in a position whereby it can trigger agreement. This arguably relates to the verb *cry*. Dalrymple & Nikolaeva show that, even when a causee argument is in focus, it will trigger object agreement.

- (29) Dalrymple & Nikolaeva (2011: 149)  
 xoj xo:llə-ptə-s-li?  
 who cry-CAUS-PAST-3SGS.SGO  
 ‘Whom did he make cry?’

The structure for (29) is identical to the one given in (28), only ApplHP is replaced by CausP, whose specifier is filled by *xoj*, making it accessible for agreement.

### 4.3 Summary and discussion

In this section I have offered an analysis of the object agreement pattern in Khanty that neither appeals to GFs, nor assumes that there is one given position in the clause that triggers object agreement. I will discuss the first point in

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its complement is a spell-out domain. However, there is a loophole just in case that the complement of a phase head is also a phase, and then it would cease to be a spell-out domain. ApplHP fits exactly this, whereas since VP is not a phase head, it will always be a spell-out domain. Yet there are various questions as to why something like (i) should hold in the grammar.

the next section. The second point I believe is an interesting step forward. As noted above, one of the criticisms levied against movement approaches to DOM is finding evidence for the movement, which is not a problem here, but often it is difficult to define the class of elements that would move to a given position. If there is a single characteristic, then it is possible that all elements sharing that feature are attracted to a certain position. If not, however, then one is always open to the charge of arbitrariness.

Khanty shows exactly this problem, where it is difficult to generate an exact natural class of elements that trigger object agreement on the verb. For instance, if one would only look at THEMES, one could argue that there is a topic position that all agreeing objects lie in. However, whilst Nikolaeva (2001) argues that goals are more prototypically topical than THEMES, and are mapped to the secondary topic role when the direct object is not a topic, such an approach runs into an issue when we consider that focussed causees trigger object agreement. It seems unlikely that something can be both a focus and a topic at the same time, and so it cannot be the case that topicality is the sole feature that is responsible. However, under the approach discussed here there is a link: all elements that trigger object agreement lie either at the edge, or outside the spell-out domain that is caused by *v*. Since *v* is a hard phase in Khanty (by assumption), then anything which is within this lower domain will not be able to enter into an AGREE relation with F, and object agreement is impossible.

## 5 A residue of object properties

Up to this point, my interest has been in showing that one can analyse object agreement in Khanty without employing GFs. However, simply showing that *agreement* in Khanty can be handled without GFs does not do justice to the approach of Dalrymple & Nikolaeva (2011). Recall from Table 2 (page 126) that the arguments that control object agreement on verbs share a number of properties with subjects. This paints them in contrast with objects that do not control agreement on verbs, which do not share these properties. The strength of Dalrymple & Nikolaeva's approach is that it provides an analysis for why this should hold: agreement is just one of the factors that is linked to the SUBJECT and OBJECT GFs, but not linked to OBJECT<sub>θ</sub>.

Before concluding the paper, it behoves me to discuss these somewhat.<sup>19</sup> Since I only have the data for these with relation to THEME arguments, I will only discuss these, but I do not see anything that would prevent what I propose from carrying over to GOALS and CAUSEES too. In the previous section, I suggested that

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<sup>19</sup>I will not discuss control in participial clauses, and must leave this for future research.

it is possible to understand the facts of quantifier float, given that topicalised THEMES are compelled to move into a higher position in the structure than non-topic THEMES.

This leaves us with two syntactic properties left, both related to possession. Firstly, Nikolaeva (1999a) shows that agreeing objects, like subjects, can control possessive reflexivisation, but non-agreeing objects cannot.

(30) Nikolaeva (1999a: 344)

- a. *aśi pōx-əl reskə-s-li.*  
father son-3SG hit-PAST-3SGS.SGO  
'The father<sub>i</sub> hit his<sub>i</sub> son.'
- b. *ittam sǎrt kŭtpe-l ewəlt mŭw-na lǎskə-s-li.*  
this pike middle-3SG from ground-LOC throw-PAST-3SG.SGO  
'He threw this pike<sub>i</sub> to the ground (holding it) in the middle (in its<sub>i</sub> middle).'
- c. *aśi xot-əl-na pōx-əl want-əs.*  
father house-3SG-LOC son-3SG see-PAST-3SGS  
'The father<sub>i</sub> saw his<sub>i</sub> son<sub>k</sub> in his<sub>i/\*k</sub> house.'

These data clearly fit in with the approach here. Since there is no object agreement in (30c), this is indicative of the THEME object not having moved. *Pōx-əl* therefore cannot serve as the binder of the reflexive pronoun in the locative, because it does not c-command it. In contrast, in (30b), the binding relationship is fine because *sǎrt* has moved higher in the clause, and can bind the possessive in the locative.

The second aspect of possession to consider is possessor topicalisation. Recall that agreeing objects, like subjects, can enter into a possessor topicalisation construction, whilst non-agreeing objects cannot. Descriptively, the possessor topicalisation construction in Khanty involves the possessor being split from the possessum, as can be seen in the following (31 = 13b,c).

(31) Nikolaeva (1999a: 346)

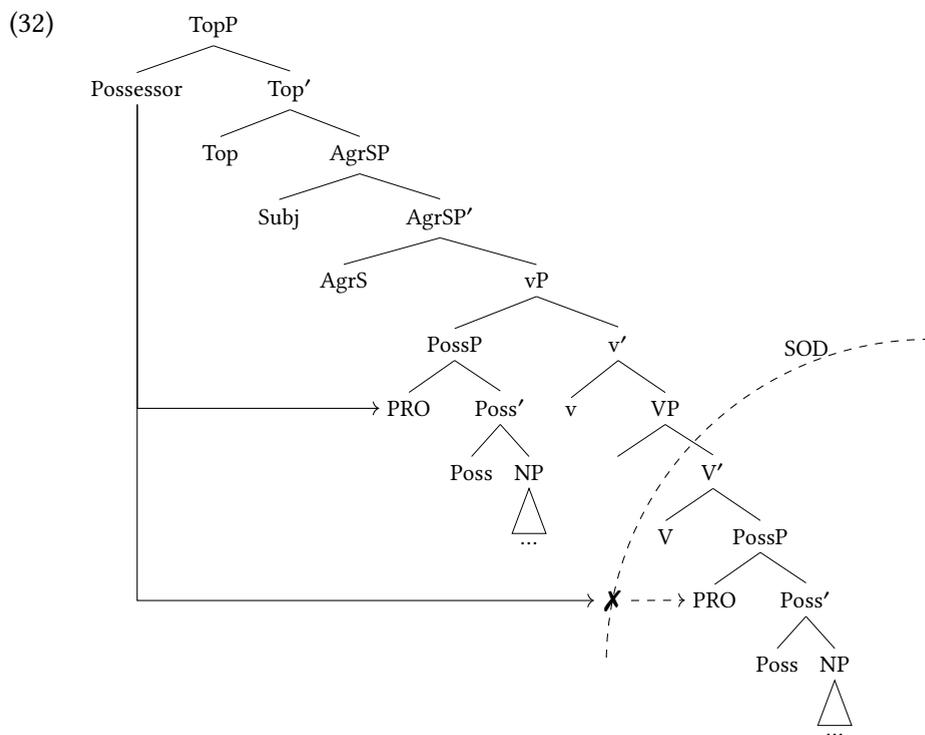
- Juwan motta xot-əl kǎśalə-s-e:m/\*kǎśalə-s-əm.*  
John before house-3SG see-PAST-1SGS.SGO/see-PAST-1.SGS  
'I saw John's house before.'

External possession in this way is exhibited in a range of languages (see the papers in Payne & Barshi 1999a), and has invited a range of proposals regarding how it should be accounted for, specifically whether the external possession

#### 4 Object agreement and grammatical functions: A re-evaluation

construction is derived from the regular possessive construction through a raising or a control type analysis (see Deal 2013 for an overview). I will assume a control analysis here, whereby the external possessor controls (through AGREE) a PRO that is in the canonical position for possessors. Specifically, I assume that possessor topicalisation constructions involve the merging of an element in a left-peripheral position, which I take to be (high) Spec,TopP, and this element serves as the binder of PRO.<sup>20</sup>

For objects, however, much depends on the position of the object. I assumed above that topic marked objects move out of the VP. PRO is properly licensed since the AGREE relation can succeed. However, note that if PRO is part of an object that has remained low, then it will be unable to be controlled, and the derivation crashes: see the tree in (32).



<sup>20</sup>Payne & Barshi (1999b) take external possession to be instances when the possessor assumes a core sentential function, as in the German possessor raising construction (Hole 2005). However, they note that there are instances of topics that act as external possessors, and so I will assume here that external possession is not limited to adding an extra core argument to a verb. It is of course possible that the external possessor is not in fact generated directly in Spec,TopP, but rather is merged in an *affectedee* position in the spine, before raising to Spec,TopP. I leave this matter for future research.



data should strive for this too. I hope to have convinced the reader that it is not necessary to appeal to GFs to do this: but rather the distinction between OBJECT and OBJECT<sub>θ</sub> need not be taken to be a theoretical primitive, but falls out from a difference in phrase structure.

There are of course, few if any implications for LFG: it does not in any way show the LFG account to be wrong. I do not claim that the current approach should be seen as better than Dalrymple & Nikolaeva's approach (nor, I hope, worse), and the analysis given here will do little to sway anyone one way or another on the question of the status of GFs in the grammar. As noted at the outset, that problem deserves, and has attracted, a far larger discussion, and presumably will for many years to come. But, I hope that this offering at the very least shows that the complicated facts of Khanty, on close inspection, offer little in favour of evidence for GFs.

## Abbreviations

ABS	absolutive	LFG	Lexical Functional Grammar
ACC	accusative	LOC	locative
CAUS	causative	NOM	nominative
DAT	dative	NEG	negation
DOA	differential object agreement	O	object agreement
DOM	differential object marking	OBL	oblique
DL	dual	PL	plural
EP	epenthetic vowel	PRES	present
ERG	ergative	S	subject agreement
GF	grammatical function	SOD	spell-out domain
HAB	habitual	SG	singular
INF	infinitive		

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## Chapter 5

# Opacity in agreement

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In this paper, I use a complex pattern of agreement in progressives in the Neo-Aramaic language Senaya as a window into the timing of and relationship among the different components of  $\varphi$ -agreement. In particular, I argue that we need to recognize three distinct, ordered operations underlying what we see on the surface as  $\varphi$ -agreement – Match, Value, and Vocabulary Insertion – based on data that reveal that opacity can arise both in the relation between Match and Value, as well as in the relation between Value and Vocabulary Insertion. This work builds on and extends earlier research that recognizes the need for (at least a subset of) these distinct components, including (among many others) Halle & Marantz (1993; 1994), Béjar (2003), Arregi & Nevins (2012), Bhatt & Walkow (2013), Bonet (2013), and Marušič et al. (2015).

## 1 Introduction

Every aspect of the mechanism(s) behind  $\varphi$ -agreement is highly debated, even within (broadly speaking) Minimalist approaches. This paper engages with two central questions about  $\varphi$ -agreement – (i) the number of steps and (ii) the timing of these steps – bringing to bear complex data from Neo-Aramaic progressives.

First, how many steps are involved in deriving what we see on the surface as  $\varphi$ -agreement? The traditional view is that there is one unified operation of Agree, which consists of matching (a probe finds a goal) and valuation (the value of a feature on the goal is transferred/copied to the probe) (Chomsky 2000; 2001; Béjar 2003; Preminger 2012; 2014, i.a.). A competing view is that these two sub-components of Agree are (at least potentially) separate operations (van Koppen 2007; Benmamoun et al. 2009; Arregi & Nevins 2012; Bhatt & Walkow 2013; Bonet 2013; Marušič et al. 2015; Smith 2017; Atlamaz & Baker 2018; Marušič & Nevins 2020 [this volume], i.a.). Further, once matching and valuation have taken place,



it might be that there is a trivial and transparent relation between these newly valued  $\varphi$ -features and the phonological form that realizes them, or there may be yet further operations or steps required to understand the surface form of  $\varphi$ -agreement (see, e.g., Arregi & Nevins 2012).

The second question is – given the operation(s) involved in  $\varphi$ -agreement (however many there are) – when does each of these steps take place derivationally? Agree might initiate in the syntax, immediately upon merge of a probe (Béjar 2003; Preminger 2012; 2014, i.a.), it might be triggered upon completion of the phase (Chomsky 2008), or it might be entirely post-syntactic (Bobaljik 2008). Valuation might occur concurrently with matching (the first step of Agree), or could be a separate operation, even potentially taking place in a different component of the grammar (van Koppen 2007; Benmamoun et al. 2009; Arregi & Nevins 2012; Bhatt & Walkow 2013; Bonet 2013; Marušič et al. 2015; Smith 2017; Atlamaz & Baker 2018; Marušič & Nevins 2020 [this volume], i.a.). And again, beyond matching and valuation, the phonological realization of  $\varphi$ -features might be straightforward, potentially even present from the start of the syntactic derivation, as in some lexicalist approaches to morphology. Or, the choice of an exponent might be an operation in its own right, taking place after all (or nearly all) other operations (Halle & Marantz 1993; 1994; Embick & Noyer 2007, i.a.).

I will argue that we need to recognize (at least) three separate operations implicated in deriving surface  $\varphi$ -agreement, given in (1), as well as the Activity Condition in (2). Though all three of these operations, as well as the Activity Condition, have been independently proposed elsewhere (see citations above), I will offer new evidence from Senaya regarding their precise formulation, their relative timing, and their interaction(s) with each other.

- (1)
  - a. *Match* (takes place in the syntax) (“ $\alpha$  Matches with  $\beta$ ”)  
An unvalued feature F (a probe,  $\alpha$ ) Matches with the closest active valued instance of F (on a goal,  $\beta$ ) in its c-command domain.
  - b. *Value* (takes place early in the post-syntax) (“ $\beta$  Values  $\alpha$ ”)  
The probe  $\alpha$  copies the value of F from an active goal  $\beta$  that  $\alpha$  has Matched with.
  - c. *Vocabulary Insertion* (VI) (takes place late in the post-syntax)  
Phonetic exponents are matched to morphemes, obeying the subset principle (Halle 1997).
- (2) *Activity Condition* (constrains relations in the syntax and post-syntax)  
A feature F is *active* (visible to Match and Value) iff it has not yet been copied (has not Valued a probe).

Empirical evidence for the need for (1–2), in the precise ways they are stated above, comes from agreement in progressives in Senaya, which furnish us with a testing ground involving (up to) three agreement “slots”, for which there is variation – within strict limits – as to what sort of agreement can appear in these different positions.

The paper is laid out as follows. Section 2 introduces the core data to be dealt with in the paper. Section 3 introduces some basic assumptions about syntax generally and the syntax of Senaya in particular, putting this together in Section 4 with the three steps of agreement and the Activity Condition above to account for the complex Senaya data. Finally, Section 5 shows that an account of agreement as a single operation with a transparent spell-out is not well-suited to account for the data at hand.

## 2 Agreement (in)variability in Senaya

Neo-Aramaic languages (Semitic) are rich in agreement. Subjects, direct objects, and indirect objects can all trigger agreement under the right conditions (see, e.g., Doron & Khan 2012; Kalin & van Urk 2015). Most commonly, there are one or two agreement slots, each filled predictably by agreement with a certain argument. The language of interest here is the Neo-Aramaic language Senaya, originally spoken in the town of Sanandaj, Iran (Panoussi 1990); all data in this paper come from original fieldwork conducted by the author with Laura McPherson and Kevin Ryan in Los Angeles, between 2012 and 2014.

We’ll start in Senaya with the invariable agreement that is found in transitive clauses in imperfective aspect, (3).

- (3) a. (Ōya) (axnī) maxy-ā-lan.  
           she us hit.IMPF-S.3F.SG-L.1PL  
           ‘She hits/will hit us.’<sup>1</sup>
- b. Axnī ō ksūta kasw-ox-lā.  
           we that book.F write.IMPF-S.1PL-L.3F.SG  
           ‘We write/will write that (specific) book.’

The verb bases in (3) are in their imperfective root-and-template form, and are immediately followed by subject agreement. Subject agreement appears in the

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<sup>1</sup>Pronominal arguments are always optional, though this is the only example that explicitly marks them as such. As a subject, a pronoun comes and goes freely, while as an object, the pronoun is overt only when under focus.

form of an “S-suffix”, an agreement morpheme from the so-called “S” (for “simple”) paradigm of agreement affixes (indicated by the capital S in the gloss for this agreement above). Object agreement appears next, in the form of an “L-suffix”, from the “L” paradigm of agreement affixes (indicated by a capital L in glosses, all of which are underlyingly *l*-initial). Full agreement paradigms are shown in Table 1. Note that in (3), both agreement morphemes are obligatory, and must appear in precisely this order and form.

Table 1: Agreement morphemes in Senaya

	S-suffix	L-suffix
1M.SG	-en	-lī
1F.SG	-an	
1PL	-ox	-lan
2M.SG	-et	-lox
2F.SG	-at	-lax
2PL	-īton	-lōxon
3M.SG	-∅	-lē
3F.SG	-a	-lā
3PL	-ī	-lū/-lun

Intransitive clauses in imperfective aspect, (4), are minimally different from transitive clauses, lacking just the L-suffix that encodes object agreement.

- (4) a. Ōya damx-ā.  
 she sleep.IMPF-S.3F.SG  
 ‘She sleeps/will sleep.’
- b. Axnī palq-ox.  
 we leave.IMPF-S.1PL  
 ‘We leave/will leave.’

Subject agreement takes the same shape as before, an S-suffix. And again, there is no other well-formed variant of this simple intransitive; agreement must appear in this fixed way. Note that nonspecific objects do not trigger agreement, and so the verb with such an object looks just like it would in an intransitive, bearing only subject agreement as an S-suffix, (5).

- (5) a.  $\bar{O}ya\ xa\ ks\bar{u}ta\ kasw-\bar{a}$ .  
 she one book.F write.IMPF-S.3F.SG  
 ‘She writes/will write a (some) book.’
- b.  $Axn\bar{i}\ kod\ y\bar{o}ma\ xelya\ sh\bar{a}t-ox$ .  
 we each day milk drink.IMPF-S.1PL  
 ‘We drink milk every day.’

The examples thus far show us that, in the imperfective, there are (up to) two agreement slots, filled predictably with subject agreement (the first slot; S-suffix) and object agreement (the second slot; L-suffix). Progressives in Senaya are of interest because they contain the imperfective verb stem and its two agreement slots, while adding an enclitic auxiliary (whose form is =y, with surface variants = $\bar{i}$  and = $\emptyset$  depending on the adjacent sounds) which in turn bears its own agreement as well. This allows for (up to) three agreement slots within a single complex verb form.

Intransitive progressives, (6a), and transitive progressives with a nonspecific object, (6b), like the examples we have seen so far, have a fixed agreement pattern. Subject agreement, in these cases, appears twice: the subject agrees (i) in its usual spot on the imperfective stem, i.e., as an S-suffix adjacent to the verb (as in all the examples above), and (ii) on the auxiliary. There is no object agreement, consistent with (5).

- (6) a.  $\bar{A}n\bar{i}\ damx-\bar{i}=\emptyset-l\bar{u}$ .  
 they sleep.IMPF-S.3PL=AUX-L.3PL  
 ‘They are sleeping.’
- b.  $Axn\bar{i}\ xa\ ks\bar{u}ta\ kasw-ox=y-ox$ .  
 we one book.F write.IMPF-S.1PL=AUX-S.1PL  
 ‘We are writing some book.’

Agreement on the auxiliary takes the form of an L-suffix for third persons, (6a), and an S-suffix for non-third persons, (6b). One of the imperfective stem’s agreement slots is filled, as is the auxiliary’s agreement slot.

Where progressives with a *single* agreeing argument utilize *two* agreement positions with a *fixed* pattern, (6), progressives with *two* agreeing arguments utilize *three* agreement positions, and what fills them is *variable*, depending in part on the person features of the object. We will walk through each possible configuration for a transitive progressive (with a specific object) in turn.

First, to form a transitive progressive (with two agreeing arguments), it is possible to simply add the enclitic auxiliary to the typical imperfective verb form

seen in (3) (with its own subject and object agreement as usual) and then double the subject agreement on the auxiliary, just as in progressives with a single agreement argument like (6); this is shown in (7). I will refer to this as the SBJ-OBJ-SBJ variant, reflecting the three agreement morphemes in the order they appear.

- (7) a. Axnī ō ksūta kasw-ox-lā=y-ox.  
 we that book.F write.IMPF-S.1PL-L.3F.SG=AUX-S.1PL  
 ‘We are writing that book.’  
 b. Ōya molp-ā-lī=∅-lā.  
 she teach.IMPF-S.3F.SG-L.1SG=AUX-L.3F.SG  
 ‘She is teaching me.’

Extrapolating from all the patterns we have seen so far, we might predict transitive progressives to always look like this, but this expectation is not borne out. There are in fact two other agreement configurations that are possible.

The second possible variant of a transitive progressive has default agreement (third singular masculine) on the auxiliary, rather than actual agreement, (8), cf. (7). I will refer to this as the SBJ-OBJ-DFLT variant.

- (8) a. Axnī ō ksūta kasw-ox-lā=∅-lē.  
 we that book.F write.IMPF-S.1PL-L.3F.SG=AUX-L.DFLT  
 ‘We are writing that book.’  
 b. Ōya molp-ā-lī=∅-lē.  
 she teach.IMPF-S.3F.SG-L.1SG=AUX-L.DFLT  
 ‘She is teaching me.’

Note that default agreement is *not* allowed to surface on the auxiliary when there is only one agreeing argument, (9), cf. (6).

- (9) a. \*Ānī damx-ī=∅-lē.  
 they sleep.IMPF-S.3PL=AUX-L.DFLT  
 Intended: ‘They are sleeping.’  
 b. \*Axnī xa ksūta kasw-ox=ī-lē.  
 we one book.F write.IMPF-S.1PL=AUX-L.DFLT  
 Intended: ‘We are writing some book.’

Default agreement on the auxiliary is limited to transitive progressives with an agreeing object.

The third and final possible configuration when there are two agreeing arguments in a transitive progressive is for the default agreement and object agreement of (8) to swap positions. This means that object agreement appears on the auxiliary while default agreement appears in the usual object agreement slot on the verb stem, (10a), cf. (8a). Note, however, that this SBJ-DFLT-OBJ variant is only possible when the object is third person, and so (10b) (a swapped variant of (8b), which has a first person object) is not possible.

- (10) a. Axnī ō ksūta kasw-ox-lē=∅-lā.  
 we that book.F write.IMPf-S.1PL-L.DFLT=AUX-L.3F.SG  
 ‘We are writing that book.’
- b. \* Ōya molp-ā-lē { =∅-lī. / =y-an }  
 she teach.IMPf-S.3F.SG-L.DFLT =AUX-L.1SG =AUX-S.1F.SG  
 Intended: ‘She is teaching me.’

In (10a), the L-suffix on the verb base is default *-lē*, while object agreement surfaces on the auxiliary. The two attempted auxiliary forms in (10b) show that neither an L-suffix form nor S-suffix form for object agreement renders this configuration acceptable with a non-third person object. Instead, the argument configuration in (10b) can only surface with the SBJ-OBJ-SBJ (7b) or SBJ-OBJ-DFLT (8b) agreement patterns. On the other hand, when the object is third person, all three agreement variants – SBJ-OBJ-SBJ (7a), SBJ-OBJ-DFLT (8a), and SBJ-DFLT-OBJ (10a) – are possible.

All other logically possible agreement configurations for a progressive with two agreeing arguments are disallowed. For example, object agreement cannot be doubled, (11a), subject agreement cannot swap with object agreement, (11b), default agreement cannot be dropped on the verb base, (11c), default agreement cannot go in the place of subject agreement when the subject agrees on the auxiliary, (11d), etc.

- (11) a. \* Axnī ō ksūta kasw-ox-lā=∅-lā.  
 we that book.F write.IMPf-S.1PL-L.3F.SG=AUX-L.3F.SG  
 Intended: ‘We are writing that book.’<sup>2</sup>
- b. \* Axnī ō ksūta kasw-ā-lan=i-lē.  
 we that book.F write.IMPf-S.3F.SG-L.1PL=AUX-L.DFLT  
 Intended: ‘We are writing that book.’
- c. \* Axnī ō ksūta kasw-ox=i-lā.  
 we that book.F write.IMPf-S.1PL=AUX-L.3F.SG  
 Intended: ‘We are writing that book.’

- d. \* Axnī ō ksūta kāsū-Ø-lā=y-ox.  
 we that book.F write.IMPF-S.DFLT-L.1PL=AUX-S.1PL  
 Intended: ‘We are writing that book.’

The three available agreement slots do not result in a free-for-all, but rather, the observed variation is highly constrained.

Table 2 summarizes all the grammatical agreement configurations introduced in this section.

Table 2: Imperfective and progressive agreement configurations

Aspect	# of agreeing arguments	Verb	S slot	L slot	Aux	Aux agr
IMPF	1	V.IMPF	SBJ	–	–	–
IMPF	2	V.IMPF	SBJ	OBJ	–	–
PROG	1	V.IMPF	SBJ	–	Aux	SBJ
PROG	2	V.IMPF	SBJ	OBJ	Aux	SBJ
PROG	2	V.IMPF	SBJ	OBJ	Aux	DFLT
PROG	2, 3rd p. OBJ	V.IMPF	SBJ	DFLT	Aux	OBJ

Drawing on Table 2 and the impossible forms in (11), we can make the following generalizations about agreement in transitive progressives with an agreeing object: (i) subject agreement is always (at least) in its usual slot on the imperfective verb base; (ii) object agreement (with a specific object) must appear exactly once; (iii) Aux always hosts an agreement morpheme of some kind; (iv) Aux can agree with the subject, the object, or neither; and (v) when the object agrees on Aux (possible only for a third person object), default agreement must surface on the verb.

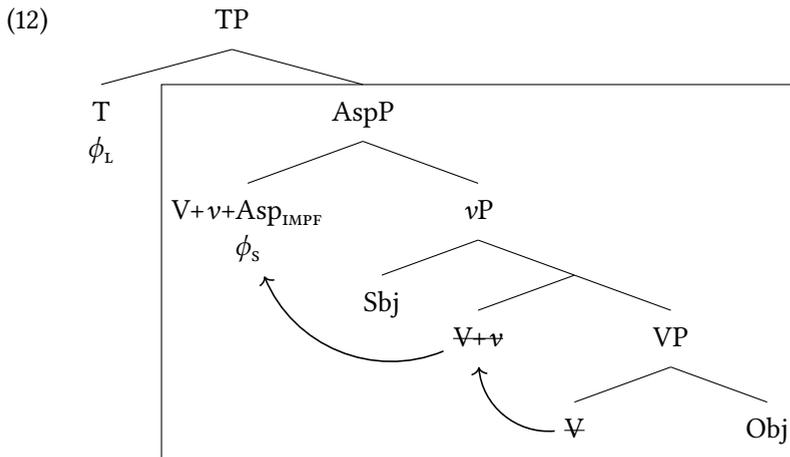
### 3 Some preliminary notes on the syntax of Senaya

In this section, I lay out my assumptions about syntax and agreement both generally and within Senaya, which I build on in Section 4 to derive the agreement variation in progressives. First, I assume a phase-based theory of syntax, with

<sup>2</sup>Note that this example is grammatical with the interpretation ‘We write/are writing/will write that book for her.’ There are a number of puzzling properties of ditransitives in Senaya (one of which is their aspectual ambiguity), and so they are outside the scope of this paper. See Kalin (2014) for the relevant data and an early theoretical account.

phase boundaries at the clause level falling at  $vP$  and CP (Chomsky 2001, i.a.). Following Baker (2015), I assume that the  $vP$  phase can be “soft”, which means that the phase boundary can be transparent for establishing new case and agreement relations even after  $vP$  has been spelled out (see also Smith 2020 [this volume]). Finally, I assume that phases can be extended by head movement (den Dikken 2006; 2007; Gallego 2010), and that it is the whole phase that is spelled out, not just the complement of the phase head (Fox & Pesetsky 2005).

Specific to Senaya, I adopt the general approach proposed by Kalin & van Urk (2015): (i) S-suffixes are the result of agreement with Asp; (ii) L-suffixes are the result of agreement with T; and (iii) the imperfective verb stem is formed by head movement of  $V/v$  to Asp.<sup>3</sup> In order to make Kalin & van Urk (2015) fully compatible with the theory of phases discussed above, I take  $vP$  to be a soft phase, extended to AspP in the context of imperfective Asp due to head movement (see also Kalin 2015). All of these components of Senaya syntax are shown in the representation of a simple imperfective clause in (12), with a box around the extended  $vP$  phase;  $\varphi$ -probes are annotated with the morphological form they are spelled out with ( $\varphi_S$  for S-suffix,  $\varphi_L$  for L-suffix).



A discussion of how (12) can produce a fixed agreement pattern in the imperfective, deriving (3–5), is taken up in Section 4.

What is the structure of a progressive? A variety of evidence points to progressives having a biclausal structure, with the embedded clause truncated (“re-structured”; Wurmbrand 1998 et seq.). Evidence for biclausality comes from the

<sup>3</sup>This agreement configuration is motivated by the imperfective-perfective agreement split, which is not discussed here.

fact that subject agreement can surface twice in progressives, (6–7), as can past tense marking, *-wā*, (13).

- (13) Temal      tamam yōma dāmx-an-wā=y-an-wā.  
 yesterday all      day sleep.IMPf-S.1F.SG-PST=AUX-S.1F.SG-PST  
 ‘Yesterday I was sleeping all day.’

However, the embedded clause in a progressive is not fully independent from the matrix clause. The embedded clause *must* be imperfective (no other verb base can appear), negation can only surface once, preceding the entire verbal complex, and, as shown in (14), tense must match across the clauses.

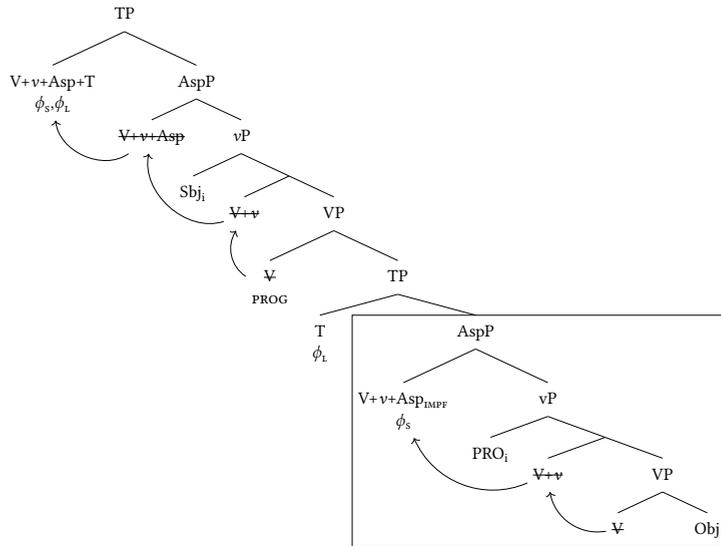
- (14) a. Temal      tamam yōma dāmx-an\*(-wā)=y-an-wā.  
 yesterday all      day sleep.IMPf-S.1F.SG-PST=AUX-S.1F.SG-PST  
 ‘Yesterday I was sleeping all day.’  
 b. Temal      tamam yōma dāmx-an-wā=y-an\*(-wā).  
 yesterday all      day sleep.IMPf-S.1F.SG-PST=AUX-S.1F.SG-PST  
 ‘Yesterday I was sleeping all day.’

For concreteness, I take progressive aspect to be expressed by a (silent) verb that selects for a clause truncated at TP, with control from matrix subject position into the embedded clause, similar to Laka’s (2006) analysis of the Basque progressive.<sup>4</sup> Within the matrix clause, the verb raises all the way to T, resulting in a complex head in T that contains both of the matrix clause’s  $\varphi$ -probes.<sup>5</sup> This structure is represented in (15):

<sup>4</sup>I take there to be a control relation between the matrix and embedded subject, but nothing crucial hinges on this. If it is indeed control, then PRO must be able to have a full set of  $\varphi$ -features (potentially inherited from its controller; see, e.g., Ussery 2008). If this is instead a raising relation, then it must be that the embedded subject is able to agree both in the embedded clause and in the matrix clause after movement, i.e., the higher and lower copy of the subject must be independent in terms of agreement. I do not entertain a *pro* analysis of the embedded subject because this position cannot be filled with an overt pronoun.

<sup>5</sup>It is unclear why it should be that head movement proceeds all the way up to T in the matrix clause of progressives, but only up to Asp in the embedded clause (and in imperfective clauses more generally). Empirically, some sort of unification of the S and L agreement loci is needed in the matrix clause of progressives because only one agreement suffix can be spelled out (unlike in the embedded clause), and the usual division of labor between S and L suffixes is leveled with respect to which agrees with the subject, and which the object. Independent of these facts, there does not seem to be a motivation for positing this additional head movement, and so it might be that some other mechanism is responsible for these effects. If head movement is the right model for these effects, then it also must be that  $\varphi$ -probes can c-command out of a complex head that contains them.

(15)



The final necessary step here is to adopt the last-resort analysis of auxiliaries proposed by Bjorkman (2011), such that the enclitic auxiliary is inserted into the complex head in matrix T as a morphological host for the matrix clause's stranded  $\varphi$ -agreement.

Before moving on, it is worth considering how the surface morpheme order is derived from the above structures. While I have represented the structures as head-initial for ease of presentation (and will continue to do so below), Senaya is an SOV language. If heads follow their complements in the VP and the extended projection of the VP in Senaya, then the morpheme order in the verb falls out naturally: the verb (stem) itself is initial, followed by the S-suffix on embedded Asp, followed by the L-suffix on embedded T. Taking the auxiliary to be a clitic inserted at the head of the (head-final) matrix TP, we can understand why it leans to its left (onto the complex verb already built in the embedded clause), with matrix agreement appearing last.

#### 4 The three steps of agreement

In this section, I show how the ingredients from Section 3, coupled with a three-step model of agreement, gives us the tools to account for the full range of complex agreement patterns in Senaya. In particular, the goal is to account for the following empirical facts: (i) imperfective clauses, as well as progressive clauses with one agreeing argument, have a fixed agreement pattern, (ii) progressive

clauses with two agreeing arguments have a variable agreement pattern, and (iii) variation in such progressives is restricted to exactly three configurations, SBJ-OBJ-SBJ, SBJ-OBJ-DFLT, and SBJ-DFLT-OBJ.

The three steps of agreement are repeated here from the introduction:

- (16) a. *Match* (takes place in the syntax) (“ $\alpha$  Matches with  $\beta$ ”)  
An unvalued feature F (a probe,  $\alpha$ ) Matches with the closest active valued instance of F (on a goal,  $\beta$ ) in its c-command domain.
- b. *Value* (takes place early in the post-syntax) (“ $\beta$  Values  $\alpha$ ”)  
The probe  $\alpha$  copies the value of F from an active goal  $\beta$  that  $\alpha$  has Matched with.
- c. *Vocabulary Insertion* (takes place late in the post-syntax)  
Phonetic exponents are matched to morphemes, obeying the subset principle (Halle 1997).

Each phase triggers its own sequence of these operations, and when a phase is “soft”, the arguments in the phase may remain accessible to later phases. In particular, I propose the following version of the Activity Condition (Chomsky 2001), where it is *valuation* (Valuing a probe) that makes a goal ineligible for subsequent matching (being a target of Match for a different probe) or valuation (Valuing a different probe).

(17) *Activity Condition*

A feature F is *active* (visible to Match and Value) iff it has not yet been copied (has not Valued a probe).

The operation that *makes* a feature inactive – Value – is post-syntactic. However, a feature *being* active is a precondition both for Match and for Value, (16), and so the Activity Condition constrains the application of both syntactic and post-syntactic operations. The intuition here is that a feature can only be copied once (Béjar 2003) (after being copied, a feature cannot be copied again, i.e., cannot Value another probe) and is inert after being copied (it cannot be Matched with again). The crucial effects of this for the account of Senaya will be: (i) nominals that have not Valued a probe in a soft phase are accessible to probes in a later phase; (ii) multiple Matches with a single nominal are possible, so long as that nominal has not Valued a probe; and (iii) such multiply-Matched nominals can still only Value one probe.

Matching and Valuation are related to VI at the probe site in the following way:

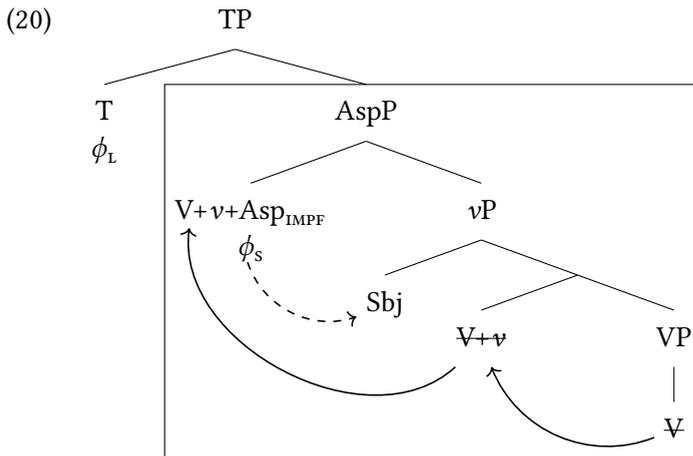
- (18) a. No Match (and so no Value): No features spelled out<sup>6</sup>  
 b. Match and Value: Valued features are eligible to be spelled out  
 c. Match but no Value: Default features are eligible to be spelled out  
 d. At a single insertion point, only one feature bundle can be spelled out

In the remainder of this section, we will walk through the data in Section 2 to see how all these pieces come together to derive the agreement facts in Senaya.

We begin with a simple intransitive imperfective clause, (19), repeated from (4), where there is a fixed agreement pattern: the subject triggers agreement in the form of an S-suffix.

- (19)  $\bar{O}ya$  damx- $\bar{a}$ .  
 she sleep.IMPF-S.3F.SG  
 ‘She sleeps/will sleep.’

The derivation of such clauses proceeds as represented in (20) and is discussed below.



In the first phase (boxed), the verb raises to Asp, and Asp’s  $\varphi$ -probe Matches with the subject. After the AspP phase is spelled out, the subject Values the probe on Asp in the post-syntax, transferring its  $\varphi$ -features to Asp. Finally, VI applies, replacing these  $\varphi$ -features with the corresponding S-suffix. In the next phase, T’s  $\varphi$ -probe searches its c-command domain, but finds no Match, as the subject is inactive (as per the Activity Condition, since it has already Valued a probe);  $\varphi$  on T is therefore ineligible for VI. In an intransitive imperfective, then, the subject

<sup>6</sup>It might be that some languages have a dedicated exponent for such “failed” agreement or indeed use default agreement in these cases; see, e.g., Preminger (2012; 2014), or Halpert (2012).

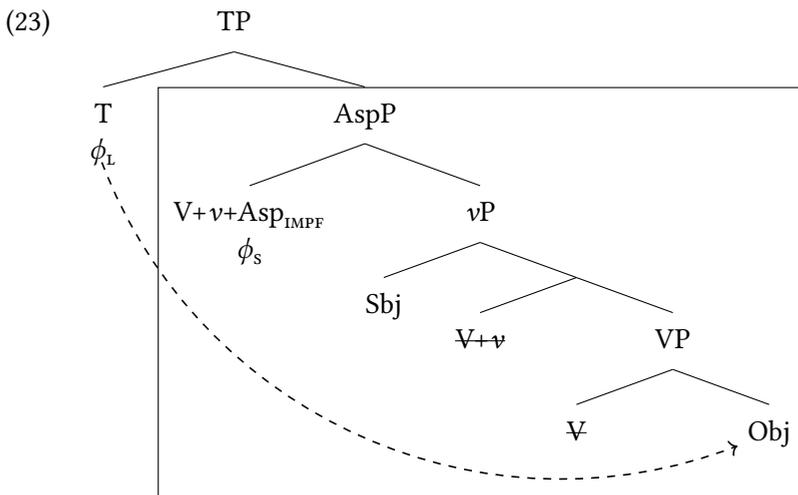
triggers S-suffix agreement, and this is invariable. This derivation is summarized in (21).

- (21) a. Phase 1 (boxed)
- i. Step 1 (syntax):  $\varphi$  on Asp Matches with subject
  - ii. Step 2 (early post-syntax): Subject Values  $\varphi$  on Asp
  - iii. Step 3 (late post-syntax): Subject features exponed on Asp
- b. Phase 2
- i. Step 1 (syntax): No Match for  $\varphi$  on T
  - ii. Step 2 (early post-syntax): No Value for  $\varphi$  on T
  - iii. Step 3 (late post-syntax): No more features to be exponed

Note that a clause with a nonspecific object is minimally different from (20), as nonspecific objects are ineligible for Match (Kalin & van Urk 2015). (Alternatively, it might be that T's  $\varphi$ -probe is present only when there is an object that needs licensing; see Kalin 2018.)

A transitive imperfective with an agreeing object, like that in (22), repeated from (3), has a first phase identical to (20), though of course with the addition of an object. This means that, again, the subject will agree in the form of an S-suffix. The second phase proceeds as shown in (23), with the subject in angled brackets as it is inactive in the second phase.

- (22) Axnī ō ksūta kasw-ox-lā.  
 we that book.F write.IMPf-S.1PL-L.3F.SG  
 'We write/will write that (specific) book.'



Since the  $\nu$ P phase (extended to Asp) is “soft”, T is still able to establish a Match relation with a nominal inside this phase; and since the subject is inactive, the closest nominal that is eligible for Match with T is the object. In the post-syntax, the object Values the  $\varphi$ -probe on T, and this is spelled out with an L-suffix that encodes object agreement. (24) lays out the derivation of (22/23).

- (24) a. Phase 1 (boxed)
- i. Step 1 (syntax):  $\varphi$  on Asp Matches with subject
  - ii. Step 2 (early post-syntax): Subject Values  $\varphi$  on Asp
  - iii. Step 3 (late post-syntax): Subject features expounded on Asp
- b. Phase 2
- i. Step 1 (syntax):  $\varphi$  on T Matches with object
  - ii. Step 2 (early post-syntax): Object Values  $\varphi$  on T
  - iii. Step 3 (late post-syntax): Object features expounded on T

So far, then, we have derived the basic imperfective data, with up to two agreement slots and a fixed agreement pattern.

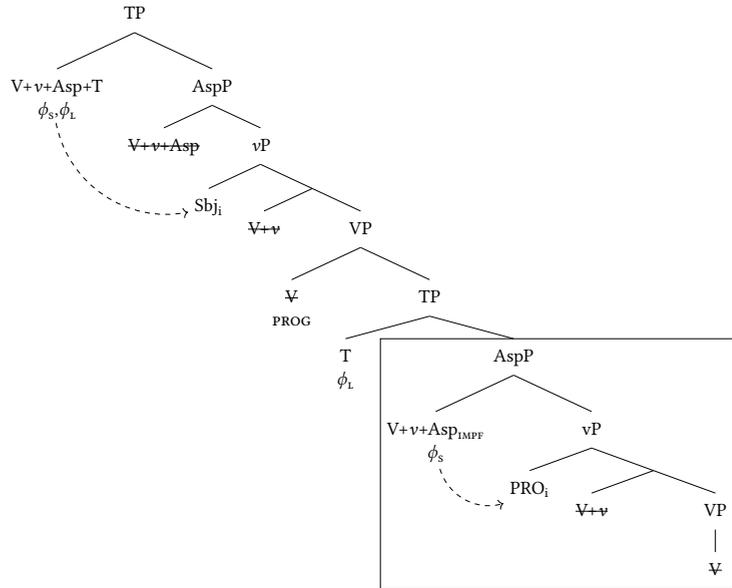
Intransitive progressives, too, have a fixed agreement pattern, (25), repeated from (6): the subject agrees once on the imperfective base in its usual S-suffix form, and once on the auxiliary.

- (25)  $\bar{A}n\bar{i}$  damx- $\bar{i}$ = $\emptyset$ -l $\bar{u}$ .  
 they sleep.IMPF-S.3PL=AUX-L.3PL  
 ‘They are sleeping.’

The first phase, shown in the box in (26), again proceeds just like in (20): successful Match, Value, and VI resulting in subject agreement in the form of an S-suffix on (embedded) Asp. This component of the derivation is in fact invariant across all progressives, and is the reason that the inner S-suffix expounding subject agreement is the one thing that *cannot* vary (cf. Table 2, page 156).

The second phase of (26) is more complex, and will ultimately be the source of the three agreement variants of transitive progressives. The first thing to note here is that there is no phase boundary between the embedded clause and the matrix clause, precisely because this is a restructuring environment and so there is no embedded CP layer. Further, head movement of V to T in the matrix clause extends even the next-higher phase,  $\nu$ P, all the way to TP. This means that there are three  $\varphi$ -probes all at play in a single phase, unlike in all the previous derivations, where there was one  $\varphi$ -probe per phase. It is precisely this many-probes-to-one-phase relation that gives rise to the possibility of different surface agreement configurations in the progressive.

(26)



With the embedded verb being intransitive, (25), the derivation in the second phase of (26) is still deterministic. The  $\varphi$ -probe on embedded T will fail to find a Match, as in intransitive imperfectives, (20), and receive no exponent, hence there is no L-suffix on the verb base (before the auxiliary) in (25). The complex head in matrix T will Match with the only active nominal left, the matrix subject, and the subject will Value T in the post-syntax, subsequently resulting in a second instance of subject agreement appearing in the matrix clause.<sup>7</sup> This derivation is represented step-wise in (27). (Note that transitive progressives with one agreeing argument are derived in essentially the same way, and so I do not provide a separate derivation of such clauses here.)

(27) a. Phase 1 (boxed)

- i. Step 1 (syntax):  $\varphi$  on embedded Asp Matches with embedded subj
- ii. Step 2 (early post-syntax): Embedded subject Values  $\varphi$  on embedded Asp
- iii. Step 3 (late post-syntax): Embedded subject features exponed on embedded Asp

<sup>7</sup>Since T bears  $\varphi$ -probes both from Asp and T, this helps account for why some of the agreement affixes on Aux are S-suffixes while others are L-suffixes, (6). But, it is not clear from this analysis why it should be that first/second person are expressed as S-suffixes while third person is expressed with an L-suffix. I do not attempt to derive this here.

- b. Phase 2
- i. Step 1 (syntax):
    - No Match for  $\varphi$  on embedded T
    - $\varphi$  on matrix T Matches with matrix subject
  - ii. Step 2 (early post-syntax):
    - No Value for  $\varphi$  on embedded T
    - Matrix subject Values  $\varphi$  on matrix T
  - iii. Step 3 (late post-syntax):
    - No features to be exponed on embedded T
    - Matrix subject features exponed on matrix T

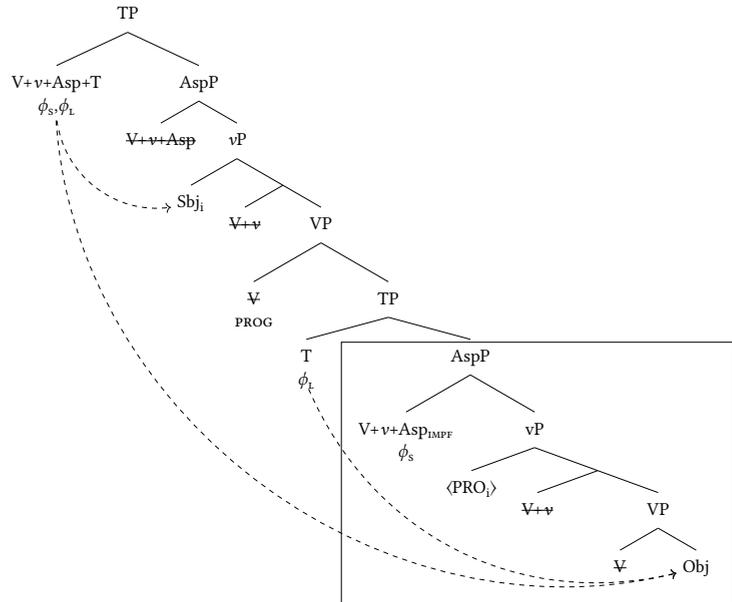
As discussed in Section 4, I take the auxiliary to surface simply as a morphological host for the stranded agreement in this matrix clause.

Turning now to transitive progressives with two agreeing arguments, we will finally see where variation and the opacity in the agreement system comes in. The three agreement variants are shown in (28), repeated from Section 2.

- (28) a. Axnī ō ksūta kasw-ox-lā=y-ox.  
 we that book.F write.IMPF-S.1PL-L.3F.SG=AUX-S.1PL  
 ‘We are writing that book.’ = SBJ-OBJ-SBJ
- b. Axnī ō ksūta kasw-ox-lā=∅-lē.  
 we that book.F write.IMPF-S.1PL-L.3F.SG=AUX-L.DFLT  
 ‘We are writing that book.’ = SBJ-OBJ-DFLT
- c. Axnī ō ksūta kasw-ox-lē=∅-lā.  
 we that book.F write.IMPF-S.1PL-L.DFLT=AUX-L.3F.SG  
 ‘We are writing that book.’ = SBJ-DFLT-OBJ

These three surface agreement configurations are all derived from a single syntactic structure, (29), which shows the Match relations in the second phase. (The first phase, again, proceeds just as in (20), and the embedded PRO subject is subsequently inactive, indicated via angled brackets.)

(29)



- (30) a. Phase 1 (boxed)
- i. Step 1 (syntax):  $\varphi$  on embedded Asp Matches with embedded subj
  - ii. Step 2 (early post-syntax): Embedded subject Values  $\varphi$  on embedded Asp
  - iii. Step 3 (late post-syntax): Embedded subject features expone on embedded Asp
- b. Phase 2
- i. Step 1 (syntax):
    - $\varphi$  on embedded T Matches with object
    - $\varphi$  on matrix T Matches with matrix subject and with object
  - ii. Steps 2 & 3 (post-syntax): several possible continuations

Walking through the Match relations in the second phase, what we see first is that embedded T (unlike in an intransitive progressive, 26) does successfully find a Match, the object, just as in a transitive imperfective, (23). Next, like in (26), the complex head in matrix T Matches with the matrix subject. Empirically, we know that the matrix auxiliary can display agreement with not just the matrix subject, (28a), but also with the object, (28c). There are several ways that we might

understand this. What I will adopt for the remainder of the paper is to assume that after matrix T agrees with the matrix subject, the matrix subject raises to spec-TP (similar to Anand & Nevins’s “punting”, 2006). This allows the second probe on matrix T to agree with a different active nominal, if there is one. In (29), the object, not yet having Valued a probe (even though it is already in a Match relation), is still active, and so matrix T Matches with the object.<sup>8</sup>

The crucial pieces so far are that the object remain a potential target for Match at least until matrix T probes, and that matrix T be able to Match with the object. This provides us with the first crucial separation of and ordering among operations: Match and Value must not be one unified process; Value must follow Match, and must take place in a different component of the grammar. If Match and Value were one unified process, calculated cyclically in the syntax, then we would predict that embedded T should be the only probe that could successfully agree with the object, counter to fact.<sup>9</sup>

After the basic Match relations are established in the syntax, there are several different possible continuations of the derivation of (29/30) in the post-syntax. The choice among these continuations seems to be free, constrained only by the person restriction on object agreement on the auxiliary.

The first possible continuation of (29/30) is that the object Values embedded T, and becomes inactive. At matrix T, then, one of the  $\varphi$ -probes is Valued by the subject, while the other  $\varphi$ -probe has a Match (the object) but cannot get a Value because the object is no longer active (it has already Valued embedded T). This means that at VI, embedded T is spelled out with object agreement (as an L-suffix). At matrix T, VI can spell out (matrix) subject agreement, as one of the  $\varphi$ -probes on T Matched/Valued with the subject. This possibility is represented in (31), the first possible continuation of (30b).

(31) Phase 2, Option A – deriving SBJ-OBJ-SBJ

a. Step 1 (syntax)

- $\varphi$  on embedded T Matches with object
- $\varphi$  on matrix T Matches with matrix subject and with object

<sup>8</sup>There are other alternatives for explaining why the second probe in matrix T does not simply Match with the matrix subject a second time. One possibility is that two probes on a single head are simply allowed to target different nominals (see, e.g., Keine 2010). For a more extensive discussion, see Georgi (2012: fn. 12).

<sup>9</sup>Without an Activity Condition, so long as both embedded and matrix T are in the same phase, it would be possible for both embedded T and matrix T to Match/Value with the object. However, this would make the incorrect prediction that object agreement could be spelled out in both locations simultaneously, cf. (11a).

- b. Step 2 (early post-syntax)
  - Object Values  $\varphi$  on embedded T
  - Matrix subject Values  $\varphi$  on matrix T
  - No Value for second  $\varphi$  on matrix T; gets 3M.SG default features
- c. Step 3 (late post-syntax)
  - Object features exponed on embedded T
  - Subject features exponed on matrix T

Phase 2 of the derivation, as given above, produces the SBJ-OBJ-SBJ variant of the progressive, (28a).

A minimally different derivation compared to (31) involves just a difference at VI. Recall that matrix T has two  $\varphi$ -probes, one of which Matched with the matrix subject, and the other with the object; while the  $\varphi$ -probe that Matched with the subject was Valued by the subject (and so has the subject's  $\varphi$ -features), the other  $\varphi$ -probe Matched with the object but was not Valued by it (and so has a default features set), (31b). At matrix T, only one of these feature bundles can be spelled out, since they are at the same insertion site (by assumption). Spelling out the feature bundle that contains the subject's features derives SBJ-OBJ-SBJ, as above. Spelling out the other feature bundle instead is also a possibility.<sup>10</sup> (Note that this is not a possibility if the second  $\varphi$ -probe has not found a Match and so does not have at least default  $\varphi$ -features, cf. (26).) This possibility leads to the SBJ-OBJ-DFLT variant, (28b); the derivation is laid out in (32).

- (32) Phase 2, Option B – deriving SBJ-OBJ-DFLT
- a. Step 1 (syntax)
    - $\varphi$  on embedded T Matches with object
    - $\varphi$  on matrix T Matches with matrix subject and with object
  - b. Step 2 (early post-syntax)
    - Object Values  $\varphi$  on embedded T
    - Matrix subject Values  $\varphi$  on matrix T
    - No Value for second  $\varphi$  on matrix T; gets 3M.SG default features
  - c. Step 3 (late post-syntax)
    - Object features exponed on embedded T
    - Default feature set exponed on matrix T

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<sup>10</sup>It is important to recognize that it is not the two vocabulary items (the two agreement morphemes) that are competing with each other for insertion, in which case we'd always expect the more specific one – the one whose features are the result of a successful Value relation – to be inserted. Rather, it is that there are two bundles of  $\varphi$ -features at T, and either one (but only one) can be exponed (can be the target of VI).

Whatever agreement is spelled out in the matrix clause, the auxiliary is inserted to host this stranded agreement.

In (31) and (32), it is crucial in the early post-syntax that instances of Value be ordered with respect to each other: because the object Values embedded T first, it cannot subsequently Value matrix T. If operations in the post-syntax applied simultaneously (or if there were no Activity Condition), we could not explain why object agreement cannot be spelled out both on embedded T and matrix T, in the same derivation. On the other hand, if operations in the post-syntax were strictly cyclic, applying from the most embedded node up (rather than just applying sequentially), then we would expect (31) and (32) to be the only possible continuations of (30). This brings us to the third progressive variant.

The final possible continuation of the post-syntax of this second phase is that the object Values matrix T rather than embedded T. Matrix T thus has  $\varphi$ -features from the matrix subject (as above) as well as  $\varphi$ -features from the matrix object, and it is embedded T that has a Match but no Value, cf. (31/32). The first empirical piece that is derived here is that embedded T (the L-suffix position on the verb base) is necessarily spelled out with default features, corresponding to this Match without a Value. The next empirical piece is slightly trickier to account for. We might expect that either subject or object agreement could be expounded on matrix T, deriving the (attested) SBJ-DFLT-OBJ variant as well as a (unattested) SBJ-DFLT-SBJ variant. VI should be able to produce either variant, and I assume it indeed does. However, the (unattested) SBJ-DFLT-SBJ variant leaves no trace of the object's features; it is possible, then, that this alternative is ruled out by "functional" considerations of communicative effectiveness, or (similarly) a surface-level morphotactic constraint, which requires agreement with specific objects to be visible somewhere within the verbal complex. I do not attempt to formalize this constraint here.

The derivation of the (fully successful) SBJ-DFLT-OBJ variant is shown in (33).

- (33) Phase 2, Option C – deriving SBJ-DFLT-OBJ
- a. Step 1 (syntax)
    - $\varphi$  on embedded T Matches with object
    - $\varphi$  on matrix T Matches with matrix subject and with object
  - b. Step 2 (early post-syntax)
    - Object Values  $\varphi$  on matrix T
    - Matrix subject Values  $\varphi$  on matrix T
    - No Value for  $\varphi$  on embedded T; gets 3M.SG default features
  - c. Step 3 (late post-syntax)
    - Default feature set expounded on embedded T
    - Object features expounded on matrix T

That this final version of the post-syntax is only a possibility for third person objects seems to confirm that matrix agreement comes from one complex head, as multiple agreement relations from a single head are precisely where we expect to see a person case constraint effect (see, e.g., Anagnostopoulou 2003; Béjar & Řezáč 2003; Adger & Harbour 2007; Řezáč 2008; 2011). Here, what this seems to mean is that the second  $\varphi$ -probe on matrix T is only able to be Valued by a third person object.<sup>11</sup>

To understand all these variations of a successful post-syntax in the transitive progressive, we need to recognize the post-syntax as consisting of ordered operations that (within a phase) need not apply cyclically (from the most embedded node up), at least within post-syntactic operations of the same type.<sup>12</sup> Each instance of Value in the post-syntax is crucially ordered with respect to other instances of Value, but this order is not fixed. In the derivations of the SBJ-OBJ-SBJ and SBJ-OBJ-DFLT variants, Value at embedded T bleeds Value at matrix T. In the derivation of SBJ-DFLT-OBJ, this relation is reversed – Value at matrix T bleeds Value at embedded T. VI crucially takes place after all Value operations are completed, i.e., once every  $\varphi$ -probe has a real or default set of  $\varphi$ -features.

What these data are also revealing to us is that surface agreement can be opaque in several ways. In the SBJ-OBJ-DFLT and SBJ-DFLT-OBJ variant, matrix T's Match/Value with the subject is what made Match/Value with the object possible, but no subject agreement is expressed on the auxiliary; this can be understood as opacity introduced by the relationship between Value and VI – of the two sets of  $\varphi$ -features at matrix T, only one can be exponed. In these same variants (SBJ-OBJ-DFLT, SBJ-DFLT-OBJ), there is opacity in the relationship between Match and Value: default features arise when there is a successful Match relation but failed Value relation; these surface default features conceal which nominal the Match was with. While the three core operations involved in agreement (Match, Value, VI) feed each other, they do so imperfectly, and so are necessarily separate operations.

## 5 Transparent agreement?

The Senaya progressive data pose a number of problems for accounts of Agree as a unified operation with a transparent spell-out. In particular, the spell-out of  $\varphi$ -agreement in such a system should be entirely predictable from the lexical items

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<sup>11</sup>This may also reveal that nominal licensing has both a syntactic and a post-syntactic component – licensing requires a successful Match and a successful (complete) Value.

<sup>12</sup>A somewhat similar conclusion is reached by Deal & Wolf (2017), examining the relative order of insertion of vocabulary items in Nez Perce.



So far, this seems like a sensible way to go, as the progressive matrix verb (arguably) need not assign its own theta role/introduce its own argument.

An account that posits an expletive matrix subject in the cases above makes the prediction that an expletive subject (and thus default agreement on the Aux) should be available in all progressives. However, for intransitive progressives as well as transitive progressives with a nonspecific (non-agreeing) object, this prediction is incorrect, (9). For this account to survive, then, we need to supplement it by limiting the expletive to transitive progressives that have a specific/agreeing object, as this is the only time default agreement can surface. This would be a highly arbitrary and suspicious constraint on the expletive, since matrix T (in this analysis as compared to that in Section 4) has no relationship at all with the object; the availability of an expletive in the matrix clause's subject position should then not be able to be mediated by the nature/presence of an embedded object.

Turning now to the third agreement pattern, SBJ-DFLT-OBJ (10), there are several components that are puzzling and need to be explained – object agreement appears on the progressive auxiliary, this object agreement is limited to third person, and default agreement can appear in the slot usually reserved for object agreement on the imperfective verb stem.<sup>13</sup> A first, seemingly plausible account of this verb form is to take L-suffixes to be clitics – there is indeed evidence for the cliticness of L-suffixes in some Neo-Aramaic languages (Doron & Khan 2012), though there is no evidence of this Senaya-internally. If the object marking on the imperfective base is a clitic, then it is natural to think that this clitic could “climb” to the progressive auxiliary (especially since this is a restructuring environment), thereby explaining why object marking can appear so high. However, this account of the displacement of object marking raises more questions than it answers. Assuming the structure/Agree relations in (34) underly the clitic-climbing structure, why does clitic-climbing then block subject agreement on the auxiliary? And why does default agreement show up where the clitic used to be? If instead the structure in (35) is taken to feed clitic-climbing, why does the object clitic climbing “up” cause the default agreement on the auxiliary to

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<sup>13</sup>An anonymous reviewer suggests that the SBJ-DFLT-OBJ variant could simply be an instance of post-syntactic local dislocation, à la Embick & Noyer (2001), applying to the output of (35). It is true that in the present tense, the only overt change needed to derive SBJ-DFLT-OBJ from SBJ-OBJ-DFLT is the swapping of the two final agreement morphemes, as the auxiliary (for predictable phonological reasons) will always be null in these cases. However, there is a special allomorph of the auxiliary in the past tense when it bears 3rd person agreement, in which case the enclitic auxiliary (including agreement) surfaces as *ya-wā*. Deriving one progressive variant from the other via local dislocation is impossible in the past tense, and so I do not entertain it as a possible explanation for the SBJ-OBJ-DFLT variant more generally.

climb “down”? And regardless of what the underlying structure is, why should it be that only third person clitics climb? None of these are plausible side effects or properties of clitic climbing, to my knowledge.

An alternative analysis of the third agreement variant, SBJ-DFLT-OBJ (10), is to posit that the object moves over the subject, and there is subsequent agreement with the object in its high position, (36).

(36) [  $\downarrow$  OBJ V+*v*+Asp+T [ Asp [  $\nabla$  [  $\forall$  [ T [ V+*v*+Asp [  $\downarrow$  SUBJ [  $\nabla$  [  $\forall$  OBJ ]]]]]]]]]]]]]]]]]]]

Apart from the minimality violation that this would entail, this analysis again raises the question of why it should be that a third person object can raise, while a first/second person object cannot. This account also does not help us understand why there is default agreement on the imperfective verb base in these cases. Finally, as Senaya does not even have a productive passive construction, nor does the object c-command the subject in these progressives, positing that one of the progressive variants is derived via some sort of passivization (promotion of the object) is a non-starter.

An analysis of the progressive in Senaya that appeals to a system of transparent agreement fails, even allowing for different syntactic structures and enumerations for the different progressive agreement variants.

## 6 Conclusion

In this paper, I presented a complex case of variation in agreement marking in the Neo-Aramaic language Senaya. Progressives in Senaya furnish us with a clear case where a simple account of agreement, consisting of one step with a transparent spell-out, is insufficient to account for the empirical facts. Instead, I argued that these data show that there must be three separate (and ordered) core operations involved in deriving surface  $\varphi$ -agreement, Match, Value, and VI, building on much previous work (see, e.g., van Koppen 2007; Benmamoun et al. 2009; Arregi & Nevins 2012; Bhatt & Walkow 2013; Bonet 2013; Marušič et al. 2015; Smith 2017; Atlamaz & Baker 2018; Marušič & Nevins 2020 [this volume]). While Match feeds Value and Value feeds VI, these feeding relations are imperfect and can obscure the application of prior operations – not every Match is evident from transferred values (Value can fail after Match) and not every Value is evident in the exponed form (VI can fail to spell out every output of Value) – leading to opacity in the surface form of agreement. I also proposed that operations in the post-syntax may apply counter-cyclically, contributing to the possibility of there

being more than one grammatical surface form for the same underlying syntactic Match relations. Opacity and variation typically do not arise when there is one  $\varphi$ -probe per phase, and so it is only in environments that are more complex than this that we can tease apart hypotheses about the relationship(s) among the steps of  $\varphi$ -agreement.

## Abbreviations

1, 2, 3	first, second, third person	PL	plural
AUX	auxiliary	PROG	progressive
DFLT	default	PST	past
F	feminine	S	S-suffix
IMPF	imperfective	SG	singular
L	L-suffix		
M	masculine		

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## Chapter 6

# Distributed agreement in participial sandwiched configurations

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In recent years, several proposals have appeared that try to model the patterns of agreement with coordinate noun phrases found in South Slavic Languages. We investigate agreement in so-called *sandwiched* configurations, whereby a coordinated noun phrase sits between two agreeing participles. In such cases, the two participles do not necessarily agree with each other, given a scenario in which the first and the second conjunct have different phi-features. This means the two participles choose their target of agreement independently. We argue the results of our experimental study favor an approach to agreement that places it partially in PF.

## 1 Introduction

South Slavic languages allow three possibilities for agreement with coordinate noun phrases: highest conjunct agreement (HCA), closest conjunct agreement (CCA), or default agreement (masculine), as shown in (1–2) for Slovenian (where not explicitly noted, all examples are from Slovenian).

- (1) Krave in teleta so odšla / odšle / odšli na pašo.  
cow.F.PL and calf.N.PL AUX.PL went.N.PL / went.F.PL / went.M.PL on graze  
'Calves and cows went grazing.'
- (2) Teleta in krave so odšla / odšle / odšli na pašo.  
calf.N.PL and cow.F.PL AUX.PL went.N.PL / went.F.PL / went.M.PL on graze  
'Calves and cows went grazing.'



Following our previous work on closest-conjunct agreement in South Slavic (Marušič et al. 2007; Marušič, Nevins & Badecker 2015; Willer-Gold et al. 2016), in the present paper we investigate so-called *sandwiched* configurations, whereby a coordinated noun phrase sits between two agreeing participles, as in (3).<sup>1</sup> In this example, each participle exhibits Closest Conjunct Agreement (CCA) in gender with the conjunct linearly closest to it:

- (3) Včeraj so bile [krave in teleta] prodana.  
yesterday AUX.PL been.F.PL cow.F.PL and calf.N.PL sold.N.PL  
'Yesterday cows and calves were sold.' (Marušič, Nevins & Badecker 2015)

The relevant structures are those with either [feminine + neuter] or [neuter + feminine] coordinations, as this is a three-gender language, where masculine agreement plays the role of default gender in the plural (Marušič, Nevins & Badecker 2015; Willer-Gold et al. 2016). Default agreement is thus clearly diagnosed (i.e. masculine agreement with conjoined feminine and neuter nouns) in agreement configurations such as (3). In acceptability judgement studies carried out with native speakers of Slovenian, we found that Double CCA (i.e. each participle agreeing with the conjunct linearly closest to it) were most highly rated, followed by Double HCA (each participle agreeing with the first conjunct in the coordinate NP), as in (4):

- (4) Včeraj so bile [krave in teleta] prodane.  
yesterday AUX.PL been.F.PL cow.F.PL and calf.N.PL sold.F.PL  
'Yesterday cows and calves were sold.'

Still acceptable, though less so, was HCA on the first participle, and default agreement on the second participle, as in (5):

- (5) Včeraj so bile [krave in teleta] prodani.  
yesterday AUX.PL been.F.PL cow.F.PL and calf.N.PL sold.M.PL  
'Yesterday cows and calves were sold.'

However, structures that exhibited default agreement or furthest-conjunct agreement by the highest participle were rated as unacceptable:

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<sup>1</sup>Bhatt & Walkow (2013) provide a similar case of agreement in sandwiched configurations in Hindi/Urdu, for which they claim disagreeing choice of goals is not possible. We have found some variability in informal consultations with native speakers, and contend that the possibility of finding a parallel with Double CCA in Slovenian within Hindi/Urdu awaits further study.

- (6) a. \* Včera<sub>j</sub> so bili [krave in teleta] prodana.  
 yesterday AUX.PL been.M.PL COW.F.PL and calf.N.PL sold.N.PL  
 ‘Yesterday cows and calves were sold.’
- b. \* Včera<sub>j</sub> so bili [krave in teleta] prodani.  
 yesterday AUX.PL been.M.PL COW.F.PL and calf.N.PL sold.M.PL  
 ‘Yesterday cows and calves were sold.’
- c. \* Včera<sub>j</sub> so bila [krave in teleta] prodana.  
 yesterday AUX.PL been.N.PL COW.F.PL and calf.N.PL sold.N.PL  
 ‘Yesterday cows and calves were sold.’

These results have clear theoretical consequences for arbitrating between extant theories of South Slavic conjunct agreement, as they show that linear order must be present in order to accommodate cases of Double CCA. Marušič, Nevins & Badecker (2015) and Willer-Gold et al. (2016) present a distributed theory of conjunct agreement, whereby each agreement target (Probe) identifies its domain of agreement controllers (the Goal) within syntax, but carries out the actual copying of features from Goal to Probe at PF, at which point linearity is present. This approach therefore follows the two-step Agree operation outlined in Arregi & Nevins (2012), see also Smith et al. (2020: Section 2.3 [this volume]) and Kalin (2020: Section 4 [this volume]) for discussion of the timing of Agree across components: with Agree-Link in the syntax, and Agree-Copy in PF. Agree-Link establishes a relation between a participle and a Goal (i.e. the subject &P), whereas Agree-Copy actually enacts the work of copying the features from Goal to Probe. Crucially, operations such as Linearization of the syntactic structure (at which point linear order becomes available) may be interleaved between these two. When Linearization feeds Agree-Copy, CCA results.

If Agree-Copy takes place before linearization, all copying must respect HCA, as by hypothesis, only hierarchical structure is present. On the other hand, if Agree-Copy takes place after linearization, all copying is done with the closest conjunct to each participle. Default agreement – i.e. agreement with the head of &P itself – when it takes place, is a restricted option, one possible only when the &P c-commands the participle (Willer-Gold et al. 2016, following Smith 2017) and hence unavailable postverbally.

For sandwiched configurations, assuming that each participle establishes Agree-Link with the conjoined subject noun phrase, if Agree-Copy takes place after linearization, then each participle will copy the values for agreement from the linearly closest conjunct within the &P to it. Whether Agree-Link itself is

upward or downward for the subject noun phrase and each of the two participles is not directly relevant for Double CCA, as all that matters is the relative linear position of each conjunct with respect to each participle once Agree-Copy applies. Agree-Link is always established with &P alone, and once Agree-Copy fails to find lexically-supplied gender features at the &P level (when default values are not chosen), Agree-Copy must take a value from one of the conjuncts inside the &P – either highest or closest, depending on the timing with respect to Linearization.

Other models of conjunct agreement do not fare so well with respect to the sandwiched configurations. In particular, Murphy & Puškar (2018) have a theory of conjunct agreement in which all agreement is computed internally to the &P that heads the coordinated noun phrase. As such, there is no direct way for two agreement targets to choose different parts of the &P. Murphy & Puškar (2018) derive Double CCA pattern by invoking feature deactivation, proposing (in Section 5.1) that following agreement with the lower participle the features of the second conjunct, which were present at the &P layer, can be deactivated and are thus invisible for agreement with the higher participle. As a result, the higher participle must take the values from the first conjunct, as this is the hierarchically closest conjunct. This derives Double CCA, but the same mechanism of deactivation would seem to pose problems for deriving Double HCA. For Bošković (2009), preverbal HCA is predicted not to exist in the first place, hence Double HCA as in (4) is impossible to derive. Equally impossible is the Double CCA pattern: for Bošković (2009), CCA is made possible by the deletion of the gender features on the first conjunct, but if the first conjunct has no gender features it cannot then agree with the higher participle.

The issue largely has to do with the problems that sandwiched configurations raise for syntax-internal timing. Appealing to feature deactivation in order to account for different patterning of the two participles (&P's features deactivated by Part<sub>2</sub>, and hence Part<sub>1</sub> syntactically probes within the higher conjunct) is difficult to assess. They depend on the position of the &P at the moment of probing (are both probes initially higher? Does Part<sub>2</sub> probe and trigger movement, and Part<sub>1</sub> only probes?). On the other hand, placing Agree-Copy in PF makes the surface order in sandwiched configurations all that matters for determining Double CCA/HCA. Agreement on the 1st participle mirrors the options available with postverbal subjects, while agreement on the 2nd participle mirrors the options available with preverbal subjects. The two agreement processes are carried out independently by each probe in PF.

## 2 Sandwiched coordinated subjects

### 2.1 Sandwiched configurations

We use the term SANDWICHED CONFIGURATION for all cases of multiple agreement probes on opposite sides of the coordination phrase. One such case is presented above, repeated here as (7), where two participles are placed on the opposite sides of the coordinated subject, in this case an *l*-participle and an *n*-participle<sup>2</sup> of an adjectival passive. In Bosnian/Croatian/Serbian, the equivalent of such cases are generally reserved for pluperfect constructions, as noted by Nadira Aljović (pers. comm).

- (7) Včera<sub>j</sub> so bile [krave in teleta] prodana.  
 yesterday AUX.PL been.F.PL cow.F.PL and calf.N.PL sold.N.PL  
 ‘Yesterday cows and goats were sold.’

In principle, a sandwiched configuration is also a situation where the main auxiliary itself is located on the other side of the subject from the participle, but as the auxiliary in South Slavic languages does not agree in gender and the participles do not agree in person, the two elements seem to act as different kinds of probes: the auxiliary probes for number and person features, while the *l*-participle probes for number and gender features. We do not discuss such cases further here, and wish to reserve this term for instances where the two agreeing elements share every dimension of their agreement. In the present paper, in fact, we assume that auxiliary agreement is independent from participle agreement, precisely because the two have different specifications for which features they agree with (see D’Alessandro 2007, López 2007, Puškar 2017, among others, for discussion).

Another instance of a sandwiched configuration is presented in (8), where a determiner showing gender and number agreement within the coordinated subject scopes over both nouns but precedes the first noun. At the same time, the participle sits on the other end of the conjunction. A fuller discussion of such examples can be found in Begović & Aljović (2015) and Aljović & Begović (2016).

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<sup>2</sup>So-called *l*-participles are verbal participles that are used in compound tenses and conditionals in both Slovenian and Bosnian/Croatian/Serbian (as well as in other Slavic languages). They are sometimes called active participles or simply past participles. Typically they are considered to be part of the verbal paradigm (Browne 1993; Priestly 1993). The *n*-participles, on the other hand, also known as passive participles, are found in adjectival passives and are homophonous with adjectival forms (ibid.).

- (8) [ Katera [ mesta in vasi ] ] so tekmovala?  
which.N.PL town.N.PL and village.F.PL AUX.PL competed.F.PL  
'Which towns and settlements competed?'

Similar to this partially-DP-internal case of sandwiched configurations is an instance of an adjective inside the subject, again preceding the first noun and showing gender and number agreement. Given the nature of the adjective in (9), it can only structurally modify the two nouns in conjunction. The adjective is not simply structurally part of the first noun phrase of the coordinated subject, but instead is a modifier of the entire coordination. When the participle follows such a subject, this yields another instance of a sandwiched configuration (Marušič, Willer-Gold, et al. 2015); see Carstens (2020 [this volume]) for a discussion of shared mechanisms between NP-internal concord and Agree by verbal elements.

- (9) [ Skupaj ležeča [ vabila in reklame ] ] so pristale  
together lying.N.PL invites.N.PL and advert.F.PL AUX.PL landed.F.PL  
v smeteh.  
in trash  
'Invites and advertisements lying together were thrown in the trash bin.'

Similar cases can be found in the Bosnian/Croatian/Serbian examples (10) and (11):

- (10) (based on Aljović & Begović 2016: 10a)  
Koja [ djevojka i mladić ] su došli?  
which.F.SG girl.F.SG and boy.M.SG AUX.PL came.M.PL  
'Which boy and girl came?'
- (11) (based on Aljović & Begović 2016: 10e)  
[ Jedne na druge nabacane [ testere i svrdla ] ] su  
one above other thrown.F.PL saws.F.PL and drills.N.PL AUX.PL  
ležala na gomili usred radionice.  
lying.N.PL on heap middle workshop  
'Saws and drills thrown one over the other were lying on a heap in the middle of the workshop.'

Another environment where sandwiched configurations can be observed involves secondary predication. As shown in (12) when the main predicate precedes and the secondary predicate follows the coordinated subject, we can observe a sandwiched configuration. In (12) the main predicate, i.e. the participle

*prišle*, agrees with the first conjunct, while the secondary predicate agrees with the second conjunct:

- (12) Včeraj so prišle [ barvice in ravnila ] po  
 yesterday AUX.PL came.F.PL colored-pencil.F.PL and ruler.N.PL after  
 pošti vsa polomana.  
 post all.N.PL broken.N.PL  
 ‘Yesterday colored pencils and rulers arrived by mail all broken.’

Similar instances of two agreeing probes on the opposite sides of coordination are found also in other languages, as in the case of complementizer agreement on one side of the subject and verbal agreement on the other side of the subject in various Germanic languages (van Koppen 2005; Haegeman & van Koppen 2012; Bayer 2012); see also Diercks et al. (2020: Section 2 [this volume]).

- (13) Tegelen Dutch (Haegeman & van Koppen 2012)  
 Ich dink de-s [ toow en Marie ] kump.  
 I think that-2SG you and Marie come.PL  
 ‘I think that you and Marie will come.’

- (14) Bavarian (Bayer 2012)  
 dass-st [ du und d’Maria ] an Hauptpreis gwunna hoab-ts  
 that-2SG you.SG and the-Maria the first-prize won have-2PL  
 ‘that you and Mary won the first prize’

Sandwiched configurations can thus be created in a variety of environments in which one probe is a complementizer, adjective, *wh*-word and the other is a participle or secondary predicate. In our experiments, we restrict our attention to double-participle configurations because of their symmetry, but wish to point out that the theoretical conclusions are largely similar for modelling the patterns above as well.

## 2.2 Theoretically available patterns

Sandwiched configurations instantiate two probes agreeing with a choice of two (or three, counting &P itself in the case of default agreement) different goals. Given that we are dealing with two probes, the natural question to ask is whether these two probes act independently or whether they act in parallel always targeting the same goal. If the two probes were acting in concert – say by agreeing with each other (either by a kind of “Inverse Multiple Agree” simultaneously, or

sequentially by Part<sub>1</sub> agreeing with Part<sub>2</sub>, as for example suggested in Murphy & Puškar (2018) for other cases of multiple probes), they should both agree with the same conjunct. If this were the case, however, we would only expect to see three options: both participles agreeing with the first conjunct (Double HCA), both participles agreeing with the lowest conjunct (Double LCA), or both participles agreeing with ConjP (Double Default). But as seen above, these do not cover nor exhaust the patterns in the literature, as Marušič et al. (2007) and Marušič, Nevins & Badecker (2015) report an option where the two participles do not agree with the same conjunct (Double CCA).

We can model this option if the two probes act independently. If the two participles do not share their goal, in cases where the two conjuncts inside the coordinated subject do not share all the same phi-features, we should be able to observe such unexpected agreement patterns. Experimental studies conducted by Marušič, Nevins & Badecker (2015) and Willer-Gold et al. (2016) showed that subjects where a plural neuter noun is coordinated with a plural feminine noun can trigger three different agreement patterns on the participle, as in (15) or (1–2) above.

- (15) [ Krave in teleta ] so ležala / ležale / ležali na travniku.  
cow.F.PL and calf.N.PL AUX.PL lay.N.PL / lay.F.PL / lay.M.PL on meadow.  
 ‘Cows and calves were lying in a meadow.’

However, these three patterns show distinct agreement only with preverbal subjects. With postverbal subjects, the highest conjunct is also the closest conjunct so that postverbal subjects do not exhibit as many options. In fact, Willer-Gold et al. (2016) further showed that postverbal subjects actually do not allow default agreement (at least not to such a high degree; this option is at best marginal), so that postverbal subjects really only allow for one option, which corresponds to CCA and/or HCA (indistinguishable in 16):

- (16) Na travniku so ležale / \*ležala / ?\*ležali [ krave in teleta ].  
on meadow AUX.PL lay.F.PL / lay.N.PL / lay.M.PL cow.F.PL and calf.N.PL  
 ‘Cows and calves were lying in a meadow.’
- (17) Na travniku so ležala / \*ležale / ?\*ležali [ teleta in krave ].  
on meadow AUX.PL lay.N.PL / lay.F.PL / lay.M.PL calf.N.PL and cow.F.PL  
 ‘Calves and cows were lying in a meadow.’

Recall that in non-sandwiched configurations, the participle shows three types of agreement (HCA, CCA, and default agreement), and thus in cases where two

probes can each enact these agreements, we expect nine possible combinations. Of these, however, only three should be really possible, as the higher probe – for whom the subject is postverbal can only realize CCA/HCA. Thus, in addition to CCA on the lower participle, one predicts HCA or default on the lower participle:

- (18) a. Na sejmu so bile [krave in teleta] prodane.  
 on fair AUX.PL been.F.PL cow.F.PL and calf.N.PL sold.F.PL  
 ‘Cows and calves were sold on the fair.’
- b. Na sejmu so bile [krave in teleta] prodani.  
 on fair AUX.PL been.F.PL cow.F.PL and calf.N.PL sold.M.PL  
 ‘Cows and calves were sold on the fair.’

In (19), we show other possible combinations which in principle should not be available because one or both verbal elements employ an agreement strategy that is not available outside of the sandwiched configurations.

- (19) a. ?\* Včera<sup>3</sup> so bili [krave in teleta] prodani.  
 yesterday AUX.PL been.M.PL cow.F.PL and calf.M.PL sold.M.PL
- b. ?\* Včera<sup>3</sup> so bili [krave in teleta] prodana.  
 yesterday AUX.PL been.M.PL cow.F.PL and calf.N.PL sold.N.PL
- c. \* Včera<sup>3</sup> so bili [krave in teleta] prodane.  
 yesterday AUX.PL been.M.PL cow.F.PL and calf.N.PL sold.F.PL
- d. \* Včera<sup>3</sup> so bila [krave in teleta] prodana.  
 yesterday AUX.PL been.N.PL cow.F.PL and calf.N.PL sold.N.PL
- e. \* Včera<sup>3</sup> so bila [krave in teleta] prodane.  
 yesterday AUX.PL been.N.PL cow.F.PL and calf.N.PL sold.F.PL
- f. \* Včera<sup>3</sup> so bila [krave in teleta] prodani.  
 yesterday AUX.PL been.N.PL cow.F.PL and calf.N.PL sold.M.PL

The unavailable strategies are crossed out in Table 1, where lowest-conjunct agreement is an impossible strategy for the first participle<sup>3</sup>, and default agreement is impossible for the higher participle.

Summarizing, in our model, the possibilities in sandwiched configurations are exactly those resulting from the combinations of what is independently possible in preverbal and in postverbal participle configurations, given the existing results

<sup>3</sup>The lowest and the closest conjunct are the same conjunct from the perspective of the second participle. As we do not have any theory that would pick the lowest conjunct from inside the coordination, we do not mark this as a special impossible option for the second participle.

from Marušič, Nevins & Badecker (2015) and Willer-Gold et al. (2016). In order to test the predictions set out in Table 1, we conducted an experiment, on which we report below.

Table 1: Theoretically available options

Name	Pattern	Derivations	
		Available	Unavailable
Double CCA	$V_F FN V_N$ (3)	Closest + Closest Highest + Closest	
Double HCA	$V_F FN V_F$ (18a)	Highest + Highest Closest + Highest	
HCA+DEF	$V_F FN V_M$ (18b)	Highest + Default Closest + Default	
DEF+DEF	$V_M FN V_M$ (19a)		Default + Default
DEF+CCA	$V_M FN V_N$ (19b)		Default + Closest
DEF+HCA	$V_M FN V_F$ (19c)		Default + Highest
Double LCA	$V_N FN V_N$ (19d)		Lowest + Closest
LCA+HCA	$V_N FN V_F$ (19e)		Lowest + Highest
LCA+DEF	$V_N FN V_M$ (19f)		Lowest + Default

### 2.3 Experimental design

We conducted an experiment designed to test which of the logically possible patterns are actually attested in cases of sandwiched configurations. The experiment consisted of 30 experimental sentences and 30 fillers that were test questions for another experiment (unrelated to agreement). Experimental sentences and fillers were presented in random order. We tested 10 conditions with 3 sentences per condition. Of these 10 conditions, 3 were positive controls, with either lack of a sandwiched configuration, or lack of conjunction, or lack of both. These included a neuter plural subject in postverbal position with neuter plural agreement on the participle that precedes it (PostV simple), a conjoined subject in postverbal position with HCA (PostV HCA), and a feminine plural subject sandwiched between two participles both with feminine plural agreement (Sandw. Simple). One negative control was included, namely a conjoined postverbal subject with default agreement (already found to be degraded in Willer-Gold et al. 2016). These 4 control conditions allowed us to establish baselines for the comparison with sandwiched configurations plus conjoined subjects.

Experimental sentences were presented each on a separate screen. Participants were asked to read and evaluate each sentence on a scale from 1 to 5, where 5 indicated the greatest degree of acceptability. The experiment was prepared using IbexFarm, a free online experimental tool and platform (Drummond 2011). 51 subjects participated in the experiment, all of whom were Slovenian native speakers of various dialectal backgrounds and various ages (21–80).

Of the nine possible patterns in Table 1, we tested six. Three of them, Double CCA, Double HCA, and Highest+Default were predicted to be acceptable. Three of them, Double Default, Default+Closest, and Double LCA, were predicted to be unacceptable. Two positive controls that we tested – a non-conjoined subject in a sandwiched configuration and a non-conjoined subject in a postverbal setting – were graded highest. This is intuitively expected, as both sandwiched configuration and conjunction are rarer and more difficult to process. The postverbal non-conjoined subject received an average rating of 4.27, and the non-conjoined subject in a sandwiched configuration was judged with an average of 4.20. Results are shown in Table 2.

Table 2: Results of the experimental study of sandwiched configurations

Scheme	Condition	Average rating
$V_N N$	PostV simple (control)	4.27
$V_F F V_F$	Sand. Simple (control)	4.20
$V_F FN$	PostV HCA (control)	3.87
$V_F FN V_N$	Double CCA	3.76
$V_F FN V_F$	Double HCA	3.20
$V_F FN V_M$	HCA+DEF	2.80
$V_M FN V_M$	DEF+DEF	2.56
$V_N FN V_N$	Double LCA	2.37
$V_M FN V_N$	DEF+CCA	2.31
$V_M FN$	PostV DEF (control)	2.25

The control conditions at the top of Table 2 establish that the participants used the upper end of the scale as expected, whereby grammatical agreement with postverbal subjects was highly rated, and double-participle constructions (e.g. sandwiched configuration itself, independently of conjunction) is natural. As the other results in Table 2 broadly show, the three conditions that are predicted to be ok (Double CCA, Double HCA, and HCA+Def) were the highest rated, all falling

above an average acceptability of 3, and the three conditions predicted to be degraded all fell below an acceptability of 3, broadly of the same degraded degree of acceptability as the control condition of postverbal default, known already to be bad. In what follows, we present statistical comparisons of these results.

### **3 Comparisons between sandwiched configurations**

In this section, we provide comparisons between certain pairs of conditions, and explain the relevance of each such comparison and what the results tell us about that particular pair and conjunct agreement. We argue that the two agreement operations, that is the agreement operation on the verbal participle that follows the subject (Part<sub>2</sub>) and the agreement operation on the participle that precedes the subject (Part<sub>1</sub>), are independent of each other in terms of Probe-Goal relations. Each of these two participles is a probe that looks for a goal where it is expected to find the feature values it needs. These two probes need not, and in fact cannot act simultaneously. Note that we restrict ourselves from talking about number agreement here. Marušič, Nevins & Badecker (2015) claim gender and number agreement behave differently as number features can be deterministically “calculated” for the entire ConjP while gender features cannot be. In order to avoid or minimize the effect of gender features on verbal agreement, we only used plural nouns in our experimental conditions (cf. Marušič, Nevins & Badecker 2015 for a fuller explanation of this reasoning). As we are testing several hypotheses and thus doing altogether 7 comparisons, we employ a Bonferroni correction, so that the *p*-value we take to be relevant for making a claim about statistically significant differences is not 0.05, but rather  $0.05/7 = 0.007$ .

#### **3.1 Double CCA vs. postverbal HCA**

In the experimental studies of conjunct agreement performed on South Slavic (i.e. Marušič, Nevins & Badecker 2015; Willer-Gold et al. 2016), CCA was the most common agreement pattern both with preverbal and postverbal subjects. With postverbal subjects, CCA targets the same conjunct as HCA, and hence the two are surface indistinguishable, meaning that in principle when CCA is described for postverbal subjects we are really talking about potentially two different agreement strategies that accidentally result in the same agreement target. Further, with postverbal subjects CCA/HCA was not only the dominant pattern but in some sense also the only available pattern (see below for discussion about default agreement with postverbal subjects). Thus, given that with preverbal subjects CCA is the most frequent and the highest graded pattern and that with

postverbal subjects this is CCA/HCA, we would expect that in sandwiched configurations, where the subject is preverbal for the lower participle and postverbal for the higher one, Double CCA is the most common of the three patterns. Indeed, accounting for the expectedness of Double CCA as the highest rated of all the possibilities in sandwiched configurations is a desideratum of any model. As it turns out, Double CCA is statistically indistinguishable from Postverbal HCA, one of our positive controls explained in Section 2.3, as shown in Figure 1 ( $p > 0.1$ ). This confirms the predictions of the model, in which Double CCA is the result of Postverbal HCA/CCA itself, plus the addition of Preverbal CCA, an independently highly-rated structure.

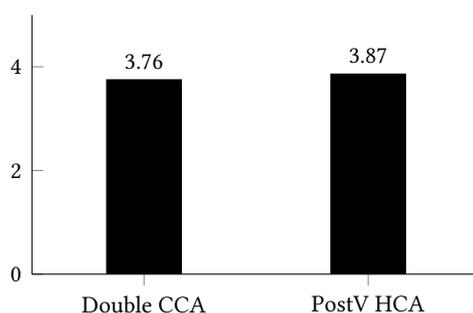


Figure 1: Double closest conjunct agreement and Postverbal highest conjunct agreement, statistically indistinguishable

### 3.2 Double CCA vs. double HCA

Double HCA – in other words, the second participle agreeing with the first conjunct – is still rated as acceptable, but to a much lesser degree than Double CCA. Recall that the mechanism proposed in Marušič, Nevins & Badecker (2015) is that CCA vs. HCA results from a choice in the ordering between Linearization and Agree-Copy, with the order of Linearization before Agree-Copy as preferred overall. This same preference carries over to sandwiched configurations. We have asserted that the choice of agreement Goal for each participle is independent, and in principle, the ordering of the operations of Linearization and Agree-Copy within a single derivation is, by hypothesis, variable, as shown in Table 3. Note however, that should some principle of identical orderings across Probes within a single derivation (or domain) hold, then only the first and last rows of the table would be available.<sup>4</sup>

<sup>4</sup>Note further that if, for example, one assumed that Linearization occurs once only, but that Agree-Copy is enacted for each Probe at PF, proceeding bottom-up, then the second row of Table 3 would be impossible, as  $\text{Part}_2$  could not be after Linearization and a higher, later probe be before Linearization.

Table 3: Theoretically available options of ordering of Linearization and Agree-Copy

Part <sub>1</sub> 's Agree-Copy	Part <sub>2</sub> 's Agree-Copy	
Before Linearization	Before Linearization	Double HCA
Before Linearization	After Linearization	Double CCA
After Linearization	Before Linearization	Double HCA
After Linearization	After Linearization	Double CCA

However, suppose that there is already a probability of speakers choosing CCA over HCA (i.e. of choosing a given Linearization ordering), say with  $p(\text{CCA}) > p(\text{HCA})$ . In sandwiched configurations, while the probability of Double CCA would be reduced, at the same time, the probability of Double HCA should be reduced even more. The comparison of Double CCA vs. Double HCA is shown in Figure 2, and their difference in means is statistically significant with a  $p$ -value  $< 0.001$ .

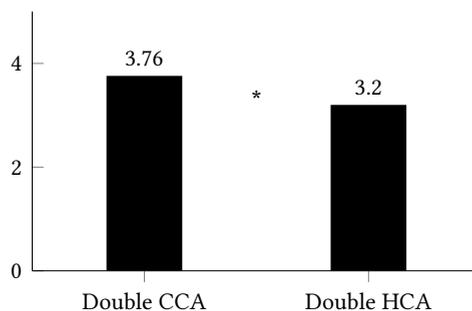


Figure 2: Double closest conjunct agreement and Double highest conjunct agreement

### 3.3 Double HCA vs. HCA+Def

We now turn to the next possibility with sandwiched configurations down in Table 1, HCA+Def. Recall that Double CCA, Double HCA, and this strategy all involve the same surface target for Part<sub>1</sub> and differ only in the target chosen by Part<sub>2</sub>. As it turns out, the ratings from Double HCA and HCA+Def are not different, indicating that, should we hold the postverbal choice to be independent from that of Part<sub>2</sub>, then for preverbal subjects, HCA and Default agreement are

roughly of equal preference. These are not statistically different given the Bonferroni corrected  $p$ -value, as  $p = 0.008$ , and are shown in Figure 3.<sup>5</sup>

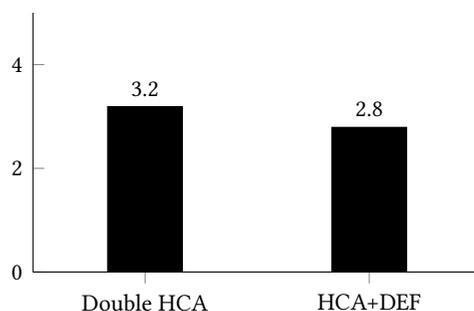


Figure 3: Double Highest conjunct agreement compared with Highest conjunct agreement on the first participle with Default on the second participle element

### 3.4 Postverbal default vs. highest-default (DEF+DEF and DEF+CCA)

We now turn to two of the predicted unacceptable sandwiched configurations, namely the ones that involve postverbal default agreement on Part<sub>1</sub>. According to the model herein, these should cause unacceptability regardless of the choice of agreement for Part<sub>2</sub>. This prediction is indeed borne out, as both are not only rated low, but also are statistically indistinguishable from postverbal Default in a non-sandwiched configuration, a result already found to be degraded in Willer-Gold et al. (2016). Thus, postverbal default is statistically indistinguishable from DEF+DEF ( $p = 0.009$ ) and postverbal default is also indistinguishable from DEF+CCA: ( $p > 0.5$ ); all three are shown in Figure 4.

<sup>5</sup>The difference between HCA+DEF and DEF+DEF (the latter which we take to be ungrammatical), is also statistically insignificant. The two conditions can nevertheless be grouped differently if we compare them to conditions we take to be grammatical (because they are indistinguishable from our positive controls) and conditions we take to be bad (because they are indistinguishable from our negative controls). These groupings suggest these two conditions are not completely comparable, as HCA+DEF is simply put somewhere in the middle. We take HCA+DEF to be judged poorly also because default agreement in preverbal configurations in Slovenian is not a very strong option (as opposed to BCS; Willer-Gold et al. 2016). This may recall the initial option of “Peeking” grammars in Marušič, Nevins & Badecker (2015), whereby the decision to allow default values at the &P head is dispreferred to begin with. Confirming the validity of this analysis would require testing sandwiched configurations with one of the BCS language varieties where default agreement in simple preverbal configurations is judged equally good as CCA. We leave this for future work.

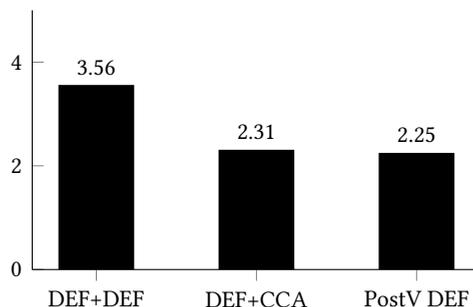


Figure 4: Double Default agreement vs. default on the first participle with closest conjunct agreement on the second participle vs. Postverbal default agreement

### 3.5 Postverbal LCA vs. double LCA

Our final condition examined was Double LCA, which was rated with a low acceptability (average rating 2.37). We left out of this experiment the control condition of Postverbal Lowest Conjunct agreement, as it has been reported impossible across a range of research discussing conjunct agreement in South Slavic (Marušič, Nevins & Badecker 2015; Bošković 2009; Murphy & Puškar 2018; Willer-Gold et al. 2016). Given the logic that what is available in simple pre- and postverbal cases is also available in sandwiched configurations, we would predict Double LCA to be just as bad as Postverbal LCA. Given that we did not test these two conditions in the same experiment, we cannot perform a statistical comparison between the two, but as both were graded in principle as unavailable, we can still conclude our prediction is borne out also with this condition. Nonetheless, we can compare Double LCA vs. Double HCA ( $p < 0.0001$ ) and Double LCA vs. Double CCA ( $p < 0.0001$ ), as shown in Figure 5.

## 4 Consequences for theoretical models

We have presented experimental evidence that sandwiched configurations exist, and that linear order effects exist in agreement to the point where each participle flanking a conjunction can agree with a different individual conjunct. As we have shown in Slovenian, the highest rated pattern involves the higher verbal probe targeting the first conjunct while the lower verbal probe targets the lower conjunct.

On the whole, the results are strikingly consistent with the predictions made in Table 1. Placing Agree-Copy in PF makes the surface order in sandwiched configurations all that matters for determining Double CCA/HCA by the second

## 6 Distributed agreement in participial sandwiched configurations

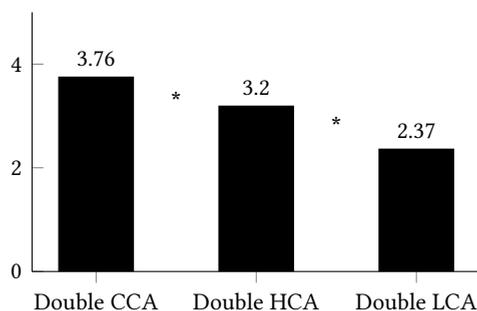


Figure 5: Double Closest conjunct agreement vs. Double highest conjunct agreement vs. Double lowest conjunct agreement

participle, in terms of two derivational choices: whether default agreement is chosen (given the proviso that it can only be chosen when the subject &P surface c-commands the participle) and whether Agree-Copy precedes or follows Linearization.

By contrast, other approaches to Conjunct agreement in South Slavic languages (cf. Bošković 2009; Murphy & Puškar 2018) derive CCA via syntactic mechanisms whereby all operations are restricted to narrow syntax. Concretely, Bošković (2009) predicts highest conjunct agreement is impossible, as in order to derive Closest conjunct agreement he resorts to deletion of the features of the higher conjunct. Note that Highest conjunct agreement is not only available in regular conjunct agreement cases but has been found as a possible strategy also in sandwiched configurations. If the only way to derive Closest conjunct agreement is to delete the phi features of the first conjunct, then it should be completely impossible to get the most common agreement pattern – Double CCA – while the only available patterns should be the two agreement patterns that were graded to be worst – Double LCA and DEF+CCA. Murphy & Puškar (2018), on the other hand, derive closest conjunct agreement from mechanisms internal to the &P, which founders on cases where it seems that each individual Probe decides its own Goal from within the &P. Although they add a mechanism of deactivation for Double CCA, this may end up in turn causing problems for Double HCA. Empirically, Murphy & Puškar (2018) claim default agreement is available with postverbal subjects, which was empirically challenged in Willer-Gold et al. (2016) and here as well. Default agreement with postverbal subjects was the lowest rated pattern in this experiment. Finally, approaches that attempt to derive CCA via ellipsis would face clear challenges with Double CCA in sandwiched configurations, as it is wholly unclear what base unelided structure would underlie them.

The overall consistency of patterns found with these somewhat rare sandwiched configurations are of broader interest in that speakers presumably have very little exposure to such patterns but nonetheless arrive at clear results in how to compute agreement. This suggests that learning the interaction between Agree-Link and Agree-Copy with single-participle configurations can be readily extended to double-participle configurations with little or no modification to the existing set of operations, and confirm that a linearity-based approach to Agree-Copy is readily extended to more intricate constructions without necessarily needing to readjust the grammar for such cases. There are many additional empirical extensions of the present work that could be pursued, especially in comparison with other South Slavic varieties (specifically Bosnian/Croatian/Serbian), and with the additional sandwiched configurations discussed in Section 2.1. Finally, it is worth noting that the present results were conducted in configurations in which both conjuncts in the &P were plural. Extensions of the present work to combinations of different number, or indeed of double dual configurations in Slovenian, could prove worthwhile in further refining the current model.

## Abbreviations

CCA	Closest conjunct agreement	PF	Phonological form
DEF	Default agreement	PL	Plural
F	Feminine	SG	Singular
HCA	Highest conjunct agreement	V	Verb
LCA	Lowest conjunct agreement	3P	third person
N	Neuter	&P	Coordination Phrase
M	Masculine		

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## Chapter 7

# The AWSOM correlation in comparative Bantu object marking

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The Bantu languages show much variation in object marking, two parameters being (1) their behaviour in ditransitives (symmetric or asymmetric) and (2) the number of object markers allowed (single or multiple). This paper reveals that a combination of these parameter settings in a sample of 50+ Bantu languages results in an almost-gap, the AWSOM correlation: “asymmetry wants single object marking”. A Minimalist featural analysis is presented of Bantu object marking as agreement with a defective goal (van der Wal 2015) and parametric variation in the distribution of  $\phi$  features on low functional heads (e.g. Appl) accounts for both the AWSOM and Sambia as the one exception to the AWSOM.

## 1 Introduction: Bantu object marking

The Bantu languages are around 500 in number (Nurse & Philippson 2003: 1), spread over most of sub-Saharan Africa. General typological properties include noun classes, agglutinative morphology and SVO basic word order. Finite verbs typically include derivational suffixes and inflectional prefixes. One of these prefixes can be the object marker, as shown in (1b).

(1) Lugwere

a. Swáya y-á-βona óDéo.<sup>1</sup>

1.Swaya 1SM-FUT-see 1.Deo

‘Swaya will see Deo.’

b. Swáya y-á-**mu**-βoná.

1.Swaya 1SM-FUT-1OM-see

‘Swaya will see him.’



Within the Bantu languages that show object marking in a verbal prefix, there is much variation, which has been described along the following parameters (see Hyman & Duranti 1982; Polak 1986; Morimoto 2002; Beaudoin-Lietz et al. 2003; Marten et al. 2007; Riedel 2009; Marten & Kula 2012; Zeller 2014; Marlo 2015, for typological overviews of Bantu object marking):

1. behaviour in ditransitives: only the highest object can be marked (asymmetric) or either object can be marked (symmetric);
2. number of object markers allowed: one-two-multiple;
3. nature of the object marker: syntactic agreement (doubling) or pronominal clitic (non-doubling);
4. types of objects marked, specifically locative object markers, and animacy, definiteness, givenness (differential object marking);
5. position of object marker: pre-stem or enclitic.

In the current paper I focus on parameters 1 and 2.<sup>2</sup> In Section 2, I illustrate these two parameters and show their settings for 50+ Bantu languages. It is the first time that the parametric settings for such a large group of Bantu languages have been gathered, but this by itself is not the most interesting fact. What makes this overview of object marking typologically and theoretically fascinating is the interaction between the settings for both parameters. Riedel (2009: 78) remarks that “Across the Bantu family, it has been observed that the languages which allow more than one object marker [...] tend to be symmetric. [...] these three properties [parameters 1-2-3, JvdW] do not correlate systematically with one another. For example, Sambia is an asymmetric language with multiple object markers.” As will be shown in Section 3, Sambia turns out to be quite special in its combination of parameter settings, and all other languages in the current systematic comparative overview of object marking parameters provide evidence for the AWSOM correlation: “asymmetry wants single object marking”. After providing a Minimalist featural analysis of object marking in Section 4, I will use this analysis to answer the following questions about the AWSOM in Sections 5 and 6,

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<sup>1</sup>Object markers referring to the Theme object are underlined, and object markers referring to the Recipient/Benefactive are in **boldface**. Where no source is mentioned, the data come from fieldwork.

<sup>2</sup>See Beaudoin-Lietz et al. (2003) and Marlo (2015) for parameter 5, and see van der Wal (2017b) for the interaction between parameters 1 and 3/4, which shows a gap described as the RAN-DOM (the “relation between asymmetry and non-doubling object marking”).

proposing an explanation in the distribution of  $\phi$  features on heads in the clausal spine:

1. What causes the correlation between symmetry and multiple object marking?
2. How can we account for object marking in Sambiaa?
3. Why is this parameter setting for object marking so apparently rare?

The paper is thus intended to contribute to the ongoing debate on the theory of Agree, as well as the upcoming field of Bantu typology, and formal approaches to language variation in general.

## 2 Parameters of variation in number of object markers and symmetry

Bresnan & Moshi (1990) divided Bantu languages into two classes – symmetric and asymmetric – based on the behaviour of objects in ditransitives. Languages are taken to be symmetric if both objects of a ditransitive verb behave alike with respect to object marking (see Ngonyani 1996 and Buell 2005, for further tests). In Zulu, for example, either object can be object-marked on the verb (2), making this a “symmetric” language.<sup>3,4</sup>

- (2) Zulu (S42, Adams 2010: 11)
- a. U-mama u-nik-e      aba-ntwana in-cwadi.  
     1a-mama 1SM-give-PFV 2-children 9-book  
     ‘Mama gave the children a book.’

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<sup>3</sup>One should, however, be careful in characterising a whole language as one type, since it has become more and more evident that languages can be partly symmetric (Baker 1988; Rugemalira 1991; Alsina & Mchombo 1993; Schadeberg 1995; Simango 1995; Ngonyani 1996; Ngonyani & Githinji 2006; Thwala 2006; Riedel 2009; Zeller & Ngoboka 2006; Jerro 2015; 2016; van der Wal 2017a, etc.).

<sup>4</sup>In this research I focus on recipient/benefactive/malefactive ditransitives, leaving aside instrumental/locative/reason applicatives, for which see Kimenyi (1980); Baker (1988); Alsina & Mchombo (1993); Moshi (1998); Ngonyani (1998); Ngonyani & Githinji (2006); Jerro (2016), among others. This is partly to keep ditransitives comparable across languages, and partly because it is debatable whether multitransitives with other thematic roles are underlyingly true double object constructions (the alternative being some sort of prepositional construction with a different hierarchical structure from that treated here).

- b. U-mama u-**ba**-nik-e            in-cwadi (aba-ntwana).  
 1a-mama 1SM-2OM-give-PFV 9-book 2-children  
 ‘Mama gave them a book (the children).’
- c. U-mama u-**yi**-nik-e            aba-ntwana (in-cwadi).  
 1a-mama 1SM-9OM-give-PFV 2-children 9-book  
 ‘Mama gave the children it (a book).’

Conversely, in asymmetric languages only the highest object (Benefactive, Recipient) can be object-marked; object-marking the lower object (Theme) is ungrammatical.

(3) Swahili (G42)

- a. A-li-**m**-pa            kitabu.  
 1SM-PST-1OM-give 7.book  
 ‘She gave him a book.’
- b. \*A-li-**ki**-pa            Juma.  
 1SM-PST-7OM-give 1.Juma  
 int. ‘She gave it to Juma.’

This parameter splits the Bantu languages into two groups (where languages are classified as symmetric as soon as the Theme can be object-marked in any ditransitive construction, even if not all constructions are symmetric), as seen in Table 1.

Table 1: Parameterisation of Bantu languages according to the behaviour in ditransitives

asymmetric	Bemba, Chichewa, Chimwiini, Chingoni, Chuwabo, Kagulu, Kiyaka, Lika, Lunda, Makhuwa, Matengo, Nsenga, Ruwund, Sambaa, Swahili, Tumbuka, Yao
symmetric	Bembe, Chaga, Changana, Digo, Gitonga, Ha, Haya, Herero, Kimeru, Lugwere, Kikuyu, Kinande, Kinyarwanda, Kirundi, Kuria, Lozi, Lubukusu, Luganda, Luguru, Maragoli, Mongo, Ndebele, Nyaturu, Tshiluba, Totela, Setswana, Shona, Swati, Sotho, Tharaka, Xhosa, Zulu
symm unknown	Ekoti, Fuliiru, Lucazi, Makwe, Rangi, Shimakonde

A second parameter distinguishes the number of object markers allowed. Many languages are restricted to only one object marker – whether asymmetric as in (4) or symmetric as in (5). Other languages allow multiple markers to occur on the verb, the famous constructed example in (6) illustrating the extreme of six object markers.

(4) Tumbuka (N20, Jean Chavula, personal communication)

- a. Wa-ka-cap-il-a mwaana vyakuvwara.  
2SM-T-wash-APPL-FV 1.child 8.clothes  
'They washed clothes for the child.'
- b. Wa-ka-**mu**-cap-il-a vyakuvwara.  
2SM-T-1OM-wash-APPL-FV 8.clothes  
'They washed the clothes for him.'
- c. \* Wa-ka-vi-cap-il-a mwaana.  
2SM-T-8OM-wash-APPL-FV 1.child  
int. 'They washed them for the child.'
- d. \* Wa-ka-vi-**mu**-cap-il-a.  
2SM-T-8OM-1OM-wash-APPL-FV  
int. 'They washed them for him.'

(5) Zulu (S42, Zeller 2012: 220)

- a. \* U-John u-**ba**-zi-nik-ile.  
1a.John 1SM-2OM-9OM-give-PST
- b. \* U-John u-zi-**ba**-nik-ile.  
1a.John 1SM-9OM-2OM-give-PST  
int. 'John gave them to them.'

(6) Kinyarwanda (JD62, Beaudoin-Lietz et al. 2003: 183)

Umugoré a-ra-na-ha-ki-zi-ba-ku-n-someesheesherereza.  
1.woman 1SM-DJ-also-16OM-7OM-10OM-2OM-2SG.OM-1SG.  
OM-read.CAUS.CAUS.APPL.APPL

'The woman is also making us read it (book, cl. 7) with them (glasses, cl.10) to you for me there (at the house, cl.16).'

There is a third type of languages where object marking is generally restricted to one marker, but under certain circumstances allows "extra" markers (1+). This is usually when the first marker is a reflexive, a 1<sup>st</sup> person singular or sometimes also an animate object, as in (7b). See Polak (1986) and Marlo (2014; 2015) as well as Sikuku (2012) for further discussion and illustration of this type of object marker.

- (7) Bemba (M42, Marten & Kula 2012: 245)
- a. \*N-àlí-yà-mù-péél-à.  
1SG.SM-PST-6OM-1OM-give-FV  
Int: ‘I gave him it (e.g. water).’
- b. À-chí-m-péél-é.  
1SM-7OM-1SG.OM-give-OPT  
‘S/he should give it to me.’

Classified according to the number of object markers, again the Bantu languages can be split as in Table 2 (where languages are classified as “multiple object markers” as soon as they allow more than one object marker on the verb, even if the number is restricted, with the exception of the “extra” markers that are indicated as a separate group under “1+”):

Table 2: Parameterisation of Bantu languages according to the number of object markers

single OM	Bemba, Changana, Chichewa, Chimwiini, Chingoni, Chuwabo, Digo, Ekoti, Gitonga, Herero, Kagulu, Kimeru, Kinande, Lika, Lozi, Luguru, Lunda, Makhuwa, Makwe, Maragoli, Matengo, Ndebele, Nsenga, Rangi, Swahili, Shimakonde, Shona, Sotho, Swati, Tumbuka, Xhosa, Yao, Zulu
multiple OM	Chaga, Ha, Haya, Kinyarwanda, Kuria, Luganda, Lugwere, Kirundi, Sambia, Setswana, Totela, Tshiluba
1+	Bemba, Fuliiru, Kikuyu, Kiyaka, Lubukusu, Mongo, Nyaturu, Ruwund, Tharaka

### 3 Interaction between multiple object markers and symmetry

Although the distribution of languages over parameter settings is quite even for the two parameters, the combination of parameters for behaviour in ditransitives and number of object markers is skewed, as already noted in the literature (Henderson 2006: 185, Zeller & Ngoboka 2015: 227). Riedel (2009) describes the correlations as follows:

7 *The AWSOM correlation in comparative Bantu object marking*

“Across the Bantu family, it has been observed that the languages which allow more than one object marker, such as Haya and Rundi, tend to be symmetric. Baker (2008b) suggests that this is a consequence of the properties of syntactic agreement as opposed to object clitics. Bentley (1994) also lumps together agreement, animacy-sensitivity, having only one object marker and asymmetry as related properties. However, although this may well be a tendency across Bantu, these three properties do not correlate systematically with one another. For example, Sambaa is an asymmetric language with multiple object markers.” (Riedel 2009: 78)

The question is thus what distribution a larger sample of languages will reveal, and the result of the current survey is summarised in Table 3.

Table 3: Interaction between number of object markers and symmetry in Bantu languages

symmetry	number of object markers		
	multiple	single	1+
asymmetric	Sambaa	Chichewa, Chimwiini, Chingoni, Chuwabo, Kagulu, Lika, Lunda, Makhuwa, Nsenga, Swahili, Tumbuka, Matengo, Yao	Bemba, Kiyaka, Ruwund
symmetric	Dzamba, Chaga, Ha, Haya, Kinyarwanda, Kirundi, Kuria, Luganda, Lugwere, Setswana	Bembe, Changana, Digo, Herero, Gitonga, Kikongo, Kimeru, Kinande, Lozi, Luguru, Maragoli, Ndebele, Shona, Sotho, Swati, Tshiluba, Totela, Zulu, Xhosa	Kikuyu, Lubukusu, Mongo, Nyaturu, Tharaka
unknown		Ekoti, Makwe, Rangi, Shimakonde	Fuliiru

Perhaps surprisingly, in this combinations of parameters an almost-gap appears: there is a systematic correlation between multiple object marking and symmetry, which can be formulated as the AWSOM:

(8) *Asymmetry wants single object marking correlation (AWSOM)*

Asymmetric languages greatly prefer single object markers.

Languages with multiple object markers are overwhelmingly symmetric.

Despite this strong correlation, Riedel (2009) is correct to claim that Sambia is an exception: Sambia appears as the only language allowing multiple object markers but being asymmetric (and doubling). A first question to answer before any explanation is sought, then, is whether Sambia is a true counterexample to the AWSOM. As can be seen in examples (9–11) the answer is “yes”: any kind of Theme in Sambia can only be object-marked in a ditransitive if the Benefactive/Recipient is object-marked first (comparable to Greek clitic doubling where the Theme can only be reached once the Benefactive is clitic-doubled, see Anagnostopoulou 2003; 2017). It is grammatical to object-mark only the Recipient (9b), or both the Recipient and the Theme (9c), but object marking just the Theme is ungrammatical (9d) and (9e).

(9) Sambia (G23, Riedel 2009: 106)

- |    |                                    |                 |                   |
|----|------------------------------------|-----------------|-------------------|
| a. | N-za-nka                           | ng’wana kitabu. |                   |
|    | 1SG.SM-PFV.DJ-give 1.child         | 7.book          |                   |
|    | ‘I gave the child a book.’         |                 | (no OM)           |
| b. | N-za-m-nka                         | ng’wana kitabu. |                   |
|    | 1SG.SM1-PFV.DJ-1OM-give 1.child    | 7.book          |                   |
|    | ‘I gave the child a book.’         |                 | (OM only for R)   |
| c. | N-za-chi-m-nka                     | ng’wana kitabu. |                   |
|    | 1SG.SM-PFV.DJ-7OM-1OM-give 1.child | 7.book          |                   |
|    | ‘I gave the child a book.’         |                 | (OM for both)     |
| d. | *N-za-chi-nka                      | ng’wana kitabu. |                   |
|    | 1SG.SM-PFV.DJ-7OM-give 1.child     | 7.book          |                   |
|    | Int: ‘I gave the child a book.’    |                 | (*OM only for Th) |
| e. | *N-za-chi-nka                      | ng’wana.        |                   |
|    | 1SG.SM-PFV.DJ-7OM-give 1.child     |                 |                   |
|    | Int: ‘I gave it to the child.’     |                 | (*OM for null Th) |



1. What causes the correlation between symmetry and multiple object marking?
2. How can we account for object marking in Sambaa?
3. Why is this parameter setting for object marking so apparently rare?

In order to address these questions, I first lay out my assumptions about object marking as involving Agree with a defective Goal (largely taken from van der Wal 2015), and about verbal head movement in the clause.

## 4 Agree and head movement

There are two key ingredients for the analysis. The first is that object marking involves an Agree relation, and the second is that verb-movement takes place in the lower part of the clause but stops just above little *v*.

With respect to the first, it might seem straightforward that object marking is some sort of agreement, but a longstanding debate for Bantu object marking concerns the question whether object marking involves syntactic agreement or pronoun incorporation, and how this may differ crosslinguistically (see for recent discussion on the status of object markers in Bantu, among others, Henderson 2006; Riedel 2009; Zeller 2012; Iorio 2014; Baker 2016; and object clitics in general Preminger 2009; Nevins 2011; Anagnostopoulou 2017; 2016; Kramer 2014; Harizanov 2014; Baker & Kramer 2016). As an alternative to this choice, Roberts (2010) proposes a hybrid account of clitics that *always* involves an Agree relation between a Probe and a Goal (Chomsky 2000; 2001). The Probe with an uninterpretable feature (uF) searches its c-command domain for valuation by the closest Goal with a matching interpretable feature (iF). Upon Agree, the features on the Goal are shared with the Probe (unlike Kalin 2020 [this volume], I assume Agree to consist of simultaneous match and value).

Roberts (2010) proposes that Goals can be defective, in the sense of having a subset of the features that are present on the Probe. In an Agree relation with a defective Goal, the Probe will contain the features of the Goal, and potentially additional features that the Probe does not share with the Goal (such as D or Person, though it does not need to be a proper subset). This makes the relation indistinguishable from a copy/movement chain, where normally only the highest copy is spelled out. The lower copy is not spelled out, due to chain-reduction (Nunes 2004). This gives the impression of “incorporation” of the Goal, because its features will be spelled out on the Probe.

Concretely for object marking, this can be seen as follows. Little *v* has uninterpretable  $\phi$  features ( $u\phi$ ), which probe down to find an internal argument (object) with interpretable  $\phi$  features ( $i\phi$ ). If the object Goal is a defective pronoun (a  $\phi$ P, following Déchaine & Wiltschko 2002), the Goal's nominal features are a subset of the Probe's (Figure 1). When Agree is established, the  $\phi$  features are spelled out on *v* in the form of an object marker.

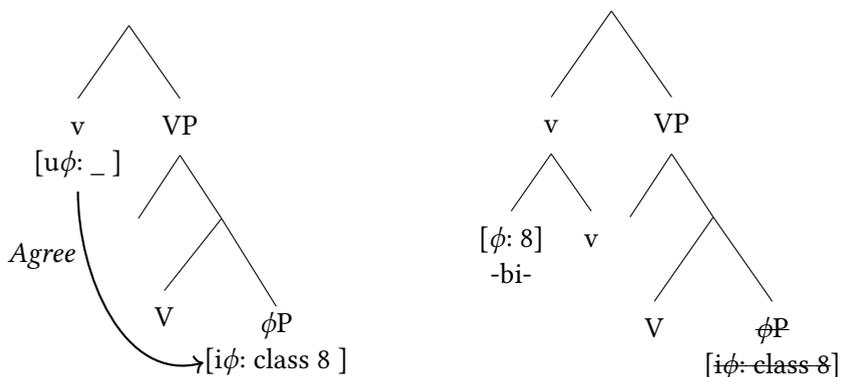


Figure 1: Left: Agree with a defective  $\phi$ P-Goal. Right: Spell-out of  $\phi$  on *v*: object marker.

Assuming with Roberts (2010) that this Agree relation only spells out on the Probe if the Goal has a subset of the features on the Probe, this also implies that if the Goal's features are *not* a subset, the features will not be spelled out on the Probe.<sup>6</sup> If the Goal is a full DP, the Probe simply Agrees with it, valuing  $u\phi$ , but only the DP spells out. This is illustrated in Figure 2.

Object marking thus always involves an Agree relation, with the spell-out of the object marker depending on the structure of the Goal, resulting in incorporation effects.

Although it is not immediately relevant to the present discussion, I briefly discuss the difference between so-called doubling and non-doubling object marking here (Figure 3). The analysis presented thus far accounts for languages that have non-doubling object marking, that is, the pronominal or anaphoric kind of OM, with a complementary distribution between OM and DP. However, in other languages object marking “doubles” the object DP, and both the OM and the DP are overtly realised (i.e. “agreement”). The DPs that are object-marked

<sup>6</sup>This is the strongest hypothesis. A weaker version would claim that if the Goal is defective, the Probe has to be spelled out, and if the Goal is not defective, the features can still be spelled out on the Probe (but do not need to be) – see also the discussion below on doubling object marking.



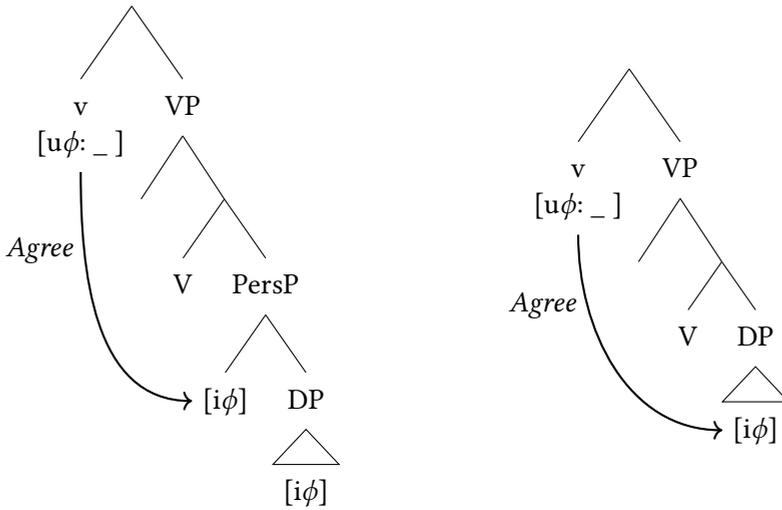


Figure 3: Left: Spell-out of  $\phi$  on v: doubling object marker. Right: No spell-out of  $\phi$  on v, but spell-out of DP.

The verb stem *-oon-* ‘to see’, head-moves to CausP and incorporates the causative morpheme to its left: *-oon-ih-*. This combined head moves on to ApplP, incorporating a further suffix to its right: *-oon-ih-er-*. The next step adds the passive morpheme to form *ooniheriy* and this complex moves once more to add the final suffix (also known as “final vowel”). Since it can carry inflectional meaning, the final suffix has been posited in an aspectual projection just above vP. Crucially, these are all suffixes, and they surface in reversed order of structural hierarchy (the Mirror Principle, Baker 1985; 1988; and see among others Alsina 1999; Hyman 2003; Good 2005; and Muriungi 2008 for discussion of the relation between semantic scope, morpheme order and syntactic structure).

There is no reason to assume that a moved head will first incorporate morphemes to its right (the extensions and final inflectional suffix) and then to its left (the agreement and TAM markers). Therefore, the fact that inflectional morphemes for subject marking, negation, and tense surface as prefixes suggests that these are not incorporated into the verb in the same way as the derivational suffixes, and thus that the verb has not head-moved further in the inflectional domain.

The prefixes do form one phonological unit with the verb stem, but are posited as individual heads that merely undergo phonological merger. Another argument for this analysis is found in the order of the prefixes, which matches the order of the corresponding syntactic heads, as shown in (13) and Figure 5. If the inflectional prefixes were also incorporated, like the suffixes, one would expect them to

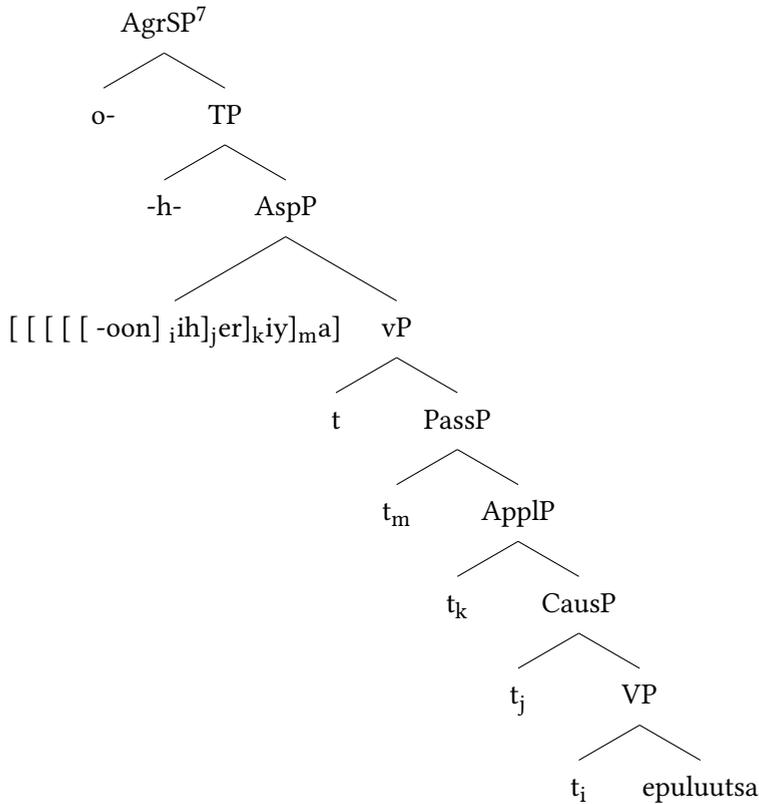


Figure 4: Proposed derivation of (12)

surface in the opposite order. And this is indeed what we find in a language like French, where there is independent evidence that the verb does move to T: the inflectional morphemes appear in the reverse order of the Makhuwa inflectional prefixes, and they appear as suffixes on the verb in (14).

- (13) Makhuwa (P31, van der Wal 2009: 169)  
 kha-mw-aa-tsúwéla.  
 NEG-2PL-IMPF-know  
 ‘You didn’t know.’

<sup>7</sup>The node AgrSP is represented here merely for expository reasons – the subject marker is treated as a reflex of  $\phi$  features on T.

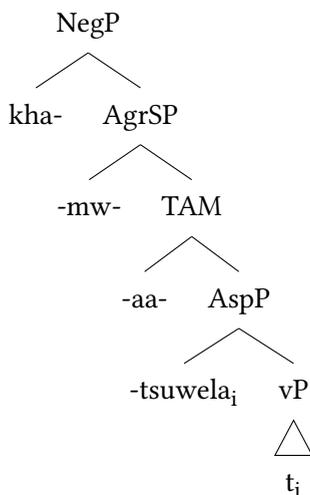


Figure 5: Bantu verbal prefixes as individual heads

- (14) French  
 Nous aim-er-i-ons.  
 1PL.PRO love-IRR-PAST-1PL  
 ‘We would love.’

The verbal morphology thus provides empirical evidence for movement of the verb in the lower part of the clause to a position just outside of vP, with the prefixes spelled out in their individual positions in the inflectional domain. Theoretically I assume this head movement proceeds as proposed in Roberts (2010), involving an Agree relation between higher and lower heads in the clausal spine; see also Adger (2003) and Bjorkman (2011), among others. The higher heads have additional features with respect to the lower verbal heads, which again makes the lower heads into defective Goals, spelling out the features on the highest head (AspP). See Roberts (2010) for details.

Returning to the status of the object marker, in the verbal template it sits right between the derived verb stem and the inflectional prefixes – nothing can intervene between the object marker and the verb stem. Despite its prefixal appearance, the object marker is different from the other prefixes such as the tense marker. The object marker and the verb stem still behave as one unit, together forming what is known in Bantu studies as the “macrostem”. The macrostem is the relevant unit for tone assignment and further phonological rules; see Hyman (2003); Hyman et al. (2008); Marlo (2015). The object markers are thus somehow

special within the verbal morphology. I propose that this is because they are the result of spelling out a set of  $\phi$  features that is present on little  $v$  and therefore on the (derived) verbal head, as outlined above.

With these basics in place, we can proceed to multiple object marking and a featural account of the AWSOM correlation.

## 5 Multiple object markers as additional low phi probes

In the current analysis, object marking is due to  $v$  agreeing with a defective Goal. The presence of the object marker is thus dependent on having a  $\phi$  probe on  $v$ . Taking as a starting point that the distribution of  $\phi$  features on functional heads is parameterised, the presence of multiple object markers is – for most languages; see Section 6 – hypothesised to reflect the presence of  $\phi$  features on multiple functional heads. The most straightforward analysis is to postulate  $\phi$  features on the actual heads that introduce the “extra” arguments, i.e. the applicative and causative heads, as represented in Figure 6.<sup>8</sup>

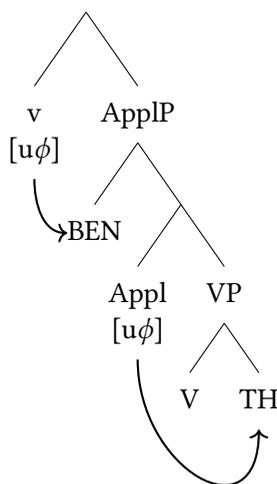


Figure 6: Multiple  $\phi$  probes in a double object construction

<sup>8</sup>I assume Pykkänen (2008)’s structure of double object constructions, involving an Applicative head. The analysis presented here should in principle be applicable to high and low Applicatives, as well as Causatives (see also van der Wal 2017a,b). In the tree structures, “BEN” (for benefactive) represents any argument introduced by Appl, which may also have a Recipient, Malefactive or other role.

If a language has  $\phi$  features not just on *v* but also on Appl, under a default downward probing, the prediction is that Appl agrees with the Theme/lower argument, and that the shared features are spelled out on the Probe (Appl) if the features of the Goal are a subset of the features of the Probe. The head movement of *V* through the lower part of the clause picks up the  $\phi$  features of Appl and *v*, resulting in multiple sets of  $\phi$  features on the derived head, and hence the potential for multiple object markers.<sup>9</sup>

With this analysis of multiple object marking we can thus answer the first research question of why there is such a strong correlation between multiple object marking and symmetry (the AWSOM): it follows from the presence of lower  $\phi$  probes that the Theme is always accessible to a  $\phi$  probe, independent of the marking of the Recipient/Benefactive. Appl will agree with the Theme and may or may not spell out its  $\phi$  features as an object marker, depending on the structure of the Goal, and *v* will agree with the higher argument, which again may or may not spell out as an object marker.

To illustrate how the analysis works, consider the patterns in Luganda. In all sentences in (15), Appl agrees in  $\phi$  features with the Theme *ssente* ‘money’ and *v* agrees in  $\phi$  features with the Recipient *taata* ‘father’. Via head-movement of the verb these sets of  $\phi$  features end up on the head just above *v*. In (15a) the objects are non-defective DPs and they will simply be spelled out as DPs (no object marker). In (15b) and (15c) only one of the objects is a defective  $\phi$ P Goal whose  $\phi$  features will be spelled out on the Probe, resulting in the one or the other object marker being present. Finally, in (15d) both objects are defective and therefore spelled out on the Probe as object markers.<sup>10</sup>

(15) Luganda (JE15, Ssekiryango 2006: 67, 72)

- a. Maama a-wa-dde **taata** ssente.  
 1.mother 1SM-give-PFV 1.father 10.money  
 ‘Mother has given father money.’
- b. Maama a-**mu**-wa-dde ssente.  
 1.mother 1SM-1OM-give-PFV 10.money.  
 ‘Mother has given him money.’

<sup>9</sup>As mentioned, the lower functional heads themselves incorporate as suffixes in the course of the verb’s head movement, and the sets of  $\phi$  features are located on this complex head, spelling out as prefixes to this head if the Goal is defective.

<sup>10</sup>The encountered cross-Bantu variation in the precise number of object markers (one, two, three, more) allowed in any particular language (Polak 1986; Marlo 2015) can potentially be understood as variation in the presence of  $\phi$  features on other lower heads (e.g. high/low causatives).

- c. Maama a-zi-wa-dde taata.  
1.mother 1SM-10OM-give-PFV 1.father  
'Mother has given it father.'
- d. Maama a-zi-**mu**-wa-dde.  
1.mother 1SM-10OM-1OM-give-PFV  
'Mother has given it to him.'

A further question that may be asked is what determines the order of object markers when multiple objects are defective. In Luganda, object markers are ordered strictly according to their semantic role (which may reflect the structural hierarchy): the Recipient is always closest to the stem, in mirrored order of the order of postverbal elements (cf. Baker 1985; 1988), as illustrated in (16).

- (16) Luganda (JE15, Ranero 2015: 13)
- a. Omusajja y-a-zi-ba-wa.  
1.man 1SM-PST-10OM-2OM-give  
'The man gave them it.'
- b. \*Omusajja y-a-**ba**-zi-wa.  
1.man 1SM-PST-2OM-10OM-give  
int. 'The man gave them it.'

Neither person (17) nor animacy (18) can change this ordering or make it ambiguous.

- (17) Luganda (Judith Nakayiza & Saudah Namyalo, p.c.)  
*Context: My assistant is ill and Judith is happy for me to work with hers. I tell a colleague:*  
Judith a-mu-nj-aziseemu olwaleero.  
1.Judith 1SM-1OM-1SG.OM-lend day.of.today  
'Judith lends him/her to me for the day.'  
\*Judith lends me to him/her for the day.'
- (18) Luganda (Judith Nakayiza & Saudah Namyalo, p.c.)
- a. N-a-gul-i-dde ennimiro abaddu.  
1SG.SM-PST-buy-APPL-PFV 9.garden 2.slaves  
'I bought slaves for the garden/farm.'

7 *The AWSOM correlation in comparative Bantu object marking*

- b. N-a-ba-gi-gul-i-dde.  
 1SG.SM-PST-2OM-9OM-buy-APPL-PFV  
 ‘I bought them for it.’ (not common)  
 \*‘I bought it for them.’
- c. N-a-gi-ba-gul-i-dde.  
 1SG.SM-PST-9OM-2OM-buy-APPL-PFV  
 ‘I bought it for them.’  
 \*‘I bought them for it.’

In other Bantu languages with multiple object markers, however, the ordering does not necessarily follow the thematic roles but is either determined by animacy, or free.<sup>11</sup> To illustrate the first, consider Kinyarwanda, where morpheme order is primarily based on person and animacy: when one prefix refers to a human, this needs to be closest to the stem (19), and 1<sup>st</sup>/2<sup>nd</sup> person pronouns take precedence over other referents for the verb-adjacent position (20).<sup>12</sup> As expected, this strict ordering results in ambiguity.

- (19) Kinyarwanda (JD62, Zeller & Ngoboka 2015: 211, 212)
- a. Umwáarimú yeeretse Muhiíre inká.  
 u-mu-aarimu a-a-eerek-ye Muhiire i-n-ka  
 AUG-1-teacher 1SM-PST-show-ASP 1.Muhire AUG-9-cow  
 ‘The teacher showed Muhire the cow.’
- b. Umwáarimú yaayimwéeretse.  
 u-mu-aarimu a-a-a-yi-mu-eerek-ye  
 AUG-1-teacher 1SM-PST-DJ-9OM-1OM-show-ASP  
 ‘The teacher showed it to him.’
- c. \*Umwáarimu yaamuyiyéeretse.  
 u-mu-aarimu a-a-a-mu-yi-eerek-ye  
 AUG-1-teacher 1SM-PST-DJ-1OM-9OM-show-ASP  
 ‘The teacher showed it to him.’

<sup>11</sup>See also Bresnan & Moshi (1990) and Alsina (1996) on morpheme order in Chaga.

<sup>12</sup>Some form of person restriction for 1<sup>st</sup> and 2<sup>nd</sup> person objects in DOCs is commonly present in Bantu languages, but this extends beyond multiple object markers – see Riedel (2009) for discussion of the strong and weak PCC; see Yokoyama (2016) for a featural account of the PCC and ordering restrictions in Kinyarwanda. Further literature on the order of object markers in various Bantu languages includes Duranti (1979), Bresnan & Moshi (1990), Rugemalira (1993), and Alsina (1996).

- (20) a. Umwáarimú yaabányeeretse.  
u-mu-aarimu a-a-a-ba-n-eerek-ye  
AUG-1-teacher 1SM-PST-DJ-2OM-1SG.OM-show-ASP  
'The teacher showed them to me.' *or*  
'The teacher showed me to them.'
- b. \*Umwáarimú yaambéeretse.  
u-mu-aarimu a-a-a-n-ba-eerek-ye  
AUG-1-teacher 1SM-PST-DJ-1SG.OM-2OM-show-ASP  
int. 'The teacher showed them to me/me to them.'

In contrast, there is no strict ordering for multiple object markers referring to non-human referents, as shown in (21), where the authors report that there is no semantic or pragmatic difference between (21b) and (21c). The sets of  $\phi$  features gathered on the verbal head can thus be spelled out in either order.

- (21) Kinyarwanda (JD62, Zeller & Ngoboka 2015: 212)
- a. Yahaaye ingurube ibijuumba.  
a-a-ha-ye i-n-gurube i-bi-juumba  
1SM-PST-give-ASP AUG-9-pig AUG-8-sweet\_potatoes  
'He has given the pig sweet potatoes.'
- b. Yabiyíhaaye.  
a-a-a-bi-yi-ha-ye.  
1SM-PST-DJ-8OM-9OM-give-ASP  
'He has given them to it.'
- c. Yayibíhaye.  
a-a-a-yi-bi-ha-ye.  
1SM-PST-DJ-9OM-8OM-give-ASP  
'He has given them to it.'

Some varieties of Setswana seems to be even less restricted in the order of prefixes, generally allowing either order, as in (22).<sup>13</sup>

- (22) Setswana (Marten & Kula 2012: 247)
- a. Ke-mo-e-ape-ets-e.  
1SG.SM-1OM-9OM-cook-APPL-PFV  
'I cooked it for him/her.'

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<sup>13</sup>However, Pretorius et al. (2012) suspect that discourse preferences may be of influence here, and Creissels (2002) notes for the variety he describes that the order is determined first by animacy, and in case the arguments are equal in animacy, then semantic role dictates the order of the markers.

b. Ke-e-mo-ape-ets-e.

1SG.SM-9OM-1OM-COOK-APPL-PFV

‘I cooked it for him/her.’

It seems likely, then, that the sets of  $\phi$  features on the verbal head are spelled out either freely, or according to a morphological template that prioritises referents higher on the scales of person and animacy, or thematic role (cf. Duranti 1979). Further research is needed to establish the details in variation, what this may tell us about the syntax involved (if anything), and the spell-out or readjustment rules for morphology.

To summarise, in the proposed analysis object marking involves an Agree relation between a  $\phi$  probe on a low functional head (v, Appl) and a DP Goal. If the features on the Goal are a subset of the Probe (e.g. a  $\phi$ P), the  $\phi$  features on the Probe spell out as an object marker. Postulating  $\phi$  probes on multiple lower functional heads (v, Appl, Caus) as the underlying structure in languages that allow multiple object markers derives the AWSOM correlation successfully and straightforwardly: the lower  $\phi$  probe can *always* agree with the Theme argument. The analysis also fits the larger typological implicational hierarchy for the distribution of  $\phi$  features (Moravcsik 1974; Givón 1976): lower licensing heads only have  $\phi$  features if higher heads do so too. If a language has  $u\phi$  on Appl (multiple OM), it has  $u\phi$  on v (object marking), and if a language has  $u\phi$  on v, it has  $u\phi$  on T (subject marking).<sup>14</sup> However, the analysis does not account for symmetry with a single object marker, nor for the Sambia data. Symmetric single object marking is discussed in Section 7, and the exceptional parameter setting of Sambia (research question 2, page 207) is addressed in the following section.

## 6 Multiple object markers as additional higher $\phi$ probes

Sambia object marking came out as exceptional in allowing multiple object markers but being asymmetric. The hierarchical strictness in Sambia multiple object marking suggests that the  $u\phi$  features responsible for object marking are located *above* the highest object, with the Minimal Link Condition determining that the highest object be agreed with first. The difference between Sambia and asymmetric object marking in languages with only one object marker would thus be the presence of an extra set of  $\phi$  features on v (Adams 2010). If Sambia indeed has

<sup>14</sup>The implicational relation does not automatically follow from the analysis presented here, but see van der Wal (to appear) for a parameter hierarchy from which the implicational relation does fall out; reminiscent of the Final over Final Condition (Sheehan et al. 2017).

two  $\phi$  probes on  $v$ , then the first Probe finds the closest Goal (Benefactive) and agrees with it, after which the second Probe finds the lower Goal (Theme), forming a second Agree relation for  $\phi$  features. Little  $v$  thus has two sets of valued  $\phi$  features that can be spelled out as object markers (see Figure 7).

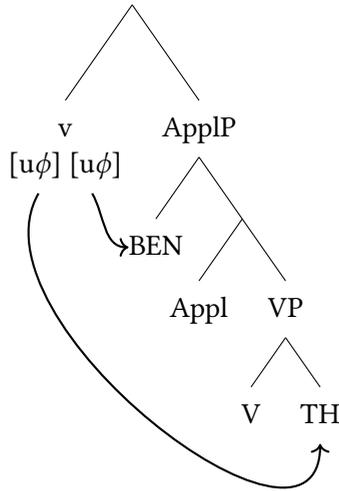


Figure 7: Two  $\phi$  probes on  $v$  in Sambiaa

However, remember that the current model assumes that spell-out of the object marker is dependent on the featural make-up of the Goal relative to the Probe (Roberts 2010; Iorio 2014; van der Wal 2015): there is always an Agree relation, but only defective Goals will spell out as an object marker. This means that the two sets of  $\phi$  features could be spelled out independently of each other, which is the case in symmetric multiple object marking languages, but not asymmetric Sambiaa. This could be repaired by specifying a phonological condition that the second Probe can only be spelled out if the first is. This, however, is an ad-hoc solution that should only be adopted as a last resort.

The question is thus why the second Probe can only reach the Theme if the first Probe agrees with a defective Goal. I propose that this follows from the nature of defective Goals: once the first Probe has agreed with a defective Recipient, the relation cannot be distinguished from a chain, and the bottom of a chain (i.e. a trace) is invisible for further agreement (Chomsky 2000; 2001). This allows the second Probe to “skip” the invisible higher Benefactive argument and agree with the Theme, as represented in Figure 8a.<sup>15</sup>

<sup>15</sup>Remember that the  $\phi$  probes in this analysis are underspecified and therefore do not differ from each other.

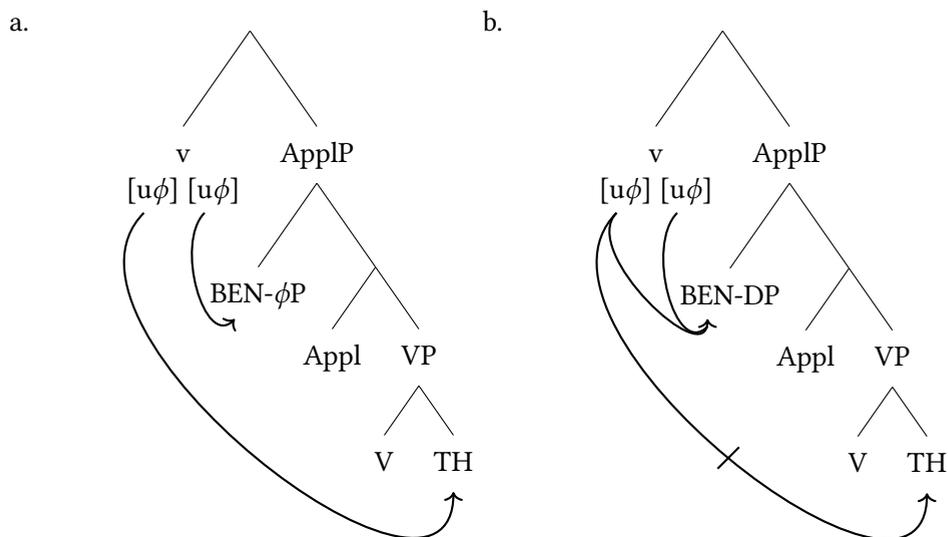


Figure 8: Agree with a defective (a) and non-defective (b) Benefactive goal

If, on the other hand, the first Probe agrees with a non-defective DP Benefactive, the DP will still be visible to the second Probe. The second Probe will thus also agree with the higher Recipient and cannot reach the lower Theme, as in Figure 8b. The (double set of the same)  $\phi$  features on  $v$  will not be spelled out, because the Goal is not defective, resulting in no object marking.

We may now wonder how the Theme is licensed if  $v$  does not agree with it in Figure 8b, and also how the second  $\phi$  probe cannot reach past the Benefactive if that is already licensed by the first Probe. The question behind both points is whether the extra  $u\phi$  set is also a Case licenser.<sup>16</sup> I argue that it is not, and that instead Appl is still a licenser. This is the same as in the case of symmetric languages, and asymmetric languages with only one object marker. That is,  $v$  and Appl are always licensers if they introduce an argument (contra Woolford 1995), and the distribution of  $\phi$  probes is logically independent of this. We have already seen this in the derivation for languages with only one object marker, where Appl licenses an object but only  $v$  has a  $\phi$  probe.<sup>17</sup> This is represented in Figure 9, where dashed lines indicate licensing and the solid line is  $\phi$  agreement.

<sup>16</sup> Assuming that Bantu languages need Case licensing, which is debated; see Diercks (2012), van der Wal (2015) and Sheehan & van der Wal (2018). However, the debatable status mostly concerns nominative Case.

<sup>17</sup> Similarly, Bhatt (2005) proposes for Hindi that both T and  $v$  are Case assigners, but only T has a  $\phi$  probe.

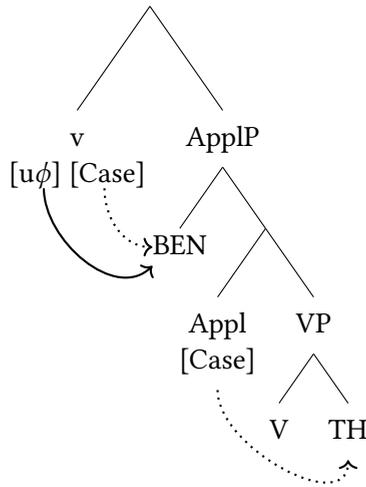


Figure 9:  $\phi$  agreement independent of Case licensing

Recent theoretical proposals have highlighted mismatches between (morphological) case and  $\phi$  agreement and shown them to be separate, as Bhatt (2005), Baker (2008a,b; 2012; 2015), Bobaljik (2008), Bány (2015), Stegovec (2019) argue (contra Chomsky 2000; 2001 who views case and agreement as two sides of the same coin). Therefore, case and agreement “cannot be two realizations of the same abstract Agree relation” (Baker 2012: 272 on Amharic). Baker takes this to be an argument in favour of morphological case not being determined by an Agree relation at all (instead following from a Dependent Case algorithm, Marantz 1991; Baker 2015), but it also points towards the independence of abstract Case and  $\phi$  features (Keine 2010; Bány 2015). If  $u\phi$  and Case are logically separate, then we can understand the unique situation of Sambia. In all the other combinations of object marking parameters in Table 3 (page 205), Case and  $u\phi$  operate together, and Case can be present by itself, but Sambia (asymmetric multiple OM) presents the exceptional situation of a  $\phi$  probe independent of a Case feature, as shown in Table 4.<sup>18</sup>

The derivation in Sambia thus proceeds as follows. First, Appl licenses the Theme (as in other languages). Second, assuming that  $\phi$  and Case licensing go together as much as possible (as discussed below with regard to acquisition), then the first  $\phi$  probe on  $v$  licenses Case and agrees for  $\phi$  features, whereas the second Probe only concerns  $u\phi$  features. It would thus be expected that this second Probe is not restricted to arguments that are “active” for  $[u\text{Case}]$  (see Chomsky’s 2001

<sup>18</sup>The symmetric single object marking type is discussed in Section 7.

Table 4: Featural distribution in 4 types of languages for symmetry and number of object markers

symmetry	multiple	single
asymmetric	v: Case- $\phi$ <span style="border: 1px solid black; padding: 2px;">+ <math>\phi</math></span> Appl: Case	v: Case- $\phi$ Appl: Case
symmetric	v: Case- $\phi$ Appl: Case- $\phi$	v: Case- $\phi$ Appl: Case

“Activity Condition”), but can agree with any set of  $\phi$  features. This is why the second  $\phi$  probe will still find the non-defective Benefactive DP, as in Figure 8b, even if the Goal is already licensed by the first [Case+ $\phi$ ] Agree relation and no longer active for [uCase]. The only exception, as explained earlier, is when the Benefactive is a defective Goal (a  $\phi$ P). In this case, the Benefactive is not visible for the second  $\phi$  probe, which can thus agree with the Theme as in Figure 8a. The result is two differently valued sets of  $\phi$  features on v, which spell out as multiple object marking if the Theme is defective too.

With this analysis of a second  $\phi$  probe on v, the second and third research questions can now be answered: Sambaa has multiple object marking because it has multiple sets of u $\phi$  features, and it is asymmetric because the second set of u $\phi$  features is located not on Appl but on v. Case licensing is still taken care of by both v and Appl, as in all other languages. This split between Case licensing and u $\phi$  features is rare, making Sambaa appear as an exception to the AWSOM correlation.

The rarity of the split between Case and  $\phi$  can potentially be understood from the point of view of acquisition. In order to set parameters and to discover the uninterpretable features in their language, acquirers need a certain amount of clear form-meaning correlations (see a.o. Biberauer 2017a,b; Biberauer & Roberts 2017; Fasanella & Fortuny 2016). In Bantu languages, morphology forms a strong clue to deduce the underlying structure and features. The mismatch between observed  $\phi$  agreement and Case licensing would thus appear to be suboptimal for easy acquisition, explaining the tendency for Case and  $\phi$  agreement to go together. This line of reasoning makes testable predictions for acquisition (on which we have no data whatsoever), as well as relative diachronic instability (where a comparison between earlier sources such as Roehl 1911 and Riedel 2009 could have given a small amount of time-depth, but Roehl does not provide conclusive data). I leave this for further research.

## 7 Two ways of being symmetric?

A final question that arises if we look again at Table 3 from page 205 concerns the category of languages that are symmetric despite only allowing one object marker. Symmetry in these languages can theoretically be modeled in at least two ways. The first assumes that these languages work exactly like languages that have multiple object markers, but there is a PF condition preventing all but one set of  $\phi$  features from being spelled out (cf. Adams 2010 for Zulu). The second proposes a flexible licensing by lower functional heads, allowing the one set of  $\phi$  features on *v* to probe past the higher argument (Haddican & Holmberg 2012; 2015; van der Wal 2017a; Holmberg et al. 2019).

The first model is problematic for passives because an asymmetry appears, even in otherwise symmetric languages, when passivisation and object marking are combined (see Holmberg et al. 2019 and references therein). The sensitivity to animacy and topicality is another aspect that does not follow from a PF condition on multiple object markers (cf. Zeller 2012). The second model looks promising, also in deriving other typological properties of double object constructions.<sup>19</sup> A full discussion of the analysis goes beyond the scope and space-limit of the current paper (see the mentioned references for details), but the essence is that heads such as Appl (which has no  $u\phi$ ) can license downwards (Theme, Figure 10a) or upwards (Benefactive, Figure 10b), depending on the relative animacy and topicality of the two objects (see also D'Alessandro 2020 [this volume] and Mursell 2020 [this volume]). This leaves the other argument, be that the Benefactive or the Theme, for licensing by and  $\phi$  agreeing with *v* (in an active clause) or T (in a passive clause). The single set of  $u\phi$  features on *v* can thus agree with either argument, depending on which argument is first licensed by Appl.<sup>20</sup> This accounts for the symmetry found in single object marking languages (van der Wal 2017a).

This implies that languages can have two ways to show symmetric object marking: either an extra set of  $\phi$  features on Appl (multiple object marking), or flexible licensing by Appl (single object marking). Note that the presence of an extra  $\phi$  probe in the former type does not exclude the presence of flexible licensing, though: Appl may have a  $\phi$  probe and also flexible licensing. In fact, this is essential in the derivation of symmetric passivisation, since the presence of extra  $\phi$  probes explains how the Theme may be object-marked but not how it can become the subject of a passive. This too I have to leave for future research.

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<sup>19</sup>Specifically, flexibility of licensing can account for an asymmetry in the passive of otherwise symmetrical languages (Holmberg et al. 2019), and in explaining the RANDOM correlation (the Relation between Asymmetry and Non-Doubling Object Marking, van der Wal 2017b).

<sup>20</sup>Note that  $u\phi$  on *v* in symmetrical single-OM languages combines with Case, which is why the argument licensed by Appl is not a Goal for *v*.

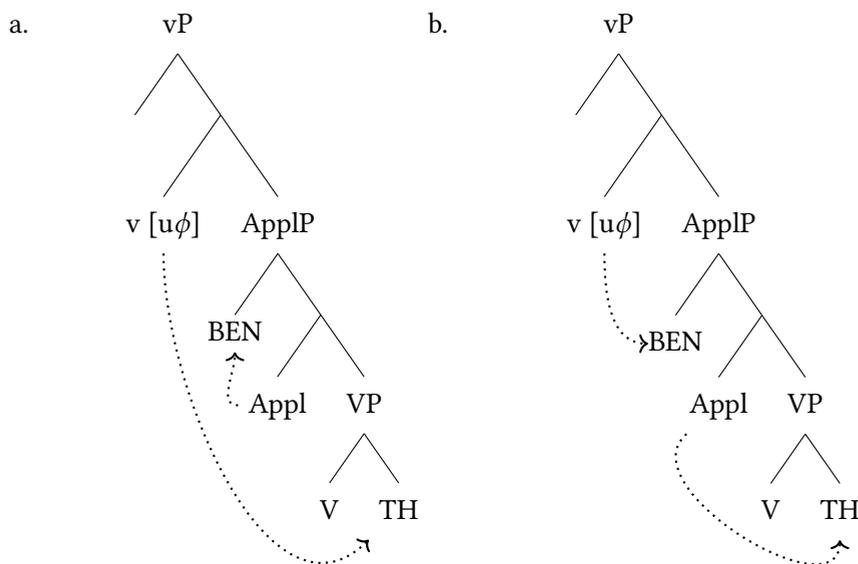


Figure 10: (a): *v* agrees with TH (and can object-mark it). (b): *v* agrees with BEN (and can object-mark it)

## 8 Conclusions and further research

Although there is a wealth of microvariation in Bantu object marking, this variation is not random and unconstrained. On the basis of data from more than 50 Bantu languages, the current paper shows that there is an almost-gap in the distribution of languages according to the number of object markers and double object symmetry: of the four logical combinations of parameter settings, three are common and one comes out as exceptional. This can be described as the AWSOM correlation, according to which asymmetry wants a single object marker. Both the AWSOM correlation and the exception of Sambia can be understood in a model of syntax where the distribution of  $\phi$  features over clausal heads is parameterised. Multiple object markers are indicative of additional sets of  $u\phi$  features. In symmetric languages, these extra  $\phi$  probes are located on lower functional heads such as Appl, whereas in asymmetric Sambia the additional  $\phi$  probe is present on *v*.

This approach is in line with the Borer-Chomsky conjecture (BCC, Borer 1984; Chomsky 1995; Baker 2008a,b), which states that all parameters of variation are attributable to differences in the features of heads in the lexicon. This is an attractive Minimalist point of departure, as it allows us to keep basic syntactic operations the same across languages. Specifically for the current proposal: all

object marking involves an Agree relation, and Agree is kept constant, whether a language shows symmetry or asymmetry, single or multiple object markers (and doubling or non-doubling object marking).

Under the BCC, further variation in the subparts of  $\phi$  features, specifically Person features, is expected to play an important role in restrictions on combinations of 1<sup>st</sup>/2<sup>nd</sup> person objects in double object constructions (see footnote 12), but also in the “1+” type of language. It is striking that these languages allow a second object marker when the first is a reflexive or 1<sup>st</sup> person – that is, precisely in case the higher object can value all of the subfeatures [person [participant [speaker]]] (Béjar & Řezáč 2009). Further research will have to confirm whether 1+ object marking can be accounted for in a relativised probing account like Béjar & Řezáč (2009), where the Probe renews if it is successful for all subfeatures in the first search (a “phoenix probe”).

Since there are about 500 Bantu languages and this paper covers only 10% of them, the research should of course be extended to further Bantu languages and languages beyond the Bantu family to see how the AWSOM correlation and the proposed model fare for a broader set of languages.

## Abbreviations and symbols

Numbers refer to noun classes, or to persons when followed by SG or PL. High tones are marked by an acute accent, low tones are unmarked or marked by a grave accent.

APPL	applicative	PASS	passive
ASP	aspect	PFV	perfective
AUG	augment	POSS	possessive
BEN	Benefactive	PRES	present
CJ	conjoint verb form	PROG	progressive
CONN	connective	PST	past tense
DEM	demonstrative	R	Recipient
DJ	disjoint verb form	SM	subject marker
FS/FV	final suffix/final vowel	T	tense
OM	object marker	TH	Theme
OPT	optative		

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## Chapter 8

# Agreement across the board: Topic agreement in Ripano

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Ripano, an Italo-Romance variety spoken in Ripatransone in central Italy, exhibits a number of phenomena that are quite rare among the Romance languages. It shows dedicated gender marking on the finite verb, unlike any other Romance language. The same variety also exhibits adverbial and prepositional agreement. Furthermore, whenever a topic is present in the clause it triggers agreement: finite verbs, non-finite verbs (participles and gerunds), adverbs, and prepositions all show agreement with the topic.

Topic-driven agreement, I argue, is the result of two co-occurring factors: 1. the presence of an extra item, a  $\varphi$ -probe, in the lexical inventory of the language; 2. A special setup of this probe, which requires agreement with the topic. I also present some cross-linguistic evidence for this analysis.

## 1 Agreement in Ripano

### 1.1 Introduction

Ripano is the name of a dialect spoken in Ripatransone<sup>1</sup>, a village in the province of Ascoli Piceno, in central Italy. Ripatransone is situated on an isogloss bundle separating central and upper-southern Italo-Romance varieties. The fact that Ripatransone is in a language-transition area has probably triggered the emergence of a number of phenomena that are quite unusual in the rest of Italo-Romance.

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<sup>1</sup>Unless otherwise stated, the data from Ripatransone were collected on fieldwork by the author, in 2007. These agreement patterns are largely confirmed by a recent investigation by the Zurich Agreement Database project.



One of them is agreement, which has often attracted the interest of dialectologists. This paper addresses agreement in Ripano: it aims to provide a comprehensive description and analysis of the agreement patterns found in this variety.

A disclaimer is in order at the very beginning: there are several studies on Ripano agreement within the DP, most notably the ongoing research by the Zurich Agreement Database group (in particular Paciaroni & Loporcaro 2018). These studies are mostly concerned with morphological agreement within the DP, which we will not explore here. The present article instead discusses agreement within a clause, and more specifically:

- a. Adverbial agreement
- b. Prepositional agreement
- c. Gerund agreement
- d. Argumental agreement

Agreement will be considered at clause level, and not within a DP. The agreement phenomena in Ripano are all quite exceptional, both with respect to the rest of Romance and in general. I will argue that they can be attributed to the same underlying cause: the presence of an extra feature bundle that is topic-oriented, in a way which will become clear in the rest of the article.

Before investigating agreement relations, it is worth introducing the paradigm of the finite verb, given that it is peculiar in and of itself. Ripano is in fact known to all dialectologists in Italy because of the presence of gender inflection on finite verbs, as well as gerunds (Egidi 1965; Parrino 1967; Lüdtkke 1976, Mancini 1988/1997; 1993; Harder 1998; Jones 2001; Ledgeway 2006; Rossi 2008; Ferrari-Bridgers 2010). Finite verbs have a full masculine paradigm and a full feminine paradigm, as exemplified in Table 1 for the present tense.

Observe that gender is never marked on finite verbs in Romance. In Ripano, however, every finite verb is marked for gender, in the present, imperfect, future, past, subjunctive (present and past) and conditional (see Rossi 2008 for full paradigms). Ripano is *pro*-drop.

Nouns/adjectives are also marked for number and gender, according to the paradigm in Table 2.

Ripano is special not only because it displays agreement endings on lexical items that don't usually show any agreement inflection in Romance, but also because of the agreement patterns it presents in verb–argument agreement, and for the choice of what agrees with what.

Table 1: Verbal endings (Rossi 2008: 31)

MASCULINE	FEMININE	
i' ridu	ia ride	'I laugh'
tu ridu	tu ride	'you laugh'
issu ridu	esse ride	'he laughs/she laughs'
noja ridemi	noja ridema	'we laugh'
voja rideti	voja rideta	'you laugh'
issi ridi	essa ride	'they laugh'

Table 2: Noun/adjective endings

	SINGULAR	PLURAL
MASCULINE	-u/-ə	-i /-a
FEMININE	-e (-a in modern Ripano)	-a
NEUTER/MISMATCH	-a/-ə <sup>a</sup>	-a/-ə

<sup>a</sup>Throughout the paper, I will use the gloss N ('neuter') to refer to lexical neuter and MM to indicate the agreement mismatch ending. At this stage, it is not clear whether the two categories are coincident; the -ə marking the mismatch could be the result of a phonological reduction process, or it could signal the fact that the language resorts to a different gender (neuter). In order to avoid confusion, and especially to signal when agreement mismatch has arisen, I will use two different glosses. Observe furthermore that -ə can also be used as a masculine marker. In some inversion contexts, a process of vowel reduction is at play, as argued by Paciaroni (2017). An example of this masculine -ə can be found in (15).

In what follows I will try to give a detailed outline of agreement patterns, first concentrating on the description of those elements that show agreement inflection in a way that is different from the rest of Romance, and then illustrating agreement patterns between these items and the agreement controller, to use a term that is common in typological studies.

The article is organized as follows: I will first look at *what* shows agreement inflection (agreement TARGETS), then at *what agrees with what*, and then I will try to answer the questions *how* and *why* these strange agreement patterns happen in Ripano.

## 1.2 Agreement targets: Adverbs

Adverbs in Romance are invariant. In Ripano, though, adverbs display agreement with what I will for the time being call “the most prominent element” in the clause. The adverbs that show agreement are not only the usual quantificational adverbs like *quanto* (‘how/as much’) and *molto* (‘much’) in Italian, but also manner adverbs and temporal adverbs, as well as degree, spatial and quantity adverbs; numerals are also inflected for gender and number.

An example of manner adverbial agreement is (1):

- (1) Burrioni et al. (2016: 8)
- a. Iss-u     ha       rispost-u       mal-u.  
      he-3SG.M have.3SG answer.PTC-SG.M badly-SG.M  
      ‘He answered badly.’
  - b. Ess-e     ha       rispost-e       mal-e.  
      she-3SG.F have.3SG answer.PTC-SG.F badly-SG.F  
      ‘She answered badly.’
  - c. Iss-i     ha       rispost-i       mal-i.  
      they-3PL.M have.3PL answer.PTC-PL.M badly-PL.M  
      ‘They answered badly.’
  - d. Iss-a     ha       rispost-a       mal-a.  
      they-3PL.F have.3PL answer.PTC-PL.F badly-PL.F  
      ‘They answered badly.’

As you can see, in (1a) the adverb agrees with the masculine singular subject, while in (1b) it agrees with the feminine singular subject. (1c–1d) show agreement in gender and number with the corresponding plural subjects. While these are cases of straightforward agreement with the subject, it will be shown later on that Ripano actually shows agreement with topics. For the moment, it is sufficient to observe that adverbs inflect for number and gender and undergo agreement.

The same agreement patterns are usually found with degree adverbs (2), temporal adverbs (3), spatial adverbs (4), and quantity adverbs (5):

- (2) Ledgeway (2012)
- a. È     quaff-u     muort-u.  
      is.3SG almost-SG.M dead-SG.M  
      ‘He is almost dead.’
  - b. È     quaff-e     mort-e.  
      is.3SG almost-SG.F dead-SG.F  
      ‘She is almost dead.’

- (3) a. Cə vac-u sembr-u.  
 there go.1SG-M always-SG.M  
 'I<sub>M</sub> always go there.'
- b. Cə vach-e sembr-e.  
 there go.1SG-F always-SG.F  
 'I<sub>F</sub> always go there.'
- (4) a. Ne macchene l'è=mmist-u sott-u.  
 SG.F car.SG.F him-is.3SG=put-SG.M under-SG.M  
 'A car ran him over.'
- b. Ne macchene l'è=mmist-e sott-e.  
 SG.F car.SG.F her-is.3SG=put-SG.F under-SG.F  
 'A car ran her over.'
- (5) Lambertelli (2003: 45–46)
- a. Esse e magnat-e tand-e.  
 she.SG.F is eaten-SG.F much-SG.F  
 'She ate a lot.'
- b. Issu e magnat-u tand-u.  
 he.SG.M is eaten-SG.M much-SG.M  
 'He ate a lot.'

Observe that while in (1–3) and (5) the adverbs agree with the subject, in (4) they agree with the object clitic.

### 1.3 Agreement targets: Prepositions

In Ripano, prepositions and prepositional adverbs can also display  $\varphi$ -features; when they do, they usually agree with their complement:

- (6) Ledgeway (2012: 309)
- a. Sottu lu tavuli  
 under.SG.M the.SG.M coffee.table. SG.M  
 'under the coffee table'
- b. sottu le sedie  
 under.SG.F the.SG.F chair.SG.F  
 'under the chair'

- (7) Lambertelli (2003: 54)
- a. è bianghe comm-e n-e spos-e.  
be.3 white.SG.F as-SG.F a-SG.F bride-SG.F  
'She is white like a bride.'
- b. è nir-u comm-u l-u cherv-ò.  
be.3 black-SG.M like-SG.M the-SG.M coal-SG.M  
'He is black like coal.'
- c. è biang-a comm-a l spos-a.  
be.3 white-PL.F as-PL.F the bride-PL.F  
'They are white like brides.'
- d. è nir-i comm-i l-i cherv-ù.  
be.3 black-PL.M like-PL.M the-PL.M coal-PL.M  
'They are black like coals.'

While most prepositions are invariable, the presence of this agreement pattern (for those prepositional adverbs that inflect) is widespread.

#### 1.4 Agreement targets: Nouns

In Ripano, like in other Romance languages, lexical nouns are specified as masculine or feminine. However, in some contexts lexical nouns can change their gender specification. As an example take the word *fame* 'hunger'. *Fame* is lexically feminine. It is listed as feminine in the dictionary, it is feminine when uttered on its own. Its default determiner is also feminine.<sup>2</sup> However, in some cases, feminine gender is replaced/overwritten by the gender of what seems the most prominent element in the clause (in this case, the subject). Recall that Ripano is *pro*-drop, so we know the gender of the subject by looking at the inflectional ending of the verb.

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<sup>2</sup>An anonymous reviewer asks whether it is really the case that *fame* is feminine. We could instead assume that there is just a root and that agreement is not part of the nominal extended projection; so *fam-* would be a root and agreement would determine gender. There are several reasons why I wouldn't want to follow that path: the first is that all nominals require a gender specification in Romance; the second is that Romance nouns have invariable gender, with the exception of a very small number of nouns in Ripano. Nouns that change gender in Ripano only do so when they are bare. Postulating such a mechanism would require some sort of default agreement ending assignment in Romance, which is clearly not in place given that nouns come with one gender specification, feminine or masculine, in the lexicon, and do not change it ever (except in Ripano).

- (8) a. C'<sup>3</sup>=aj-u fam-u.  
EXPL=have-1SG.M hunger.F-SG.M  
'I<sub>M</sub> am hungry.'
- b. C'=aj-e fam-e.  
EXPL=have-1SG.F hunger.F-SG.F  
'I<sub>F</sub> am hungry.' (lit. 'I have hunger')

In (8), the gender of the object varies depending on the gender of the subject. It should be noted that this agreement change on lexical nouns is found in a very limited number of cases, mostly very frequent expressions referring to bodily needs or psychological states like *to be hungry*, *to be thirsty*, *to be scared*, *to be in a hurry* (all of which are expressed by means of transitive/possessive *have* plus a DP complement). Furthermore, these nouns must be bare.

In what follows, nominal agreement will refer to nouns changing their gender, not to argumental agreement.

### 1.5 Agreement targets: Gerunds and infinitives

Gerunds and infinitives do not inflect in Romance. In Ripano, they do. Here are some examples of gerund:

- (9) Lambertelli (2003: 43)
- a. stieng-u jenn-u.  
stay.PRES-1SG.M going-SG.M  
'I<sub>M</sub> am going.' (lit. 'I stay going')
- b. stiv-e jenn-e.  
stay.IMPV-SG.F going-SG.F  
'You<sub>F</sub> were going.'

Infinitives are also reported as inflecting by Mancini (1993) and Ledgeway (2012). I couldn't find any inflected infinitives during my fieldwork, and the inflected infinitive is not reported in other grammars. Here's an example from Ledgeway:

- (10) Ledgeway (2012: 302)
- Sai scriv-u?  
can.2SG write.INF-SG.M  
'Can you write?'

<sup>3</sup>This expletive has no particular function. It is a locative that usually co-occurs with possessive *have* in many Italo-Romance varieties, including spoken Italian (averci 'to have', instead of *avere*). *Ci* is a locative particle and does not have gender.

Non-finite forms thus show gender and number agreement in Ripano. It is plausible that the existence of the inflected infinitive is a matter of intra-speaker variation, or this is perhaps an archaic feature of the language.

## 2 Argumental agreement

### 2.1 Agreement mismatch with transitive verbs

We have seen that some lexical items show gender and number inflection, unlike their corresponding forms in the rest of Romance, which cannot be inflected. Ripano also displays some unusual verb–argument agreement patterns.

Ripano is in fact known for exhibiting agreement mismatch patterns in transitive constructions, whereby the finite transitive verb, as well as the participle in the present perfect, show a dedicated ending in cases where the external argument and the internal argument display different gender or number (D'Alessandro 2017). One such agreement pattern is in (11):

- (11) Ripano (Mancini 1988/1997: 107)
- a. Babbu dic-ə l-e vərità.  
dad.SG.M say-3SG.MM the-SG.F truth.SG.F  
'Dad tells the truth.'
- b. So magnat-ə l-u panì.  
be.1SG eaten-MM<sup>4</sup> the-SG.M breadroll.SG.M  
'I<sub>F</sub> have eaten the breadroll.'

In (11) the ending *-ə* signals gender mismatch between the subject and the object. Agreement with the subject in (11a) would have triggered the ending *-u* to appear on the verb. Agreement with the object would have triggered the ending *-e* to appear on the verb. Agreement with the subject in (11b) would have required the insertion of an *-e* ending, for feminine; agreement with the object would have triggered the insertion of an *-u*.

This system is attested in many old grammars, and has also been found during fieldwork. It is, however, restricted to SVO sentences, in which no obvious information structure is visible. Mismatch mostly arises when the two arguments have different gender, but it also often arises with different number, and between countable and uncountable arguments.

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<sup>4</sup>MM indicates an agreement mismatch marker. See footnote to Table 2.

## 2.2 What agrees with what: Topic-oriented agreement

Ripano intransitive finite verbs follow the agreement patterns of the rest of Romance: the intransitive verb agrees with the subject.

We saw in the previous section that in transitive SVO declarative sentences the finite verb shows a mismatch agreement marker. This marking is limited to declarative clauses with canonical word order. One interesting feature that offers the beginning of an explanation of Ripano agreement is the observation that agreement mismatch disappears the moment one of the arguments is topicalized.

Take for example sentence (12).

(12) Rossi (2008: 51)

Issu e rott-ə l-u vitria e l-e corb-e  
 he.SG.M is broken-N the-SG.M glass.SG.M.MASS and the-SG.F fault-SG.F  
 l'-e ddussat-e a me.  
 it.SG.F-be.3 attributed-SG.F to me

'It was HIM who broke the glass, and now he is saying it's my fault.'

Both arguments in the first clause are masculine singular, but the object is a mass noun, ending in *-a*. We hence find the expected agreement mismatch pattern (between countable and uncountable arguments). The second clause features agreement with a clitic left-dislocated object. Clitic-left dislocation characterizes topics in Italo-Romance; the presence of the clitic is what distinguishes a topic from a focus (see, for instance, Cinque 1983). When an argument is left-dislocated, it usually lands in a left peripheral position preceding the finite verb. This position is often referred to as TopP, following Rizzi's (1997) seminal work on the fine structure of the left periphery. (12) suggests that if a topicalized element is present in the clause, it will become the agreement controller, and the finite verb will agree with it, independent of sentence structure. Topic agreement overwrites other forms of agreement. This is not the case for focused elements, as shown by the following minimal pair:

(13) Paciaroni (2017: 9)

a. Chi ride?

'Who laughs?'

b. Rid-ə Gianni  
 laughs-3SG.M Gianni.SG.M

(New Information Focus)

'Gianni is laughing.'

- (14) Paciaroni (2017: 9)
- a. Che fa Gianni?  
'What does Gianni do?'
- b. Eh, rid-u Gianni. (Topic)  
laughs-SG.M Gianni.SG.M  
'Eh, Gianni laughs.'

In (14) *Gianni* is a known element, introduced in the previous clause. Following Frascarelli (2012), it is a Familiar Topic: "Familiar (Fam-) Topics constitute given information in the discourse context and are used either for topic continuity or to resume background information" (Frascarelli 2012: 181).

Finally, we also have examples of agreement with topics that are in situ objects:

- (15) Rossi (2008: 93)
- L-u petrò e mannat-a l-e disdett-e a lu cuntedi.  
the-SG.M lord be.3 sent-SG.F the-SG.F cancellation-SG.F to the farmer  
'The owner sent the cancellation to the farmer.'

The ending of the past participle is *-a*, not *-e*. I will return later in the paper to the different agreement endings and the contact-induced paradigm shift. In any case, there is no doubt that the past participle agrees with the object in situ. The choice of *-a* instead of *-e* might also be due to the fact that this sentence, in the archaic dialect, was probably uttered with an agreement mismatch marker, which is *-a*. Agreement is no longer with both arguments here, but with the most prominent, which is not the subject.

Another example of topic-oriented agreement with an in situ object is in (16):

- (16) Rossi (2008: 140)
- L-u nonna e lasciat-a tutta l-e robb-e.  
the-SG.M grandpa be.3 left-F all.SG.F the-SG.F things-SG.F  
'Grandpa has left all his belongings.'

In what follows, I will try to analyze these data as a unified phenomenon. First, a general introduction to the agreement system of upper-southern varieties will be provided. It will be shown that these varieties feature an extra  $\varphi$ -bundle of unvalued features, which dock on different hosts.

I will then outline an analysis that builds on Miyagawa (2017), who shows that discourse features enter agreement relations just like  $\varphi$ -features. Building on Miyagawa (2017), I will argue that in Ripano topics exhibit a  $\delta$ -feature (discourse

feature). Furthermore, the finite verb and all other agreeing elements exhibit a feature bundle which includes both unvalued  $\varphi$  features and unvalued  $\delta$ -features. These feature sets are linked and features cannot probe on each separately.

The agreement system of Ripano is similar to that found in Chichewa and other Bantu languages (Bresnan & Mchombo 1987) and partially recalls Dinka wh-agreement (van Urk 2015).

### 2.3 Some microvariational evidence

While agreement mismatch and gender-marking on the finite verb is only found in Ripano, topic-oriented agreement is quite widespread in the northernmost part of the upper-southern language area. The dialect of Arielli, about 100 km south of Ripatransone, shows omnivorous number agreement (D'Alessandro & Roberts 2010; D'Alessandro 2017). This means that the verb will agree with the plural argument, independent of whether it is a subject or an object. An example is given in (17):

- (17) a. Seme fitte            lu            pane.  
           are.PL made.PL.M the.SG.M bred.SG.M  
           ‘We baked bread.’  
       b. So        fitte        li        sagne.  
           am.1.SG made.PL the.PL tagliatelle.PL  
           ‘I made tagliatelle.’

In (17a), the verb agrees with the plural subject of the transitive verb *fa* ‘do’; in (17b) it agrees with the plural object of the same verb.

In Italo-Romance in general, the verb does not agree with an indirect object. Ariellese is no different in that respect. A sentence like (18), where the finite verb agrees with the indirect object, is ungrammatical:

- (18) \* So        **mannite** na lettere a **quille**  
           am.1SG sent.PL a letter to them  
           ‘I sent a letter to them.’

If, however, the indirect object is topicalized through clitic left-dislocation, agreement is suddenly possible:

- (19) Arielli  
       A quille, je                    so mannite na        lettere  
       to them them.CL.DAT am sent.PL a.SG.F letter.SG.F  
       ‘To them, I sent (them) a letter.’

Topic-oriented agreement is spreading across the whole area. This is why this seems a promising starting point to explain the Ripano patterns. One important point is that Ripano is in clear decline with respect to Italian, which has spread in the area, as in the rest of Italy, over the last 60 years. Many of the agreement endings are alternating between an Italian and an original Ripano version. Furthermore, there are some morpho-phonological rules that apply within the DP, studied among others by Paciaroni & Loporcaro (2018), and that make its morphology less transparent.

In what follows, I will try to provide a unified analysis of the agreement phenomena in Ripano.

### 3 Agreement in upper-southern Italian varieties

#### 3.1 A unified analysis

The agreement system of upper-southern Italo-Romance varieties is seemingly quite complex. We can start from the general observation that we see agreement in contexts in which we don't usually see it (i.e. adverbs and pronominal roots). In the case of Ripano, we need to ascertain at least two things. The first of these is what makes this agreement possible. This seems like quite a naïve question, the answer to which is "some  $\varphi$ -features", but if we wish to have a uniform theory of agreement we need to find evidence that these extra features exist.

The second issue is what is agreeing with what. We have already seen, in Section 1.2, conflicting evidence regarding what the adverbs are agreeing with. They seem to be able to agree both with the internal and with the external argument. This is an indication of the fact that agreement is not structure-driven, but rather information-structure driven. That this is the right approach is also suggested by the cross-dialectal data presented in Section 2.2.

To analyze the Ripano data I propose the following:

- Agreement on adverbs, gerunds, and other lexical items that are usually uninflected in Romance is possible in Ripano because of an extra set of unvalued  $\varphi$ -features, which are visible in most Italian varieties in different forms.
- Agreement, at least in Ripano, is information-driven. Specifically, for Ripano and neighbouring varieties, agreement is topic-oriented, i.e. driven by a  $\delta$ -feature on the Topic.

In what follows, I will first show how the extra feature set which has been proposed by D'Alessandro (2017) can account for these data. Then, I will show that agreement in Ripano is information-driven. Finally, I will propose a tentative unified analysis for argumental agreement as well as adverbial, verbal and prepositional agreement.

### 3.2 An extra $\varphi$ -set

In the Minimalist Program (Chomsky 1995) and in much of the subsequent literature, features are considered to be either interpretable or uninterpretable<sup>5</sup>, where interpretability needs to be understood roughly as “legible at the interfaces”. The only interface that actually counts for interpretability is LF, and much of the discussion on interpretability concerns *semantic* interpretation (see, for instance, Zeijlstra 2008). According to Zeijlstra (2008) et seq., a formal feature that also has semantic content will be interpretable; a formal feature that does not have semantic content will be uninterpretable, and will therefore need to be eliminated before it reaches the interface with the C-I system.

Interpretability is crucially linked to the feature host: number is for instance interpretable on nouns but not on verbs. A verb carrying uninterpretable features must get rid of them before it reaches the interface, or the derivation will crash.

This formulation of interpretability stems from the early Minimalist Program, which had at its core a morphemic view of the Numeration items, inherited from the Government and Binding Theory era. Derivations applied to morphemes, elements moved to incorporate morphemes (for example, early MP made use of Belletti's 1990 Generalized Verb Movement as a model). In contemporary views of syntax, uninterpretable features identify phase heads, and join the derivation in bundles, but work individually. Each feature probes by itself (but see Case, which is assigned under full Match/Agree according to Chomsky 2000). The phonological realization of features is a matter which is defined post-syntactically, at PF. Morphemes no longer come into the picture, in narrow syntax. Nevertheless, the problem of hosting features has remained, and selection and mapping are more than ever proving a difficult issue.

One issue which remains unaddressed is what happens to a bundle of unvalued/uninterpretable features without a host. Selection is usually category-driven. For instance, a verb selects a DP as its complement. But what happens if we have a bundle of uninterpretable features that are acategorical and yet need to be merged in the derivation? What is it merged to? At which point does it join the derivation?

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<sup>5</sup>I leave aside here the discussion of the relation between interpretability and valuation. For that, see Pesetsky & Torrego (2007), Zeijlstra (2008) and many others.

Where there is no obvious merging locus for a bundle of features, because they are acategorical, languages choose by themselves where to locate these elements. What I would like to propose here is that the merging locus of a bundle of unvalued features (which I call  $\pi$  following D'Alessandro 2017), is determined parametrically, as illustrated in Figure 1.

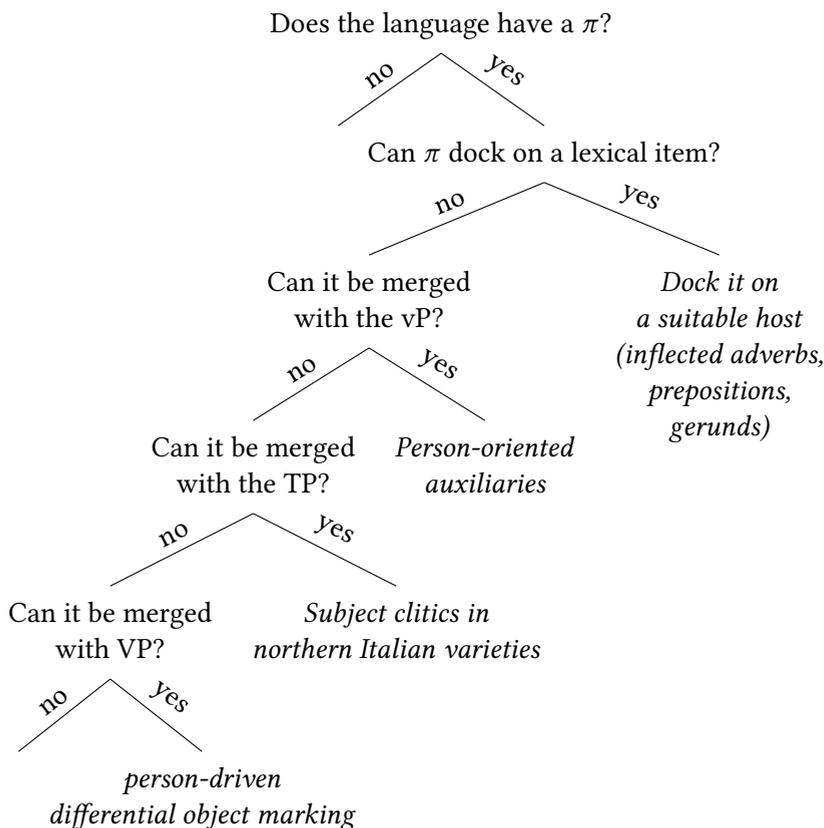


Figure 1: The locus of merger of  $\pi$  (for a similar idea in terms of parametric distribution of phi features see van der Wal to appear.)

In a recent article, D'Alessandro (2017) shows that some subject clitics (those that are not pronominal in nature) in northern Italian varieties and person-oriented auxiliaries in upper-southern varieties are two faces of the same coin: an extra uninterpretable  $\varphi$  bundle, which is realized as a subject clitic in northern varieties and as an auxiliary root in southern varieties. I leave aside the cases of  $\pi$ -merger with functional projections in this paper, as well as the multiple

occurrence of  $\pi$ , and concentrate on the cases in which  $\pi$  docks on lexical items and on T. This picture is quite rare in Romance, but it seems to be exactly what is going on in Ripano, as suggested by the agreement patterns we saw in Section 2.

## 4 Topic-oriented agreement

### 4.1 Directionality of agreement

Theories of agreement come in many different forms. In general, one feature that characterizes all theories of agreement regards its structural dependency: what agrees with what depends on the structure in which the elements appear. One of the hottest debates of recent years regards the directionality of the Agree operation: according to Chomsky's first formulation, Agree can be both probe-oriented and goal-oriented. In the early MP, agreement is linked to movement. The conditions for both to apply are the following:

- (20) Chomsky (1995: 257)
- $\alpha$  can target K only if:
- a. a feature of  $\alpha$  is checked by the operation
  - b. a feature of either  $\alpha$  or K is checked by the operation
  - c. the operation is a necessary step toward some later operation in which a feature of  $\alpha$  will be checked

When Agree is first conceived as an operation, no precise direction is established for it. In (2000) with *Minimalist inquiries*, Chomsky dissociates movement from agreement, and establishes that Agree takes place under c-command (in short, downwards). According to Zeijlstra (2012), Bjorkman & Zeijlstra (2019) and Wurmbrand (2012; 2014; 2017), however, this is wrong; data from negative concord, fake indexicals, and other phenomena show that Agree should take place “upwards”: not simply under a Spec-Head relation but in a reverse manner with respect to Chomsky's Agree, with a Goal c-commanding a Probe. Agreement under c-command is assumed also by the *feature sharing* model developed by Pesetsky & Torrego (2007) and Preminger (2012; 2013; 2014).

Many other definitions of agreement have been proposed through the years, from *Cyclic Agree* (Béjar & Řezáč 2009), which is substantially agreement à la Chomsky plus a re-projection that in practice allows probing upstairs, to bidirectional agreement (Bošković 2007 et seq.). In general, it is safe to say that unless we are dealing with a special set of data that require special extra postulations, general theories of agreement select one direction and stick to it.

Directionality is of course closely related to structural relations between agreeing elements. What matters is, for instance, that the probe and the goal are in a c-command relation.

In general, given that the arguments of the verb occupy well-defined positions at the moment of Transfer, one can safely link argumental positions to agreement sites.

One systematic exception to this agreement taxonomy is the topic position. While topics have been mentioned with respect to agreement phenomena in various ways (Bresnan & Mchombo 1987; Lambrecht 1981), agreement with topics has rarely been discussed. Topic agreement is identified as a kind of agreement, for instance, by Miyagawa (2017), according to whom  $\delta$ -features (discourse features) behave like  $\varphi$ -features: they enter agreement, and trigger movement.  $\delta$ -features are, however, different and distinct from  $\varphi$ -features. According to Miyagawa, there are languages in which  $\delta$ -features and  $\varphi$ -features appear/are percolated to the same head (for instance, in Spanish), but there is no causality between topichood and  $\varphi$ -agreement.

Miyagawa also discusses cases of  $\varphi$ -agreement with topics (most notably, the case of northern Italian varieties in (21)).

(21) Miyagawa (2017: 90)

Gli è venut-o dell-e ragazz-e  
SCL is.2SG come.PRT-SG.M some-PL.F girls-PL.F

'Some girls have come.'

He analyzes these data as involving movement of the subject to Spec,TP for  $\varphi$ -agreement reasons, which then results in agreement with the DP that has moved to Spec,TP, a topic position. If the DP subject stays in situ, the finite verb will fail to show agreement. Agreement is a consequence of movement, but there is no direct causality, for Miyagawa, between topichood and  $\varphi$ -agreement.

Regarding Romance, Jiménez-Fernández (2016) convincingly shows that *pro* is licensed in Spanish only if co-referential with a Topic (an aboutness shift topic<sup>6</sup>). I take this to be also a form of agreement with the topic.

An interesting proposal regarding agreement with wh- or topicalized phrases in Bantu comes from Carstens (2005), who observes the following agreement patterns in Bantu (see also van der Wal 2020 [this volume]):

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<sup>6</sup>I have not carried out a finer-grained analysis of the kinds of topics involved in agreement in this paper. I intend to perform some fieldwork looking at intonation, but at the moment I only have written sources and insufficient recordings to be able to ascertain the different kinds of topics in the clauses.

(22) Carstens (2005: 220)

- a. Bábo bíkulu b-á-kás-íl-é mwámí bíkí mu-mwílo?  
 2that 2woman 2SA-S-give-PERF-FV 1chief 8what 18-3village  
 ‘What did those women give the chief in the village?’
- b. Bíkí bi-á-kás-íl-é bábo bíkulu mwámí mu-mwílo?  
 8what 8CA-A-give-PERF-FV 2that 2woman 1chief 18-3village  
 ‘What did those women give the chief in the village?’

Carstens proposes a correlation between the presence of  $\varphi$ -features and the presence of an EPP on C, disentangling wh-agreement from movement. C has  $u\varphi$ -features, which enter Agree under c-command with a wh-phrase, which is subsequently moved to Spec,C. More precisely, she proposes the following generalization:

(23) Bantu  $\varphi_{EPP}$ :  $u\varphi$ -features have EPP features, in Bantu (Carstens 2005: 222)

Similar reasoning is found in Van Urk’s work on agreement in Dinka. Like Carstens, van Urk (2015) examines cases of C-agreement, and attributes them to the presence of  $\varphi$ -features on C (see also Haegeman & van Koppen 2012). One important element of Van Urk’s analysis is the V2 status of Dinka, allowing C to agree with wh-elements and topics. The verb shows agreement with these elements because C is  $\varphi$ -rich. This richness allows for V2 and also for wh- and topic agreement with the verb, which c-commands these elements (at some point in the derivation). The right configuration is required for agreement of this sort.

We can construct an analysis of Ripano along the same lines, bearing in mind that Ripano is a Romance dialect, and as such has V-to-T for finite verbs. An interesting piece of data regards agreement in C when the verb moves there (for instance, in interrogatives): I will show (in Section 4.6) that there used to be agreement between wh- and C, much like in Dinka. This agreement has now almost completely disappeared, but it has been documented in older attestations.

In what follows, it will be shown that:

1. The finite verb, as well as the participle, agrees with the topic, be it preverbal or postverbal (Section 4.2).
2. Preverbal and postverbal foci do not trigger agreement (Section 4.3).
3. If no topic is identifiable in the clause and the sentence has the canonical SVO order, agreement mismatch emerges (Section 4.4).

4. Topic agreement overwrites the featural specification of DPs (Section 4.5).
5. In the archaic variety, there used to be *wh*-agreement with the topic. That is no longer the case (Section 4.6).
6. Elements that usually don't inflect in Romance, like adverbs and gerunds, can inflect in Ripano (Section 5).

I argue that all these facts can be explained on the assumption that the extra  $\varphi$ -bundle on agreeing items comes with a Topic feature (a  $\delta$ -feature in Miyagawa's terms) in Ripano. The features of this bundle (saying "I want to agree with the topic") must be valued at once, all together, and overwrite any other agreement. The Topic holds a valued  $\delta$ -feature. Much like in Carstens' system, agreement with the Topic takes place because of this  $\delta$ -feature; the condition of simultaneous agreement with the whole bundle creates agreement with the Topic as a byproduct.

Let us first go back and examine the data more closely, and then see how they can be accounted for in Section 5. In this paper, we will follow the standard assumption that unvalued features are uninterpretable (but see Pesetsky & Torrego 2007 for a different view).

#### 4.2 Agreement with preverbal and postverbal topic

Wherever the topic is located, the verb will agree with it. Consider the following sentences:

- (24) Rossi (2008: 71)

So magnat-u l-e mənestr-e də paste e cicia.  
 am eaten-SG.M the-SG.F soup-SG.F of pasta and chickpeas  
 'I<sub>M</sub> ate a pasta and chickpea soup.'

- (25) Harder (1998: 394)

<p>a. Io tə ved-u.          I.M you.2SG see-SG.M          'I see you.'</p>	<p>b. Io və ved-i.          I.M you.2PL see-PL.M          'I see you<sub>PL</sub>.'</p>
--	---

- (26) Rossi (2008: 93)

L-u petrò e mannat-a l-e disdett-e a lu cuntedi.  
 the-SG.M lord be.3 sent-SG.F the-SG.F cancellation-SG.F to the farmer  
 'The owner sent the cancellation to the farmer.'

In (24), the subject is a topic, and both the copula and the participle agree with it (observe that in other Romance varieties the past participle does not agree with the subject; Belletti's (2005) generalization, but see D'Alessandro & Roberts 2010).

In (25), the verb agrees in gender and number with the cliticized object. This kind of agreement is only found in participles in the rest of Romance, and never on finite verbs. (26) illustrates instead the case of agreement with an object topic.

### 4.3 Focus does not trigger agreement

Recall that focused elements do not trigger agreement in Ripano. Consider again this contrast, reported by Paciaroni (2017):

(27) Paciaroni (2017: 9)

- a. Chi ride?  
Who laughs?'  
b. Rid-ə Gianni. (New Information Focus)  
laughs-3SG.MM Gianni.SG.M  
'Gianni is laughing.'

(28) Paciaroni (2017: 9)

- a. Che fa Gianni?  
'What does Gianni do?'  
b. Eh, rid-u Gianni (Topic)  
laughs-SG.M Gianni.SG.M  
'Eh, Gianni laughs.'

The contrast between these two sentences is very neat; in both cases the subject is postverbal, but in (27) it is a New Information Focus (Lambrecht 1981; Cruschina 2012; Frascarelli 2007), while in (28) it is a topic. Agreement does not take place simply via Agree, but has an extra component, linked to information structure.

Further evidence that Focus does not trigger agreement is offered again by Paciaroni (2017):

- (29) Manga N-U FRIKÍ a pagat-a/-ə/\*-u l-u bijetta.  
not even a-SG.M boy.SG.M has paid-N/MM/SG.M the-SG.M ticket.SG.M  
'Not one single boy has paid the ticket.'

Neither new information focus nor contrastive focus trigger agreement in Ripano.

#### 4.4 Agreement mismatch

If no topic is identifiable, or no element is salient in the clause, agreement in transitive clauses features a mismatch ending (D'Alessandro 2017). The data are illustrated in (30).

- (30) Mancini (1988/1997: 107)
- a. Babbu dicə le vərità.  
 dad.SG.M say.3SG.MM the.SG.F truth.SG.F  
 'Dad tells the truth.'
- b. So magnatə lu pani'.  
 am eaten.MM the.SG.M breadroll.SG.M  
 'I<sub>F</sub> have eaten the breadroll.'

I will start from the syntax of these clauses to outline an analysis for Topic-oriented agreement. This pattern will be analyzed along the lines proposed in D'Alessandro (2017), which will be illustrated in detail in Section 5. D'Alessandro (2017) argues for the existence of a Complex Probe in Ripano, a sort of scattered *v* head simultaneously probing for both arguments. This Complex Probe will receive its exponent at PF.<sup>7</sup> If the feature values on the two heads that form the Complex Probe are conflicting, a reduced ending (-ə) will be inserted at PF, signalling that there is feature mismatch between the arguments.

#### 4.5 Agreement stacking

Topic-oriented agreement overwrites the agreement ending of a noun. In Ripano, like in the rest of Romance, nouns are morphologically marked for number and gender. When agreement with a Topic is involved, it overwrites these endings, in what I wish to call AGREEMENT STACKING.

- (31) a. C'-aju fam-u / set-u / furj-u.  
 EXPL-have.1SG.M hunger.F-SG.M thirst-SG.M hurry-SG.M  
 'I<sub>M</sub> am hungry/thirsty/in a hurry.'
- b. C'-aje fam-e / set-e / furj-e.  
 EXPL-have.1SG.F hunger.F-SG.F thirst-SG.F hurry-SG.F  
 'I<sub>F</sub> am hungry/thirsty/in a hurry.'

<sup>7</sup>One reviewer asks what mechanism is at play at PF telling morphology that two or three heads constitute a complex Probe. I would like to argue that the mechanism is the same that is at work in inflectional languages when morphology has one exponent for more than one head (like, in Italian, -o is the exponent for 1SG.PRES.IND).

Agreement stacking is particularly interesting as it offers an insight into the featural composition of lexical items. As stated above, the words *hunger*, *hurry*, *thirst*, etc. are feminine. This can be seen when they are uttered in isolation; they are also listed as feminine in the dictionary, and they are feminine in Italo-Romance languages. The fact that they inflect suggests that  $\pi$  agreement with the Topic (in this case, the subject) overwrites the lexical ending. We can think of this process in two ways: the first is to posit some sort of embedded DP, along the lines of Case-stacking (McCreight 1988; Nordlinger 1998; Merchant 2006; Richards 2013; Pesetsky 2013). The other is to assume that inflection works at head level (or at word level), not at phrase level. This second option correctly accounts for DP agreement stacking cases, as well as for PP and numeral phrases. There, agreement is clearly visible on the head:

(32) Lambertelli (2003: 30)

- |                                    |                              |
|------------------------------------|------------------------------|
| a. Sema ott <sup>8</sup> femmen-a. | b. Semi ott-i maschia.       |
| are.PL.F eight.PL.F woman-PL.F     | are.PL.M eight-PL.M men.PL.M |
| ‘We are eight women.’              | ‘We are eight men.’          |

Agreement is thus merged directly with the word root, not at DP level.

#### 4.6 C-agreement in the archaic variety

In the archaic version of the dialect, cases of agreement with *wh*- elements are attested. Some speakers still use these forms:

(33) Mancini (1993 quoted in Ledgeway 2006: 4)

- |                                     |                                      |
|-------------------------------------|--------------------------------------|
| a. Ndov-u va?                       | b. Ndov-i va?                        |
| where-SG.M go                       | where-PL.M go.3                      |
| ‘Where are you <sub>M</sub> going?’ | ‘Where are they <sub>M</sub> going?’ |

- |                                    |                                    |
|------------------------------------|------------------------------------|
| (34) a. Komm-u te siend-u?         | b. Komme te siend-e?               |
| how-SG.M you.ACC feel-SG.M         | how-SG.F you.ACC feel-SG.F         |
| ‘How do you <sub>SG.M</sub> feel?’ | ‘How do you <sub>SG.F</sub> feel?’ |

---

<sup>8</sup>The author elides the final vowel, probably because of phonological clash with the next vowel. The underlying vowel is arguably *-a*.

(35) Lambertelli (2003: 54)

- |  |  |
|--|--|
| <p>a. Quand-u            cost-u?<br/> how.much-SG.M cost-3SG.M<br/> ‘How much does it<sub>SG.M</sub> cost?’</p>  | <p>c. Quand-e            cuost-e?<br/> how.much-SG.F cost-3SG.F<br/> ‘How much does it<sub>SG.F</sub> cost?’</p> |
| <p>b. Quand-i            custet-i?<br/> how.much-PL.M cost-2PL.M<br/> ‘How much do you<sub>PL.M</sub> cost?’</p> | <p>d. Quand-a            custet-a?<br/> how.much-PL.F cost-2PL.F<br/> ‘How much do you<sub>PL.F</sub> cost?’</p> |

These sentences are recognized as Ripano by most speakers, but are also no longer in use in the modern dialect. These data are of great value, as they suggest a situation similar to that found in Dinka or in various Bantu languages, with C featuring a  $\varphi$ -set. For Ripano, this was probably also the case historically. The Ripano system has now moved towards a more “standard” Romance system, exhibiting  $\varphi$ -features on T. These data also show some sort of diachronic proof for feature inheritance. Ripano is not so exceptional (if compared with non-Romance languages). What we know so far is that agreement takes place with topics in Ripano; that there used to be at least some form of C-agreement; and that foci do not trigger agreement. Let us now turn to the analysis of the data, in Section 5.

## 5 Agreeing with topics

### 5.1 The complex probe

This section outlines an analysis of topic-oriented agreement. However, I will summarize first the analysis for declarative SVO sentences in Ripano that present agreement mismatch. I will then use that analysis as a basis for an account of topic-oriented agreement. Recall that Ripano displays agreement and mismatch marking ( $-\partial$ ) on the finite verb, as well as the participle, when the internal and external argument have conflicting feature values. D'Alessandro (2017) proposes that this is due to two factors:

1. The presence of an extra unvalued feature bundle ( $\pi$ ), which is present in all Italo-Romance varieties.
2. The fact that this  $\pi$  forms a Complex Probe with v.

A Complex Probe is defined as follows:

- (36) Complex probe: Given two heads  $F_1$  and  $F_2$ , where  $F_1$  immediately dominates  $F_2$ ,  $F_1$  and  $F_2$  constitute a complex probe if they share their  $\varphi$ -features and these  $\varphi$ -features are unvalued. (D'Alessandro 2017: 24).

In a sentence like (37),  $\pi$  and  $v$  form a Complex Probe (meaning that they are a discontinuous head which will receive one exponent at PF).

- (37) Ripano (Mancini 1988/1997: 107)  
 Babb-u dicə le vərɪtə  
 dad-SG.M says.3SG.N the.SG.F truth.SG.F  
 'Dad tells the truth.'

(37) is analyzed as in Figure 2.

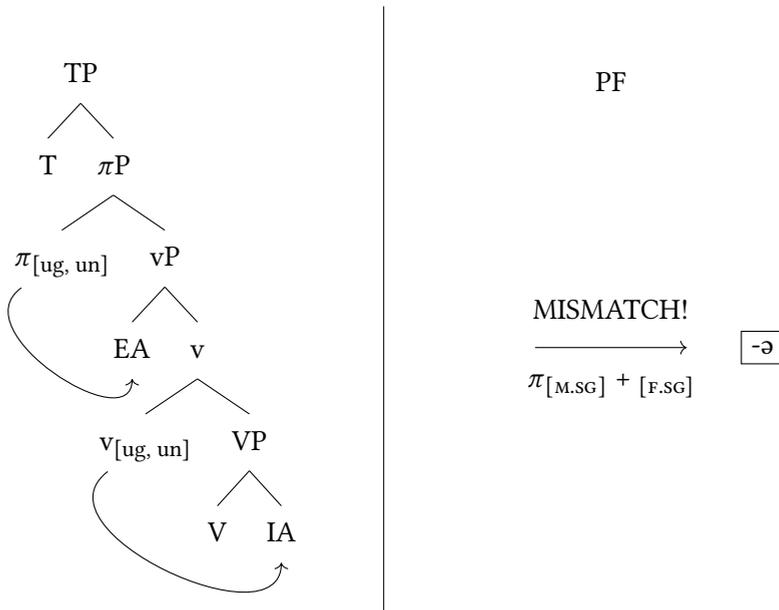


Figure 2: Tree diagram of 37 (from D'Alessandro 2017: 27)

In (Figure 2),  $\pi$  and  $v$  probe the internal and the external argument simultaneously. This happens in SVO sentences with no clearly marked topic. At PF, if the features are conflicting (like in the case of 39), an agreement mismatch marker is inserted. What is also crucial is that the Complex Probe docks on T. In Ripano, like in the rest of Romance, and as proposed for Abruzzese in D'Alessandro &

Roberts (2010), T also has an unvalued feature set. This set is overwritten by the values of the Complex Probe.<sup>9</sup> In the case of sentences with a Topic, I propose that  $\pi$  includes an unvalued  $\delta$ -feature, which needs to be valued by the  $\delta$ -feature of the Topic. This feature combination ( $\delta + \varphi$ ) overwrites other endings. Let us see how this happens in more detail.

## 5.2 The topic is the external argument

Topic agreement and  $\varphi$ -agreement are strictly linked in Ripano if, as I have argued, agreement is Topic-oriented. If an argument is not marked as Topic, agreement will follow the structural Agree pattern, with agreement mismatch or agreement of the finite verb with the subject, depending on the verb class. Following Miyagawa (2017) I assume that topics involve a  $\delta$ -feature (discourse).<sup>10</sup> Miyagawa shows that in what he calls group-D languages, like Spanish,  $\delta$ -features and  $\varphi$ -features are both inherited by T from C. Ripano shows diachronic evidence for this kind of inheritance (see Section 4.6). I have proposed that in a sentence where a Topic is present  $\pi$  has an extra  $\delta$ -feature. This  $\delta$ -feature, a discourse feature, forces the resolution of agreement at PF as “agree with the Topic”. D'Alessandro (2017) presents the following data, which are left unexplained in that paper.

- (38) *pro* So rlavatə le camisce.  
 pro.1SG.M be.1SG washed.N the.SG.F shirt.SG.F  
 ‘I<sub>M</sub> washed the shirt.’
- (39) \*/# *pro* So rlavatu le chemisce.  
 pro.1SG.M be.1SG washed.SG.M the.SG.F shirt.SG.F  
 ‘I<sub>M</sub> have washed the shirt.’

The sentence in (39) does not present a structural agreement mismatch, but shows the finite verb agreeing with the subject. If the subject is a Topic, this will mean that the  $\pi$  bundle contains a  $\delta$ -feature, which is forced to agree with the Topic. It is crucial that  $\pi$  in Ripano also includes an unvalued topic feature  $u\delta$ , which needs to be valued against a topic. When this probe enters agreement with a topic, the whole bundle will be valued according to the topic features.  $\pi$  in Ripano is hence [ $u\delta$ ,  $uN$ ,  $uG$ ]. This is what happens in the case of (39).

<sup>9</sup>In D'Alessandro (2017)  $\pi$  incorporates on T, in a clitic-like incorporation. This kind of clitic-like docking is proposed because of a parallel between some auxiliary selection patterns and subject clitics. For the present purposes, it does not really matter how the Complex Probe docks on T. What matters is that its feature values overwrite those that would normally appear on T.

<sup>10</sup>Observe that Miyagawa uses the shorthand  $\delta$ -features to refer to any discourse-related feature. Here, I use  $\delta$ -feature to refer to topics, but not to foci.

Let us consider the sentence in (40), where the subject is clearly a topic:

- (40) Rossi (2008: 86)  
 Tu    nghe mme ti    pij-u    tropp-e    cunfidenz-e.  
 you.M with me    REFL take-SG.M too.much-SG.F confidence-SG.F  
 ‘You take too much liberty with me.’

The featural setup of the relevant elements is as follows:

- (41)  $tu$  [ $\delta$ , N:SG, P:2, G:M]  
 T [T:pres, M:indicative, uN, uP]  
 $\pi$  [u $\delta$ , uN, uG]  
 v [uN, uG]

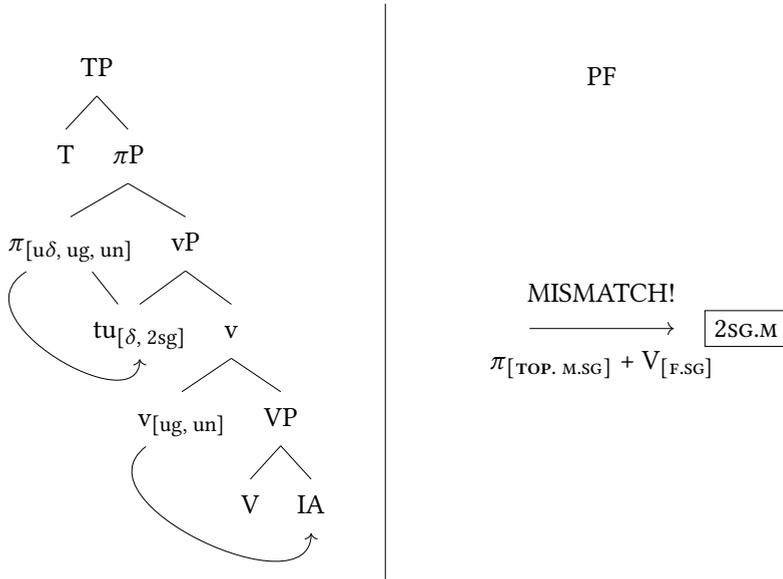


Figure 3: Tree diagram of 41

The relevant part of the derivation is illustrated in Figure 3. In Figure 3 the featural mismatch is resolved in terms of the Topic. If a Topic is present, the Complex Probe will agree with it. T also probes for the external argument, and its features are valued accordingly. Once the Complex Probe docks on T, however, its features will overwrite those of T (as happens normally in Ripano). The only difference between Topic-oriented agreement and argumental agreement

mismatch is that the  $\pi$ - $v$  complex will have a different resolution for the featural value: that of both arguments, if they have conflicting values and no information structure is available, or that of the Topic, if they have conflicting values and information structure is available. It is not obvious why a feature bundle containing a Topic  $\delta$ -feature should override the one signalling featural mismatch. One explanation might lie in the fact that the marker of agreement mismatch is  $-\partial$ , which is a neutralized vowel. Agreement with the Topic is instead agreement with a full(er) feature set, and has a more specific marker. This competition between two morphemes is probably won by the most specific marking by virtue of an Elsewhere Principle.

### 5.3 The topic is the internal argument

Let us now look at the case in which the topic is an object in situ.

Consider the examples in (42) and (43):

(42) Rossi (2008: 59)

C'-evie set-u e mə so fatt-a n-e bbəvut-e ...  
EXPL-had thirst-SG.M and REFL.1 am made-SG.F a-SG.F drink-SG.F  
'I was thirsty and I drank...'

(43) Rossi (2008: 87)

L-u preta cunzacr-e ll'-ostia.  
the-SG.M priest.SG.M consecrate-3SG.F the-host.SG.F  
'The priest consecrates the Host.'

In these examples there is agreement with the object in situ, which is a topic. The topic object exhibits a  $\delta$ -feature, which is c-commanded by everything else. Once again, the Complex Probe probes for both the external argument and the internal argument simultaneously. Since there is a  $\delta$ -feature on the object, the featural conflict at PF will be resolved in its favour, and the Complex Probe will result in an inflectional ending agreeing with the topic (the object, in this case).

### 5.4 Feature spreading/vowel harmony?

The featural setup of the Topic and the Complex Probe could be only one part of the story. We have convincing evidence that Topic-oriented agreement overwrites the featural values of T. It should be added that the situation is not as straightforward as has been presented here, as the inflectional endings of Ripano are shifting significantly through contact with Italian. Contact with Italian has,

for instance, caused the gender marking on some nouns to shift. Feminine singular nouns, marked with *-e* in Ripano, sometimes appear with *-a*, which is the Italian marker for feminine singular. Furthermore, some masculine nouns end in *-a* in Ripano. While these nouns always take the masculine singular article *lu*, the agreement they trigger when they are topicalized sometimes surfaces as *-a*, as shown in (44):

- (44) Rossi (2008: 113)  
 Giggì m’-è data ‘ne bbòtte de ommeta senza  
 Gigi.sg.M me-is given.SG.F a.SG.F blow.SG.F of elbow.SG.M without  
 ccorge-s-a.  
 realizing-REFL-SG  
 ‘Gigi has given me a blow with his elbow without realizing.’

In (44) it is very difficult to understand what is agreeing with what. *Data* is definitely feminine, but with a “modern”/Italian ending. It is agreeing with the object *bbotte*. *Ommeta* is masculine (*lu ommeta*) but it has an *-a* ending (probably a residue of a neuter/dual). The reflexive verb shows an *-a* ending, as a result of the spreading from *ommeta* or from *botte*. In any case, we would expect a masculine there, but we find a feminine or, at best, a neuter/masculine. This piece of data shows, I think, that there is a sort of inflectional harmony going on in the language. While structural agreement explains most of the agreement patterns we find, we sometimes see a sort of spreading of the morphological ending rather than of the feature values. Spreading of a surface form, rather than copying of feature values, is a sort of agreement which has been postulated for adjectives, for instance, and is often called concord. It could be the case that Ripano agreement is shifting forward, because of contact with Italian. Table 3 shows the stages of agreement systems that we seem to find in Ripano.

Regarding Stage D: adjectival agreement/concord usually takes place within a given domain. In the Italian sentence in (45) the feminine singular of *casa* spreads in all directions but only within the DP; the participle *comprato* is masculine singular, and is not affected by concord.

- (45) Ho comprato [una bella casa nuova]

In the case of Ripano,  $\delta$  is present on the Topic head by definition, and therefore the topic agreement domain includes at least the head marked as Topic. In general, from sentences like (42) here repeated as (46), it seems safe to say that the spreading domain is the clause, although PPs constitute an exception, as will be shown in Section 5.6.

Table 3: The stages of agreement systems in Ripano

Structural agreement	> Topic-oriented agreement	> Vowel harmony and Concord
<p><i>Stage A.</i> wh-agreement/ T agreement (<math>\varphi</math>-features on both C and T, agreement under closest c-command) &gt; <i>Stage B.</i> argumental agreement (<math>\varphi</math>-features on T and <math>\pi</math>, no longer on C; agreement mismatch marking)</p>	<p><i>Stage C.</i> <math>\varphi</math>-features on T-v, but different resolution of agreement mismatch; the Topic wins; argument structure is less relevant than information structure.</p>	<p><i>Stage D.</i> Feature spread from the Topic in a sort of adjectival agreement concord. It is not the featural value which is copied, however, but the morpheme/vowel itself.</p>

(46) Rossi (2008: 59)

C'-evie set-u e mǝ so fatt-a n-e bbəvut-e ...  
 EXPL-had thirst-SG.M and REFL.1 am made-SG.F a-SG.F drink-SG.F  
 'I was thirsty and I drank...'

Recall that in archaic varieties it was possible to find wh-agreement as well (and Ripano, like all Italo-Romance varieties with some exceptions, has wh-movement). For that grammar, the agreement domain was the entire clause. For modern Ripano, agreement spans from the VP to at least the TP.

(47) C T v V

Ripano agreement is in continuous evolution; while the first stages of evolution were mainly due to syntax-internal reasons, the loss of  $\varphi$ -features in C and the creation of an extra  $\varphi$ -head ( $\pi$ ), the last stage, spreading, should probably be attributed to intense contact with Italian. For a thorough discussion of Concord and agreement within the DP, as well as harmony, see Paciaroni (2017).

### 5.5 Adverbial agreement

We have seen that adverbs can also show agreement in Ripano, as illustrated in example (1), here repeated as (48).

- (48) Burroni et al. (2016: 8)
- a. Iss-u    ha        rispost-u        mal-u  
    he-3SG.M have.3SG answer.PTC-SG.M badly-SG.M  
    ‘He answered badly’
  - b. Ess-e    ha        rispost-e        mal-e  
    she-3SG.F have.3SG answer.PTC-SG.F badly-SG.F  
    ‘She answered badly’
  - c. Iss-i    ha        rispost-i        mal-i  
    they-3PL.M have.3PL answer.PTC-PL.M badly-PL.M  
    ‘They answered badly’
  - d. Iss-a    ha        rispost-a        mal-a  
    they-3PL.F have.3PL answer.PTC-PL.F badly-PL.F  
    ‘They answered badly’

(48) is an impressive example of agreement across-the board. Every element in the clause agrees with the topic. This tells us two things. First,  $\pi$  is not limited to only one instance, but can appear on several elements. Second, once again the value of  $\pi$  overwrites the value of the lexical endings. Let us see how adverbial agreement works. A sentence like (48d), for instance, is derived as in Figure 4, assuming once again that the feature spreading/Concord takes place within the TopP.

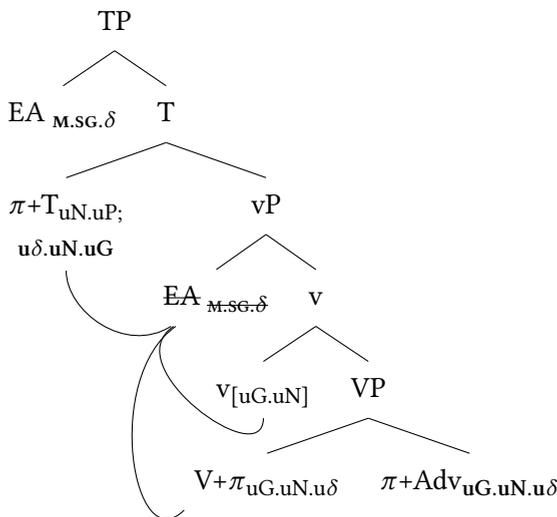


Figure 4: The values of the external argument (topic) get copied onto all  $\pi$ s present in the clause

Once a topic has been identified, its feature values will be copied on all elements in the clause that host a  $\pi$ .

## 5.6 Agreement within the PP

The same mechanism accounts for agreement on gerunds and *wh*-elements (in the archaic variety). An interesting exception seems to be offered by prepositions; while it is often the case that PPs are inflected for gender and number, their Concord domain seems to be the PP itself. We have seen examples (6) and (7) (here repeated as 49–50) where prepositions agree with their complement. From these examples, however, it is not clear whether agreement happens within the clause:

- (49) Ledgeyway (2012: 309)
- a. Sottu        lu        tavuli  
   under.SG.M the.SG.M coffee.table. SG.M  
   ‘under the coffee table’
  - b. sottu        le        sedie  
   under.SG.F the.SG.F chair.SG.F  
   ‘under the chair’
- (50) Lambertelli (2003: 54)
- a. è    bianghe    comm-e n-e    spos-e.  
   be.3 white-SG.F as-SG.F    a.SG.F bride-SG.F  
   ‘She is white like a bride.’
  - b. è    nir-u        comm-u l-u        cherv-ò.  
   be.3 black-SG.M like-SG.M the-SG.M coal-SG.M  
   ‘He is black like coal.’
  - c. è    biang-a    comm-a l    spos-a.  
   be.3 white-PL.F as-PL.F    the bride-PL.F  
   ‘They are white like brides.’
  - d. è    nir-i        comm-i l-i        cherv-ù.  
   be.3 black-PL.M like-PL.M the-PL.M coal-PL.M  
   ‘They are black like coals.’

The examples in (50) are especially unfortunate, as there is no mismatch between the features of the subject and those of the complement of the prepositional adverb. That PPs constitute their own agreement domain is shown, however, by sentences like the following:

(51) Lambertelli (2003: 78)

Comma sembra, er-e chepit-e d-e sol-e chə sə  
 as always be.IMPF-3.F understood-SG.F of-SG.F alone-SG.F that REFL  
 vəliev-u scallà n-e occ-e də vì dop-a  
 wanted.IMPF-3SG.M warm.INF a-SG.F drop-SG.F of wine.SG.M after-N  
 magnat-a  
 eating-N

‘As usual, she had understood that he wanted to warm up some wine for himself after dinner.’

This sentence is a masterpiece of Ripano agreement. The prepositional adverb *comma* (‘like’) agrees with *sembra* (‘always’), which is found here in its basic citation form, although it can inflect (see example 3). The subject is feminine (it is a woman called *Cucumm’le*, in the story), and it triggers agreement on the auxiliary, on the participle, and on the adpositional noun. The finite verb *vəlievu* agrees with the subject (*Giuseppe*, a man, in the story). The object is feminine and does not trigger agreement with anything. The prepositional adverb *dopa* agrees with *magnata*, a “neuter” form. We know that *dopa* can inflect from the existence of sentences like (52), mentioned in Ledgeway (2012).

(52) Ledgeway (2012: 309)

a. dop-u l-u ddi  
 after-SG.M the-SG.M day.SG.M

‘after the day’

b. dop-e l-e nott-e  
 after-SG.F the-SG.F night-SG.F

‘after the night’

Prepositions thus probe within their own domain, and tend to agree with their complement.

## 6 Conclusions

This paper has presented some novel data on an agreement pattern found in Ripano, a dialect spoken in central Italy. In Ripano, lexical items that are usually invariable in Romance show inflection. These elements tend to agree with the topic, within the clause. Ripano also shows peculiar argument agreement patterns: the verb does not agree with a fixed argument depending on the verbal class, but

with the topic. If no topic/most prominent element in the clause is identifiable, the verb shows an agreement mismatch ending in transitive sentences, and with the subject in intransitive sentences. These agreement facts have been accounted for by showing that, like in other Italo-Romance varieties, Ripano exhibits lexical items made up of pure  $\varphi$ -feature bundles, which in the case of this particular language can dock on many elements in the clause (gerunds, prepositions, wh-elements, finite verbs). The existence of this extra probe, which also contains an unvalued topic feature forcing it to agree with the topic, creates these surprising (for Romance, at least) agreement patterns.

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## Chapter 9

# Long distance agreement and information structure

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In this paper, I discuss a specific subtype of long distance agreement (LDA), namely agreement across a finite (CP) clause boundary. I show that most, if not all, instances of LDA depend on information-structural properties of the agreement target in the embedded clause, be it for cross clausal object agreement or case assignment. After discussing LDA in unrelated language families, I argue that LDA is possible due to a complex probe in the left periphery containing information-structural features bundled with  $\phi$ -features. This probe serves as an intermediate agreement step between a verb in the matrix clause and the information-structurally marked element in the embedded clause, so that LDA does not violate the phase impenetrability condition.

## 1 Introduction

Long distance agreement (LDA) in general refers to a syntactic dependency by which certain features, usually  $\phi$ -features, of a probing head depend on features of a non-local constituent, i.e. a constituent not in the specifier of the probing head (Bhatt & Keine 2016). While long distance agreement provides a strong argument for the operation of AGREE as formulated in Chomsky (2000; 2001), and further refined in Pesetsky & Torrego (2007), which does not rely on local specifier-head agreement, several sub-cases of long distance agreement need to be distinguished.

- (1) AGREE (Pesetsky & Torrego 2007: 268)
  - a. An unvalued feature F (a probe) on a head H at syntactic location  $\alpha$  ( $F_\alpha$ ) scans its c-command domain for another instance of F (a goal) at location  $\beta$  ( $F_\beta$ ) with which to agree.



- b. Replace  $F_\alpha$  with  $F_\beta$ , so that the same feature is present in both locations.

The three cases of LDA that need to be distinguished differ from each other with respect to the distance between probe and goal. Those two elements can either be part of the same clause, separated by a non-finite clause boundary or by a finite one. The first case of LDA can be exemplified by quirky subjects in Icelandic or object agreement in Zulu. The example in (2) from Zaenen et al. (1985) shows that in sentences with non-nominative subjects, a nominative object controls verbal agreement. Importantly, this nominative object is most likely not in the specifier of the projection that hosts *voru* and thus, qualifies as a case of LDA.

- (2) Icelandic (Zaenen et al. 1985: 460)  
 Konunginum voru gefnar ambáttir.  
 the.king.DAT were given.F.PL maidservants.NOM.F.PL  
 ‘The king was given female slaves.’

The second type, in which probing head and agreement target are separated by a non-finite clause boundary, can be found in English. In raising constructions, an expletive can be inserted in matrix subject position instead of raising the embedded subject. However, the embedded subject still controls agreement on the matrix verb.<sup>1</sup>

- (3) a. Two men seem to be in the garden.  
 b. There seem to be two men in the garden.  
 c. \* There seems to be two men in the garden.

This type of cross-clausal long distance agreement, i.e. agreement into a non-finite clause, is present in several languages and has frequently been discussed in the literature. Thus, this type of agreement can be found in, among others, Hindi-Urdu (Bhatt 2005, 4a), Godoberi (Haspelmath 1999, 4b), or Basque (Preminger 2009).

- (4) a. Hindi-Urdu (Bhatt 2005: 760)  
 Vivek-ne [ **kitaab** pərh-nii ] chaah-ii.  
 Vivek-ERG **book.F** read-INF.F want-PFV.F.SG  
 ‘Vivek wanted to read the book.’  
 b. Godoberi (Haspelmath 1999: 136)  
 [ wašu-di **quči-be** r-al-u ] r-uL-i.  
 boy-ERG **book-PL.ABS** PL.N-read-CVB.PST **PL.N-finish-AOR**  
 ‘The boy finished reading the books.’

<sup>1</sup>Two reviewers point out that examples like (3c) are possible in certain registers of English.

If long distance agreement into a non-finite clause is analysed as being based on a restructuring configuration (Wurmbrand 2001), i.e. a configuration consisting of a full-fledged matrix clause and a truncated, smaller embedded clause, the two types of long distance agreement discussed so far do not challenge the locality of the agreement process in (1), since neither violates the strong version of the Phase-Impenetrability Condition in (5).

(5) *Phase-Impenetrability Condition (PIC)* (Chomsky 2001)

In a phase  $\alpha$  with head H, the domain of H is not accessible to operations outside  $\alpha$ , only H and its edge are accessible to such operations.

If phases are assumed to be at least CP and vP and if restructuring involves embedding clause smaller than CP, then agreement into a clause smaller than a CP does not violate the PIC.

The last and most surprising possibility of long distance agreement concerns instances in which probe and goal of the agreement process are separated by a finite CP boundary, and thus constitutes a clear violation of the PIC.<sup>2</sup> Examples for this type of LDA are rather rare but can be found in at least three different language families, namely in some of the Nakh-Dagestanian languages spoken in the north-eastern Caucasus region, in certain Algonquian languages spoken in North America, and in at least one Altaic language.

In those languages it is possible that, in certain circumstances, an argument of an embedded finite CP determines agreement on the matrix verb. In this paper, I will be concerned with the conditions in which this kind of long distance agreement can take place. I will argue that the crucial factor for LDA is that the embedded agreement goal is information-structurally marked, either as topic or as focus. This will also enable an analysis of the phenomenon compatible with PIC by agreement through the edge of the CP based on information-structural features, analyzing LDA as successive cyclic agreement comparable to successive cyclic wh-movement. In the discussion of LDA, an interesting generalization will emerge, namely that languages that allow LDA, allow it either for topics alone or for topics and foci, not however for foci alone.

The paper is structured as follows: I will first introduce the relevant phenomenon of LDA in more detail in Section 2 before I turn to previous analysis and their respective problems in Section 3. In Section 4, I develop my analysis and Section 5 concludes the paper.

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<sup>2</sup>This presupposes that AGREE is subject to the same restrictions as movement. This is not undebated, see Bošković (2007a,b).

## 2 LDA crosslinguistically

Long distance agreement of the kind I am interested in in this paper is typologically much rarer than the other two types, but can be found in at least three different and unrelated language families. In this section, I am going to present the relevant data, pointing out the specific properties of the construction in the various languages based on the available literature, the properties any theory of LDA should be able to account for. First, the most well-known example, Tsez, will be presented, together with data from two other Nakh-Dagestian languages, Hinuq and Khwarshi. Second, I will present data from the Algonquian languages Blackfoot, Innu-aimûn, and Passamaquoddy. In the last subsection, I will present data from an Altaic language, Uyghur, which displays a slightly different type of LDA, not based on  $\phi$ -features but mostly on case.

As will become clear in this chapter, all languages share one important property: long distance agreement always takes place between an element of a higher phase and an information-structurally marked element of the lower phase. This information-structural marking will be at the heart of the analysis developed in Section 4.

### 2.1 Nakh-Dagestian languages

In their seminal paper, Polinsky & Potsdam (2001) discuss LDA in the Nakh-Dagestian language Tsez. The basic paradigm is given in (6).

(6) Tsez (Polinsky & Potsdam 2001: 584)

- a. Eni-r            [ uḷā **magalu**        b-āc'ruḷi ] **b-iy-xo**.  
mother-DAT [ boy **bread.III.ABS** ate        ] III-know-PRS  
'The mother knows that, as for the bread, the boy ate it.'
- b. Eni-r            [ uḷā **magalu**        b-āc'ruḷi ] **r-iy-xo**.  
mother-DAT [ boy **bread.III.ABS** ate        ] IV-know-PRS  
'The mother knows that the boy ate the bread.'

In this ergative, verb-final language, only absolutive arguments determine agreement. As can be seen in (6a), it is possible that the absolutive argument of the embedded clause determines noun class agreement on the matrix verb. As the translations of (6) suggest, this is only possible if the embedded absolutive argument is interpreted as a topic; if it is not, the matrix verb shows default agreement (noun class IV). One possible solution to this problem would be to assume that 'bread' in (6) was actually scrambled into the matrix clause. However, as Polinsky

& Potsdam (2001: 590) point out, Tsez does not show independent evidence for cross-clausal scrambling. Thus, the agreement pattern in (6) constitutes an apparent violation of the PIC. The topic status of the agreement target can further be confirmed with overt topic marking, which is generally optional in Tsez. If the embedded absolutive is overtly topic marked, LDA becomes obligatory (7a). Furthermore, LDA is impossible with a focussed absolutive in the embedded clause (7b).

(7) Tsez (Polinsky & Potsdam 2001: 610–611)

- a. Eni-r [ uʒā magalu-n/gon b-āc'ruʃi ] b/\*r-iy-xo.  
 mother-DAT [ boy bread.III.ABS-TOP ate ] III/IV-know-PRS  
 'The mother knows that, as for the bread, the boy ate it.'
- b. Eni-r [ t'ek-kin y-igu yāʃruʃi ] r/\*y-iy-xo.  
 mother-DAT [ book.II.ABS-FOC II-good be ] II/IV-know-PRS  
 'The mother knows that the BOOK is good.'

The authors show that this agreement indeed crosses a clause boundary and that there is neither movement into the matrix clause nor a covert *pro* co-referent with the embedded absolutive in the matrix clause. More important for the present purpose, there are further restrictions on long distance agreement in Tsez. Non-absolutive topics, either fronted or marked by a topic particle, block LDA.

(8) Tsez (Polinsky & Potsdam 2001: 636)

- Enir [ huʃ uʒā magalu bāc'ruʃi ] \*b/r-iy-xo.  
 mother [ yesterday boy bread.III.ABS ate ] III/IV-know-PRS  
 'The mother knows that, yesterday, the boy ate it.'

Non-absolutive *wh*-words, in situ or ex situ, also block LDA. Unfortunately, the absolutive *wh*-word *šebi* 'who, what' shows class IV agreement which cannot be differentiated from agreement with the whole embedded clause/default agreement.

(9) Tsez (Polinsky & Potsdam 2001: 634)

- Enir [ ʃu micxir b-ok'ākruʃi ] \*b/r-iy-xo.  
 mother [ who.ERG money.III.ABS III-stole ] III/IV-know-PRS  
 'The mother knows who stole the money.'

D-linked *wh*-words in Tsez belong to different classes and can consequently be used to test the availability of LDA with *wh*-elements. And indeed, d-linked *wh*-elements can trigger long distance agreement.

- (10) Tsez (Polinsky & Potsdam 2001: fn. 20)  
 Enir [ *šebi* y-āk'iru-*ti* ] y-iy-x-ānu.  
 mother [ **wh.II.ABS** II-went-C ] II-know-PRS-NEG  
 'The mother does not know who [of women] left.'

Lastly, LDA is also blocked by the presence of the overt complementizer *-λin* (11). In contrast, the complementizer *-ti* does not block LDA, as can be seen from the previous examples.

- (11) Tsez (Polinsky & Potsdam 2001: 635)  
 \* Enir [ *užā magalu* b-āc'-si-**λin** ] b-iy-xo.  
 mother [ boy **bread.III.ABS** III-eat-PST.EVID-C ] III-know-PRS  
 int.: 'The mother knows that, as for the bread, the boy ate it.'

The fact that the two complementizers behave differently is puzzling at first glance. Polinsky & Potsdam (2001: fn 19) suggest that *ti* should not be treated as a complementizer at all but rather as a derivational suffix. A different possibility would be to assume that the two complementizers occupy different positions in a complex left periphery, as has been proposed for Italian (Ledgeway 2005). For the analysis to be presented in Section 4, it is only important to note that at least one type of complementizer blocks LDA.

Long distance agreement in the Nakh-Dagestanian languages is not just restricted to Tsez but also present in at least two other related languages, namely Khwarshi and Hinuq.<sup>3</sup>

In Khwarshi (Khalilova 2008; 2009) long distance agreement is possible into complement clauses of verbs of cognition,<sup>4</sup> and, in contrast to Tsez, embedded topics and embedded foci can be targeted. Again, only absolutive arguments show agreement and in addition to LDA with the embedded absolutive, the matrix verb can also show class IV agreement, which can either be treated as agreement with the whole complement clause or as default agreement, comparable to Tsez. In (12), an example for LDA with an embedded topic is shown. In its in situ position, the topic can cause optional LDA with the matrix verb. If the topic is fronted to the matrix clause, however, then the matrix verb obligatory agrees with the fronted topic.

<sup>3</sup>See Börjesson & Müller (2020 [this volume]) for a discussion of LDA in Nakh-Dagestanian languages.

<sup>4</sup>The other mentions that LDA possible into complement clauses of verbs of cognition but only gives examples for *to know* and also does not provide a reason for this behavior. From the author's discussion of the examples, it might be concluded that the reason for this is related to case: the subject of *to know* surfaces in lative case and the other argument with absolutive which enables the other argument to determine agreement.

(12) Khwarshi (Khalilova 2008: 118)

- a. Uža-l        b/l-iq'-še        [ **zihe-n**    b-iti-xx-u].  
 boy.OBL-LAT III/IV-know-PRS    **cow(III)**-& III-divide-CAUS-PFV.CVB  
 'The boy knows that the cow was stolen.'
- b. **Zihe-n**    uža-l        b-iq'-še        [ b-iti-xx-u].  
**cow(III)**-& boy.OBL-LAT III-know-PRS    III-divide-CAUS-PFV.CVB  
 'The boy knows that the cow was stolen.'

In addition to embedded topics, embedded foci, more specifically answers to d-linked wh-questions, can also show long distance agreement. In d-linked wh-questions, the pattern is similar to (12): the wh-element in the embedded clause can determine agreement on the matrix verb, while agreement with the whole complement clause remains a possible but dispreferred option.

(13) Khwarshi (Khalilova 2008: 390)

- [ dogu **zihe**    b-ot'uq'q-u        ] b/l-iq'-še        uža-l?  
 which **cow(III)** III-come-PST.PTCP    III/IV-know-PRS boy.OBL-LAT  
 'Which cow does the boy know came?'

Similarly in the answer, the LDA pattern is preferred over the local agreement. If the constituent corresponding to the wh-element in the question is fronted, then LDA becomes obligatory. Since constituents that correspond to wh-elements in the respective questions usually carry focus, I assume that not only topic but also focus on the agreement goal can license LDA in Khwarshi.

(14) Khwarshi (Khalilova 2008: 390)

- a. uža-l        b/l-iq'-še        [ k<sup>ʃ</sup>aba **zihe**    b-ot'uq'q-u        ].  
 boy.OBL-LAT III/IV-know-PRS    black **cow(III)** III-come-PST.PTCP  
 'The boy knows that the black cow has come.'
- b. [ k<sup>ʃ</sup>aba **zihe**    b-ot'uq'q-u        ] b-iq'-še        uža-l.  
 black **cow(III)** III-come-PST.PTCP    III-know-PRS boy.OBL-LAT  
 'The boy knows that the black cow has come.'

Those complement clauses that allow LDA in Khwarshi are formed based on a nominalized form of the embedded verb, compatible with a clause union/restructuring analysis (Haspelmath 1999 for Godoberi). However, Khalilova (2009: 386–388) explicitly argues for a bi-clausal analysis based on the behaviour of reflexives and adverbs as well as the scope of negation. Thus, Khwarshi constitutes another language in which cross-clausal long distance agreement is possible, differing from Tsez in the fact that not only topics but also foci can participate in LDA.

The last Nakh-Dagestanian language to be discussed is Hinuq (Forker 2012). Again, only absolutive arguments agree and in cases in which LDA is possible, the verb can either show noun class agreement with the embedded absolutive or agreement with the whole complement clause/default agreement, which is class v. While the class of matrix verbs that allow LDA is bigger than in Khwarshi, the status of the agreement target is similar, it can either be a topic (15a) or a focus (15b).

(15) Hinuq (Forker 2012: 628)

- a. Haylo-z b-ike-s [ meši čeq-i-do b-ił'i-š ].  
 he.OBL-DAT III-see-PST calf(III) forest-IN-DIR III-go-PST  
 'He saw that the calf went into the forest.'
- b. Pat'imat-ez y-eq'i-yo [ Madina-y t'ek y-ux-iš-t ].  
 Patimat-DAT IV-know-PRS Madina-ERG book(IV) IV-buy-RES-ABST  
 'Patimat know that Madina bought the BOOK.'

In contrast to Tsez, non-absolutive wh-elements do not block LDA, and absolutive wh-elements can themselves be agreement targets in LDA constructions.

(16) Hinuq (Forker 2012: 637)

- a. Šamil-ez r/b-eq'i-yo [ ni Madina-y mecxer  
 Šamil-DAT v/III-know-PRS where Madina-ERG money(III)  
 b-uqi-š-ti ].  
 III-hide-RES-ABST  
 'Šamil knows where Madina hid the money.'
- b. Obu-z r/∅-eq'i-yo [ ked-ez lu ∅-ike-s-ti ].  
 father-DAT v/I-know-PRS girl-DAT who(I) I-see-RES-ABST  
 'Father knows who the girl saw.'

Another interesting difference concerning LDA in Hinuq is that it is possible across several clauses. In a sentence with three clauses, LDA is easily possible when the higher verbs all show non-local agreement (17a). It is also possible that only the intermediate verb(s) show non-local agreement (17b), but non-local agreement of the highest verb and local agreement of the intermediate one is dispreferred (17c).

(17) Hinuq (Forker 2012: 633)

- a. ʔali-ž b-eti-yo [ [ obu-y ec'endiyu mašina  
 Ali-DAT III-want-PRS father-ERG new car(III)  
 b-ux-ł'os-ti ] Madina-z b-eq'-ayaz ].  
 III-buy-HAB-ABST Madina-DAT III-know-PURP  
 'Ali wants Madina to know that father will buy a new car.'

- b. Murad-ez r-eq'i-yo [ ħakim-ez y-eti-n [ de kayat  
Murad-DAT V-know-PRS ruler-DAT IV-want-UWPST I.ERG letter(IV)  
cax-a ] ].

write-INF

'Murad knows that the boss wants me to write a letter.'

- c. ?di-ž b-eti-n [ devez r-eq'-a [ ʔu-y gulu  
I-DAT III-want-UWPST you.SG.DAT V-know-INF who-ERG horse(III)  
b-ik'ek-iš-ti ] ].

III-steal-RES-ABST

'I want you to know who stole the horse.'

Thus, even though all three languages presented in this section allow LDA, the exact implementation varies. The most important point of variation concerns the status of the agreement target, the DP in the embedded clause. While in Tsez it is only possible when the embedded DP is interpreted as a topic, Hinuq and Khwarshi allow LDA with embedded foci as well. In the next section it will be shown that the same type of variation can be found in the Algonquian language family.

## 2.2 Algonquian languages

A second language family in which some languages show LDA are the Algonquian languages spoken in North America over a large area, stretching from the east coast through to the Rocky Mountains. The patterns of LDA found in this language family are remarkably similar to LDA in Nakh-Dagestanian languages, in that a precondition for LDA is that the agreed-with DP in the embedded clause receives a special information-structural interpretation.<sup>5</sup>

Starting with Innu-aimûn, as discussed in Branigan & MacKenzie (2002), a very similar pattern to Tsez emerges. Certain matrix verbs take complement clauses and can show agreement either with the  $\phi$ -features of the embedded subject (18b, 19a), or the embedded object (18c, 19b). However, LDA is always optional, and agreement with the whole complement clause/default agreement is possible (18a), which in Innu-aimûn is similar to transitive inanimate (TI) agreement, the agreement with inanimate objects. The complement clause is fully specified for tense and can be declarative (18) or interrogative (19), thus strongly suggesting a CP-sized complement clause.<sup>6</sup>

<sup>5</sup>See Fry & Hamilton (2014) for a comprehensive discussion of LDA in Algonquian languages.

<sup>6</sup>Agreement in Innu-aimûn and Passamaquoddy is very complex and a full discussion beyond the scope of the paper. I have marked the relevant agreement marker and the argument it references in bold. For further details about the agreement systems and details on the glossing, the reader is referred to the referenced literature.

- (18) Innu-aimûn (Branigan & MacKenzie 2002: 388)
- a. Ni-tshissenitamû-ânân [ mûpishtuât Shûshepa Tshân mâk Maânî ].  
1PL-know-TI-1PL visit Joseph John and Marie  
'We know that John and Marie visited Joseph.'
  - b. Ni-tshissenim-ânân-at [ mûpishtuât Shûshepa Tshân mâk Mânî ].  
1PL-know-1PL-3PL visit Joseph John and Marie  
'We know that John and Marie visited Joseph.'
  - c. Ni-tshissenim-ânân [ mûpishtuât Shûshepa Tshân mâk Mânî ].  
1PL-know-1PL-3SG visit Joseph John and Marie  
'We know that John and Marie visited Joseph.'
- (19) Innu-aimûn (Branigan & MacKenzie 2002: 399)
- a. Ma tshi-tshissenim-in [ tân ishpih na nit-aimâ Mânî ]?  
Q 2SG-know-1SG when 1SG-called Marie  
'Do you know when I called Marie?'
  - b. Ma tshi-tshissenim-âu [ tân ishpih na nit-aimâ Mânî ]?  
Q 2SG-know-3SG when 1SG-called Marie  
'Do you know when I called Marie?'

Since Innu-aimûn is a pro-drop language, the agreement target in LDA frequently is a dropped pronoun. Interestingly, if LDA takes place, the agreed-with DP can be moved to the front of the embedded clause. This movement is impossible if LDA is absent. Similar to Passamaquoddy discussed below, the question arises whether the moved embedded DP ends up in a position in the matrix clause or a left-peripheral position of the embedded clause. The authors, in contrast to Bruening (2001) for Passamaquoddy, assume that the DP ends up in the matrix clause. However, (20) is also compatible with the dislocated DP still being in the embedded clause, simply higher than the *wh*-element or complementizer.

- (20) Innu-aimûn (Branigan & MacKenzie 2002: 389)
- a. Tshi-tshissenim-âu-â [ Mânî tshekuân kuet aimiât Pûna  
2SG-know-TA-3SG-Q Marie why called Paul  
utshimâminua ]?  
boss  
'Do you know why Marie called Paul's boss?'

- b. N-uî-tshissenim-âu [ kassinu **kâuâpikueshit** tshetshî  
 1SG-want-know-3SG every **priest** if  
 mûpishtâshkuenit ].  
 visited-2SG/INV

‘I want to know if every priest visited you.’

The authors argue at length against a proxy-agreement account, to be discussed shortly, and instead propose that the agreement target in the embedded clause carries an unvalued A'-feature that they term *O*-feature which allows it to move covertly into the specifier of the CP so it is available for agreement with the matrix verb. Additionally, the authors claim that the agreement goal in the embedded clause is usually interpreted as the topic of that clause, so that the most likely candidate for the *O*-feature is a topic feature. This is in line with the observation mentioned earlier that the LDA goal is frequently a dropped pronoun, a highly topical element. The only qualification to this assumption is presented by *wh*-elements, since they also can appear as targets for LDA. Thus, the left periphery seems to play the crucial role in licensing LDA: either the LDA agreement goal is information-structurally marked or moved high enough in the left periphery of the embedded clause due to independent reasons like *wh*-movement.<sup>7</sup>

Thus, Innu-aimûn shows many properties of LDA already discussed for Nakh-Dagestanian languages, since it is possible either with embedded topics or with *wh*-elements in the left periphery of the embedded clause. Similarly, if the embedded agreed-with DP is overtly topic marked by dislocation, LDA is obligatory, just as in Tsez when the topic is marked overtly by a particle.

Another Algonquian language that shows long distance agreement is Passamaquoddy (Bruening 2001). Here, the picture is more complex, just as the data in Hinuq appear to be more complex than in Tsez. Passamaquoddy has a raising to object construction, raising the embedded object across embedded C, that causes object agreement on the matrix verb (21). However, the actual raising part of this operation is optional, such that a LDA configuration is created (22), in which the matrix verb does not need to agree with the highest argument in the embedded clause. If LDA takes place, the agreed-with argument in the lower clause is usually interpreted as topical or focussed.

<sup>7</sup>Unfortunately, the authors do not discuss whether the *wh*-element can be targeted for LDA when a topicalised element precedes it.

(21) Passamaquoddy (Bruening 2001: 258)

- a. 'Kosiciy-a-l [ yaq uhsimis-ol eli keka  
 3SG-know.TA-DIR-OBV QUOT 3.younger.sib-OBV c almost  
 peciya-li-t ].  
 come-OBV.S-3SG.CONJ

'She knew that her brother had almost arrived.'

- b. Susehp 'kosiciy-à [ akòm eli Muwin  
 Susehp 3SG-know.TA-DIR.OBV.PL snowshoe.OBV.PL c M.  
 kisi-mil-at Wiphun].  
 PERF-give-3SG.CONJ W.

'Susehp knows that Muwin gave Wiphun snowshoes.'

(22) Passamaquoddy (Bruening 2001: 259)

- a. N-wewitaham-a-k [ ma=te nomiy-a-w-ik  
 1SG-remember-DIR-3PL NEG=EMPH see-DIR-NEG-PART.3PL  
 mawsuwinuw-ok Kehlis-k ].  
 person-3PL Calais-LOC

'I remember that I didn't see people in Calais.'

- b. N-kosicihtun-ol [ eli Piyel nokkaht-aq sukolis-ol  
 1SG-know.TI-INAN.PL c Piyel eat.up-3SG.CONJ candy-INAN.PL  
 wikahtm-an-pon-il ].  
 like.eat-L.CONJ-PRET-PART.INAN.PL

'I know that Piyel ate up the candies that I liked.'

LDA is also possible in embedded questions, either with the *wh*-element (23a) or a different argument. If LDA in embedded questions takes place with an argument different from the *wh*-element and is also accompanied by overt movement, this agreed-with argument may end up in a position to the left of the embedded *wh*-element (23b). Since Passamaquoddy is a *wh*-movement language, the fronted argument consequently either occupies a position in the left periphery even higher than the *wh*-element in the embedded clause or a low position already in the matrix clause, similar to what Branigan & MacKenzie (2002) argue for Innu-aimûn. The author argues extensively for the first option, which thus makes LDA in Passamaquoddy similar to LDA in the Nakh-Dagestanian languages.

(23) Passamaquoddy (Bruening 2001: 259)

a. Tihtiyas ma=te      wewitaham-a-wiy-il      [ wen-il      amsqahs  
 Tihtiyas NEG=EMPH remember-*DIR*-NEG-OBV      **who**-OBV first  
 kis-aqosom-uw-iht                      kiwhosu                      ].  
 PERF-cook-APPL-3SG.CONJ.INV muskrat.OBV.PL  
 ‘Tihtiyas doesn’t remember who first cooked muskrat for her.’

b. N-kosiciy-a-k                      [ nuhuw-ok muwinuw-ok keq  
 1SG-know.TA-*DIR*-3PL      **three**-3PL      **bear**-3PL      what  
 kis-temu-htit                      ].  
 PERF-eat-3PL.CONJ  
 ‘I know what the three bears ate.’

Similarly to Branigan & MacKenzie (2002) for Innu-aimûn, Bruening (2001) conclusively argues against possible alternatives to the movement analysis. However, the exact nature of the landing site of the movement in the left periphery of the embedded clause is not clear. The agreement target in the embedded clause is compatible with either a topic or a focus interpretation. This is shown by either marking the embedded argument with the contrastive topic marker *olu*, (24a), or modifying it with the focus sensitive particle *tehpû* ‘only’, (24b).

(24) Passamaquoddy (Bruening 2001: 282)

a. Ma=te n-kosiciy-a-wi                      [ wot      **olu** n-tatat,      tan-iyut  
 NEG      1SG-know.TA-*DIR*-NEG      **this**.AN TOP 1SG-father WH-this.INAN  
 keti-nomkuwal-s-it                      atomupil ].  
 IC.FUT-lend-INTRANS-3SG.CONJ car  
 ‘I don’t know which car, my father, he’s going to buy.’

b. N-kosiciy-a                      [ **tehpû** Susehp oc menuwa-c-ihî  
 1SG-know.TA-*DIR*      **only** Susehp FUT IC.buy-3SG.CONJ-PART.OBV.PL  
 nuhu                      akom                      ].  
 three.OBV.PL snowshoe.OBV.PL  
 ‘I know that only Susehp would buy three snowshoes.’

If two possible agreement targets compete, i.e. when the embedded clause contains a focus and a topic, the topic can be the target of LDA while skipping the focussed argument, as already shown in (23b), where a topic serves as goal for LDA despite the presence of a focussed element, the *wh*-word.

This leads Bruening (2001) to the conclusion that the landing position of the raising to object movement cannot be a single dedicated topic or focus projection. Assuming a split-CP analysis (Rizzi 1997), the data are compatible with an analysis of the landing position in terms of discourse projections: both the topic projection and the focus projection can serve as a landing site for raising to object movement and agree with the respective constituent.<sup>8</sup> These data show striking similarities with respect to LDA not only between Passamaquoddy and Innu-aimûn, but also between those two languages from the Algonquian family and the languages from the Nakh-Dagestanian family, Tsez, Khwarshi, and Hinuq.

As already pointed out by Polinsky (2003), it is important when discussing LDA in Algonquian languages to carefully distinguish genuine LDA from cases of proxy-agreement or prothetic agreement which is not a case of LDA even though it appears to be one on the surface. In those languages that are viable to that kind of analysis, a silent pronoun in the matrix clause, which is co-referential with the element in the embedded clause serves as the actual agreement target of the matrix predicate.<sup>9</sup> Due to the co-referentiality of the proxy argument in the matrix clause and the embedded argument, such a structure appears to show LDA even though only clause bound agreement is involved. Such a construction would be similar to English (25), with the matrix pronoun being a silent *pro*.

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<sup>8</sup>Some data appear to be incompatible with this analysis. Singular, non-referential quantifiers can appear in embedded questions preceding wh-elements (i).

- (i) Passamaquoddy (Bruening 2001: 282)  
 Sapet 'kosiciy-a-l [ psi=te wen-il tan-iyuhtol  
 Sapet 3SG-know.TA-DIR-OBV all=EMPH someone-OBV WH-that.OBV  
 nucitqonkelic-il kisi-tqon-at ].  
 policeman-OBV PERF-arrest-3SG.CONJ  
 'Sapet knows which policeman arrested everybody.'

However, first, it is not obvious that the fronted quantifiers cause long distance agreement on the matrix verb. If the language provides other means to move an element in the embedded clause above the wh-element, then LDA could for example also be based on overt QR. Second, Bruening (2001) argues that sometimes the element that appears to have undergone raising to object is actually initially merged in the matrix clause, which could also be the case for (i). Thus the data do not constitute counterevidence to the information-structural dependence of LDA.

<sup>9</sup>At least one argument used by Polinsky (2003) in favor of a proxy-agreement account is directly addressed and dismissed by Bruening (2001) as well as Branigan & MacKenzie (2002). In Passamaquoddy as well as Innu-aimûn, agreement on the matrix verb can be with a subset of the goal in LDA configurations. Polinsky argues this is due to a *pro* in the matrix clause, but Bruening (2001: 269) shows that it can also occur in contexts which definitely involve movement like relative clauses and thus dismisses this argument.

(25) \* Peter knows of her that Mary went to the movies.

Note the ungrammaticality of (25), which is due to a violation of Principle C. Even though Principle C is not necessarily active in all Algonquian languages, Branigan & MacKenzie (2002) argue that it does play a role in Innu-aimûn and thus an analysis along the lines of proxy agreement is not feasible. This is supported by further arguments, for example the impossibility of having an English (26) with a proxy argument in the matrix clause, i.e. having a prothetic pronoun co-referring with a wh-element.

(26) \* Do you know of him who is laughing?

For Passamaquoddy, Bruening (2001) also discusses and dismisses a proxy agreement account, relying on the same arguments as Branigan & MacKenzie (2002). He shows that having an overt pronoun in the matrix clause doubling the embedded DP is ungrammatical, probably due to a Principle C violation, (27). The observation that LDA in Passamaquoddy can also target the wh-element of the embedded clause and that embedded wh-elements cannot be coreferential with a matrix pronoun (cf. 26), provides another argument against a proxy agreement analysis.<sup>10</sup>

(27) Passamaquoddy (Bruening 2001: 270)

- a. N-kosiciy-a [ eli Piyel koti-nathula-t  
1SG-know.TA-DIR c Piyel FUT-pick.up.in.boat-3SG.CONJ  
Susehp-ol ].  
Susehp-OBV  
'I know that Piyel will pick up Susehp in a boat.'
- b. \* N-kosiciy-a **nekom** [ eli Piyel koti-nathula-t  
1SG-know.TA-DIR 3SG c Piyel FUT-pick.up.in.boat-3SG.CONJ  
Susehp-ol ].  
Susehp-OBV  
'I know about him that Piyel will pick up Susehp in a boat.'

Before closing this section, it should be pointed out that even though the proxy-agreement account of LDA cannot be applied to LDA in Passamaquoddy or Innu-aimûn, other Algonquian languages do seem to present cases of agreement by

<sup>10</sup>The author also argues against a different kind of the proxy agreement analysis in which either a proxy or the full DP is base generated in the left periphery of the embedded clause, comparable to a left dislocation construction. I cannot discuss this here for reasons of space, but Bruening (2001: 263ff) provides ample evidence that movement inside the embedded clause does indeed take place.

proxy. Blackfoot for example does show apparent LDA (28). Blackfoot also presents an apparent counterexample to the generalization stated in the beginning that either topic and focus can serve as LDA targets in a given language or topic alone, since Bliss (2009) argues that LDA in Blackfoot marks contrastive foci.

- (28) Blackfoot (Bliss 2009: 1)  
nit-iksstaat-a          an-wa      Leo nin-aahk-sspommo-a-hsi.  
1SG-want.TA-1SG:3SG DEM-PROX Leo 1-MOD-help.TA-1SG:3SG-CONJ  
'I want to help Leo.'

However, LDA in Blackfoot has been analysed as proxy agreement and thus does not constitute a proper case of LDA and therefore also not a counterexample to the generalization stated above. Polinsky (2003), going back to Frantz (1978), discusses several phenomena that can be linked to LDA by proxy. One of them concerns binding. In Blackfoot, since the proxy in the matrix clause constitutes a full pronoun, it can actually bind a reflexive on the verb.

- (29) Blackfoot (Frantz 1978: 99, via Polinsky 2003: 286)  
noxkówa ki    niistówa nits-iksstat-tsiyi-xpinnaani  
my.son.3 and 1SG      1SG-want-RECP-1PL  
n-áxk-a'po'tak-ss-innaan.  
1-might-work-CONJ-1PL  
lit.: 'My son and I want of each other that we work.'

I have argued in this section that, in addition to languages in the Nakh-Dagestian family, some Algonquian languages also show LDA, also conditioned by information-structural properties of the embedded agreement target. Similarly to Nakh-Dagestian languages, two types of LDA targets can be distinguished in Algonquian languages: either agreement with both topics and foci is possible, as in Passamaquoddy, or LDA is restricted to topics as in Innu-aimûn. Additionally, I have also distinguished LDA proper from LDA by proxy, as exemplified by Blackfoot. Concerning LDA by proxy in Nakh-Dagestian languages, Polinsky (2003) has argued that Tsez show proper LDA. This has not been discussed explicitly for Hinuq or Khwarshi, but data strongly suggest an analysis in the line of Tsez. The next subsection will discuss LDA in yet another unrelated language family, however in a slightly different context.

### 2.3 LDA in Uyghur

Another, less frequently discussed, case of an apparent PIC violating dependency is exceptional subject case marking in Altaic languages. In many languages from

this family, subjects in certain types of finite embedded clauses can occur with a case other than nominative, mostly genitive but also accusative. Even though the occurrence of non-canonical subject case is different from the LDA agreement pattern discussed above, in which a matrix verb agrees with an argument in a complement clause, those cases could still constitute instances of LDA, namely when the exceptional case is licensed from outside the clause and the clause itself is of CP size. Thus, these two aspects need to be considered carefully, and Table 1 shows that, as expected, significant variation along these two dimensions can be found in the Altaic languages.

Table 1: Exceptional Subject Case in Altaic.

Language	Emb. clause size	Licenser for subject
Turkish (Kornfilt 2008)	CP	clause internal C
Dagur (Hale 2002)	AspP (<CP)	clause external D
Japanese (Miyagawa 2011)	TP (<CP)	clause external D
Uyghur (Asarina & Hartman 2011a)	CP	clause external D

As can be seen in the table, Uyghur seems to present the right configuration that exceptional subject case could be analyzed as LDA, since the case of the subject in a CP is licensed by an element from outside that CP. If case licensing is taken to be based on agreement, and this analysis is correct, then Uyghur shows a case of LDA. Examples of this configuration are given in (30).

(30) Uyghur (Asarina & Hartman 2011b: 4)

- a. [ **Men-ij** ji-gen ] tamaq-**im** jaxʃi.  
 1SG-GEN eat-RAN food-1SG.POSS good  
 ‘The food that I ate is good.’
- b. [ **Ötkür-nij** oqu-ƙan ] kitav-i uzum.  
 Ötkür-GEN read-RAN book-3SG.POSS long  
 ‘The book that Ötkür read is long.’
- c. [ Ötkür oqu-ƙan ] kitap uzum.  
 Ötkür read-RAN book long  
 ‘The book that Ötkür read is long.’

In order to make this point more clear, I will summarize the discussion in Asarina & Hartman (2011a), first showing that it is indeed clause external D that licenses genitive subject case in relative clauses and NP complement clauses in Uyghur

and second, also presenting arguments in favour of a CP sized embedded clause. The first argument for licensing GEN on the embedded subject by an external head comes from agreement with the embedded subject that shows up on the external D head only when the subject carries genitive case, (30a–30b). If the embedded subject is unmarked (which is a free variant), then there is no agreement on the external D (30c). The second piece of evidence comes from the observation that clause external D can only assign genitive once. Thus the sentence in (31a) is ambiguous, and double genitives as in (31b) are impossible.

- (31) Uyghur (Asarina & Hartman 2011a: 3)
- a. Ajgül-nuñ resim-i  
Aygül-GEN picture-3SG.POSS  
'picture belonging to Aygül' or 'picture depicting Aygül'
  - b. \*Ötkür-niñ Ajgül-nuñ resim-i  
Ötkür-GEN Aygül-GEN picture-3SG.POSS  
int.: 'picture that depicts Aygül and belongs to Ötkür'

If in relative clauses and nominal complements the clause external D head is responsible for genitive assignment to the subject of the embedded clause, genitive subjects should be in complementary distribution with genitive possessors while unmarked subjects should be able to occur with genitive possessors since the genitive of the clause external D is still available when it is not assigned to the subject. The data in (32) show that this prediction is borne out.

- (32) Uyghur (Asarina & Hartman 2011a: 3)
- a. \* [Ötkür-niñ oqu-ğan] Ajgül-nuñ kitav-i uzum.  
Ötkür-GEN read-RAN Aygül-GEN book-3SG.POSS long  
int.: 'Aygül's book that Ötkür read is long.'
  - b. [Ötkür oqu-ğan] Ajgül-nuñ kitav-i uzum.  
Ötkür read-RAN Aygül-GEN book-3SG.POSS long  
'Aygül's book that Ötkür read is long.'

Following the authors, I conclude from this that the genitive subject is indeed licensed from outside the clause. However, to analyze this phenomenon as a case of LDA proper, it is also necessary to show that the embedded clauses are CPs and not smaller constituents as in other Altaic languages. The authors support the assumption of CP sized embedded clauses with two arguments, CP adverbs and embedded questions. First, if the embedded clause can host CP adverbs, then it must be treated as a CP. The clause initial adverb *xeqiqi* 'truly' in (33) shows the possibility of CP adverbs.

(33) Uyghur (Asarina & Hartman 2011a: 8)

- a. [  $\chi$ eqiqi **Aygül-niŋ** jaz-**Ɓ**an ] kitiv-i-ni korset!  
truly Aygül-GEN write-RAN book-3SG.POSS-ACC show

‘Show me the book that Aygül truly wrote.’

- b. [  $\chi$ eqiqi **men-ij** jaxfi kör-i-gen ] tamaq-**im**-ni ber!  
truly I-GEN well see-IMPF-RAN food-1SG.POSS-ACC give

‘Give (me) the food that I truly like.’

Second, the embedded clause can also be a question and it is argued that interpretation as a question necessarily requires a CP layer in the embedded clause to host the clause type information.

(34) Uyghur (Asarina & Hartman 2011a: 8)

- Men [ **Aygül-nuŋ** katfan ket-ken-(lik) ] heqiqet-i-ni sordum.  
1SG Aygül-GEN when leave-RAN-LIQ fact-3SG.POSS-ACC asked

‘I asked when Aygül left.’

Summarizing the discussion, genitive subject licensing in Uyghur constitutes a genuine case of long distance agreement. However, Asarina & Hartman (2011a) reject an analysis in the spirit of Polinsky & Potsdam (2001) to account for the apparently PIC violating pattern, since not all genitive subjects are topics. As I have discussed above, not only topics can participate in LDA though, but also foci. The following data show exactly that, namely that in addition to the LDA cases above, which Asarina & Hartman (2011a) claim involve topical subjects, foci are also possible in LDA in Uyghur. The examples (35a) and (35b) contain a focused subject marked by the focus sensitive clitic *-la* ‘only’, while (36) contains a contrastive focus.<sup>11</sup>

(35) Uyghur (Asarina & Hartman 2011a: 10)

- a. [ **Ötkür-niŋ-la** kel-gen-lik ] xever-i muhim.  
**Ötkür-GEN-only** come-RAN-LIQ news-3SG.POSS important

‘The news that only Ötkür came is important.’

- b. [ **men-ij-la** jaxfi kör-gen ] kitav-**im** uzun.  
1SG-GEN-only well see-RAN book-1SG.POSS long

‘The book that only I like is long.’

<sup>11</sup>This stands in contrast to subjects in finite ECM clauses in Turkish. As Şener (2008) shows, the subjects, which receive exceptional accusative case, need to be topics. Thus, Turkish ECMs might yet present another case of LDA in an Altaic language, with the variation with respect to the information-structural features of the agreement target being in line with the variation found in other language families.

(36) Uyghur (Asarina & Hartman 2011a: 10)

Q: Ötkür [ Aǵǵül-nuñ kel-gen-lik-i-ni ] didi-mu?

Ötkür Aǵǵül-GEN come-RAN-LIQ-3.POSS-ACC said-Q

‘Did Ötkür say that Aǵǵül came?’

A: Yaq, Ötkür [ Mehemmet-niñ kel-gen-lik-i-ni ] didi.

no Otkür Mehemmet-GEN come-RAN-LIQ-3.POSS-ACC said

‘No, Ötkür said that MEHEMMET came.’

Thus, LDA in Uyghur seems to behave parallel to Hinuq, Khwarshi, and Passamaquoddy, in that not only embedded topics can serve as agreement target but embedded foci as well. This sensitivity to information structure seems to be the uniting property of LDA in all languages discussed in this section, with either topic, or topics and foci being possible agreement targets for an element in a higher clause, a verb in the case of Algonquian and Nakh-Dagestanian languages, and a D-head in the case of Uyghur. The findings from this section are summarized in Table 2.

Table 2: LDA and IS property of goal.

IS property	Dependency	
	$\phi$ -features	case
TOP	Tsez (Polinsky & Potsdam 2001) Innu-aimûn (Branigan & MacKenzie 2002)	Turkish (Şener 2008)
TOP+FOC	Hinuq (Forker 2012) Khwarshi (Khalilova 2009)	Uyghur (Asarina & Hartman 2011a)

The next section presents previous analyses of this phenomenon, their advantages and their problems, before I turn to my own analysis in Section 4.

### 3 Previous analyses

Long distance agreement and the challenge it presents to standard locality theories, more specifically the Phase Impenetrability Condition (PIC), have made it a frequently discussed phenomenon in the syntactic literature. Two possible ways to solve the apparent incompatibility between LDA and the PIC are immediately obvious. One could either assume that agreement is simply not subject to locality

constraints as strong as they are for movement, an approach taken for example by Bošković (2007b). In contrast, the other approach relies on the strong parallel between agreement and movement by claiming that the way moved constituents can, on the surface, violate the PIC, is also the solution to LDA, namely successive cyclicity. Thus, similarly to elements moving out of phases by successive cyclically moving first into a phase edge position, agreement crossing a phase boundary should be possible via an element in the phase edge serving as intermediate agreement step. Arguments in favor of such a cyclic agreement process are frequently found in the literature, for example in Legate (2005) for a theory of agreement of T with a DP in situ but also mentioning LDA data, and, in the framework of Tree Adjoining Grammar, in Frank (2006).

Worked-out proposals for long distance agreement are much rarer in the literature than general approaches suggesting agreement through phase edges. The two most discussed proposals are Polinsky & Potsdam (2001), who actually suggest LF movement of the agreement goal in the embedded clause into the phase edge, and, more recently Bjorkman & Zeijlstra (2019) who assume an agreement process through the periphery of the embedded clause. Since Polinsky & Potsdam (2001) as well as Bjorkman & Zeijlstra (2019) (including its discussion in Preminger 2013 and Preminger & Polinsky 2015), in part deal with data that are also the focus of this paper, I will discuss their contributions in more detail in this section, starting with Polinsky & Potsdam (2001). The main facts that all proposals of LDA need to account for are the dependence on information-structural properties of the agreement goal as well as the locality restrictions to which LDA is subject in the various languages.

### 3.1 Polinsky & Potsdam (2001)

In their paper on LDA in Tsez, Polinsky & Potsdam (2001) propose to account for the pattern by assuming that the embedded topic moves on LF into a left peripheral topic position (Rizzi 1997) in the embedded clause. This position then is close enough to the matrix verb (cf. also Bobaljik 2008), part of the phase edge in our terms, to serve as the agreement goal of the probing matrix v.<sup>12</sup> Alternatives, for example that the agreement goal has continued to move covertly to the matrix clause or that there is a *pro* co-indexed with the embedded topic in the matrix clause, are conclusively argued against by the authors. A structural representation of their approach is given in (38).<sup>13</sup>

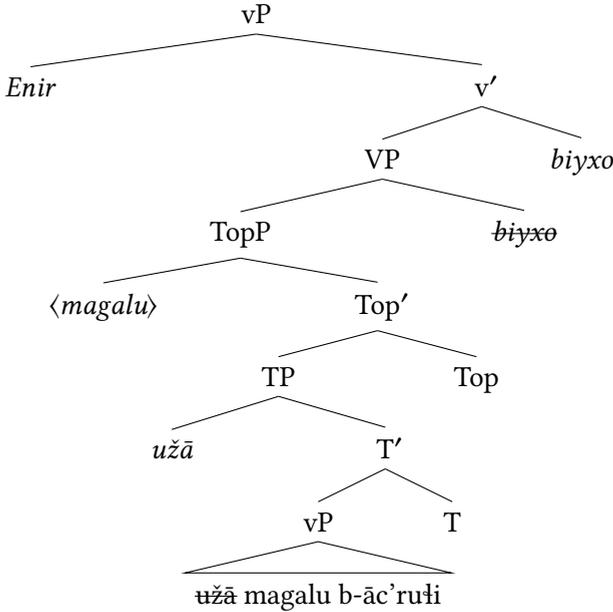
<sup>12</sup>I assume the  $\phi$ -probe in the matrix clause is on v whereas the authors seem to relegate it to V. Nothing depends on that.

<sup>13</sup>Note that ~~strike through~~ represents traces of overt movement while  $\langle XP \rangle$  is used for covertly moved elements.

(37) Tsez (Polinsky & Potsdam 2001: 584)

Eni-r [ uḗā magalu bāc'ruḗi ] b-iy-xo.  
 mother-DAT boy bread.III.ABS ate III-know-PRS  
 'The mother knows that, as for the bread, the boy ate it.'

(38)



From this assumption nearly all properties of LDA in Tsez can be derived. First, the topic status of the agreement goal in the embedded clause is crucial. If the element does not serve as the topic of the embedded clause, then it will not move to spec-TopP on LF, meaning it will be too far away from matrix *v* to serve as agreement goal. This is further supported by the observation that if the embedded absolutive argument is overtly topic marked (which is usually optional), the LDA even becomes obligatory. Second, the fact that non-absolutive topics, overtly marked or not, block LDA, can also be easily accounted for. Only absolutive arguments show agreement in Tsez in general. If the only position that can serve as goal for LDA is occupied by a non-absolutive element, LDA becomes impossible. The same holds for non-absolutive *wh*-elements, either in situ in the embedded clause or moved to the left periphery of the embedded clause. If it is assumed that the landing site of *wh*-elements in the embedded clause is above TopP they provide a closer goal hosting  $\phi$ -features for the probing matrix *v* than the topic and they thus block LDA since  $\phi$ -features of non-absolutive elements cannot participate in agreement and therefore lead to default agreement on matrix *v*.

Note on the other hand that this implies that *wh*-elements should not block LDA when they are absolutive and instead provide suitable agreement targets. This is indeed the case, as can be seen in (10), repeated for convenience in (39).

- (39) Tsez (Polinsky & Potsdam 2001: fn. 20)  
 Enir [ *šebi* y-āk'iruʃi ] y-iy-x-ānu.  
 mother **wh.II.ABS** II-went II-know-PRS-NEG  
 'The mother does not know who [of women] left.'

The blocking effect of complementizers can be accounted for in the same fashion. Assume that complementizers also carry a set of valued  $\phi$ -features in Tsez. Then it is expected that if the complementizer is situated structurally above the TopP, it will block LDA due to providing a closer agreement goal. If the complementizer is situated below TopP, it should not have this effect. Both types of complementizers can be found in the language. The high complementizer *-λin* blocks LDA, as can be seen in (11), repeated in (40). In contrast, the complementizer *-ti* does not block LDA, as can be seen from the previous example. Polinsky & Potsdam (2001) only assume one possible high complementizer position and therefore argue that *-ti* should not be analysed as complementizer but as nominalizer. However, assuming two possible positions for complementizers in the left periphery, a high one and a low one, as has been proposed for Romance languages (Ledgeway 2005), allows an analysis of *-ti* as complementizer.

- (40) Tsez (Polinsky & Potsdam 2001: 635)  
 \* Enir [ uʒā **magalu** b-āc'-si-**λin** ] b-iyxo.  
 mother [ boy **bread.III.ABS** III-eat-PST.EVID-C ] III.know  
 int.: 'The mother knows that, as for the bread, the boy ate it.'

Turning to languages other than Tsez, it appears easy to extend the proposal by Polinsky & Potsdam (2001) to cases in which not only embedded topics but also embedded foci can participate in LDA. The only additional assumption that needs to be made is that it seems to be a language specific property whether only topics or both topics and foci covertly move to peripheral positions. However, this assumption is more problematic than it appears at first glance, since it is generally assumed that all information-structural information, is always encoded in the CP-periphery. Thus, if covert movement is assumed, then the distinction is usually not made between whether elements move or do not move (overtly or covertly) to a peripheral position but only whether or not this movement is overt or covert. Consequently, it is actually expected that if LDA is possible for (covertly moved) topics it should always also be possible for (covertly moved) foci, contrary to

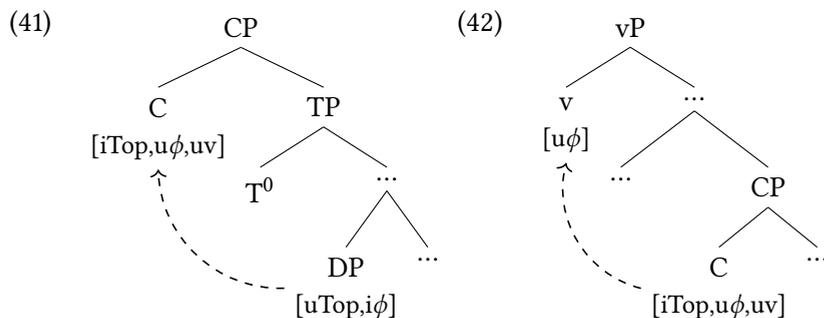
what can be observed. A second, more theoretical problem concerns the reliance of Polinsky & Potsdam (2001) on LF movement of the topic. As already pointed out in earlier versions of Bjorkman & Zeijlstra (2019), if LF movement is taken to be a post-syntactic process, then its output should not be able to feed narrow syntactic processes like agreement. The argument of Preminger & Polinsky (2015) that if the embedded clause is taken to be its own domain, LF movement in that domain or phase can very well serve as input to the narrow syntax of the next higher domain/phase, also does not hold since it would wrongly predict long distance QR. A possible solution to that would be a single output syntax as proposed by Bobaljik (2002) in which all movement happens in the syntax and spell out can target different copies. I will not follow this assumption and instead propose an analysis that is compatible with the standard model of grammar that does not rely on LF movement but on agreement in the next section. Before that, however, I will first discuss another proposal from the literature for LDA that also relies on agreement, albeit a non-standard version of it, namely Bjorkman & Zeijlstra (2019).

### **3.2 Bjorkman & Zeijlstra (2019)**

Bjorkman & Zeijlstra (2019) discuss long distance agreement as an argument supporting their general theory of upwards instead of downwards agreement (see also Baker 2008 and Wurmbrand 2012; 2016a,b). Even though the direction of agreement is different from what I assume in my own proposal, their general argument can also be made in a standard, downward agreement framework. The two authors assume a configuration very much in the spirit of the successive cyclic agreement idea of Legate (2005) without any recourse to LF movement. It is assumed that the agreement goal, the DP in the embedded clause, carries an uninterpretable topic feature, [uTop], and also interpretable valued  $\phi$ -features. The [uTop] feature probes upwards and establishes an agreement relation with the [iTop] feature on the C head, allowing the C head to value its own  $u\phi$ -features (41). Even though not discussed explicitly, the authors appear to assume a feature bundle on a C-head which comprises information-structural features and  $\phi$ -features, with the valuation of one being dependent on an agreement relation established based on the other. This will also be the core of my own proposal and elaborated on in more detail in the next section.

To establish the second link in the agreement chain, the authors assume that the C head also carries an unvalued feature, namely an unvalued case feature [uv], which allows the C-head to establish an agreement relation with the matrix *v*, so that *v* can value its  $\phi$ -features (42), which then show up as LDA on the matrix

verb, following the frequently assumed connection between case assignment and agreement.<sup>14</sup>



Several points of criticism can be raised against this proposal, many of which have already been discussed in Preminger & Polinsky (2015). From an empirical point of view, there is no obvious explanation for the various blocking effects observed in Tsez. Neither complementizers, nor non-absolute topics or *wh*-elements should block the relationship between the C head and the higher *v* since those elements cannot assign case, therefore do not carry a valued *v* feature and thus cannot intervene in the relation between embedded C and matrix *v* based on this feature. Second, it seems not straight-forward in this system to derive cross-clausal long distance agreement as can be found in Hinuq (17). While Polinsky & Potsdam (2001) could stipulate successive cyclic LF-movement of the topic DP, Bjorkman & Zeijlstra (2019) would have to assume that each *v* head that participates in cross-clausal LDA carries its own [uTop] feature to establish an agreement relationship with the next higher C head.

From a theoretical point of view, Bjorkman & Zeijlstra (2019) have to assume that in an extended left periphery in the sense of Rizzi (1997), it is a language specific property whether the topic head or the focus head hosts the [uv] case feature to account for the fact that in some languages foci can also trigger LDA. However, if it is assumed that this is an idiosyncratic property of a specific head in the left periphery, it becomes impossible to account for the generalization that if foci can trigger LDA in a specific language, this language will have LDA based on topics as well. Additionally, as has been discussed for Uyghur, LDA is sometimes also possible in relative clauses and DP complements. For the approach of Bjorkman & Zeijlstra (2019), it follows that in these languages, the C head in

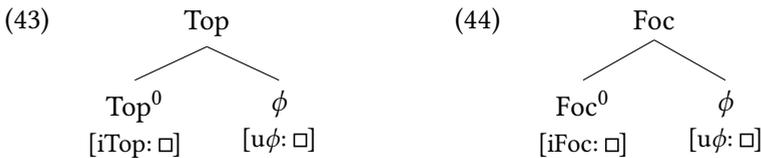
<sup>14</sup>This assumption has frequently been questioned, for example in Bobaljik (2008) and more recently in Baker & Bobaljik (2015) and Bány (2015).

the periphery of the embedded clause does not carry a [uv]-feature but a [uD]-feature, since, in this case, D is the case assigner, assigning genitive case to the embedded subject. Lastly, turning again to Tsez and other ergative-absolutive languages, linking the assignment of absolutive case to v appears problematic, as absolutive is frequently linked to a higher case assigner since it is usually the unmarked case and shows up, for example, in unaccusatives and passives.

Summing up the discussion, both approaches presented in this section assume some kind of cyclical process that connects matrix verb with embedded agreement goal via an intermediate step in the left periphery. However, both approaches suffer from empirical and theoretical problems that are either linked to the assumption of LF movement as input to later syntactic process or due to the features that are assumed to be involved in the agreement process. In the next section, I will argue for another proposal, that keeps the idea of a cyclic agreement process similar to Bjorkman & Zeijlstra (2019) but does not involve case features.

#### 4 LDA conditioned by information structure

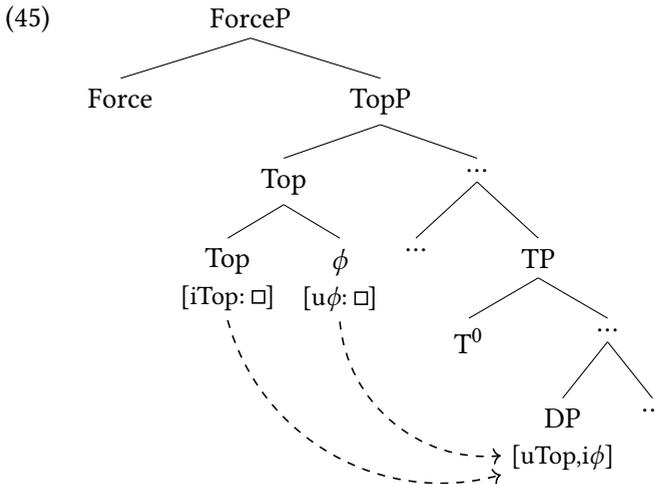
I propose to keep the idea of Bjorkman & Zeijlstra (2019) of a cyclic agreement process through the left periphery by capitalizing on the idea that  $\phi$ -features can be bundled with information-structural features in the left periphery and that the valuation of the former depends on an agreement process established based on the latter. Concretely, I propose the following structures for the information-structural heads in the left periphery, (43) for languages like Tsez in which only topics participate in LDA and (44) for languages in which this is also possible for foci.



Following Chomsky (2008) and the idea of feature inheritance, I assume that the agreement features that are manifested in T in English and other languages are actually introduced in C, since C is the relevant phase head, and then only inherited by T. The particular type of feature inheritance is, however, a language specific property and Miyagawa (2010; 2017) assumes that this is the factor that conditions whether a language is agreement driven or discourse configurational.

In the case of the former, for example English,  $\phi$ -features are inherited by T and information-structural  $\delta$ -features remain in C. In case of the latter, for example Hungarian, it is the reverse, with  $\phi$ -features staying in C and  $\delta$  features being inherited by T. In line with Jiménez-Fernández (2010) and Miyagawa (2017), I assume that there is a third type, namely languages in which both types of features can remain bundled on the same head giving rise to the structures in (43) and (44).<sup>15</sup>

Assuming that the left periphery of the embedded clause in LDA contexts contains a head in which  $\phi$ - and  $\delta$ -features are bundled together provides the intermediate agreement step necessary to connect the higher verb with the lower DP. The derivation for a language like Tsez, in which topicality of the agreement goal is the decisive factor, proceeds as follows. In a first step, represented in (45), the topic head in the left periphery agrees with the embedded topical DP, based on the [uTop]/[iTop] feature pair. At the same time, this allows the  $\phi$ -features of the topic head to be valued by the agreed-with DP. In other words, the valuation of the  $\phi$ -features depends on an agreement relation established by information-structural features.

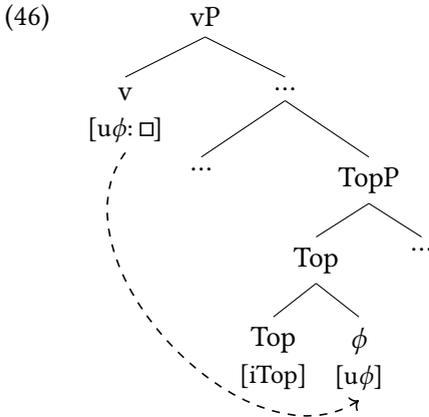


In a second step, matrix *v* with its own set of unvalued  $\phi$ -features probes in its c-command domain and agrees with the  $\phi$ -features that are now hosted by the topic head in the periphery of the embedded clause.<sup>16</sup> Under the assumption that

<sup>15</sup>The question then arises whether T really inherits the features from C in all cases or whether it is also possible in certain languages that the features are not inherited but copied so that another instance of the feature(-bundle) remains in C.

<sup>16</sup>In contrast to Bjorkman & Zeijlstra (2019), I only link  $\phi$ -feature agreement to *v* and not to absolutive case.

the verb in the matrix clause moves at least as high as v, these  $\phi$ -features then end up being spelled out on the matrix verb.



In this proposal, most of the properties of LDA that have been discussed above can easily be accounted for. First, the blocking effect of non-absolute topics is simply due to the fact that only absolute arguments can participate in  $\phi$ -feature agreement. Thus, even though an agreement relation between topic head and embedded non-absolute topic can be established, the  $\phi$ -features on the topic head remain unvalued, leading to the spell-out of the default agreement on matrix v. Similarly, under the assumption that  $\phi$ -features are also present on complementizers, those features provide a closer agreement goal for v than the  $\phi$ -features of the embedded topic. However, since the complementizer does not carry absolute case, v cannot agree with it, leading again to the spell out of the default feature value. Appealing to locality can also account for the observation that absolute wh-elements can lead to LDA. LDA is possible when the agreement goal manages to get high enough in the periphery of the embedded clause. Since wh-elements are usually connected to the left periphery by either movement or agreement, their participation in LDA is expected, as long as they carry absolute case.<sup>17</sup>

Turning to properties of LDA in languages other than Tsez, the generalization that if foci can participate in LDA in a particular language, topics can participate as well follows directly from the dependence on information structure and the fine structure of the left periphery as assumed by Rizzi (1997), as exemplified in (47).

<sup>17</sup>This property of LDA has been exploited by Heck & Cuartero (2012) in their analysis of relative clauses as involving a particular form of LDA.



## 5 Conclusion

In this paper, I have presented a successive cyclic approach to long distance agreement that is based on the bundling of  $\phi$ - and  $\delta$ -features on heads in the left periphery of the embedded clause. Starting from an extensive typological discussion, I have shown that LDA can be found in various unrelated language families, namely in Nakh-Dagestanian, Algonquian and Altaic languages, albeit with slightly different properties. A generalization emerged from this discussion, namely that if a language permits LDA based on embedded foci it will also allow LDA based on embedded topics.

In the second part, after discussing previous analyses of LDA, I presented an approach that derives long distance agreement via successive cyclic agreement through the periphery of the embedded clause, thus analyzing LDA in accordance with the PIC, and similar to successive cyclic wh-movement. The nature of the intermediate head in the left periphery was then the main ingredient of the analysis in which I assumed a particular notion of feature inheritance. In addition to either transmitting  $\phi$ - or  $\delta$ -features from C to T, both can remain in C bundled together on one head. The valuation of one part of the feature bundle then depended on an agreement relation established based on the other part. More concretely, the head in the left periphery established an agreement relation with the relevant DP based on  $\delta$ -features which allowed the  $\phi$ -features of the left-peripheral head to be valued as well. For the second step in this successive cyclic agreement, the  $\phi$ -features on this head then served as agreement goal for a higher probing head in the matrix clause, v or D. These assumptions, combined with a standard analysis of the left periphery, were then able to derive the cross-linguistic properties of LDA.

If this analysis is on the right track, more instances of information-structurally influenced  $\phi$ -feature agreement are to be expected in various languages, see for example D'Alessandro (2020 [this volume]) for topic agreement in Ripano, Dalrymple & Nikolaeva (2011) for the connection between objects and information structure more generally, and (van der Wal 2015; 2020 [this volume]) for an overview of object marking in Bantu.

## Abbreviations

Roman numerals refer to noun classes, Arabic numerals followed by *SG/PL* refer to person.

ABS	absolutive	F	feminine	PERF	perfect
ABST	abstract suffix	FOC	focus	PFV	perfective
ACC	accusative	FUT	future	POSS	possessive
AI	animate intrans.	GEN	genitive	PRET	preterite
AN	animate	HAB	habitual	PROX	proximal
AOR	aorist	IMPF	imperfective	PRS	present
APPL	applicative	INAN	inanimate	PST	past
AUG	augmentative	INV	inverse	PTCP	participle
C	complementizer	LAT	lative	PURP	purposive
CAUS	causative	LOC	locative	Q	question particle
CONJ	conjunct	N	neuter	QUOT	quotative
CVB	converb	NEG	negation	RECP	reciprocal
DAT	dative	NOM	nominative	RES	resultative
DEM	demonstrative	OBL	oblique	SM	subject marker
DIR	directional	OBV	obviative	TA	trans. animate
ERG	ergative	OM	object marker	TI	trans. inanimate
EMPH	emphatic particle	PL	plural	TOP	topic
EVID	evidential	PART	participle agr.	UWPST	unwitnessed pst

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## Chapter 10

# Long-distance agreement and locality: A reprojection approach

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Based on the assumption that all cases of long-distance agreement should be analyzed as involving only local agreement, and based on the observation that all existing approaches to long-distance agreement in terms of local agreement face substantial empirical and/or conceptual problems, the present paper sets out to develop a radically new approach to long-distance agreement. We suggest that long-distance agreement can and should be analyzed as a strictly local operation taking place early in the derivation, and giving rise to a counter-bleeding effect (i.e., apparent non-locality) later in the derivation as a consequence of regular syntactic structure building. More specifically, we argue that long-distance agreement involves (a) (what will become) a matrix verb  $V_1$  which enters the syntactic derivation as part of a complex predicate  $V_1$ - $V_2$  that is merged with the embedded internal argument, agreeing with it locally early in the derivation; and (b) subsequent reprojection movement of  $V_1$  out of  $V_2$ 's clause, which eventually produces a biclausal structure (and thereby leads to a counter-bleeding effect with agreement). Empirical evidence for the new approach mainly comes from Nakh-Daghestanian languages, among them Hinuq, Khwarshi, and Tsakhur.

## 1 Introduction

Long-distance agreement is a phenomenon where agreement seems to take place in a non-local configuration, that is, across a clause boundary. More specifically, in cases of long-distance agreement, the verb in the matrix sentence agrees with



respect to  $\phi$ -features with an argument of the verb in an embedded sentence. A language that shows this phenomenon is Hindi-Urdu (see Mahajan 1990, Butt 1995; 2008, Bhatt 2005, and Chandra 2005, among others). A relevant pair of examples is given in (1). In Hindi, a DP qualifies as an agreement controller if it is not overtly case-marked (if both an external and an internal argument fail to be overtly case-marked, agreement is with the subject). Long-distance agreement is optional here: either there is agreement of both the matrix verb and the embedded verb with the embedded absolutive object DP (as in 1b), or the verbs show default agreement (as in 1a).

- (1) a. Raam-ne            [ $_{\alpha}$  rotii        khaanaa ]    chaahaa  
       Ram.MASC.-ERG    bread.FEM eat.INF.MASC want.PERF.PST.MASC  
       ‘Ram wanted to eat bread.’                    (Mahajan 1990: 90)
- b. Raam-ne            [ $_{\alpha}$  rotii        khaanii ]    caahii  
       Ram.MASC-ERG    bread.FEM eat.INF.FEM want.PERF.PST.FEM  
       ‘Ram wanted to eat bread.’                    (Mahajan 1990: 91)

Long-distance agreement is also widespread in Nakh-Daghestanian languages. A relevant pair of examples from Tsez is given in (2) (see Polinsky & Potsdam 2001). Agreement with respect to gender (III, in the case at hand) is controlled by absolutive DPs in Tsez. It always shows up on the embedded verb (if that verb can host overt agreement morphology in principle), and may then optionally also show up on the matrix verb (as in 2b); alternatively, there is no long-distance agreement, and the matrix verb exhibits default (IV) agreement marking (as in 2a).<sup>1</sup>

- (2) a. Eni-r            [ $_{\alpha}$  uḷ-ā        magalu        b-āc'-ru-li ]  
       mother-DAT    boy-ERG bread.III.ABS III-eat-PSTPRT-NMLZ  
       r-iy-xo  
       IV-know-PRS  
       ‘The mother knows that the boy ate the  
       bread.’    (Polinsky & Potsdam 2001: 584)

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<sup>1</sup>As noted by Bhatt (2005), some varieties of Hindi behave similarly in that they also exhibit an asymmetry between agreement with matrix as opposed to embedded verbs (such that embedded verbs can agree while matrix verbs do not have to), whereas other varieties of Hindi show a strict one-to-one correspondence (such that embedded verb agreement implies matrix verb agreement), as presupposed in the main text above.



- (5) a. Ni-tshissenit-en [ <sub>$\alpha$</sub>  Pûn kê-mûpisht-âshk ]  
 1-know-TI Paul PRT-visited-2/INV  
 ‘I know that Paul visited you.’ (Bobaljik & Wurmbrand 2005: 50)
- b. Ni-tshissenim-âu [ <sub>$\alpha$</sub>  Pûn kê-mûpisht-âshk ]  
 1-know-3 Paul PRT-visited-2/INV  
 ‘I know that Paul visited you.’ (Branigan & MacKenzie 2002: 389)

While long-distance agreement is optional in all these languages, there are also some languages where long-distance agreement is obligatory in certain environments; this holds, e.g., for Icelandic, Kutchi Gujarati and Chamorro. In this paper, we will concentrate on those languages in which long-distance agreement seems optional. Still, as with many other cases of syntactic optionality, it turns out that in all these cases, the choice of long-distance agreement in a sentence goes along with an interpretation of the controller of long-distance agreement as having a particular information structural status, i.e., an interpretation that the other member of the sentence pair – that with (only) local agreement – lacks.

The central challenge posed by long-distance agreement for syntactic theory is, of course, the apparent non-locality of the operation. More specifically, the embedded DP that controls the agreement would seem to be separated by a clause-like constituent ( $\alpha$  in the examples above) from the matrix verb, and therefore be too far away to permit establishing a local relation. This is potentially problematic because most current syntactic theories do indeed postulate that syntactic operations (like agreement) are highly local (e.g., this holds for the Minimalist Program, HPSG, Categorical Grammar, and Optimality Theory); in line with this, in all these theories, apparently non-local dependencies like long-distance movement, long-distance reflexivization, long-distance case assignment, sequence of tense, and switch reference have successfully been reanalyzed as involving only fairly local operations (see Alexiadou et al. 2012 for an overview).

Against the background of the Minimalist Program, the question raised by long-distance agreement is how it can be ensured that the basic locality requirement imposed by the Phase Impenetrability Condition (PIC, Chomsky 2000; 2001; 2008; 2013) in (6) is respected by the operation.

- (6) *Phase Impenetrability Condition* (PIC):  
 In phase  $\alpha$  with head H, the domain of H is not accessible to operations outside  $\alpha$ ; only H and its edge are accessible to such operations.

If  $\alpha$  in (1–5) qualifies as a phase in the sense of (6), the very existence of long-distance agreement seems to be at variance with the PIC.<sup>2</sup>

In what follows, we will argue that the PIC-induced locality problem with long-distance agreement is real, and has not been convincingly solved yet in any of the approaches to long-distance agreement that have been developed so far. In view of this state of affairs, we will propose a radically new approach in terms of complex predicate formation plus reprojection where long-distance agreement can be analyzed as a strictly local operation: The new analysis involves (i) a verb  $V_1$  which enters the syntactic derivation as part of a complex predicate  $V_1$ - $V_2$  that is merged with the embedded internal argument, agreeing with it locally early in the derivation; and (ii) subsequent reprojection movement of  $V_1$  out of  $V_2$ 's clause, which eventually produces a biclausal structure (and thereby leads to a counter-bleeding effect with agreement).

The article is structured as follows. In Section 2, we will sketch the different types of existing approaches to the phenomenon of long-distance agreement. Given the PIC-based premise of strictly local application of all syntactic operations, we will point out individual problems the different approaches face as well as introduce some new data that turn out to be problematic for almost all of them. We will then go on to introduce the new approach in terms of reprojection in Section 3. In Section 4, which concludes the article, we will summarize the main features of the new approach and provide an outlook into how it might also be put to use in other contexts involving extraction from DPs, where there is evidence for an extremely local relation of two heads that show up in two separate domains in syntactic output structures.

## 2 Existing analyses

At least for our present purposes, four different kinds of analysis of long-distance agreement can be distinguished. We will refer to these as (i) non-local analyses (where long-distance agreement can apply in a non-local fashion), (ii) small structure analyses (where there is no phase boundary), (iii) Cyclic Agree analyses (where the information relevant for agreement is locally passed on through

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<sup>2</sup>As a matter of fact, simple cases of T agreeing with a nominative object DP in VP in a language like Icelandic are already problematic from the point of view of the PIC in (6). For this reason, Chomsky (2001) also envisages a second, somewhat more liberal version of the PIC, where a phase domain becomes opaque only when the next phase is reached. However, even this less restrictive version of the PIC would not suffice to straightforwardly derive the possibility of long-distance agreement. Furthermore, one might argue that the head actually responsible for this agreement into VP is not T but *v*. We will abstract away from this issue in what follows, and presuppose the PIC in (6) for the remainder of the paper.

the tree, originating with the controller and ultimately reaching the matrix verb), and (iv) feeding analyses (where movement of the controller makes local agreement possible). We will discuss these four analysis types in turn.<sup>3</sup>

## 2.1 Type (i): Non-local analyses

Non-local analyses either assume that the locality constraint on Agree is weaker than the original PIC (see Chomsky 2001 and footnote 2), or that Agree is not, in fact, subject to such a strict locality constraint in the first place (see Sells 2006, Bošković 2007, Keine 2016).

For example, Bošković's (2007) analysis relies on a revised Agree operation, one which is not subject to either the Activity Condition (7d in the original Agree definition in 7) or the PIC.

(7) *Agree*

$\alpha$  may Agree with  $\beta$  iff:

- a.  $\alpha$  carries at least one unvalued and uninterpretable feature and  $\beta$  carries a matching interpretable and valued feature
- b.  $\alpha$  c-commands  $\beta$
- c.  $\beta$  is the closest goal to  $\alpha$
- d.  $\beta$  bears an unvalued uninterpretable feature.

Thus, the matrix verb can look all the way down to the embedded absolutive DP to check its  $\phi$ -features. Bošković (2007) assumes that finite complement clauses can in principle be CPs or TPs. Thus, in complement clauses in which there is no evidence for a CP layer, one might as well assume that those clauses actually lack it. The idea, then, is that CPs block long-distance agreement in Tsez while TPs allow it. This is because, Bošković (2007) claims, CPs, in contrast to TPs, may carry  $\phi$ -features that need to get checked. In the case of Tsez, CPs (and those of the languages that lack long-distance agreement altogether), he assumes that they do carry such (default-valued)  $\phi$ -features, which makes it possible for the matrix verb to locally agree with the CP as such, leading to local agreement. Long-distance agreement in cases that involve CPs is impossible due to the condition on Agree to involve the potential goal closest to the probe (see 7c).

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<sup>3</sup>We will not consider a fifth type of analysis, where the matrix verb locally agrees with a covert pronoun, which in turn is coindexed (and therefore shares  $\phi$ -features) with an embedded DP. As shown in Polinsky & Potsdam (2001) and Bhatt & Keine (2016), such "proxy agreement" is not a viable alternative in general. (Also, it is worth noting that such an analysis solves one locality problem (seemingly non-local agreement) by shifting it to another, well-known locality problem (seemingly non-local binding chains)).

Whatever the merits of this proposal, it is clear that it is incompatible with the strict PIC in (6): Since the potential long-distance agreement controller in transitive sentences is the internal argument bearing absolutive case, which is base-generated in VP, the PIC will predict that long-distance agreement should not be possible, independently of whether the embedded vP phase has both a TP and a CP projection on top of it, or just a TP projection.

## 2.2 Type (ii): Small structure analyses

In small structure analyses, it is argued that the configuration of matrix verb and long-distance agreement-trigger is local after all. The structure of the complement clause is assumed to be smaller than might be thought from the surface data (e.g., a VP in Boeckx 2004; an InflP in Bhatt 2005).

Like Bošković's (2007) approach, Bhatt's (2005) analysis is based on a revised Agree operation – in this case, it is one which also is not subject to the Activity Condition, but which does respect the PIC. To account for apparent long-distance agreement in Hindi, Bhatt (2005) assumes that complement clauses to matrix verbs that allow long-distance agreement are in fact only InflPs/VPs, which lack an external argument (i.e., they have no PRO) and are thus not phases. In contrast, long-distance agreement out of finite clauses is not possible in Hindi because finite complement clauses are CPs; the same prediction arises for infinitival structures that contain a PRO subject. In line with this, as far as the optionality of long-distance agreement in Hindi is concerned, Bhatt (2005) explains it by assuming that matrix verbs that allow long-distance agreement have an option of selecting either a restructuring infinitive or a non-restructuring infinitive, where the latter involves a syntactically projected PRO subject. This PRO intervenes between the matrix verb and the embedded object and, thus, blocks long-distance agreement (in the same way, a problem with the PIC would arise in this context).

Bhatt's (2005) analysis may work well for a language like Hindi, but it does not carry over to long-distance agreement in languages of the Nakh-Daghestanian type, where the external argument is clearly present (bearing ergative) in the embedded clause; see, e.g., (2b) from Tsez and (3b) from Hinuq. Given the strict version of the PIC in (6), it is clear that the presence of an external argument DP uncontroversially implies the presence of a vP phase, and this should make agreement of a matrix V with an internal argument DP included in the complement domain of v impossible, independently of whether vP qualifies as  $\alpha$  (in the above sense) or not (i.e., independently of whether there is additional structure on top of vP in the complement of the matrix V).<sup>4</sup>

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<sup>4</sup>As a matter of fact, to account for evidence of the Nakh-Daghestanian type, Bhatt (2005: 791) ultimately concludes that a feeding account along the lines of Polinsky & Potsdam (2001) is independently called for; see below.

### 2.3 Type (iii): Cyclic Agree analyses

In Cyclic Agree analyses, it is assumed that what looks like long-distance agreement actually is to be decomposed into a series of shorter agreement steps, all of which obey strict locality. On this view, first the embedded verb agrees with the embedded agreement controller DP; second, the matrix verb agrees with the embedded verb; third, by transitivity, this implies that the matrix verb will eventually agree with the embedded DP, albeit indirectly. This kind of analysis has been pursued by Butt (1995), Legate (2005), Keine (2008), Preminger (2009), and Lahne (2012), among others. As an illustration, consider the specific approach developed in Legate (2005).

The basic premise of this approach is that at no stage of the derivation is there an Agree relation between the matrix verb and the embedded DP. Rather, the agreement controller DP's  $\phi$ -features first value an  $[u\phi]$  probe feature of a phase head, which by definition (cf. the PIC in 6) is also part of the higher phase. The matrix verb then probes the embedded phase head's  $\phi$ -features. Thus, the embedded phase head acts as a hinge between the matrix and embedded domains. This accounts for the observation that long-distance agreement presupposes the existence of local agreement in the embedded clause.

The Cyclic Agree approach solves the locality problem with long-distance agreement in a very simple manner that directly corresponds to the analogous (and by now well-established) treatment of long-distance movement in terms of successions of smaller movement steps.<sup>5</sup> However, there are both conceptual and empirical problems raised by Cyclic Agree approaches to long-distance agreement. On the one hand, Cyclic Agree is conceptually problematic from a minimalist perspective, given standard assumptions about probe features, goal features, and the Agree operation: It looks as though one and the same set of  $\phi$ -features (on the phase head in the middle) must act as a probe in one case, and as a goal in another (see Bhatt 2005). On the other hand, there is an empirical problem (see Polinsky & Potsdam 2001, Bhatt & Keine 2016) that is due to the fact that Cyclic Agree approaches rely on transitivity. The problem is that if two verbs  $V_1$  and  $V_2$  can in principle participate in local agreement in some long-distance agreement constructions, and  $V_2$  and  $DP_{abs}$  can participate in local agreement, then

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<sup>5</sup>As a matter of fact, an alternative local analysis of long-distance agreement that mimicks SLASH feature percolation as it has been proposed for movement dependencies (see Gazdar 1981) might in principle also be an option. This would then express a similarity of the two operations in long-distance contexts (viz., movement and agreement) even more straightforwardly. However, to the best of our knowledge, such an analysis has not yet been proposed. That notwithstanding, it would be subject to the same empirical problem mentioned in the main text below.

long-distance agreement involving  $V_1$  and  $DP_{abs}$  must also be possible. However, this is not always the case: For instance, in Tsez, long-distance agreement, unlike local agreement, requires  $DP_{abs}$  to be a topic (see Polinsky & Potsdam 2001). This is shown by the examples in (8), where (i) local agreement of the embedded predicate and the absolutive DP as the agreement controller is possible throughout, (ii) the matrix and embedded predicates can participate in long-distance agreement in principle, but (iii) long-distance agreement in this configuration is blocked nevertheless because the absolutive DP is not interpreted as a topic: It is interpreted as a focus in (8a), and it shows up as an – inherently non-topicalizable – reflexive pronoun in (8c). In both cases, the matrix verb can only carry out agreement with the embedded clause ( $\alpha$ ) itself; cf. (8b–8d).

- (8) a. \*Eni-r            [ $_{\alpha_{IV}}$  t'ek-kin            y-igu    yāl-ru-li ]  
 mother-DAT        bookII.ABS-FOC II-good be-PSTPRT-NMLZ  
 y-iy-xo  
 II-know-PRES  
 'The mother knows that the BOOK is good.'  
 (Polinsky & Potsdam 2001: 611)
- b. Eni-r            [ $_{\alpha_{IV}}$  t'ek-kin            y-igu    yāl-ru-li ]  
 mother-DAT        bookII.ABS-FOC II-good be-PSTPRT-NMLZ  
 r-iy-xo  
 IV-know-PRES  
 'The mother knows that the BOOK is good.'  
 (Polinsky & Potsdam 2001: 611)
- c. \*Eni-r            [ $_{\alpha_{IV}}$  už-ā            nesā že    žāk'-ru-li ]  
 mother-DAT        boy-ERG REFL.I.ABS beat-PSTPRT-NMLZ  
 Ø-iy-xo  
 I-know-PRES  
 'The mother knows that the boy beat himself up.'  
 (Polinsky & Potsdam 2001: 612)
- d. Eni-r            [ $_{\alpha_{IV}}$  už-ā            nesā že    žāk'-ru-li ]  
 mother-DAT        boy-ERG REFL.I.ABS beat-PSTPRT-NMLZ  
 r-iy-xo  
 IV-know-PRES  
 'The mother knows that the boy beat himself up.'  
 (Polinsky & Potsdam 2001: 612)

## 2.4 Type (iv): Feeding analyses

### 2.4.1 Movement feeds agreement

Fourth and finally, Polinsky & Potsdam (2001) have argued that a local approach to long-distance agreement in Tsez is both technically feasible and empirically supported. In their view long-distance agreement involves feeding of local agreement by movement. The basic assumption is that the agreement controller (an absolutive DP in Tsez) moves to a position in which it can locally agree with the matrix verb. However, there are two complications to this simple picture. First, Polinsky & Potsdam present strong arguments against the assumption that displacement of the agreement controller DP ends up in the matrix clause itself. For one thing, all established movement operations in Tsez are strictly clause-bound, so the operation that feeds long-distance agreement would be the only type of movement that could leave a clause. For another, Polinsky & Potsdam (2001) observe that long-distance agreement in Tsez never co-occurs with scope reversal; in other words, a DP that participates in long-distance agreement with a matrix verb can never take scope over quantified items in the matrix clause. This latter property is illustrated in (9): Independently of whether long-distance agreement takes place (see 9b) or not (see 9a), the embedded absolutive DP (with a universal quantifier in 9) cannot take scope over a matrix subject (with an existential quantifier in the case at hand).

- (9) a. Sis učitelər [<sub>α</sub> šibaw uži      Ø-ik'ixosi-łi] r-iy-xo  
 one teacher    every boy<sub>I.ABS</sub> I-go-NMLZ    IV-know-PRS  
 'Some teacher is such that he knows that every boy is going.'  
 \*'Every boy is such that some teacher knows that he is  
 going.' (Polinsky & Potsdam 2001: 618)
- b. Sis učitelər [<sub>α</sub> šibaw uži      Ø-ik'ixosi-łi] Ø-iy-xo  
 one teacher    every boy<sub>I.ABS</sub> I-go-NMLZ    I-know-PRS  
 'Some teacher is such that he knows that every boy is going.'  
 \*'Every boy is such that some teacher knows that he is  
 going.' (Polinsky & Potsdam 2001: 619)

From these considerations it follows that the postulated movement operation cannot actually end up in the matrix clause in cases of long-distance agreement. The second complication involves the overt/covert distinction of movement operations. Since the absolutive DP that participates in long-distance agreement does not have to be overtly displaced and typically shows up in its in situ position (or, more generally, given that Tsez exhibits variable word order: it shows

up in its unmarked position), it is clear that the movement operation that feeds long-distance agreement must be a covert one.

Against this background, Polinsky & Potsdam's (2001) proposal is the following: There is covert, information structure-driven movement of the long-distance agreement-controller into a higher domain (phase) of the same clause, and the position thus reached provides a local enough configuration with the matrix verb to make Agree with it possible. More specifically, Polinsky & Potsdam's (2001) analysis works as follows.

A crucial basic assumption is that the size of embedded clauses in Tsez is variable. (10) gives the maximal syntactic structure for a clause in Tsez. This structure is only fully built up when needed; i.e., clauses are CPs if they exhibit material that belongs in this layer (e.g., a C head) but not otherwise; a TopP is projected if the clause contains a topic; and so forth.

(10) *Clause structure for Tsez:*

[CP [C' C [TopP [Top' Top [TP DP<sub>erg</sub> [T' T [VP DP<sub>abs</sub> V]]]]]]]]

On this basis, Polinsky & Potsdam (2001) assume that, generally, long-distance agreement-allowing matrix verbs can select a TP as complement. However, to derive long-distance agreement in Tsez, it is postulated that a topic-marked long-distance agreement-controlling element is covertly moved to the specifier of TopP in the left periphery of the complement clause. This movement brings the triggering element into a sufficiently local relation to the matrix verb to allow the latter to check its uninterpretable  $\phi$ -features against those of the covertly topicalised element, resulting in long-distance agreement. Long-distance agreement is, thus, taken to be a reflex of the topic-status of the triggering element.

A CP is predicted to block long-distance agreement, as is a bare TP, given that a DP<sub>abs</sub> agreement controller does not occupy SpecT (at this point the analysis is not fully PIC-compatible). The relation that Polinsky & Potsdam (2001) assume to underlie long-distance agreement is Head Government (not Agree, as in 7), which, following Rizzi (1990), is understood as in (11).

(11) *Head Government:*

X head-governs Y iff:

- a.  $X \in \{A, N, P, V, H[+ \text{tense}]\}$ .
- b. X m-commands Y.
- c. No barrier intervenes.
- d. Relativized Minimality is respected.

It is then postulated that it can be derived from (11) that “a head governs its specifier, its complement, an element adjoined to its complement, and the specifier of its complement” (Polinsky & Potsdam 2001: 627), but not, say, the specifier of the complement of the head’s complement. However, as a matter of fact, it is not quite clear why this should be the case. Consider (12).

(12) [<sub>XP</sub> X [<sub>ZP</sub> Z [<sub>WP</sub> YP [<sub>W'</sub> ... ]]]]

Does X head-govern YP in (12)? First, suppose that X is one of the possible items mentioned in (11a). Second, X clearly m-commands YP. Third, Relativized Minimality is respected in (12) because there is no intervening phrase that could induce a Relativized Minimality effect for X and YP (there is no phrase that c-commands YP and is c-commanded by X – ZP and WP both dominate YP). That leaves the presence of a barrier as the only possible source of a failure of head government of YP by X. Whether ZP or WP is a barrier in (12) depends on the exact definition of this concept (which Polinsky and Potsdam do not provide). The first thing to note is that both ZP and WP are complements, i.e., sisters of X<sup>0</sup> categories. This will suffice to exempt them from barrier status in most of the available conceptions of barriers (see, e.g., Cinque 1990). In contrast, according to the more complex, two-stage definition of barrier in Chomsky (1986), ZP might in fact emerge as a barrier in (12) if WP can be classified as a blocking category that passes on its status as a “virtual barrier” to the phrase immediately above it. So it seems that only under this complex approach, based on blocking categories vs. real barriers, can it be derived that X does not head-govern YP in (12).

Based on the assumption that all agreement relations are subject to (11) (or at least the general consequences that (11) is supposed to have), a number of restrictions that Polinsky & Potsdam observe for long-distance agreement in Tsez follow. First, a CP can never be projected in long-distance agreement contexts because “it would block government of SpecTop by the verb” (Polinsky & Potsdam 2001: 638). Note that this presupposes that ZP (= CP) would indeed qualify as a barrier in (12) that makes head government of YP (= DP<sub>abs</sub> in SpecTop) by matrix V (= X) impossible. (As we have just seen, this consequence is far from straightforward.) However, with this qualification, it can be derived that long-distance agreement is impossible (i) in the presence of a wh-phrase in a clause (which inherently activates the CP layer, whether or not wh-movement takes place overtly), and (ii) in the presence of the element *λin*, which is assumed to be a designated C element.<sup>6</sup> A third prediction is that long-distance agreement with

<sup>6</sup>As noted by Polinsky & Potsdam (2001: fn. 20), long-distance agreement in the presence of a wh-phrase would ceteris paribus be expected to be possible if the wh-phrase is itself the absolute argument and occupies SpecC.

$D_{abs}$  is impossible if some other XP functions as the topic in a clause.<sup>7</sup> These qualifications notwithstanding, Polinsky & Potsdam's (2001) analysis would seem to derive licit and illicit cases of long-distance agreement in a very simple and elegant way that furthermore respects locality considerations. Still, as shown in the following subsection, there are conceptual and empirical problems with this approach.

## 2.4.2 Problems with the feeding approach

### 2.4.2.1 The nature of covert topic movement

First, as noted by Bošković (2007), the crucial postulation of a covert topicalization operation for Tsez is far from innocuous. There is virtually no independent evidence that such an operation exists. Also, there is a real danger of an ordering paradox: It is not really clear how *covert* movement at LF can trigger *overt* agreement – if the movement takes place at LF, it comes too late.<sup>8</sup>

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<sup>7</sup>Again, though, details of the account are somewhat unclear. One might think that this effect is due to intervention, i.e., the Relativized Minimality part of the definition of Head Government. However, if there can only be one topic per clause in Tsez, and that is not  $DP_{abs}$ , then  $DP_{abs}$  can never reach the position (viz., SpecTop) it needs to reach to enable long-distance agreement, and a resort to intervention is not necessary. If, on the other hand, there can be more than one topic per clause, then it is not obvious why  $DP_{abs}$  should not qualify as the structurally highest one of them, thereby circumventing an intervention effect.

<sup>8</sup>This problem can in principle be solved by assuming that covert movement is actually movement taking place in the narrow syntax, with the only difference to overt movement being that the lowest copy of a complex chain is subject to phonological realization (rather than the highest member, as with overt movement). However, even if one were to adopt such an approach based on the copy theory of movement, the intended effect does not seem to arise anywhere else. As far as we can tell, other instances of covert movement that have been suggested in the literature (e.g., for certain cases of wh-in situ) never feed Agree operations. Thus, compare (i.a), where overt wh-movement gives rise to new options for reflexivization (assumed here to be an instance of Agree, see Reuland 2011 for discussion), with (i.b), where covert wh-movement fails to produce the same effect (see Barss 1986).

- (i) a. John<sub>1</sub> wonders [<sub>CP</sub> [<sub>DP</sub> which book about himself<sub>1</sub>] Bill bought]  
 b. \*John<sub>1</sub> wonders [<sub>CP</sub> why Bill bought [<sub>DP</sub> a book about himself<sub>1</sub>]]

In the same way, covert wh-movement (unlike overt wh-movement) never seems to feed case assignment or agreement in the world's languages. – All that said, Polinsky & Potsdam (2001: 626) would seem to exclude a reinterpretation of covert movement as overt movement plus pronunciation of the lower copy when they explicitly state that the “syntactic agreement configuration between the probe and the absolute trigger is created at LF”.

#### 2.4.2.2 Complementizers

There are two complementizer-like items in Tsez viz. *li*, which permits long-distance agreement (and shows up in all Tsez examples exhibiting long-distance agreement disussed above), and  $\lambda in$ , which blocks long-distance agreement. As noted, Polinsky & Potsdam (2001) assume that  $\lambda in$  is indeed a regular C item, and assuming that the presence of a CP makes head government impossible, it is correctly predicted that there is no long-distance agreement across  $\lambda in$ . However, for the same reason, it must be assumed that *li* is not a C element. The problem here is that this is exactly what it looks like, given that, like  $\lambda in$ , it is the outermost head in the word containing V. What is more, it does not yet suffice to assume that *li* is not a C element – *li* must be assumed not to be structurally represented *at all*. The reason is that if *li* were the head of a phrase (outside of TopP), it would block long-distance agreement in the same way as  $\lambda in$ . It remains unclear whether there is any independent evidence for such a radically different treatment (projecting complementizer vs. structure-less morphological marker) of the two items. (In the analysis to be developed in Section 3 below, we will presuppose that both  $\lambda in$  and *li* are regular C items.)

We take these first two problems to be potentially worrisome but certainly not decisive. Arguably, things are different with the next two issues raised by Polinsky & Potsdam's analysis, concerning a semantic problem based on the assumed covert DP movement, and an incompatibility of the analysis with what look like clear cases of long-distance agreement across a CP boundary.

#### 2.4.2.3 Topic interpretation within the embedded clause

Polinsky & Potsdam (2001) assume that the landing site of the abstract movement is in the left periphery of the embedded clause. Accordingly, the long-distance agreement-controlling DP is interpreted as the topic of the embedded clause. A problem with this analysis is that information structure phenomena – and root phenomena in general – are usually confined to clauses that have some illocutionary force; see Hooper & Thompson (1973), Ebert et al. (2008), Krifka (2014), and Matic' et al. (2014). Most long-distance agreement-allowing matrix verbs, however, are factives, which semantically take sentence radicals (see Stenius 1967), i.e. propositions, as complements (see Krifka 2004) and also syntactically involve smaller structures (see de Cuba & Urogdi 2010). Thus, complements of factives do not involve any illocutionary operator in their syntax/semantics – only the matrix clause does. Under a structured proposition approach (see Krifka 1992) to information structural phenomena, this leads to a semantic representation in



the triggering NP can have either topic or focus status. For instance, in the Khwarshi examples in (16), the absolutive DP is interpreted as the topic of the embedded clause, and long-distance agreement is possible (see Khalilova 2009: 387). However, long-distance agreement is also possible in answers to information questions, as in (17), suggesting that the long-distance agreement-controlling DP<sub>abs</sub> may also function as the focus of the embedded clause.

- (16) a. Išet'u-l            l-iq'-še            goli uža            bataxu y-acc-u  
 mother.OBL-LAT IV-knows-PRS COP boy.ERG bread(V) V-eat-PST.PTCP  
 'Mother knows that the boy ate bread.' (Khalilova 2007: 116)
- b. Išet'u-l            y-iq'-še            goli uža            bataxu y-acc-u  
 mother.OBL-LAT V-knows-PRS COP boy.ERG bread(V) V-eat-PST.PTCP  
 'As for the bread, mother knows that the boy ate it.'  
 (Khalilova 2007: 117)
- (17) a. (Which cow does the boy know came?)
- b. Uža-l            l/b-iq'-še            k<sup>ʃ</sup>aba zihe            b-ot'uq'q'-u  
 boy.OBL-LAT IV/III-know-PRS black cow(III) III-come-PST.PTCP  
 'The boy knows that the black cow has come.'  
 (Khalilova 2007: 118)

Similar facts obtain in Hinuq.

Importantly, long-distance agreement in Khwarshi and Hinuq is also less restricted in another respect: There are cases in which a *wh*-element occurs in an interrogative complement clause, and long-distance agreement is nevertheless available. This is shown for Khwarshi in (18) (see Khalilova 2007).

- (18) Uža-l            l/b-iq'-še            [CP(IV) lu<sub>[foc]</sub>            zihe  
 boy.OBL-LAT IV/III-know-PRS            who.ERG cow(III)  
 b-iti-xx-u]  
 III-divide-CAUS-PST.PTCP  
 'The boy knows who has stolen the cow.'

Here a *wh*-phrase bearing ergative case shows up in the embedded interrogative clause. Given standard assumptions about the semantics of questions (see, e.g., von Stechow 1996), the interrogative interpretation of a clause is inherently, and invariably, tied to the presence of a C element. Therefore, (18) proves that long-distance agreement across a CP boundary is possible in Khwarshi independently of whether the ergative *wh*-phrase can be assumed to be located in SpecC in the syntax, and of whether or not there is an overt C item present.

Next, (19) and (20) illustrate the possibility of long-distance agreement across a CP boundary in Hinuq (see Forker 2012). In (19), the embedded interrogative clause contains a subject *wh*-phrase that does not block long-distance agreement with the (non-*wh*) absolutive DP.

- (19) [CP  $\text{\textasciitilde}u$  rek<sup>w</sup>e go $\text{\textasciitilde}$ iš ] diž  $\emptyset$ -eq<sup>i</sup>-yo gom  
 who man.I be.CV.B I.DAT I-know-PRS be.NEG  
 ‘I do not know who he was.’ (Forker 2012: 637)

In contrast, (20) shows that long-distance agreement is also possible with an absolutive DP that is a *wh*-element itself; but there is no reason to assume that  $DP_{abs}$  is not in its base position here.

- (20) Debez r/ $\emptyset$ -eq<sup>i</sup>-ye [CP(V) k<sup>’</sup>ačay-za-y  $\text{\textasciitilde}u$   $\emptyset$ -uher-iš- $\text{\textasciitilde}$ i ] ?  
 you.SG.DAT v/I-know-Q bandit-OBL.PL-ERG who I-kill-RES-ABST  
 ‘Do you know whom the bandits killed?’ (Forker 2012: 637)

Note that (19) and (20) contain clause-final elements that would seem to correspond to *li* rather than *λin* in Tsez. However, notwithstanding the problems raised by Polinsky & Potsdam’s (2001) analysis of *li* mentioned above, and notwithstanding the arguments that Forker presents for a uniform CP analysis of these contexts in Hinuq after all, it is clear that the status of *li* has no bearing on the question of whether there is a CP present in (19) and (20) (and 18, for that matter): There must be a CP boundary here because of the combination of interrogative semantics and a full clausal structure, including assignment of ergative (which by itself is not yet decisive, given that there are good arguments for assuming that the ergative is assigned within *vP* in Nakh-Daghestanian languages; see Gagliardi et al. 2014, Polinsky 2016).

Thus, there is strong evidence from Khwarshi and Hinuq for the general availability of long-distance agreement across what must qualify as a CP.

What is more, unlike Tsez, the non-Tsezic Nakh-Daghestanian language Tsa-khur also permits what can be called “super-long-distance agreement”, i.e., long-distance agreement across two clause boundaries; see Kibrik (1999).

- (21) Ičī-s w=u $\bar{k}$ ikin-na [CP jičō-j-s [CP gaba hā<sup>?</sup>-as ]  
 girl-DAT 3=want.PF-AA sister-OBL-DAT carpet.3 3.do-POT  
 XaIr-qi=w=x-es ]  
 learn-3=become-POT  
 ‘The girl wants her sister to learn to make a carpet.’  
 (Kibrik 1999)

Similar phenomena have also been reported by Forker (2012) for Hinuq; see (22).

- (22) Iyo-z            b-eq'i-yo    [<sub>CP</sub> Pat'imat-ez [<sub>CP</sub> tort    b-ac'-a ]  
 mother-DAT III-know-PRS    Patimat-DAT    cake(III) III-eat-INF  
 b-eti-š-ŋi ]]  
 III-want-RES-ABST  
 ‘The mother knows that Patimat wanted to eat the cake.’  
 (Forker 2012: 633)

If there are two CP boundaries present, there is no way for the feeding approach to account for the option of long-distance agreement since the covert movement postulated in this approach always has to be clause-bound.

## 2.5 Interim conclusion

We take it that the conclusion that can be drawn on this basis is that all four existing approaches face significant problems with long-distance agreement from the point of view of a grammar that incorporates a strict locality principle like the PIC. Thus, there is every reason to pursue a new approach; and given the general availability of long-distance agreement across a CP, this approach must be such that it preserves strict locality even if there can be no denying the fact that the matrix verb and the embedded agreement controller DP can be far away from one another in structural terms in syntactic surface representations.

As a basic premise, we will assume that the only way to locally model non-local dependencies is via *movement* (see Hornstein 2001; 2009 for this general point, and Müller 2014 for some specific proposals in a priori recalcitrant domains). Given the PIC, a matrix V and an embedded (agreement-controlling) DP have to enter a local relation at some point of the derivation. As we have seen, there is evidence against the assumption that DP moves to the matrix V domain (or to a position of the embedded domain that is accessible from it); this excludes feeding analyses. The only remaining possibility then is that it is actually V that moves to the matrix domain: If the mountain won't come to the prophet, the prophet will go to the mountain.

For concreteness, we would like to propose that locality in long-distance agreement is not established *late* in the derivation (as in Polinsky & Potsdam 2001's approach, where movement feeds long-distance agreement), but, in fact, *early*. This approach thus involves counter-bleeding (rather than feeding): Agreement with the embedded internal argument DP takes place at a stage in the derivation when DP and the two verbs involved are all clause-mates. It is only due to subsequent reprojection movement of what will eventually become the matrix verb

that on the surface it looks as if agreement takes place long-distance; reprojection movement of V thus comes too late to bleed (i.e., it counter-bleeds) Agree.

### 3 A new analysis

#### 3.1 Head movement as reprojection

Let us begin by sketching the outlines of a general approach to head movement in terms of reprojection, a concept that has been widely pursued for various empirical domains over the last decades (see Pesetsky 1985; von Stechow & Sternefeld 1988; Sternefeld 1989; Holmberg 1991; Ackema et al. 1993; Kiss 1995; Koenenman 2000; Haider 2000; Bhatt 2002; Hornstein & Uriagereka 2002; Fanselow 2003; 2009; Bury 2003; Surányi 2005; Donati 2006; Bayer & Brandner 2008; Georgi & Müller 2010; Müller 2011; S. Müller 2016, among others).<sup>9</sup> The basic idea behind head movement as reprojection is that an  $X^0$  head is moved out of a projection that dominates it and takes this projection as its own complement by merging with it, projecting anew in the derived position. This solves the notorious c-command and Extension Condition (cf. Chomsky 1995) problems with head movement as adjunction to an  $X^0$  category: In a head-movement-as-adjunction structure like (23), the moved head Y fails to extend the tree (since XP must, by definition, have been in place before movement of Y), and Y does not c-command its trace (because the next branching node containing Y is the higher X segment, which does not dominate Y's trace).

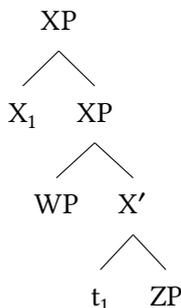
(23) [<sub>XP</sub> [<sub>X</sub> Y<sub>1</sub> X ] [<sub>WP</sub> ... t<sub>1</sub> ... ]]

These problems disappear under a reprojection approach: Head movement has now extended the tree, and the moved item is able to c-command its trace. Furthermore, this approach does not necessitate (i) a relocation of head movement to PF (see Chomsky 2000), (ii) a reinterpretation as XP movement (see Koopman & Szabolcsi 2000, Mahajan 2001, and Nilsen 2003, among many others), or (iii) the postulation of a complex operation integrating both regular syntactic movement and syntactically irregular morphological merger (see Matushansky 2006).

There are basically three different reprojection scenarios. A first possibility is that a head moves out of its own projection, merges with the XP of which it was the head prior to the movement, and projects anew. Such local reflexive reprojection is shown in (24).

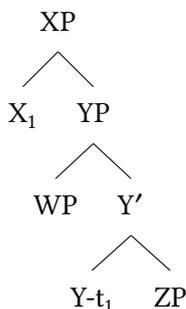
<sup>9</sup>Pesetsky (1985) suggests that reprojection after head movement at LF serves to circumvent bracketing paradoxes. As far as we can tell, this qualifies as the first instance of a reprojection approach to head movement in the literature.

(24) *Local reflexive reprojection:*



A second possibility is that a reprojection movement is still highly local (in the sense that the moved head attaches to the minimal phrase that dominated it before the movement step was carried out), but not reflexive. In this scenario, the moved head exorporates from a complex head structure that was formed by an earlier (possibly pre-syntactic) operation combining two primitive  $X^0$  categories (in accordance with c-command and Extension Condition requirements), or that is stored as such in the lexicon; after the movement, the moved head projects its own XP in the derived position.<sup>10</sup> Local non-reflexive reprojection is illustrated in (25).

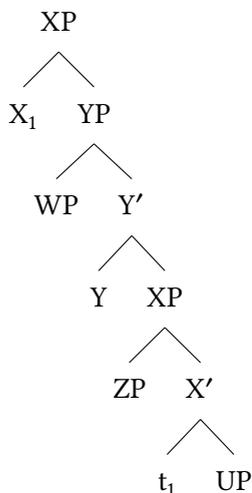
(25) *Local non-reflexive reprojection:*



Finally, reprojection can be non-local (by definition, it is then also non-reflexive). In (26), the moved head skips over two maximal projections and reprojects in the derived position.

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<sup>10</sup>Thus, strictly speaking, this is not actually an instance of *re*-projection: X in (25) projects for the first time in the derived position.

(26) *Non-local non-reflexive reprojection:*

Assuming these three scenarios to be available in the world's languages, it can be concluded that head movement can involve excorporation (see Roberts 1991; 1997), and that head movement does not obey the Head Movement Constraint (see Roberts 2009; 2010 vs. Travis 1984 for arguments to this effect). Given that the data that originally motivated stipulation of the excorporation and Head Movement Constraint restrictions can be derived otherwise, this would seem to permit a simpler, more attractive theoretical approach, and to correspond to the null hypothesis. Furthermore, one should expect that head movement as reprojection obeys the same constraints that hold of all movement operations; this includes the PIC (see 6). Thus, for the operation to be legitimate, it can be concluded that YP is not a phase in (26); and that, more generally, head movement as reprojection can cross phases by carrying out intermediate movement steps to phase edges, in accordance with the PIC.

As for the concrete mechanics of reprojection movement, we will make the following assumptions. First, all syntactic operations are feature-driven: On the one hand, there are designated structure-building features (edge features, subcategorization features) that trigger (external or internal) Merge; we will refer to these as [ $\bullet$ F $\bullet$ ] features. On the other hand, there are probe features that trigger Agree. To simplify exposition and simultaneously avoid commitment to one of the existing options in various domains (e.g., valuation vs. checking, interpretability vs. uninterpretability), we will refer to probes as [ $\ast$ F $\ast$ ] features throughout. All these features triggering syntactic Merge and Agree operations are ordered on lexical items; and they are discharged (i.e., rendered syntactically inactive) one after the other after having induced the respective operations that they encode.

Finally (although this assumption will not actually be crucial), we postulate that all phrases are phases. As a consequence, movement must take place via all intermediate phrase edges that intervene between a base position and the ultimate landing site of some moved item (except for the minimal specifier domain if the item is already part of the phase edge, as is the case with reprojection movement of heads). Given this assumption, YP in (26) must be a phase, and  $X_1$  must therefore carry out an intermediate step to SpecY on its way to its ultimate position.<sup>11</sup>

Suppose further that Featural Cyclicity holds, as in (27).<sup>12</sup>

(27) *Featural Cyclicity:*

A non-root XP cannot contain a feature  $\delta$  in the non-edge domain of X that is supposed to trigger an operation ( $[\bullet F \bullet]$  or  $[*F*]$ ).

In the normal course of events, the head X of some XP has discharged all the Merge-inducing features ( $[\bullet F \bullet]$ ) and Agree-inducing features ( $[*F*]$ ) it contains before XP is merged with some other category. However, suppose that the head X has not been able to discharge a  $[\bullet F \bullet]$  or  $[*F*]$  (plus, possibly, other features that are lower on the list of operation-inducing features of the head, and that can only be accessed if the topmost feature has been discharged). In such a situation, one of two Last Resort operations may take place: Either the  $[\bullet F \bullet]$  or  $[*F*]$  feature is deleted (see Béjar & Řezáč 2009, Preminger 2014, and Georgi 2014 for proposals along these lines); or the item containing the incriminating feature is moved to the edge domain of the current phrase, so as not to violate Featural Cyclicity in (27). The two Last Resort options for  $[\bullet F \bullet]$  and  $[*F*]$  features are stated in (28).

(28) *Last Resort:*

If a feature  $\delta$  on X that triggers an operation cannot be discharged in XP, there are two basic options:

- a.  $\delta$  is deleted.
- b.  $\delta$  is moved to the edge of XP, pied-piping the minimal category containing it.

Thus, a head X with a non-discharged  $\delta$  ( $[\bullet F \bullet]$  or  $[*F*]$ ) feature undergoes intermediate movement to phrase edges for as long as it takes to reach a position in

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<sup>11</sup>One might think that allowing heads to move to specifier positions might give rise to various over-generation problems. However, it is worth bearing in mind that specifier positions can only ever be used as *intermediate* escape hatches (required by the PIC) by head movement under present assumptions; thus, the situation is completely analogous to, say, *wh*-movement via an intermediate Spec<sub>v</sub> position in English – the *wh*-phrase can use this position as an intermediate escape hatch, but can never ultimately show up in it (for essentially the same reason, viz., that the trigger can only be saturated in the final landing site).

<sup>12</sup>This constraint can plausibly be derived as a theorem under various conceptions of cyclic spell-out of complements of phase heads.

which  $\delta$  can eventually be discharged. Following Fanselow (2003; 2009), Surányi (2005), Matushansky (2006), and Georgi & Müller (2010), these kinds of features can then be viewed as triggers for reprojection movement.<sup>13</sup> Note that it can in principle be both probe features on some head X that trigger (intermediate or final) reprojection movement (e.g., if there is no matching goal for a probe in the structure, or if the goal is not c-commanded by the probe feature on X), and structure-building features (e.g., if there is no accessible matching category, or if two heads simultaneously need to discharge their [ $\bullet$ F $\bullet$ ] feature but only one can do this at any given stage of the derivation). However, in the reprojection approach to long-distance agreement to be developed in the next section, it is the need to discharge a structure-building feature that triggers the movement of (what thereby becomes) the matrix verb.

### 3.2 Long-distance agreement by reprojection

#### 3.2.1 Complex predicates

Long-distance agreement typically encompasses verbs that in many languages are restructuring verbs. In fact, for another Nakh-Daghestanian language, Godoberi, Haspelmath (1999) shows with a series of tests that apparent long-distance agreement in the language actually involves only a monoclausal structure with a complex predicate. However, Forker (2012) and Khalilova (2009) show with similar tests that this is not the case for Hinuq or Khwarshi, both of which involve truly biclausal structures, with an embedded CP.

In view of this state of affairs, we would like to suggest that despite this biclausal character, long-distance agreement in Hinuq and Khwarshi (and Tsez, and perhaps more generally) does indeed involve some form of restructuring, albeit in the form of a special type of complex predicate formation. In standard lexical approaches to complex predicate formation (see, e.g., Haider 1993; 2010, Kiss 1995, Stiebels 1996, and S. Müller 2002 on German, or Butt 1995 on Hindi/Urdu), all lexical subcategorization information of the verbs that participate in the operation is unified by functional composition. This results in one featural array for the complex predicate and monoclausality throughout. Against the background of the present approach, this would imply a unique list of structure-building and probe features associated with the complex predicate, with the features discharged one after the other. In contrast, we adopt a version of pre-syntactic complex predicate formation where two predicates (two verbs, in the case at hand) are combined into a complex category in a way that, crucially, leaves the verbs'

<sup>13</sup>Fanselow (2003; 2009) and Georgi & Müller (2010) refer to these kinds of features as *Münchhausen* features, based on the literary character Baron Münchhausen who escapes from a swamp (where he is trapped on the back of his horse) by pulling himself up by his hair.

individual lexical information intact – i.e., there are still two separate lists of features triggering syntactic operations.<sup>14</sup>

### 3.2.2 Derivations

Let us now look at how long-distance agreement in Nakh-Dahestanian languages (and possibly elsewhere) can be derived on the basis of an approach in terms of reprojection and pre-syntactic complex predicate formation. Throughout, we will assume a CP status of the embedded clause, with both *λin*-type and *li*-type markers qualifying as C heads. The definition of Agree that we will adopt is similar but not identical to the one in (7) from page 312; it is given in (29).<sup>15</sup>

(29) *Agree*:

$\alpha$  can Agree with  $\beta$  iff:

- a.  $\alpha$  carries a probe feature [ $*F^*$ ], and  $\beta$  carries a matching goal feature [F].
- b.  $\alpha$  c-commands  $\beta$ , or  $\beta$  c-commands  $\alpha$ .
- c. There is no  $\delta$  that is closer to  $\beta$  than  $\alpha$  and also carries [ $*F^*$ ], and there is no  $\gamma$  that is closer to  $\alpha$  than  $\beta$  and carries an active [F].
- d.  $\beta$  bears an active feature.

The syntactic derivation of a sentence such as (20) in Hinuq, where the matrix verb undergoes long-distance agreement with the embedded absolutive wh-phrase, starts with the complex predicate in (30); (20) is repeated here as (31) (with the default agreement option ignored).<sup>16</sup>

<sup>14</sup>For present purposes, it is immaterial whether this pre-syntactic component is conceived of as the lexicon, or as a pre-syntactic morphology domain; for concreteness, we will generally assume the former here.

<sup>15</sup>Since the PIC holds for all syntactic operations, the fact that Agree is also subject to this constraint does not have to be mentioned explicitly. As noted above, we will not address the question here of how exactly other cases of Agree that would at first sight seem to violate the PIC can be accounted for; but note that this issue is even more prominent (though not categorially different) in an approach where all phrases are phases.

The requirement in (29b) permits both upward and downward Agree; see Zeijlstra (2012) and Bjorkman & Zeijlstra (2019) vs. Preminger (2013). (The local Agree operation initiated by (what will become) the matrix verb in long-distance agreement will involve upward Agree.) (29c) ensures minimality, with closeness definable in terms of minimal path length. There is no defective intervention here: Discharged features on intervening heads and checked features on intervening phrases can be ignored. Finally, (29d) encodes the Activity Condition: An active feature is one that has not participated in Agree.

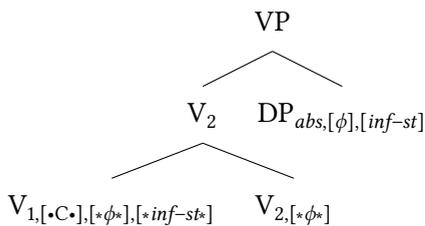
<sup>16</sup>One may ask why it is that  $V_2$  (which will eventually become the embedded verb) projects in this structure, rather than  $V_1$  (which will end up as the matrix verb). As a matter of fact,

(30) [<sub>V<sub>2</sub></sub> [<sub>V<sub>1</sub></sub> know] [<sub>V<sub>2</sub></sub> kill]]

(31) Debez Ø-eq'i-ye [<sub>CP(V)</sub> k'ačay-za-y ɬu Ø-uher-iš-ɬi ] ?  
 you.SG.DAT I-know-Q bandit-OBL.PL-ERG who I-kill-RES-ABST  
 'Do you know whom the bandits killed?' (Forker 2012: 637)

In the first step, [<sub>V<sub>2</sub></sub> [<sub>V<sub>1</sub></sub> know]-[<sub>V<sub>2</sub></sub> kill]] is merged with the internal argument DP, triggered by [**•D•**] on V<sub>2</sub>. The resulting representation is shown in (32).

(32) Long-distance agreement by reprojection, first stage:



Each of the verbs involved has its own  $\phi$ -probe (see Béjar & Řezáč 2009), which is checked through Agree with the  $\phi$ -feature on the internal argument DP. Since V<sub>2</sub> is the head of the complex predicate, its  $\phi$ -probe intervenes between V<sub>1</sub>'s  $\phi$ -probe and the internal DP. Thus, V<sub>2</sub>'s  $\phi$ -probe has to be discharged first; afterwards, V<sub>1</sub> can discharge its  $\phi$ -probe via Agree with DP. This derives the generalization that long-distance agreement (i.e., under present assumptions, extremely local agreement of V<sub>1</sub> and the absolutive DP) is possible only if embedded agreement (i.e., agreement of V<sub>2</sub> and the absolutive DP) has taken place.<sup>17</sup>

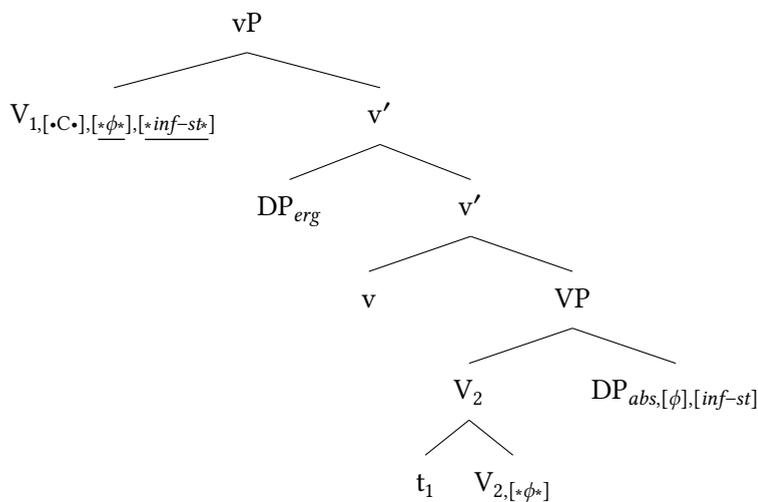
there does not seem to be a good reason why the alternative representation where V<sub>1</sub> projects – [<sub>V<sub>1</sub></sub> [<sub>V<sub>1</sub></sub> know]-[<sub>V<sub>2</sub></sub> kill]] – should be excluded as such: With two bare X<sup>0</sup> heads forming a complex structure, labelling can be expected to be free. However, as will become clear when we look at the derivation for (31), choosing an initial representation [<sub>V<sub>1</sub></sub> [<sub>V<sub>1</sub></sub> know]-[<sub>V<sub>2</sub></sub> kill]] of the complex predicate (rather than [<sub>V<sub>2</sub></sub> [<sub>V<sub>1</sub></sub> know]-[<sub>V<sub>2</sub></sub> kill]]) can never lead to a well-formed derivation: V<sub>2</sub> ultimately needs to combine with a DP, but after (extended) projection of V<sub>1</sub> has been completed, only a CP is available for V<sub>2</sub>, and this makes it impossible to discharge the [**•D•**] feature of V<sub>2</sub>. In the same way, V<sub>1</sub> needs to combine with a CP (due to [**•C•**] on its feature list), but such a CP is not available at the beginning of the derivation.

<sup>17</sup>Given that only absolutive DPs can act as agreement controllers in the languages currently under consideration, the question arises whether this information is already locally available in the structure in (32). There are two possibilities, both of which strike us as viable. First, the absolutive (vs. lexically case-marked) nature of an internal DP argument might indeed already be visible at this stage (e.g., because V<sub>2</sub> does not have a lexical case feature). Second, if absolutive is not identifiable yet at this stage, agreement could simply take place in the hope that it will later emerge (e.g., be assigned by a functional head like T) – if it does not, the derivation will eventually crash.

In addition to the dependence of long-distance agreement on local agreement, a second generalization about long-distance can be derived at this point: There must be an obligatory information-structural reflex on the DP participating in long-distance agreement (with an interpretation as topic in Tsez, as topic or focus in Hinuq and Khwarshi, etc.); this is simply signalled by [inf-st] in (32) (i.e., [inf-st] stands for [topic], [topic, focus], or other information-structural features). Here is why: Given Chomsky's (2001) *Activity Condition*, after  $\phi$ -Agree with  $V_2$ ,  $DP_{abs}$  in (32) can only undergo  $\phi$ -Agree with  $V_1$  if it still has a *different, active* feature that  $V_1$  is looking for; and [inf-st] fulfills this role. This explains the presence of [ $*inf-st*$ ] on  $V_1$  that needs to undergo Agree with [inf-st] on  $DP_{abs}$ . As a consequence of this second Agree operation involving  $V_1$  and  $DP_{abs}$ ,  $V_1$  is equipped with the information that  $DP_{abs}$  is a topic.

In the further course of the derivation,  $V_2$  first discharges all its structure-building features (if it has any such features left). Subsequently,  $v$  merges with VP; after that it merges with an external argument DP; and then it assigns ergative case to it. Up to this point,  $V_1$  has not yet had a chance to discharge its [ $\bullet C \bullet$ ] feature.<sup>18</sup> Therefore, before the  $vP$  is completed,  $V_1$  needs to move to  $v$ 's specifier position, so as to comply with Featural Cyclicity (cf. 27). The resulting representation is shown in (33).

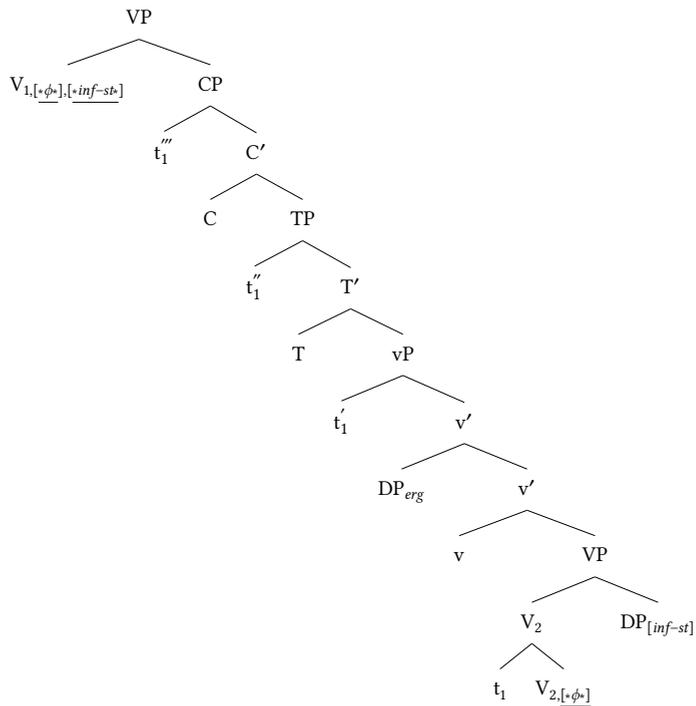
(33) Long-distance agreement by reprojection, second stage:



<sup>18</sup>This feature is either lower on the list of operation-triggering features of  $V_1$  than the probe features for agreement with  $DP_{int}$ , or there are actually two separate stacks involved here (as indicated in 32): one for structure-building features, and one for probe features. This second option might be preferable on conceptual and empirical grounds; see Müller (2004; 2009) for discussion.

In further steps, the TP and CP structures of (what will become) the embedded clause are generated by Merge and Agree operations, while  $V_1$  moves up the developing syntactic structure, via intervening phase edges. Finally, when the CP is completed, and  $V_1$  has moved to C's edge domain because it still has not been able to discharge its structure-building feature [ $\bullet C\bullet$ ],  $V_1$  is in a position from which it can undergo reprojection movement, take the CP generated so far as its complement (thereby discharging [ $\bullet C\bullet$ ]), and create a matrix VP.<sup>19</sup> This is shown in (34).<sup>20</sup>

(34) Long-distance agreement by reprojection, third stage:



The resulting representation is opaque in Kiparsky's (1973) sense as it involves a counter-bleeding interaction of operations (also cf. Chomsky 1951, Chomsky 1975: 25–26): Reprojection movement of  $V_1$  would bleed Agree with  $DP_{abs}$  (which requires strict locality, due to the PIC) but fails to do so because it applies too

<sup>19</sup>In addition to subcategorization,  $V_1$  carries out an Agree operation with C that reflects the embedding of an interrogative ([+wh]) clause.

<sup>20</sup>The mechanics here are similar to Martinović's (2015) analysis of the left periphery of Wolof in terms of head splitting and reprojection.

late: When  $V_1$  has left the local domain in which agreement with  $DP_{abs}$  can legitimately be carried out, this agreement has already taken place.

From this point onwards, everything happens exactly as one would expect it to (with matrix vP, TP, and CP generated by Merge and Agree operations), and there is basically no difference anymore to derivations in which there is no complex predicate formation to begin with. Of course, given that pre-syntactic (lexical) complex predicate formation is an optional process, this second kind of derivation can be assumed to underlie minimally different sentences in which long-distance agreement does not occur. Thus, the two strategies differ substantially as far as earlier stages are concerned, but they end up with exactly the same structures once the matrix domain has been reached. There is one qualification, though. As a consequence of reprojection movement of  $V_1$ , [inf-st] of  $DP_{abs}$  is transported into the matrix clause.<sup>21</sup> The information that the embedded  $DP_{[inf-st]}$  is interpreted as a topic is therefore shifted to the matrix sentence, and consequently, a DP that is affected by long-distance agreement is interpreted as the topic of the entire complex sentence. The analysis is thus consistent with usual assumptions concerning the impossibility of information-structural elements in clauses without illocutionary force (like non-assertive, presuppositional declarative clauses). Whereas information-structural features of an embedded DP can thus be interpreted in the matrix clause, there is no way how an embedded DP could take relative scope in the matrix clause as well (cf. the sentences in 9): Relative scope is determined by the position of an item, not by features, and there is no stage of the derivation where the embedded  $DP_{abs}$  would show up in the matrix clause.

### 3.2.3 Further consequences

The example of long-distance agreement that we have considered here on the basis of the sample derivation in (32), (33) and (34), involves a  $DP_{abs}$  controller that is also a wh-phrase. However, it should be clear that the approach generalizes to all the other cases of long-distance agreement mentioned above. For instance, an account in terms of reprojection of the part of a complex predicate straightforwardly derives long-distance agreement as in (2b) in Tsez and in (3b) in Hinuq

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<sup>21</sup>Note that this implies that *discharged* features, while syntactically inert, are not actually deleted. This assumption must independently be made for discharged probe features more generally that give rise to morphological realization; see Adger (2003).

(where it can now be assumed that  $\alpha$  stands for a full CP). Similarly, examples like (16b) in Khwarshi (with a  $DP_{abs}$  controller acting as a topic, i.e., [inf-st] representing [topic]) and (17b) in Hinuq (with a  $DP_{abs}$  controller acting as a focus, i.e., [inf-st] representing [focus]) are directly accounted for under the present analysis. Examples (18) (from Khwarshi) and (19) (from Hinuq) have subject wh-phrases (one marked by ergative, one not) that do not block long-distance agreement with the absolutive DP. Again, this is expected under present assumptions: Independently of whether the wh-phrase here occupies SpecC in overt syntax or not, reprojection movement of the verb to the matrix domain is possible (given the general option of multiple specifiers, particularly for intermediate movement steps).

Next, instances of super-long-distance agreement where the agreeing verb and the agreement controller DP are separated by two intervening CP boundaries, like (21) in Tsakhur or (22) in Hinuq, can also be addressed under the reprojection approach: Here a complex predicate is formed pre-syntactically where  $V_1$  (which will become the highest verb) and  $V_2$  (which will become the intermediate verb) are first combined, with  $V_2$  projecting (in a successful derivation; cf. footnote 16), and then the complex  $V_2$  category is combined with  $V_3$  (which will become the most deeply embedded verb), with  $V_3$  projecting, as shown in (35).

(35) [ $V_3$  [ $V_2$   $V_1$   $V_2$ ]  $V_3$ ]

Here  $V_3$ ,  $V_2$ , and  $V_1$  first carry out Agree operations with  $V_3$ 's internal argument ( $DP_{abs}$ ), and then a CP is generated on top of  $VP_3$ , with the complex  $V_2$  moving successive-cyclically to intermediate phase edge positions, until it finally merges with the CP. Then, the second, intermediate, CP is generated, with  $V_1$  exorporating from the complex [ $V_2$   $V_1$   $V_2$ ] category and moving via the intermediate CP's phase edges until, finally, the intermediate CP has been completed and  $V_1$  can take this CP as its internal argument, via reprojection. The Tsakhur example in (21) and the Hinuq example in (22) fully correspond to this scenario, with  $V_1$ ,  $V_2$ , and  $V_3$  all participating in agreement with  $DP_{abs}$ . However, examples involving super-long-distance agreement like the one in (36) (from Hinuq) can also be found.

(36) Diž y-eq'i-yo [<sub>CP</sub> ŷumar-i [<sub>CP</sub> Madina y-aq'-es=λen ]  
 I.DAT II-know-PRS Umar-ERG Madina(II) II-come-PST=QUOT  
 ese-s-li ]  
 tell-RES-ABST

'I know that Omar said that Madina came.' (Forker 2012: 633)

In (36), the intermediate verb  $V_2$  does in fact not exhibit overt agreement marking even though both the matrix verb  $V_1$  and the most deeply embedded verb  $V_3$  do. Still, (36) does not call into question the present approach: It can plausibly be assumed that  $\phi$ -feature agreement is indeed present on  $V_2$ , but fails to be registered overtly (there are many verbs that fail to exhibit visible agreement marking despite showing up in the proper syntactic context in Nakh-Daghestanian languages, and the reason for this is presumably simply a morphological one). Thus, all in all, super-long-distance agreement can be derived.<sup>22</sup>

A further property of long-distance agreement that needs to be accounted for concerns Polinsky & Potsdam's (2001) observation that the C element  $\lambda in$  blocks the operation in Tsez (cf. Section 2.4 above). Given that there is good evidence that long-distance agreement across CP is possible in principle in Nakh-Daghestanian languages, and given that we have analyzed the transparent morpheme  $li$  as a C item, too, a recourse to a general blocking nature of C is not available in the present approach. Also, it is not possible to claim that a reprojecting  $V_1$  cannot merge with a CP headed by  $\lambda in$ : First, the [ $\bullet C \bullet$ ] feature responsible for reprojection movement is not sensitive to a difference between C heads, and an additional selection relation (mediated by Agree) would have to be stipulated; second (and more importantly), [ $\bullet C \bullet$ ] on a reprojecting V is exactly the same feature as [ $\bullet C \bullet$ ] on a V that fails to undergo complex predicate formation, and successfully takes CP complements headed by  $\lambda in$  in environments without long-distance agreement. In view of this, we would like to suggest that the blocking effect of a C head  $\lambda in$  is due to the fact that it does not permit a specifier. Thus, the problem with long-distance agreement in these contexts can be traced back to the unavailability of intermediate movement of a  $V_1$  that is initially part of

<sup>22</sup>It should be mentioned that there are two further complications, though. First, recall that the present account of the obligatory information-structural reflex of long-distance agreement in terms of the Activity Condition would, strictly speaking, require two different additional features (next to the  $\phi$ -probes) on  $V_1$  and  $V_2$ , and not just one, as in the cases discussed so far. It is not a priori clear what this extra feature might be. However, it has been argued that information-structural features like topic and focus do not qualify as primitives, but are rather composed of more primitive binary features (so as to capture natural classes of information-structural categories), like [ $\pm new$ ], [ $\pm prom$ ] (with, say, topic emerging as [ $-new, +prom$ ]); see Choi (1999), based on Vallduví (1992). If so,  $V_2$  and  $V_1$  can be equipped with separate pieces of [inf-st] information.

Second, Forker (2012) also maintains that it is not completely impossible in Hinuq to have super-long-distance agreement involving  $V_1$ ,  $V_3$ , and  $D_{abs}$  in the most deeply embedded clause, not merely in the absence of agreement on  $V_2$  (as in 36), but in the presence of a *different* agreement on  $V_2$ . If such sentences (which Forker assigns an intermediate status, signalled by “?”) can be substantiated as grammatically well formed, additional assumptions that complement the present analysis will be called for.

a complex predicate, to SpecC: As a consequence, the final reprojection step of  $V_1$  will have to fatally violate the PIC ( $V_1$  can only reach SpecT, which is not accessible anymore once CP has been completed).

Finally, we would like to point out that the present approach in terms of re-projection makes a very simple prediction: Reprojection movement of a verb by definition creates a head-complement structure; there is no way how a specifier or adjunct could be involved (since this would require a non- $X^0$  category to move). Therefore, long-distance agreement is expected never to occur into subject clauses or adjunct clauses. This prediction is borne out: Long-distance agreement always involves complement clauses.

## 4 Conclusion

We have argued that from the point of view of a model of syntax where all operations apply in strictly local domains (as defined by the Phase Impenetrability Condition, PIC), and in the face of empirical evidence showing that long-distance agreement can involve a matrix verb and an agreement-controlling DP separated by a CP, none of the existing approaches to long-distance agreement (non-local analyses, small structure analyses, Cyclic Agree analyses, and analyses where movement to the edge feeds agreement) work satisfactorily. In view of this, we have developed a new approach in terms of pre-syntactic complex predicate formation and reprojection: The derivation starts out with a complex verb  $V_1$ - $V_2$  headed by  $V_2$ , so that agreement of  $V_1$  with DP can apply early in the derivation (not late, as in other approaches), in an extremely local domain, and subsequent reprojection movement of  $V_1$  turns the latter into a matrix verb, thereby masking the locality of agreement and creating opacity (viz., counter-bleeding) in syntax.

This approach may at first sight look quite radical. However, it is worth bearing in mind that it suggests itself without further ado once two widely employed operations are adopted and combined, viz., (i) pre-syntactic complex predicate formation, and (ii) head movement as reprojection. The properties that these two operations must have for the analysis to work all qualify as independently motivated, and they often correspond to standard assumptions in the field (in analyses that adopt the operations). As a matter of fact, the only innovative assumption that we have come up with is that pre-syntactic complex predicate formation does not (or does not have to) result in a single list of structure-building and agreement-inducing features (via a process of functional composition), but can maintain the integrity and independence of the two individual lists of structure-building and agreement-inducing features.

Nevertheless, ideally there should be independent evidence for the type of interaction of complex predicate formation and reprojection movement that is at the heart of the present analysis of long-distance agreement. To end this paper, we would like to briefly sketch an approach to an entirely different phenomenon that works in the same way, viz., extraction from DPs in German.

As for the empirical evidence, extraction is impossible from subject DPs and indirect object (dative-marked) DPs. This is shown (with *wh*-movement as the extraction operation) in (37a) and (37b), respectively.

- (37) a. \* [PP Über wen]<sub>1</sub> hat [DP ein Buch t<sub>1</sub>] den Karl  
about whom has a book.NOM the Karl.ACC  
beeindruckt?  
impressed  
'For which person is it the case that a book about that person impressed Karl?'
- b. \* [PP Über wen] hat sie [DP einem Buch t<sub>1</sub>] keine  
about whom has she.NOM a book.DAT no  
Chance gegeben?  
chance.ACC given  
'For which person is it the case that she gave a book about that person no chance?'

With extraction from direct object (accusative-marked) DPs, things are somewhat more variable: With some combinations of V and N, extraction is possible (see 38a), with other combinations, it is not (see 38b).

- (38) a. [PP Über wen]<sub>1</sub> hat Karl [DP ein Buch t<sub>1</sub>] gelesen ?  
about whom has Karl.NOM a book.ACC read  
'Who did Karl read a book about?'
- b. \* [PP Über wen]<sub>1</sub> hat Karl [DP ein Buch t<sub>1</sub>] geklaut ?  
about whom has Karl.NOM a book.ACC stolen  
'For which person is it the case that Karl stole a book about that person?'

Thus, both structural and lexical factors play a role: On the one hand, extraction from DP can be well formed in German if DP is a complement (as with direct objects in (38a) and (38b)), but not if it is a specifier (as with subjects and indirect objects in (37a) and (37b), which can be assumed to occupy *Specv* and *SpecAppl* positions, respectively). On the other hand, extraction from DP also

requires V and N to form a tight unit, or a “natural predicate”. This latter status is arguably determined both by semantic considerations and by extralinguistic factors (frequency, entrenchment), and it may to some extent vary from speaker to speaker. Still, it must be modelled in the grammar in some way. In Müller (1991) and Müller & Sternefeld (1995), it is proposed that the relevant concept is that of abstract incorporation (in Baker 1988’s sense, conceived of as incorporation at LF that is signalled already by co-indexation of heads in overt syntax): V (*read*) and N (*book*) in (38a) undergo abstract incorporation and thus form a natural predicate, whereas V (*steal*) and N (*book*) in (38b) do not (for most speakers). Given that the theory of locality constraints on movement is sensitive to this difference (as well as to the structural difference between complements and specifiers), the data in (37) and (38) can then all be accounted for. Similar approaches in terms of abstract incorporation have subsequently been developed by Davies & Dubinsky (2003) and Schmellentin (2006). However, there are problems with this kind of approach. In particular, on this view abstract incorporation of N into V must either be able to apply non-locally, across an intervening DP projection (plus, possibly, other functional projections in the DP that may intervene between D and N); or the analysis must abandon the DP-over-NP hypothesis. To be sure, there are ways out for the abstract incorporation approach.<sup>23</sup> Still, it can be noted that an approach based on complex predicate formation plus reprojection can account for the data in a very simple way.

Thus, suppose that some combinations of V and N can undergo pre-syntactic (lexical) complex predicate formation whereas others cannot do so. This means that complex heads like the one in (39) can be primitive inputs of Merge operations in the syntax.<sup>24</sup>

(39) [<sub>N<sub>2</sub></sub> V<sub>1</sub> N<sub>2</sub>]

In the ensuing derivation, N<sub>2</sub> first discharges its structure-building and probe features (thereby undergoing Merge with a PP); see (40a). Then DP is added on top of NP (and possibly also other functional projections before that), with V<sub>1</sub> undergoing intermediate, Last Resort-driven movement to SpecD; see (40b). After that, V<sub>1</sub> undergoes the final movement step to take DP as its complement and thereby discharge its [<sub>•</sub>D<sub>•</sub>] feature; see (40c). From this point onwards, everything proceeds exactly as in a derivation where there is no complex predicate formation as in (40); such a derivation produces the VP in (41).

<sup>23</sup>For instance, in Müller (2011), abstract incorporation is viewed as a regular syntactic Agree operation, with no actual movement involved.

<sup>24</sup>As before, the head that will ultimately come to occupy a higher (c-commanding) position must be the one that fails to project initially in a well-formed derivation; cf. footnote 16.

- (40) a.  $[_{NP} [_{N_2} V_1 N_2] PP]$   
 b.  $[_{DP} V_1 [_{D'} D [_{NP} [_{N_2} t_1 N_2] PP]]]$   
 c.  $[_{VP} V_1 [_{DP} t'_1 [_{D'} D [_{NP} [_{N_2} t_1 N_2] PP]]]]]$
- (41)  $[_{VP} V_1 [_{DP} D [_{NP} N_2 PP]]]$

Importantly, both the NP and the PP in (40c) (based on complex predicate formation of V and N) have been in an extremely local (object-like) relation with V whereas the NP and PP in (41) (based on regular, separate projection of V and N) have never been in a local relation with V. Without going into the details of how exactly this will best be implemented in a given theory of locality restrictions on movement, it seems plausible to assume that it is the extremely local relation of V and NP/PP at an earlier derivational step that makes extraction of PP from DP possible in (38a), and it is the absence of such a relation that blocks the movement in (38b). As before, reprojection movement of V by definition cannot take place from specifiers, which then accounts for the illformedness of (37a) and (37b).

## Abbreviations

ABS	absolutive	NOM	nominative
ABST	abstract suffix	NMLZ	nominalizer
ACC	accusative	OBJ	object
CAUS	causative	OBL	oblique
CL	clitic	PERF	perfective
COP	copula	PL	plural
CVB	narrative converb	PR(E)S	present
DAT	dative	PST	past
ERG	ergative	PSTPRT	past participle
FEM	feminine	PTCP	participle
FOC	focus	Q	question particle
INF	infinitive	QUOT	quotative enclitic
INF-ST	information structure	RES	resultative participle
INTRANS	intransitive	SG	singular
LAT	lative	SUBJ	subject
MASC	masculine	TI	transitive inanimate

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## Chapter 11

# Agree probes down: Anaphoric feature valuation and phase reference

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This paper investigates the question of the directionality of Agree in the domain of complementizer agreement (CA). Germanic and Bantu patterns of CA provide prima facie evidence of both downward and upward-probing relations, as Germanic complementizers are valued by the subject of the embedded clause, whereas the relevant Lubukusu complementizers are valued by the subject of the main clause. We argue, however, that all feature valuation relations can be explained by a downward-probing Agree operation. Apparent instances of upward-probing feature-valuation are analyzed as anaphoric feature valuation, which is a composite operation consisting of movement of the relevant (unvalued, interpretable) features followed by probing of their c-command domain for valuation. We propose that the behavior of anaphoric features can be derived from more fundamental syntactic properties using a model of syntax that relies on the referential properties of phases: more rigid reference of a phase is derived by movement of phase-internal elements to the edge of that phase.

## 1 Introduction

The Minimalist Program (MP) (Chomsky 2000a et seq.) posits the notion of Agree: a local feature valuation relation that is constrained by a c-command relation between a Probe bearing an unvalued feature [uF] and a structurally lower Goal



bearing an interpretable variant of this feature [iF]. Agree has come to be the principal mechanism for various kinds of feature-matching relationships in syntactic theory, and as such the subject of intensive research and interesting debates. Recent literature provides (at least) three different theoretical approaches to the Agree operation:

- (1) Theoretical approaches to Agree
  - a. Agree is the result of a structurally higher Probe probing down (Chomsky 2000a; 2001; Preminger 2013; Preminger & Polinsky 2015)
  - b. Agree is the result of a structurally lower Probe probing up (Zeijlstra 2012; Wurmbrand 2011; Bjorkman & Zeijlstra 2019)
  - c. Agree can probe up or down (Béjar & Āezáč 2009<sup>1</sup>; Baker 2008; Putnam & van Koppen 2011; Carstens 2016)

On the surface there is a strong case for the existence of both upward and downward probing in the grammar of complementizer agreement (CA). One set of data motivating the downward-probing operation comes from the familiar West Germanic instances of CA where C agrees with the embedded subject.

- (2) Probing Down: [XP Probe<sub>[uF]</sub> [YP Goal<sub>[iF]</sub> ]]

- (3) West Flemish (Haegeman 1992)

K peinzen da-n / \*da-∅ ze morgen goan.

I think that-PL / that-SG they tomorrow go.PL

‘I think that they will go tomorrow.’

Prima facie evidence for upward probing can also be found in the complementizer domain, this time in various languages of Africa. The best-described case comes from Lubukusu, a Bantu language spoken in western Kenya (Diercks 2010; 2013; Wasike 2007); as shown in (5) the class 2 agreement *ba-* on the complementizer *-li* is triggered by the class 2 matrix subject, and not by any other potential agreement trigger in the embedded clause.<sup>2</sup>

<sup>1</sup>Béjar & Āezáč (2009) do not propose that a Probe can probe upwards, but they argue that unvalued features of a Probe can be reintroduced higher up in the tree and Probe down from there again. This gives the surface appearance of Upward Probing, but is in effect downward probing. We will argue for something similar.

<sup>2</sup>Every Lubukusu noun phrase in this paper is glossed for its noun class, for which we follow the Bantuist tradition of labeling by number, where odd numbers are singulars (e.g. 1) and the immediately ascendant even number is that noun class’ plural form (e.g. 2 is the plural of 1). S or O following a verbal noun class agreement indicates “subject” or “object” verbal agreement. Person features are represented by the person together with the number, for example 1sg, 2pl. Tone marking is not provided for the Lubukusu examples.

- (4) Apparent Probing Up: [<sub>XP</sub> Goal<sub>[iF]</sub> [<sub>YP</sub> Probe<sub>[uF]</sub> ]]
- (5) Lubukusu (Diercks 2013)  
 (Ba-ba-ndu) ba-bol-el-a Alfredi (ba) -li a-kha-khil-e.  
 2-2-people 2SA-said-AP-FV 1Alfred 2-that 1SA-FUT-conquer-FV  
 ‘The people told Alfred that he will win.’

Despite the apparent “upward” agreement in (5), we argue that the data in (3) and (5) can both be accounted for by the widely accepted theory that unvalued features probe their c-command domains for a Goal by which to be valued (Chomsky 2000a et seq.). We claim that the Lubukusu  $\varphi$ -features on C have anaphoric properties (e.g. subject-orientation). We follow Rooryck & Vanden Wyngaerd (2011) in identifying anaphoric features as *interpretable, unvalued* features, which necessarily move to a position higher than their antecedent and undergo a standard Agree operation (Rooryck & Vanden Wyngaerd propose this is the derivation of self-reflexives). Therefore feature-valuation may either be non-anaphoric (where pure Agree results in downward-oriented syntactic agreement, contra Zeijlstra 2012, Wurmbrand 2011, and Bjorkman & Zeijlstra 2019) or anaphoric (where an Agree relation is preceded by a movement operation). Therefore while only one feature-valuation operation is a primitive of the grammar (Agree), there are multiple derivative patterns: non-anaphoric agreement where the Goal is structurally lower than the Probe (“pure” Agree) and anaphoric agreement where the Goal may appear to be structurally higher than the Probe due to (covert) movement of the Probe (Internal Merge + Agree).

Sections 2–4 deal with the empirical grounds for the discussion above, and the core proposal set forward in this paper. Section 5 addresses why unvalued yet interpretable features should undergo internal merge by linking this movement to the Phase Reference model of Hinzen (2012) (and related work). Section 6 discusses CA-data from another language spoken in Kenya – Kipsigis – that provides additional evidence for our analysis. Section 7 compares our approach to Carstens’ (2016) analysis of Lubukusu CA.

## 2 Germanic CA: Agree probing down

Various Dutch and German dialects display CA in which a declarative-embedding complementizer carries inflectional morphology that agrees with the  $\varphi$ -features of the embedded subject. The West-Flemish examples illustrate that the complementizer *da* ‘that’ displays overt plural agreement morphology (-*n*) when there is a plural embedded subject, shown in (6a) (with no overt agreement otherwise).

(6) West Flemish (Haegeman & van Koppen 2012)

- a. K peinzen da $\overline{-n}$  / \*da- $\emptyset$   $\overline{\text{die venten}}$  Marie kenn-en.  
 I think that-PL / \*that-SG those men Marie know-PL  
 ‘I think that those men know Marie.’
- b. K peinzen da $\overline{-\emptyset}$  / \*da-n  $\overline{\text{dienen vent}}$  Marie kenn-t.  
 I think that-SG / \*that-PL that man Marie know-SG  
 ‘I think that that man knows Marie.’

Tegelen Dutch complementizers show a slightly different pattern, displaying overt inflection (-s) with second person singular subjects (*doow* ‘you’ in 7) and a bare form otherwise.<sup>3</sup>

(7) Tegelen Dutch (Haegeman & van Koppen 2012)

- a. Ich denk de $\overline{-s}$  / \*det  $\overline{\text{doow}}$  Marie ontmoet-s.  
 I think that-2SG / \*that you.2SG Marie meet-2SG  
 ‘I think that you will meet Marie.’
- b. Ich denk det $\overline{-\emptyset}$  / \*de-s  $\overline{\text{geej}}$  Marie ontmoet-e.  
 I think that / \*that-2SG you.PL Marie meet-PL  
 ‘I think that you will meet Marie.’

The analysis of Germanic CA that we advocate here is the same as that proposed by Carstens (2003), van Koppen (2005), and Haegeman & van Koppen (2012). Following this literature, we assume that C° in dialects with CA has a set of uninterpretable  $\varphi$ -features, which probe C°’s c-command domain for a set of matching interpretable-features. The first potential Goal it encounters is the embedded subject, which values the  $\varphi$ -features on C° that are then spelled out as CA. This derivation is represented in Figure 1.

We will briefly consider two different alternative analyses of the Germanic CA pattern, demonstrating that a downward-probing Agree analysis is the most probable (though we mainly point the reader to the relevant literature for discussion).<sup>4</sup> One alternative has been to argue that the  $\varphi$ -features on C° and T° have the

<sup>3</sup>We only describe the basic properties of CA in West Germanic here. We refer the reader to the extensive literature on CA in Germanic for a more in depth description of this phenomenon (see van Koppen 2017 and references cited there).

<sup>4</sup>Another possible approach is that Germanic CA is non-syntactic, occurring at PF as a morphological process (cf. e.g. Ackema & Neeleman 2004; Fuß 2008). We refer the reader to van Koppen (2005) and Haegeman & van Koppen (2012) for counter-arguments.

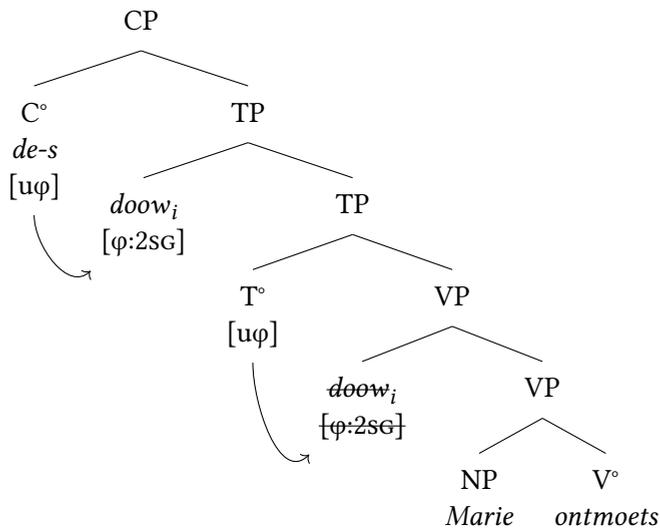


Figure 1: The derivation of complementizer agreement in Tegelen Dutch

same origin (the “shared source” analysis).<sup>5</sup> One implementation of this idea is for the  $\phi$ -features that arise on  $C^\circ$  to have originated in  $T^\circ$  (an approach amenable to a Spec,Head agreement analysis: cf. den Besten 1983; 1989; Zwart 1993; 1997; Hoekstra & Marácz 1989; Watanabe 2000, among others). On this approach the  $\phi$ -features of  $T^\circ$  are valued by the subject in Spec,TP, after which  $T^\circ$  (or the  $\phi$ -feature set of  $T^\circ$ ) raises to  $C^\circ$  and are realized as CA. A second implementation of the “shared source” analysis adopts a Feature Inheritance approach, which also leads to a configuration in which the subject c-commands the  $\phi$ -features of  $C^\circ$ . More specifically, Chomsky (2008, et seq.) argues that the  $\phi$ -features on  $C^\circ$  cannot remain on  $C^\circ$  (because it is a phase head) and therefore have to be passed on to a non-phase head,  $T^\circ$  in this instance (see also Richards 2007). CA can then be taken as an additional morphological reflex of agreement between  $T^\circ$  and the subject, spelled out on  $C^\circ$  at the base position of those  $\phi$ -features.

Haegeman & van Koppen (2012) argue extensively against the “shared source” approach, showing that a key prediction is not upheld – that the  $\phi$ -feature set on  $T^\circ$  be identical or a subset of the feature set on the  $C^\circ$  phase head.<sup>6</sup> Haegeman

<sup>5</sup>See also Haegeman & van Koppen (2012) for an extensive discussion of these proposals.

<sup>6</sup>This is not a claim that the morphological forms must be identical, only that (after morphological analysis) the  $\phi$ -feature distinctions shown on  $T^\circ$  should demonstrably be the same ones shown on  $C^\circ$ .

& van Koppen point out two key empirical problems for this hypothesis: CA with coordinated subjects in Tegelen Dutch and CA with external possessors in West Flemish, both of which result in  $C^\circ$  and  $T^\circ$  having distinct sets of  $\phi$ -features. For the sake of space, we consider only the first here. A basic example of CA in Tegelen Dutch is provided in (8):

- (8) Tegelen Dutch (Haegeman & van Koppen 2012)  
Ich denk de(-s) (doow) Marie ontmoet-s.  
I think that-2SG you.SG Marie meet-2SG  
'I think that you will meet Marie.'

In an example with a conjoined subject like (9), the verb (i.e.  $T^\circ$ ) agrees with the plural-feature of the entire coordinated subject *doow en ich* 'you and I', but CA is solely with the person and number features (2nd singular) of the first conjunct in this coordinated subject.

- (9) Tegelen Dutch (Haegeman & van Koppen 2012)  
... de(-s) (doow) en ich ôs kenn(-e) treffe.  
that-2SG [you.SG and I]1PL each.other.1PL can-PL meet  
'... that you and I can meet.'

As argued by Haegeman & van Koppen, it is clear then that CA differs from agreement on T (TA) in (9), which is unexpected if CA and TA have a shared source (in the sense we introduced earlier).

Having set aside the "shared source" approach to Germanic CA, there is a second alternative analysis available:  $C^\circ$  and  $T^\circ$  probe separately, but embedded subjects raise into the CP-domain and trigger agreement on a CP-level Agr head (AgrC). AgrC $^\circ$  proceeds to raise over the subject in Spec,AgrCP, producing the expected word order where the complementizer (and agreement features) precede the embedded subject (see Shlonsky 1994 and Zwart 1993 for a discussion of this kind of approach). Although descriptively adequate, this split-CP implementation of an upward-probing analysis of Germanic CA poses some challenges, particularly regarding first conjunct agreement (FCA) patterns in Tegelen Dutch: it is problematic that AgrC would agree with a first conjunct that is not in its complement. Upward probing accounts of CA predict this type of agreement to be impossible (i.e. agreement with an element in the specifier of the Goal), because in order for Agree to take place the Goal has to c-command the Probe, which is not the case in the FCA examples (see Baker 2008; Zeijlstra 2012; Wurmbrand 2011). As such, upward-probing accounts would never expect agreement with the

first conjunct of a coordinated subject, contrary to fact. There are additional empirical problems, but for brevity's sake we refer the reader to van Koppen (2005; 2017).

The preceding discussion of Germanic CA patterns has shown that CA and TA are best analyzed as resulting from distinct  $\varphi$ -feature probes, one on  $C^\circ$  and one on  $T^\circ$ , and that  $C^\circ$  probes down in the structure, finding the embedded subject in its canonical position (as argued by Carstens 2003; van Koppen 2005; Haegeman & van Koppen 2012). The facts from Germanic CA argue against an account where Agree only probes up (cf. Zeijlstra 2012; Wurmbrand 2011; Bjorkman & Zeijlstra 2019), though the case remains to be made that all feature valuation operations are the result of a downward-probing Agree.

### 3 Lubukusu CA: Agree probing up?

In contrast to the Germanic patterns, Lubukusu (Bantu, J.30, Kenya) displays a CA relation where a declarative-embedding complementizer shows full  $\varphi$ -feature agreement (gender, number, and person) with the subject of the matrix clause:<sup>7</sup>

(10) Lubukusu (Diercks 2013)

- a. Ba-ba-ndu ba-bol-el-a    Alfredi ba- li a-kha-khil-e.  
 2-2-people    2SA-said-AP-FV 1Alfred 2-that 1SA-FUT-conquer-FV  
 'The people told Alfred that he will win.'
- b. Alfredi ka-bol-el-a    ba-ba-ndu a- li ba-kha-khil-e.  
 1Alfred    1SA-said-AP-FV 2-2-person 1-that 2SA-FUT-conquer-FV  
 'Alfred told the people that they will win.'

As we mentioned above, this CA pattern appears on the face of it to be a case of Agree Probing Up, with a probe structurally lower than its goal, though we will show in what follows that this approach cannot be maintained.

First, example (11) gives a morphological causative construction; despite the fact that the causee *Alfredi* in (11) triggers CA in a periphrastic causative context, when it is not the subject of the sentence it cannot trigger agreement on the complementizer:

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<sup>7</sup>For discussion of similar constructions, see Kawasha (2007) (five central Bantu languages), Letsholo & Safir (2019) (Ikalanga), Diercks & Rao (2019) (Kipsigis), Torrence (2016) (Ibibio), and Idiatov (2010) (various Mande languages). Ongoing work by Diercks has shown the same phenomenon in Lwidakho and Luwanga (Bantu languages of the Luyia subgroup, related to Lubukusu).

- (11) N-a-suubi-sya                    Alfredi n-di/<sup>\*</sup>a-li                    ba-keni  
 1SG.SA-PST-believe-CAUS 1Alfred    1SG-that/<sup>\*</sup>1-that 2-guests  
 khe-be-ech-a.  
 PROG-2SA-come-FV  
 ‘I made Alfred believe that the guests are coming.’

Similarly, in a ditransitive the complementizer can only agree with the subject, not with the intervening indirect object.

- (12) W-a-bol-el-a                    Nelsoni o-li/<sup>\*</sup>a-li                    ba-keni  
 2SG.SA-PST-say-AP-FV 1Nelson    2SG-that/<sup>\*</sup>1-that 2-guests  
 ba-a-rekukh-a.  
 2SA-PST-leave-FV  
 ‘You told Nelson that the guests left.’

As can be seen in (13) and (14) below (equivalents of (11) and (12) respectively), both the causee and the indirect object can be object-marked on the verb; object marking in Lubukusu is restricted to structural arguments of the verb (Diercks 2011; Sikuku et al. 2018).<sup>8,9</sup> This is reason enough to believe them to be DP objects of the verb and therefore potential interveners in any Agree relationship between the complementizer and the superordinate subject.<sup>10</sup>

- (13) N-a-mu-suubi-sya                    Alfredi n-di/<sup>\*</sup>a-li                    ba-keni  
 1SG.SA-PST-1OM-believe-CAUS 1Alfred    1SG-that/<sup>\*</sup>1-that 2-guests  
 khe-be-ech-a.  
 PROG-2SA-come-FV  
 ‘I DID make Alfred believe that the guests are coming.’
- (14) W-a-mu-bol-el-a                    o-li/<sup>\*</sup>a-li                    ba-keni ba-a-rekukh-a.  
 2SG.SA-PST-1OM-say-AP-FV 2SG-that/<sup>\*</sup>1-that 2-guests 2SA-PST-leave-FV  
 ‘You told him that the guests left.’

<sup>8</sup>Non-accusative objects like locative phrases may be marked on the verb, but are marked with a post-verbal locative clitic, as demonstrated by Diercks (2010; 2011) and Sikuku et al. (2018) (“accusative” here is used as an expository mechanism, as DPs are not case-marked in Lubukusu, like in other Bantu languages, and the status of case-marking in general is a larger issue: Harford Perez 1985; Halpert 2012; Diercks 2012; van der Wal 2015). And as Diercks (2011) shows, even for locatives in Lubukusu it is only possible to mark them on the verb when they are selected by the verb, locative-marking is unavailable for adjunct locative phrases.

<sup>9</sup>For an elaborate discussion on object marking in Bantu, see van der Wal (2020 [this volume]).

<sup>10</sup>Example (13) is translated as *verum focus* because doubling an object marker with an overt object is only possible in Lubukusu in a set of pragmatic contexts akin to those that elicit *verum focus* in English.

Following Diercks (2013), our conclusion is that the Lubukusu CA construction cannot be explained under an account of  $u\phi$  on  $C^\circ$  probing upwards, given the lack of intervention effects with intervening DPs. Coupled with the evidence from Germanic CA, this leads us to conclude that downward probing is a central component of the syntax, whereas upward probing is not necessarily so.

Diercks (2013) proposes that agreement on the complementizer is triggered locally in the embedded CP by a null subject-oriented anaphor, so the agreement is in fact only triggered indirectly by the matrix subject. As a result of the subject-oriented properties of the null anaphor, CA in Lubukusu is determined by the features of the matrix subject. Abstracting away from the details for the moment, Diercks claims that the strict subject orientation of Lubukusu CA is enforced by LF clitic-movement of the null anaphor to  $T^\circ$  (following Safir's 2004 analysis of long-distance subject-oriented anaphors).

Support for the proposal that Lubukusu CA is anaphoric in nature comes from predictable sources, mainly, that the locality constraints for anaphoric relations are known to be distinct from those for morphosyntactic agreement (formalized by Chomsky's 2001 Agree). First, CA is clause-bounded, only agreeing with the most local super-ordinate subject (cf. Chomsky's 1973 Tensed Sentence Condition). In (15) the lower complementizer only agrees with the intermediate class 2 subject and not with the class 1 matrix subject.

- (15) Alfredi ka-a-lom-a    a-li    ba-ba-andu ba-mwekesia ba-li/\*a-li  
 1Alfred 1SA-PST-say-FV 1-that 2-2-people 2SA-revealed 2-that/\*1-that  
 o-mu-keni k-ol-a.  
 1-1-guest 1SA.PST-arrived-FV  
 'Alfred said people revealed that the guest arrived.'

In addition, Lubukusu CA has a strict subject orientation – indirect objects and causes do not trigger agreement, agentive by-phrases in passives do not either, nor do other plausible agreement triggers like source adjuncts in perception predicates (e.g. *hear from X*). We refer the reader to Diercks (2010; 2013) for additional empirical argumentation for an anaphoric analysis of Lubukusu CA.

The proposal to be set forward here maintains the core generalizations and analysis from Diercks (2013), namely, that Lubukusu CA is at its heart an anaphoric relation.<sup>11</sup> The contributions that we will make here are (1) to utilize the Lubukusu CA facts as evidence for a generalizable theory of anaphoric relations, and (2) to follow recent work like Hicks (2009), Reuland (2005; 2011), and Rooryck & Vanden Wyngaerd (2011) (among others) to derive anaphoric relations from

<sup>11</sup>See section 7 below for an alternative analysis from Carstens (2016).

more basic elements of the grammar. And, to bring this back even further to the broadest purposes of this paper, these conclusions present crucial evidence on the question of the directionality of probing of Agree.

## **4 Anaphoric vs. non-anaphoric feature valuation**

### **4.1 Setting the stage for the analysis**

The Agree operation is a natural, parsimonious account of feature-valuation, and is particularly useful for explaining West-Germanic CA constructions. CA in Lubukusu and other Bantu languages, however, cannot be licensed solely by Agree without significantly altering notions of locality and Agree. This sets up an interesting dichotomy that lies at the heart of our proposals in this paper. On the one hand, inflectional agreement relations (like subject-verb agreement) are derived by a feature-valuation operation with specific generalizable properties (like strict structural locality). On the other hand, basic anaphoric relations (e.g. subject-oriented anaphors in object position) also show matching of features, but take on a different set of characteristics with respect to locality and other constraints (as documented in a long line of generative literature, e.g. Chomsky 1981; Safir 2004; Reuland 2011 and Sundaesan 2020 [this volume]). While recent generative work (e.g. Reuland 2011; Hicks 2009; comments in Wurmbrand 2011) has made significant progress reducing anaphoric relations to Agree relations (along with basic chain formation), the Lubukusu CA facts are a *prima facie* case of precisely the opposite situation. Here, an instance of morphosyntactic agreement does not in fact accord with the predictions of agreement by Agree, instead showing the properties of an anaphoric relationship. The paradox, of course, is that the argument that Lubukusu CA is best analyzed as anaphoric instead of a syntactic agreement relation is nonsensical if anaphora and agreement are both explained by the same underlying syntactic operation (Agree). The logical conclusion, then, is either that Lubukusu CA is not in fact anaphoric (contra Diercks 2013), or that anaphora and agreement do not reduce to identical syntactic operations.

Our conclusion is that Lubukusu CA is an example of an anaphoric feature-valuation relationship that cannot reduce to Agree alone. If this is in fact the case, then any efforts to reduce all feature sharing/strict reference relationships in the syntax to identical Probe-Goal relations (= Agree) are misguided, and there needs to be some principled way to distinguish anaphoric feature valuation from non-anaphoric feature valuation on a theoretical level. Our claim, as we've discussed above (following Rooryck & Vanden Wyngaerd 2011), is that anaphoric feature valuation relations derive from a compound operation of Move + Agree.

## 4.2 Deriving Lubukusu CA

### 4.2.1 Step 1: Reducing anaphoric relations to Agree

We follow Hicks (2009), Reuland (2011), and Rooryck & Vanden Wyngaerd (2011) (henceforth, R&VW) in assuming that binding is not a primitive of grammar. In particular, R&VW propose that intensifiers and reflexives must raise out of their base positions to adjoin to *vP*. This movement is necessary in order for these units to be in a position from which they can probe their c-command domain and are valued by the subject (equating reflexives with Doetjes' 1997 analysis of floating quantifiers). Figure 2 derives the sentence *Peter invited himself*, where features marked with a \* are those that are shared with the subject DP.<sup>12</sup>

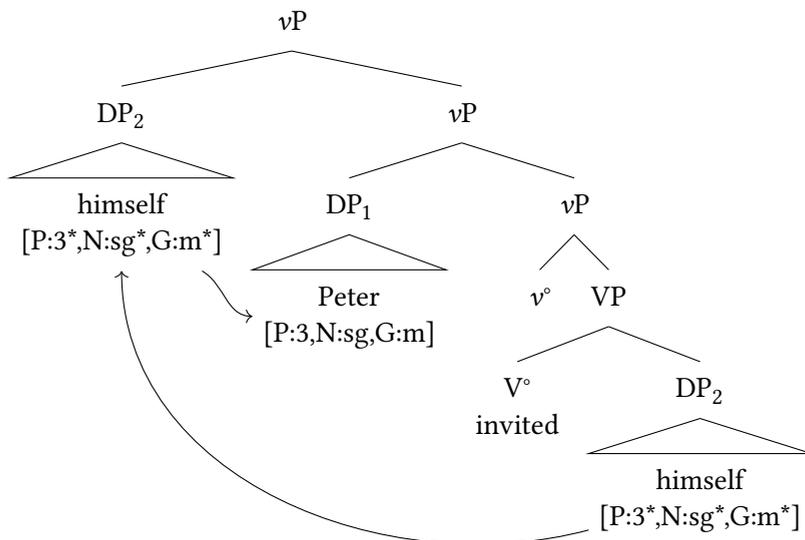


Figure 2: The derivation of a self-reflexive (R&VW: 89, example 2)

Under this view, Agree is hypothesized to exclusively search in the probe's c-command domain. Anaphors are analyzed as consisting of a set of unvalued  $\varphi$ -features that are valued (via Agree) by moving the reflexive over its antecedent. Subsequent subject and verb movement then obscure this reflexive movement (in R&VW's account). In order to be able to distinguish this agreement from other  $\varphi$ -feature valuation (which is presumably deleted or not interpreted at LF), they claim that the  $\varphi$ -features on reflexive pronouns are interpretable, unvalued

<sup>12</sup>This feature sharing/valuation occurs via the Agree relation (Frampton & Gutmann 2000; Pesetsky & Torrego 2007).

features. A major prediction of R&VW's approach (and others like theirs) is that self-anaphors are at their heart an instance of feature valuation in the syntax.<sup>13</sup> If this is the case, there ought to be feature valuation operations that show the properties of anaphora while having little to do with reflexivity of predicates. The claim that we advance in the remainder of this paper is that Lubukusu CA exemplifies precisely this prediction: an instance of a feature bundle with the same values as anaphoric features – interpretable and unvalued – that shows the same syntactic behavior, despite not being an instance of predicate reflexivity.

#### 4.2.2 Step 2: The interpretative effects of CA in Lubukusu vs. CA in Germanic

Diercks (2010; 2013) observes that the agreeing complementizer in Lubukusu has an interpretation that appears to be evidential in nature: an agreeing complementizer signals the speaker's assessment that the reported information is relatively reliable, and is ruled out in instances where the reliability of the reported information is in question. In those cases, a non-agreeing complementizer (here *bali*) is necessary:

- (16) Mosesi a-lom-ile \_\_\_ Sammy k-eb-ile chi-rupia.  
1Moses 1SA-say-PRF that 1Sammy 1SA-steal-PRF 10-money  
'Moses has said that Sammy stole the money.'
- Moses saw the event, and the speaker believes him: \**bali/ali*
  - Moses didn't see the event, but reported hearsay: *bali/\*ali*
  - Moses says he saw the event, but the speaker doubts him: *bali/\*ali*

Here we observe a noticeable contrast between CA in Germanic and Lubukusu/Bantu; whereas the agreeing complementizer appears to have an interpretive effect in Lubukusu, Germanic CA does not have any semantic contribution (see van Koppen 2005; 2017). Based on these patterns, we hypothesize that the  $\varphi$ -features on  $C^\circ$  in Lubukusu have an effect on semantic interpretation, and are therefore interpretable, unvalued features. The  $\varphi$ -features on  $C^\circ$  in Germanic do not have an interpretation and are hence uninterpretable, unvalued features. This key contrast is noted in (17).<sup>14</sup>

<sup>13</sup>This is opposed to an approach like that of Reinhart & Reuland (1993), where self-reflexives are the product of constraints on licensing reflexivity of predicates (i.e. multiple arguments of a predicate being saturated by the same semantic variable).

<sup>14</sup>On the distinction between (un)interpretable and (un)valued features, also see Pesetsky & Torrego (2007).

- (17)  $\varphi$ -features on  $C^\circ$   
 Lubukusu: interpretable, unvalued  
 Germanic: uninterpretable, unvalued

Note, at this point we have not given a precise account of what the interpretation of these interpretable features is, only that the presence of these features leads to an interpretation that is different from the one where these features are absent.

#### 4.2.3 Step 3: Deriving Lubukusu complementizer agreement

As a point of departure, we analyze the  $\varphi$ -features originating on a higher CP-projection than the rest of the complementizer, following the same proposal in Carstens (2016).<sup>15</sup>

- (18) [<sub>ForceP</sub> Force[ $i\varphi$ :\_] ... [<sub>FinP</sub> Fin[-li] [<sub>TP</sub> ...]]]

$C^\circ$  is merged with unvalued, interpretable  $\varphi$ -features. At present, we will simply stipulate that because these features are interpretable, unvalued features, they are not valued immediately by Agree (Section 5 discusses why). The derivation proceeds until the  $v^\circ$  phase head is merged, at which point the subject is merged, and Force is adjoined to  $vP$  in a movement operation. It is from this adjoined position that the interpretable, unvalued  $\varphi$ -features of Force $^\circ$  probe the subject, and are specified as sharing its  $\varphi$ -features.<sup>16</sup> On this analysis, Force $^\circ$  will always agree with the highest Goal in the  $vP$ , namely the subject. We assume that Force $^\circ$  has morphophonological requirements stating that it must undergo morphological merger with a  $C^\circ$  head (following standard Distributed Morphology assumptions that morphological exponents state the morphosyntactic contexts in which they are realized); therefore, the  $vP$ -adjoined copy of Force cannot be spelled out, only the lower copy can be phonologically-realized.<sup>17,18</sup>

<sup>15</sup>Our thanks goes to Vicki Carstens (p.c.) for invaluable comments and feedback on this analysis. See Carstens (2016) for a different approach to these same data that (like our approach) seeks to explain Lubukusu CA under a general analysis of feature valuation (agreement), but which does so without the anaphoric analysis pursued here.

<sup>16</sup>This mechanism is reminiscent of the reprojection analysis discussed by Börjesson & Müller (2020 [this volume]).

<sup>17</sup>An anonymous reviewer suggests that “we might have expected instead, though, that merger would either force the higher copy to be pronounced, or would break the link between the two copies of the chain and result in doubling.” These are indeed additional logical options which might indeed apply in other circumstances. However, these options do not apply in this case, since we assume that the Force head has to undergo morphological merger with a  $C$  head.

<sup>18</sup>This assumes a feature-sharing model of Agree, wherein valuation of one copy’s features values all copies’ features (because features are in fact *shared* between copies, rather than being distinct): see Frampton & Gutmann (2000); Rooryck & Vanden Wyngaerd (2011); Pesetsky & Torrego (2007). So there is no transmission of features to the lower copy, but rather valuation on one copy in fact is valuation on all. Thanks to a reviewer for comments on this question.

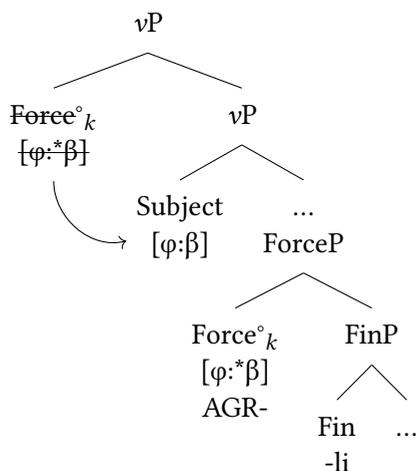


Figure 3: The derivation of complementizer agreement in Lubukusu

In Figure 3 we have assumed for expository purposes that the Force<sup>°</sup> head itself has raised to the edge of vP, though it is not critical that it does so; it may well be that only the anaphoric φ-features themselves move in a form of feature-splitting merge (Obata & Epstein 2011). This approach may well be preferable given that this movement does not obey expected constraints on head-movement. An alternative is to claim that the φ-features percolate to the maximal category of CP, and the entire CP raises to the edge of vP: Letsholo & Safir (2019) propose just this to account for Ikalanga complementizer agreement patterns, and Moulton (2015) suggests that all CPs may do so to resolve type-theoretic semantic concerns (and in the process explaining a variety of puzzles about similarities and differences between CP and DP verbal complements). At present we simply focus on the φ-features themselves and leave these details for future work: what is critical for us is that unvalued, interpretable φ-features raise to the edge of vP. Whether they do so alone (feature-splitting Merge), pied-pipe the Force<sup>°</sup> head, or pied-pipe the entire CP, the core claims of our account here will still hold.<sup>19</sup>

We therefore claim that CA in Lubukusu is derived by the very same mechanism that we find for CA in Germanic: downward-probing Agree. The crucial difference between CA observed in these two languages is not the mechanism(s) employed, but rather, the moment of the valuation of these φ-features:

<sup>19</sup> A reviewer questions whether there is independent evidence that adjuncts can serve as probes: we refer the reader to Carstens & Diercks (2013) for discussion of a Lubukusu pattern where the manner wh-word *how* probes and agrees with the subject of the clause, not dissimilar to the analysis proposed here.

(19) *Derivations of CA*

- Germanic:  $\phi$ -features on  $C^\circ$  are valued at Merge of  $C^\circ$  via Agree with the embedded subject
- Lubukusu:  $\phi$ -features on  $C^\circ$  are valued after Internal Merge with  $\nu P$  and Agree with the matrix subject

The critical component of our analysis, then, can be reduced to this general principle (which is directly based on R&VW, but generalizes beyond argument anaphors):<sup>20</sup>

(20) *Principle for the Anaphoric Properties of Agreement (PAPA)*

Anaphoric  $\phi$ -features (i.e., interpretable, unvalued  $\phi$ -features) adjoin to the edge of  $\nu P$ .

In the case of Lubukusu CA, the anaphoric  $\phi$ -features of the agreeing complementizer adjoin to  $\nu P$  and are then valued by Agree. A welcome result of this analysis is that our assertion that Agree always probes downward can be upheld. The difference between Bantu and West-Germanic (to speak metaphorically) is that uninterpretable  $\phi$ -features are impatient, probing their c-command domain at first-merge, whereas anaphoric  $\phi$ -features are patient: they do not probe their c-command domains when merged, but are instead (eventually) adjoined to  $\nu P$  and probe from that position.<sup>21</sup>

The principle in (20) is presented as axiomatic, but this raises many important issues. What exactly is the nature of the interpretation of interpretable, unvalued

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<sup>20</sup> A reviewer points out that Pesetsky & Torrego (2007) propose that T bears interpretable, unvalued features which are valued by valued tense features on verbs. We can avoid disagreeing by limiting this proposal to  $\phi$ -features, but if (like Pesetsky & Torrego) we want to explain tense on verbs via Agree, the PAPA could be extended via the assumption that tense is interpretable and unvalued on verbs, which become valued by tense on T via a procedure similar to what we propose here (though perhaps with verb movement to  $C^\circ$ ). It is not clear that tense on verbs ought to be explained in this way, however, since semantic tense seems more likely to be a component of  $T^\circ$  than  $V^\circ$ . Instead, tense may well come to be inflected on verbs post-syntactically. The more likely extension of these ideas to Tense in our eyes is to phenomena of sequence of tense (i.e. agreement between T heads), though we have not explored this in any depth.

<sup>21</sup> An anonymous reviewer questions whether there is independent evidence that a movement operation of a probe can feed valuation of that probe. While we do not have such independent evidence to offer here, we are in fact claiming that all valuation of interpretable features should be upward-oriented in this way: see discussion of the Anaphoric Agreement Corollary in (41) for some predictions of this account. The same reviewer also notes some conceptual similarities between this proposal and the long-distance agreement analysis of Potsdam & Runner (2001), where covert movement enables otherwise-unexpected agreement relations.

features? And more pressing for our current concerns, what evidence is there that these anaphoric features must raise to the edge of  $\nu\text{P}$ , rather than probing their own c-command domain? Furthermore, it is important to the current discussion whether the PAPA is in fact axiomatic, or if it can be derived from more basic principles. We now turn to these questions.

## 5 Toward an explanation of the PAPA

After briefly discussing relevant previous work on anaphors in the next subsection, we engage in three levels of argumentation to work our way back to a discussion of the PAPA: (1) why syntactic elements move to the  $\nu\text{P}$  edge in general, then (2) why object anaphors specifically move to the  $\nu\text{P}$  edge, and (3) the extension back to our concerns, of why anaphors in our particular context (anaphoric features at CP) move to the  $\nu\text{P}$  edge.

### 5.1 Movement of anaphors

The idea that reflexives covertly raise to a position local to their antecedents is a long-standing explanation for anaphoric properties in generative grammar. Safir (2004), Pica (1987), and Cole et al. (1990) all rely on this kind of analysis of long-distance anaphors, raising into a local relationship with their antecedents, and while Reuland (2011) does not argue that self-reflexives universally raise into their predicate, he does conclude that they do in at least a subset of cases due to general economy constraints in interpretation.

R&VW propose that complex reflexives adjoin to  $\nu\text{P}$ , but they leave open the question of what motivates movement of self-reflexives to the edge of  $\nu\text{P}$ :

It is not clear to us at this point what drives the movement of self-reflexives to the edge of  $\nu\text{P}$ . It might be that this movement is driven by the need for valuation of unvalued features. Bošković (2007b) suggests something along these lines, in that he argues that the uninterpretable features present on a constituent X may trigger the movement of X. Alternatively, there is another feature of self-reflexives that requires satisfaction and that triggers their movement. (R&VW: 106, fn. 14)

R&VW do not offer a motivation for this movement, and leave the question for future research. In general, the notion that the phase is the source of binding domains is implicit in the work of both Reuland (2011) and R&VW, who utilize such

independently motivated locality constraints to derive the properties of binding. In fact, a wide range of work focuses on the role of phase boundaries as delimiting binding domains in a variety of specific construction types (Wurmbrand 2011; Lee-Schoenfeld 2008; Canac-Marquis 2005; Heinat 2008; Hicks 2009; Quicoli 2008; Charnavel & Sportiche 2016).

## 5.2 On movement to the edge of the $\nu$ P phase

The PAPA (20) proposes that interpretable, unvalued features move to the edge of  $\nu$ P: this accounts for the core Lubukusu CA facts, but *why* do anaphoric features behave in this way? We believe that this raising of anaphoric  $\phi$ -features to the phase edge is a plausible proposal if evaluated in the light of recent work on the meaning of grammatical categories by Wolfram Hinzen and his collaborators (Hinzen 2012; Sheehan & Hinzen 2011; Hinzen & Sheehan 2013; Arsenijević & Hinzen 2012), who claim that phases have both syntactic and semantic properties, specifically, phases enable *reference*. In short, we will argue that the anaphoric features move to the edge of the phase because they have to become referential, and in order for the  $\nu$ P itself to be capable of referring to an event.

### 5.2.1 Phases as a unit of semantic significance

Hinzen (2006; 2012) and Hinzen & Sheehan (2013) challenge the notion that the semantic ontology and semantic principles are independent of syntax. This abandons the approach developed in a long history of Chomsky's work that claims that language is simply a tool to express thought, but that language and thought are fundamentally distinct (e.g. Chomsky 2000b). Hinzen adopts a framework that is in fact closely linked with the syntactic architecture of the Minimalist Program (Chomsky 2000a; 2001; 2008) that claims that the syntactic derivation proceeds by phase, and each phase must necessarily be legible at the C-I (Conceptual-Intentional) interface. However, Hinzen contests the traditional syntax-semantics disjunct and instead claims that grammar is in fact the principal factor that allows for organization of meaning in language. Therefore, "rather than being "autonomous" and merely "interfacing" with the semantic component, ... grammar is a way of carving up semantic spaces" (Hinzen 2012: 311). That is to say, grammar "creates the semantic ontology of language," such that grammar in fact is meaningful, and meaningful contribution of grammar is reference (Hinzen 2012: 311). Specifically, the phase is the referential component of grammar, with different phases referring to different entities – DPs refer to individuals,  $\nu$ Ps to events, and CPs to propositions/truth (Hinzen & Sheehan 2013; Sheehan & Hinzen 2011).

A phase's semantic contribution is to take the conceptual/predicational content of the phase (e.g. the concept of DOG, or BANANA) and to enable linguistic *reference* to relevant entities. Phases themselves are composed of a phase interior and a phase edge, as shown in (21), a notion with which syntacticians are now long familiar (Chomsky 2001 and subsequent work).<sup>22</sup>

(21) [ EDGE [ INTERIOR ] ]

(22) [<sub>DP</sub> the [<sub>NP</sub> man ] ]

A DP phase, for example, will refer to an object. On the approach developed in this collection of work, the interior of a phase is the descriptive content of the phase and the edge of the phase (head + extended material) enables reference. In this sense lexical content cannot refer on its own – reference is only possible in grammatical contexts.

Lexemes by contrast [to animal calls] not only can be used referentially in the physical absence of their referent, but are also very incomplete in their meaning. The word 'eagle' by itself does not denote anything in particular: not this eagle or that, not all eagles or some, not a kind of bird as opposed to another, not the property of being an eagle, etc.—things that it can denote only once it appears in the right grammatical configurations. It is also used for purposes of reference and predication, in addition to being used as a directive for action, and it again requires a phrasal context, hence grammar, when it is so used. (Hinzen & Sheehan 2013: 42–43)

On this approach, then, linguistic meaning is *reference* (to objects, events, and propositions), and reference is determined grammatically, via a syntactic derivation by phase. For ease of exposition, we will refer to this general framework as the Phase Reference (PR) model. In one sense the PR model is an inconsequential shift for syntacticians' everyday sort of analysis – this does not change the nature of our grammatical architecture much, retaining derivation by phase, Merge, Agree, and the kinds of functional structure we are familiar with at present. In another sense, however, the PR model is a dramatic shift, as we suddenly have incorporated reference – a central semantic notion – into the syntax itself. The PR model introduces a new range of predictions for a given syntactic analysis (involvement of phase edges in a derivation ought to predict referential consequences for the relevant referent). It also incorporates an additional kind of explanatory mechanism for solving linguistic puzzles, given that the referential

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<sup>22</sup>The formulation in terms of edge/interior presented here is adopted from Hinzen & Sheehan (2013).

properties of language is now a central aspect of the syntax. Let us look at some specific examples of how syntax and semantics are intertwined by looking at Sheehan and Hinzen's (2011) (henceforth S&H) discussion of the referential possibilities of DPs and CPs, before exploring the consequences for vP structure that we will rely on in our approach to valuation of anaphoric features.

As for the DP-level, S&H point to Longobardi's (1994; 2005) proposals regarding the range of interpretations available for DPs, particularly the proposal that proper names raise to D. Modifying and building on Longobardi's approach, they propose that there is a threefold ontology of DPs in terms of their referential capabilities:

- (23) *Referential capabilities of DPs* (S&H: 415)
- a. Indefinite existential nominal reference
  - b. Definite descriptions (contextually bound free variables)
  - c. Proper names (maximally specifically referential, with rigid reference)

One illustration that they rely on here draws on data from Elbourne (2008):

- (24)
- a. The Pope is usually Italian.
  - b. (Pointing at the Pope) He is usually Italian.
  - c. # Joseph Aloisius Ratzinger is usually Italian.

Both definite descriptions and pronouns can refer to different individuals (as specified by context), whereas proper names have much more rigid reference to a specific individual.

S&H claim that these three sorts of DP reference are syntactically derived, that is to say, there are syntactic correlates of all three interpretive possibilities.

When the D-position is empty (there is no determiner and there is no movement to D), a default existential interpretation is derived, where reference is to an arbitrary instance of the predicate. In short, reference is restricted merely in virtue of the predicate's content, or by the interior of the nominal phase. (S&H: 421)

Definite reference, in contrast, involves both the D° position and the base predicate position, such as an instance of a definite determiner in D° and the noun occurring in N°. In this case, both the phase interior and phase edge determine reference. (S&H: 421)

Proper names, in contrast, consist of movement from  $N^{\circ}$  to  $D^{\circ}$  with  $N^{\circ}$  substituting for  $D^{\circ}$ , such that

reference is unmediated by descriptive content and only the phase edge determines reference, resulting in the rigid referential properties of proper names. (S&H: 421)<sup>23</sup>

Broadly speaking, then, the three referential possibilities nicely correlate with the three logically possible ways in which the phase edge and interior can contribute to the determination of reference: only the phase interior mediates reference, or both the interior and edge do, or only the edge is involved. (S&H: 421)

S&H then extend this threefold ontology of phases, correlating the three referential possibilities of DPs for reference to individuals to a threefold ontology of reference by CPs to facts. Specifically, they claim that CPs may be indefinite, representing propositions, definite, yielding facts, or rigid in their reference, denoting truth.

(25) *Referential capabilities of CPs* (S&H: 424)

- a. *Reference to Propositions*:  $C^{\circ}$  is empty or underspecified, through a quantificational operator (optionally null in English), yielding an indefinite interpretation;
- b. *Reference to Facts*:  $C^{\circ}$  is pro-form (obligatorily overt in English) with a TP-restriction, yielding a referential interpretation;
- c. *Reference to Truth*:  $C^{\circ}$  is substituted by  $V^{\circ}/T^{\circ}$  overtly or covertly (covertly in English, overtly in V2 languages), yielding a rigid interpretation unmediated by a descriptive condition.

S&H correlate these referential possibilities with the various interpretations of clauses in embedded contexts in particular, discussing non-factive clauses as indefinite reference, factive clauses as definite reference, and root clauses and embedded clauses with root clause properties as those with the rigid interpretations that come from a truth-conditional (i.e. truth-referring) clause.

There are two relevant conclusions for our purposes here – the first is that there are particular interpretive (referential) properties of phases, and the second that the syntactic realization of a phase (specifically, the relationship between the phase-internal material and the phase edge) has specific referential consequences depending on the phase in question. Sheehan and Hinzen conclude their paper with the following statement:

... reference in human language is an “edge phenomenon”: it depends on the extent to which a phase edge is involved in the determination of reference. The more edge-heavy the phase becomes (through Determiner or Complementizer phasal heads, or movement of phase internal material into these positions), the more referential the phase becomes, giving rise to object reference and fact reference in nominals and clauses, respectively. (S&H: 451)

These proposals are set forth as relevant to all phases (DP nominal reference,  $\nu$ P event reference, and CP fact reference). To our knowledge they have only developed in-depth analyses of DP and CP, however, and our discussion here that extends their ideas to the realm of  $\nu$ P is a new contribution; we adopt their claim that  $\nu$ Ps refer to events, and rely on their connection of movement to the edge of a phase with increased specificity of reference so that we can motivate the movement of anaphoric  $\varphi$ -features to the edge of  $\nu$ P.

### 5.2.2 Toward an ontology of $\nu$ P structure

Sheehan & Hinzen (2011) and Hinzen & Sheehan (2013) do not extend a detailed analysis of the reference of phases to  $\nu$ Ps. Their comments are mainly restricted to the notion that  $\nu$ Ps refer to events, though Sheehan & Hinzen (2011) do comment that more specific reference with respect to  $\nu$ Ps may well have to do with the boundedness of events (i.e. the aspectual properties of predicates). We develop this idea here in more depth; specifically, we propose that there is also generally a threefold ontology of  $\nu$ P phases based on the aspectual properties of predicates, as shown in (26):

- (26) *Referential capabilities of  $\nu$ Ps* (to be expanded on below)
- a. *Existential event reference* (e.g. existential/presentational clauses)
  - b. *Atelic events* (boundedness of event is addressed but is not rigid)
  - c. *Telic events* (maximally specifically reference, with rigid reference to bounded event)

Here telic events are those where the predicate dictates a specific culmination point; atelic predicates do not (Beavers 2012 offers a good overview of the relevant issues). Existential clauses, on the other hand, are the most unspecified sort of event that does not refer to a bounded event at all, but rather a state of existence. For this ontology to hold in the PR model it should be demonstrable that telic events show maximal involvement of the edge of the phase in the syntactic derivation, with atelic events showing less, and existential reference to events

showing the least involvement of the edge. As we will see, the involvement of both verbs and objects in  $vP$ -based event reference complicates this threefold ontology, though notably in exactly the ways predicted by the PR model.<sup>24</sup>

Perhaps the classic English diagnostic for telicity of predicates is the distinction in application of *in/for* modifying PPs, for example *in an hour* (compatible with telic predicates) and *for an hour* (compatible with atelic predicates) (Vendler 1967; Dowty 1979; Thompson 2006; Beavers 2012, among many others).

(27) English (Thompson 2006: 213)

- a. Mary ate an apple in an hour/??for an hour.
- b. Mary walked ??in an hour/for an hour.

As noted by a variety of work, verbs alone do not determine the aspectual properties of a predicate, which are instead determined by the combined verb phrase material (Verkuyl 1972; 1989; 1993; 1999; Pustejovsky 1991; Zagona 1993; Garey 1957; Tenny 1987; 1992; 1994; Krifka 1989; 1998; 1992; Dowty 1991; Jackendoff 1991; 1996; Travis 2010). For example, bare plurals in English yield atelic readings of predicates (28b), and objects with quantized reference yield telic predicates (28d), whereas objects with non-quantized reference yield atelic predicates (28c).<sup>25,26</sup>

(28) English (Thompson 2006: 212, Beavers 2012: 24)

- a. Mary ate an apple in an hour/??for an hour.
- b. Mary ate apples ??in an hour/for an hour.
- c. John drank wine ??in an hour/for an hour
- d. John drank a glass of wine in an hour/??for an hour

What we see, then, is that the properties of multiple components of a  $vP$  can influence the aspectual properties of a predicate. Thompson (2006) shows a variety of evidence (including word order of manner adverbs, among others) that

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<sup>24</sup>It is important to note that the proposals here have broad-reaching implications that cannot possibly be defended sufficiently in this paper, and would take us too far afield of our overall goals of the exploration of anaphoric feature valuation. But we will provide evidence from existing work on telicity and aspectual properties of predicates in order to at least show that the ontology in (26) is well-founded empirically, and shows exactly the kinds of intersections of syntactic structure and referential results that are predicted by the PR model.

<sup>25</sup>Aspectual inflections (e.g. progressive vs. perfective) also influence the aspectual interpretation of predicates (Mary has written the book vs. Mary is writing the book).

<sup>26</sup>Likewise, in English paths/goals represented in PPs can influence the interpretation of an event with respect to telicity, where specific goals of directed motion generate telicity whereas paths of motion alone do not, showing that it is not only objects that play a role in telicity of events, though we focus on object properties here (Thompson 2006: 214).

there is movement of DP objects to the edge of vP in telic contexts, proposing that telicity is produced by checking [bounded] features at an aspect projection. Thompson's proposal, therefore, is precisely that movement to the edge of vP correlates with telicity. Rather than adopt the proposal that this is the result of checking a [bounded] feature, we propose that this is a direct result of the fundamentals of the PR model: (1) phases are referential, (2) vP phases refer to events, (3) most specific reference to an event corresponds to telicity, and (4) the general strategy for achieving more specific reference within a phase is moving to the edge of the phase. Given this general PR approach, and following on Sheehan and Hinzen's (2011) suggestion that boundedness is the correlate of "referential specificity" with respect to events, a finding like Thompson's (that telicity corresponds with enrichment of the phase edge) is exactly what we would predict. The one new component here that is not directly suggested in Sheehan and Hinzen's work is that raising of the DP object (rather than just the verb) can correlate with higher specificity of reference.

As mentioned above, Sheehan & Hinzen (2011) focus on predicational lexical heads (N, V) raising to the edge of their phase in instances of more specific reference. Nothing in their account claims, however, that some other descriptive content of the phase interior ought not contribute to the "greater referential specificity" of the phase in question.<sup>27</sup> And in fact, Arsenijević & Hinzen's (2012) (henceforth AH) discussion of the PR model gives reason to think that movement of either a verb or the DP object to the edge of the vP phase should in fact be expected as part of greater specificity of phase reference. AH in particular focus on how derivation-by-phase generates the specific sorts of recursivity and intensionality that occur in natural language. They make the argument that all lexical items begin their syntactic lives as predicates, essentially – that is, as the descriptive content of some phase, which becomes referential when a phase head is merged and when descriptive content is raised to the phase edge. Lexical items themselves are not predicates or arguments, but rather, "predicate" and "argument" are grammatical notions. The descriptive content of a phase becomes referential when that phase is complete – the lexical concept *MAN* becomes referential when embedded in a DP phase: *this man* or *the old man* or even kind-referring structures like *men*. Phases are necessarily ordered, then, as parts of a

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<sup>27</sup>One potentially problematic aspect of this proposal is that it may challenge somewhat their proposal for threefold ontologies of each phase, which assumes that the predicate is either in the phase interior or in the edge, but doesn't directly deal with the idea that a portion of the phase's descriptive content could remain in the interior, and a portion raise to the edge. This does not undermine their account, as much as it potentially makes the available ontologies more complex than originally predicted, or perhaps even non-discrete.

whole (objects are participants in events, which are the foundation of propositions when embedded in a temporal frame).<sup>28</sup>

As is clear at this point, the interior of a phase makes up the descriptive content of the higher phase, such that reference to an external object by a DP necessarily must be an object that is described by the lexical N and any other descriptive content (e.g. adjectives or PPs). Likewise, a DP object of a verb is part of the descriptive content of a VP, essentially forming part of the predicate – the descriptive content – of the *vP* phase. So in the sentence *Linus ate the pretzels* it is the object DP *the pretzels* and the verb *eat* that make up the descriptive content of *vP*, as they both belong to the phase interior of *vP*. And as such, raising of either the object or the verb itself in a *vP* ought to contribute to the degree of specificity of reference of the phase being built.

What we see, then, is that specificity of reference of an event is governed by (at least) two distinct components of events: the lexical predicate itself, and the arguments of the relevant predicates referring to that event. Specific reference to an event must necessarily include full specification of the participants in the event (e.g. a verb and its arguments) in addition to boundedness. Event Specificity therefore is composed of two distinct but clearly mutually dependent factors: reference to event participants (29a/b), and reference to boundedness/durativity (aspect) of the event (29c).

- (29) *Degree of Event Specificity is determined by:*
- a. inclusion of all participants in the event, including
  - b. the degree of specific reference to those participants, and
  - c. aspectual distinctions (telicity)

Intuitively this is relatively uncontroversial following on the discussion of telicity: an event of eating cannot be complete without (implicit or explicit) reference to the agent and the theme. And given the degree to which objects and PPs are tied into (a)telic interpretations of predicates, it is clear that specificity of reference to events includes the properties of the participants in the event. In essence, then, *vP* phases without reference to all the participants of an event are incomplete, a notion that we build on below.

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<sup>28</sup>This claim of the PR model (that phases induce reference) is also meant to derive the general intensionality of language (Hinzen et al. 2014; Arsenijević & Hinzen 2012; Hinzen & Sheehan 2013). The interpretation of any phrase or constituent – even of a proposition – is dependent on the grammatical structures it occurs within. This accords with a model where any phase-internal material makes up the descriptive content of the reference of the phase that is currently being built, even if part of that phase-internal material is a previous phase.

### 5.2.3 Anaphora and underspecification of $\nu$ P events

Recall the PAPA, repeated here as (30):

- (30) *Principle for Anaphoric Properties of Agreement (PAPA):*  
Anaphoric  $\varphi$ -features (i.e. interpretable, unvalued  $\varphi$ -features) adjoin to the edge of  $\nu$ P.

We have claimed that moving the anaphor into the edge of  $\nu$ P provides the anaphoric feature bundle with a value and hence with a reference (which is in turn critical for determining the referential properties of the  $\nu$ P, the entire event).

Let us first look at the anaphoric feature set of a reflexive object of a verb: as proposed previously, they are interpretable, unvalued  $\varphi$ -features. Interpretable, valued  $\varphi$ -feature sets are usually referential, i.e. they can be linked to an entity in the discourse. Uninterpretable  $\varphi$ -feature bundles, for instance on  $T^\circ$  or on  $C^\circ$  in Germanic CA-languages, are not referential. They simply reflect the syntactic relationship between, in this example, the verb or the complementizer and the subject. A feature bundle that is unvalued yet interpretable is somewhat of a paradox: it is interpretable, so it should be referential, yet it is unvalued, so it is unclear to what entity it refers exactly.

We suggest that the presence of this sort of feature set, i.e. referential features that are unspecified with respect to their antecedent, renders the reference of a  $\nu$ P event incomplete, underspecified. Hinzen (2012) and Sheehan & Hinzen (2011) argue that referentiality is an edge phenomenon. Our proposal is that referential arguments of an event that do not have a value must necessarily raise to the edge of  $\nu$ P to be identified, as it were, to become referentially specified. The intuition here is that underspecified  $\nu$ Ps are not capable of referring to events. The solution to this paradox is to raise the phase-internal material (the descriptive content of the phase: the anaphoric object here) to the edge of  $\nu$ P, where independent operations (i.e. Agree) allow the  $\varphi$ -features to attain a value. In essence, anaphoric  $\varphi$ -features (i.e. interpretable unvalued features) are a syntactic element in search of a referent, and as reference happens at phase edge, anaphoric features raise to the edge of the phase from which position they are valued, by probing the subject in its base position in  $\text{Spec},\nu$ P. Therefore, movement of anaphors is not explained solely by the needs of the anaphor, but also by the needs of the event-referring  $\nu$ P that the anaphor is embedded within.

From their position at the edge, an anaphoric feature bundle is valued by the syntactic mechanisms generally utilized for feature valuation (Agree), leading to its anaphoric interpretation (a referential DP identified as sharing reference with the subject in  $\text{Spec},\nu$ P). The event participants as a result are now fully

identified, and the  $\nu$ P can be considered sufficiently referentially specific (i.e. able to refer to an event in time). The interpretability of anaphoric features plays a role here, in the sense that uninterpretable features would never enter the calculation of determining referentiality (either of a DP or consequently of a  $\nu$ P); they are by definition irrelevant for referentiality and will not participate in this kind of movement-to-edge.

#### 5.2.4 Movement of anaphoric $\phi$ -features

We are now at the final stage in our discussion toward deriving the PAPA. We established the properties of  $\nu$ P phases as (degrees of) specific reference to events, where event specificity depends on two distinct but related notions – telicity and reference to all event participants – both of which have been previously described to interact in ways relevant to our proposals here. We then showed how this view of event reference dovetails with approaches to anaphora, providing a possible explanation for the movement of anaphors to the edge of  $\nu$ P (as proposed by R&VW). The PAPA of course extends this proposal to all anaphoric  $\phi$ -features (not simply object anaphors), which brings us to the present question: why do anaphoric  $\phi$ -features, even when they are not the object arguments of a verb (and, therefore, not always appearing in the same structural position as objects), show these same PAPA properties of valuation after movement to the edge of  $\nu$ P? That is to say, why do anaphoric  $\phi$ -features behave like anaphors, even when they are not arguments themselves?

In what preceded we built the argument that event completeness is a key to why anaphors are raised to the edge of  $\nu$ P. That is to say, it is not just that anaphors need a referent, but also that unvalued anaphoric  $\phi$ -features lack reference, and therefore events containing anaphoric feature sets are incomplete, underspecified events. This leaves us at the following set of conclusions regarding anaphoric  $\phi$ -features: they are probes, being sets of unvalued features that will be valued by Agree, but they are not *just* probes. They are in fact an instruction to the grammar of the event to “become more referential”. Or, better, to “find a referent”, or more so, “become referentially complete”.<sup>29</sup> And we claim that the

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<sup>29</sup>Note that we do not mean to imply that all anaphoric predicates are telic – telicity effects are dependent both on the semantic properties of lexical verbs as well as on higher aspect. Rather, we mean to say that more specific event reference is triggered by movement to the edge of the syntactic phase referring to that event ( $\nu$ P), and that anaphora can be explained by the same movement. A reviewer points out that this account predicts that  $\nu$ Ps with anaphoric objects ought to be telic, at least in comparison to  $\nu$ Ps with objects that demonstrably remain in their base position. This certainly deserves further exploration – this may be true, or it may simply be that movement to the edge must increase referential specificity, and moving from an unspecified event to a specified event is the result (i.e. that telicity effects only emerge when movement to the edge occurs within a  $\nu$ P that is already complete). We leave these explorations to future work.

human language faculty’s universal operation for resolving such instances of referential incompleteness is to raise the relevant structures to the edge of the phase. We suggest that “reference resolution” is necessarily an edge phenomenon (for all the reasons we discuss above, following the rich work of Hinzen, Sheehan, and others), and therefore immediate probing of anaphoric  $\varphi$ -features is in fact unexpected (in contrast to non-anaphoric  $\varphi$ -features, which are uninterpretable). In this way, the PAPA captures the syntactic patterns that are the result of the only way that unvalued interpretable features can be valued: at the edge of the  $\nu$ P phase.

The extension we have to make is to claim that interpretable, unvalued  $\varphi$ -features at the edge of any phase (not just at the edge of DPs) that are accessible to the higher  $\nu$ P results in that  $\nu$ P being interpreted as referentially incomplete. We presume that this is because in these instances there is some kind of unresolved interpretive question in the descriptive content of that  $\nu$ P that is underspecified (that will therefore make up the descriptive content of the event). In this sense the movement of anaphoric  $\varphi$ -features to the edge of  $\nu$ P is altruistic movement.

## 6 Supporting evidence: CA in Kipsigis

Support for this analysis comes from recent work on a similar construction in Kipsigis, a Nilotic language of Kenya. Kipsigis is a verb-initial language with canonical VSO word order, but with relatively flexible word order after the verb.<sup>30</sup> As in Lubukusu, a declarative-embedding complementizer in Kipsigis can agree with the matrix subject:

- (31) Kipsigis (Diercks & Rao 2019: 4)  
 Ko-o-mwaa o-**le** ko- $\emptyset$ -ruuja tuyá amut.  
 PST-2PL-say 2PL-C PST-3-sleep cows yesterday  
 ‘You (pl) said that the cows slept yesterday.’

Diercks & Rao refer to this as Subj-CA (CA targeting the subject) for reasons that will become clear momentarily. Kipsigis Subj-CA generally displays similar patterns to Lubukusu: agreement is controlled by the matrix subject and not the embedded subject, matrix non-subjects cannot control the agreement, and only the most local superordinate subject can control agreement (Rao 2016; Diercks & Rao 2019). Also, as in Lubukusu, there is a complementizer drawn from the paradigm of agreeing complementizers that can be used in non-agreeing contexts:

<sup>30</sup>Most of the data reported here come from Rao (2016) and Diercks & Rao (2019), data that do not come from those works are noted as coming from field notes. See Bossi et al. (2019) for a description and analysis of the core phrase structural properties of Kipsigis.

- (32) Kipsigis (Diercks & Rao 2019)  
Ko-α-mwaa kɔle ko-Ø-ruuja tuya amut.  
PST-1SG-say that PST-3-sleep cows yesterday  
'I said that the cows slept yesterday.'

Kipsigis Subj-CA also carries an interpretive effect as compared to the non-agreeing complementizer, which Diercks & Rao (2019) analyze as signaling that the proposition denoted in the embedded clause is the main point of the utterance (MPU).

Kipsigis offers several interesting facts that are well-explained by the anaphoric agreement analysis offered here (and quite puzzling otherwise). First, complementizers may overtly raise in the main clause, and second, there is an object-oriented agreeing morpheme that can also occur on the complementizer that is mysterious under an approach like that of Diercks (2013), but well-explained under the approach set forward here. To illustrate the first, we point to a phenomenon that Kawasha (2007) refers to as "verb ellipsis," where the matrix verb can be dropped, with only the complementizer introducing the complement clause.

- (33) Luvale (Kawasha 2007: 187)
- a. Etu tu-na-tachikiz-a ngwetu ve-ez-anga zau.  
we 1PL.SA-TAM-know-FV COMP.1PL 2.SA-come-PST yesterday  
'We know that they came yesterday.'
- b. Etu ngwetu mw-a-hasa vene.  
we COMP.1PL FUT-1.SA-be.able indeed  
'We (think) that he will be able.'<sup>31</sup>

Kawasha (2007) notes that this occurs in Chokwe (K.10), Luchazi (K.10), Lunda (L.50), and Luvale (K.14); the same occurs in Kipsigis. The verb-initial nature of Kipsigis gives us more insight into what is going on in this construction. As can be seen in (34), the complementizer may occur in the main clause, replacing the matrix verb and preceding matrix arguments:<sup>32</sup>

<sup>31</sup>The interpretation of the elided verb is determined by context.

<sup>32</sup>There is a main clause verb of speech that is homophonous with the agreeing complementizer, but the verb and the complementizer inflect differently for Obj-CA (vs. verbal object clitics) so the relevant agreement paradigms show that in constructions like this the clause-initial element is indeed the complementizer.

(34) Kipsigis (Diercks & Rao 2019)

Kɔ-lɛ-ndʒin Kiproono (\*kɔ-lɛ-ndʒin) ko-∅-ruuja tuya amut.  
 3-C-2SG.OBJ Kiproono 3-C-2SG.OBJ PST-3-sleep cows yesterday  
 ‘Kiproono told you that the cows slept yesterday.’

Additional evidence shows that the raised C behaves like a verb of sorts when raised, but not when in its normal position. In (35) a complementizer in its canonical position cannot be negated (in contrast to main clause verbs), as evidenced by (35b) and (35c). But as is shown in (35d), the complementizer can bear negation when it is functioning as the main verb.<sup>33</sup>

(35) Kipsigis (fieldnotes)

- a. Maa-mwaa-un      α-lɛ-ndʒin      ko-∅-ruuja tuya amut.  
 NEG.1SG-tell-2SG.OBJ 1SG-C-2SG.OBJ PST-3-sleep cows yesterday  
 ‘I didn’t tell you that the cows slept yesterday.’
- b. \* Ko-α-mwaa-un      maa-lɛ-ndʒin      ko-∅-ruuja tuya amut.  
 PST-1SG-tell-2SG.OBJ NEG.1SG-C-2SG.OBJ PST-3-sleep cows yesterday  
 ‘I didn’t tell you that the cows slept yesterday.’
- c. \* Maa-mwaa-un      maa-lɛ-ndʒin      ko-∅-ruuja tuya amut.  
 NEG.1SG-tell-2SG.OBJ NEG.1SG-C-2SG.OBJ PST-3-sleep cows yesterday  
 ‘I didn’t tell you that the cows slept yesterday.’
- d. Maa-lɛ-ndʒin      ko-∅-ruuja tuya amut.  
 NEG.1SG-C-2SG.OBJ PST-3-sleep cows yesterday  
 ‘I didn’t tell you that the cows slept yesterday.’

We assume that there is a null verb of speech on Kipsigis that occurs in these constructions (and other languages with similar constructions). When the complementizer undergoes movement into the main clause, if the main verb is null it presumably allows for m-merger with the raised complementizer (at the edge of *vP*), resulting in the complementizer appearing in the main clause. This kind of analysis is confirmed by the fact that when the complementizer behaves verb-like and appears clause-initially, it is impossible for the complementizer to appear in its canonical position (as shown in 34). This complementary distribution is corroborating evidence that the clause-initial element is in fact the complementizer.

<sup>33</sup>We do not attempt to explain the lack of negation on the complementizer element, only to show that bearing negation is a main-verb property that complementizers may adopt when appearing in these “verb ellipsis” constructions.

The details are not important for our present purposes, however – the fact that agreeing complementizers can appear *overtly* in the main clause is strong evidence that the subject-agreeing complementizers can agree with matrix subjects precisely because they have raised into the main clause (as we have proposed above).

A second argument comes from the fact that agreeing complementizers in Kipsigis may also bear *object-oriented* agreeing morphemes as well (Obj-CA).

- (36) Kipsigis (Diercks & Rao 2019)  
 Ko-i-maa-(an) i-ɛ-(ndʒan) ko-∅-it layok.  
 PST-2SG-tell-1SG.OBJ 2SG-C-1SG.OBJ PST-3-arrive children  
 ‘You (sg) DID tell me that the children arrived.’

Obj-CA can only be triggered by matrix objects, not matrix subjects, and it is “optional” in the sense that it is not always present. There is no default form of Obj-CA; when Obj-CA does not occur the morpheme is simply absent (notably, this is different from Subj-CA, which shows default agreement in impersonal constructions). And most notably for our point here, Obj-CA can *only* occur when Subj-CA is present; Obj-CA is unacceptable on a non-subject-agreeing complementizer, as shown in (37):

- (37) Ko-α-mwaa-un α-ɛ(-ndʒin)/\*kɔɛ-ndʒin ko-∅-it tuya  
 PST-1SG-tell-2SG.OBJ 1SG-C(-2SG.OBJ)/\*C-2SG.OBJ PST-3-arrive cows  
 amut.  
 yesterday  
 ‘I told you that the cows arrived yesterday.’

These facts raise hard questions – even if the properties of Subj-CA in the languages that have it can be explained via an anaphoric explanation, to our knowledge there are not any purely object-oriented anaphors. How, then, can Obj-CA be explained? Diercks & Rao (2019) suggest that this set of facts is consistent with an analysis that Obj-CA is a clitic-doubling operation (a clitic on the complementizer doubling the matrix object), whereas Subj-CA is simply an agreement morpheme. But it is completely unclear how a clitic-doubling operation is possible on a complementizer embedded within a complement clause, unless that complementizer at some level of the derivation raises to a level higher than the matrix object (which is precisely what we have suggested in this paper). Notably, Obj-CA is only possible on complementizers with Subj-CA, which is what is expected if it is only those complementizers that have raised into the main clause.

A full exploration of the mechanics of the Kipsigis Obj-CA construction go beyond the scope of this paper. It should be clear that these two sets of Kipsigis facts – the possibility of complementizers overtly raising into the main clause, and Obj-CA patterns – are largely consistent with an analysis where upward-agreeing complementizers raise into the main clause, and quite difficult to explain otherwise.

## 7 Other analyses of Lubukusu CA

In recent work, Carstens (2016) has argued against Diercks' (2013) analysis that Lubukusu CA is anaphoric, claiming instead that upward-orientation is a standard and generalizable property of Agree. She proposes that the  $\varphi$ -features on the Lubukusu C° head are forced to seek valuation higher in the structure because probing of their own c-command domain has failed. Carstens terms this process delayed valuation, and posits two different mechanisms by which it may happen:

- (38) *Directionality-Free Mechanics of Delayed Valuation* (Carstens 2016: 3)  
 uF with no match in its c-command domain can be valued:
1. Ex situ, by raising into locality with a matching feature, OR
  2. In situ, by the closest matching feature within the same phase

The *ex situ* valuation is similar to R&VW's proposal that we utilize here, and is a version of Bošković's (2007a and 2011) proposal where unvalued features of a moving item drive its movement. The *in situ* valuation, on the other hand, shares much conceptually with Bobaljik and Wurmbrand's (2005) notion of feature valuation within agreement domains. Carstens uses this notion of delayed valuation of features to explain a range of feature-valuation operations.

With respect to Lubukusu CA, this is a similar sort of proposal to the one that we advocate here. The difference boils down to whether this Lubukusu CA is viewed as anaphoric, and as such bears distinct qualities from non-anaphoric feature valuation, or whether Lubukusu CA is instead indicative of the general properties of non-anaphoric feature valuation. Carstens (2016) connects the Lubukusu CA facts with a broad variety of other feature-valuation facts like Case-valuation, concluding (like we do here) that there is simply one feature valuation operation, namely, Agree. In order to explain the upward-orientation of Agree, however, she adopts a view similar to Béjar & Řezáč (2009), that a failure of downward probing triggers an upward-oriented valuation operation, which may include either movement or valuation by a higher element within the same

phase. Our analysis, on the other hand, proposes a particular kind of behavior of unvalued, interpretable feature sets that is connected to anaphoric phenomena; interpretable, unvalued features will move to a phase edge and probe from that position. Essentially, while both Carstens' proposal and the one advanced here maintain that only a single feature-valuation mechanism is necessary in the syntax, Carstens liberalizes the Agree operation more generally, whereas we link the movement and valuation to a distinct, derivative kind of feature valuation – anaphoric feature valuation – which is a composite of two (already-available) syntactic operations.

What evidence could distinguish these proposals? One relevant area is the availability of CA in Lubukusu in instances of raising to object, as shown in the example below:

- (39) Lubukusu (Justine Sikuku, pc)  
N-eny-a Barack Obama n-di a-khil-e.  
1SG.SA-want-FV 1Barack Obama 1SG-that 1SA-win-FV  
'I want Barack Obama to succeed.'

If we are to adopt a relatively uncontroversial assumption that the embedded subject raises to an object-licensing position in the main clause (perhaps AgrO below  $vP$ ), the account we propose here explains the non-intervention of the raised object in the CA relation naturally because the unvalued, interpretable features of the complementizer adjoin to  $vP$ . However, this example is problematic for Carstens as on her account upward probing is only the result of the failure of downward probing. Presumably, however, if the lower clause is permeable for raising of the object, it should not be a phase and hence should also be permeable for probing by the complementizer head. Carstens claims that objects in raising to object (RtO) constructions like those in (39) (i.e. those that raise across an agreeing complementizer) are A'-moved into the matrix clause (following Bruening's 2001 analysis of RtO), and that the lower clause is indeed a phase in these instances. We assume, in contrast, that such elements are in fact A-moved, which is supported by the fact that such objects can participate in standard object marking constructions (assumed to be an A-relation, as only arguments can be object marked; Diercks 2011; Sikuku et al. 2018). The example in (40a) shows that an RtO object can be object marked, and (40b) shows that a DP object in an RtO construction may be (clitic-)doubled by an OM.

(40) Lubukusu (Justine Sikuku, pc)

- a. E-mu-eny-a                      n-di      a-khil-e.  
 1SG.SA.PRS-1OM-want-FV 1SG-that 1SA-win-FV  
 ‘I want him to succeed.’
- b. E-mu-eny-a                      Barack Obama n-di      a-khil-e.  
 1SG.SA.PRS-1OM-want-FV 1Barack Obama 1SG-that 1SA-win-FV  
 ‘I DO want Barack Obama to succeed.’

The availability of object marking objects in RtO contexts argues against an A<sup>2</sup>-movement account of raised objects. Rather, this suggests that raising to object is in fact A-movement, in which case the embedded CP should not be a phase boundary and should not cause failure of a downward-oriented probe on C<sup>o</sup>, raising questions for Carstens’ account as to why the C<sup>o</sup> head still is upward-oriented in its valuation in (40b).

## 8 Conclusions and open questions

The primary issue we sought to explore in this paper was whether or not a universal direction of probing in Agree-relations could be established cross-linguistically. Recent proposals have suggested that constructions exist in various languages exhibiting both upward- and downward-oriented probing of Agree, and others have suggested that only upward probing exists. This paper makes a broad argument from a narrow empirical domain – complementizer agreement – considering the properties of CA in Dutch dialects (Germanic) and Lubukusu (Bantu). Pre-theoretically, there are clearly both upward- and downward-oriented agreement patterns; the question becomes what feature valuation mechanisms are necessarily a part of Universal Grammar. In Sections 2 and 3 we demonstrated that these agreement phenomena cannot reduce to a single, unified syntactic operation (= Agree); however, in Section 4 we make the case that this situation does not necessitate the inclusion of new grammatical operations to license CA in Lubukusu. We propose, following Rooryck & Vanden Wyngaerd (2011), that anaphoric relations such as those found in Lubukusu CA are realized via a composite operation of Internal Merge + downward-probing Agree. On this account, clearly divergent agreement relations can be explained using the same feature valuation operation, with the added component that anaphoric feature bundles must move before they can be valued (the PAPA = Principle for the Anaphoric Properties of Agreement).

In Section 5 we proposed a motivation for raising interpretable, unvalued features to the edge of a phase; this discussion called on recent approaches to the referential interpretation of phases and the effects on specificity of reference by movement to the edge of phases.

There remain many questions that we are unable to address in a paper of this size. Empirically, it is becoming clear that there is variation in (upward-oriented) CA patterns cross-linguistically which will be relevant to the best analysis of CA and consequently the best theoretical approach to Agree. For example, Letsholo & Safir (2019) show that Ikalanga complementizer agreement patterns, while agreeing with the matrix subject, can reflect the tense and voice (active/passive) of the matrix clause. Likewise, Nformi (2017) documents a defective intervention pattern where the upward-oriented subject-agreeing complementizer agreement relation in Limbum can be disrupted by a matrix indirect object, despite being unable to agree with that intervening DP. Both patterns pose challenges to the current account that would require additional work to accommodate under our claims here. And besides these patterns, it is clear from the growing range of work on similar phenomena that we do not yet know the full range of empirical patterns that are possible on upward-agreeing complementizers, so additional empirical work will surely prove an important testing ground to the claims here.<sup>34</sup>

Theoretically, there also remain a variety of open questions. For example, while we have specifically claimed that the interpretive effects of upward-oriented CA are a consequence of the anaphoric feature sets containing interpretive features, we have not provided a specific outline of *how* these are derived.<sup>35</sup> And perhaps

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<sup>34</sup>Nformi (2017) claims that the Limbum patterns require an upward-probing account, which more naturally accommodates the defective intervention pattern of indirect objects in Limbum complementizer agreement. Our account as presented here would clearly require some revision to explain this Limbum pattern, but we do not engage the Limbum question in depth here because it appears to us that more work is necessary to fully understand the Limbum patterns. Nformi (2017) claims that CA is case-discriminatory and requires nominative case (following Bobaljik 2008), but Bobaljik's claim is that Agree is postsyntactic following assignment of morphological case, and tracks morphological case, whereas all of the Bantu patterns under consideration lack morphological case at all. Therefore it is quite unclear under any available account how to accommodate these data (especially since intervening DPs in morphological causatives in Limbum are *not* interveners, and the case-based approach is insufficient). Adopting an analysis that agreeing complementizers must agree with a nominative DP also assumes the outcome of what we are trying to derive from more fundamental principles in this work. The Limbum patterns raised by Nformi (2017) are certainly important empirical complications for the account raised here, but we leave the question for future work.

<sup>35</sup>In previous versions of this paper we proposed that the interpretation of interpretable, unvalued  $\phi$ -features is essentially that of an intensifier, and proposed a way in which intensifiers on CP might create similar kinds of interpretive effects to Lubukusu CA when they arise on a specific indefinite CP (whose interpretation is generated via choice function). Space does not allow us to lay those ideas out here.

the largest standing question in our proposals is the issue of delayed valuation. The PAPA requires that anaphoric  $\phi$ -features be adjoined to  $vP$  and being valued by the subject in that position, and we have laid out an extensive line of reasoning based on the PR model of syntax for why this is a reasonable proposal. But we did not fully explain why Lubukusu  $\phi$ -features on C cannot probe their c-command domains from their base positions. A possible explanation may arise from the relative economy of doing this valuation at the superordinate  $vP$  edge, with the result that there is some sense in which underspecified reference must be resolved at phase edge by the very nature of the syntactic architecture of phases (as this is where reference is established/managed; this is not inconsistent with Chomsky's 2008 claims about other  $\phi$ -feature valuation). At present, however, the precise issue of delayed valuation remains among the standing questions.

Looking forward to future work, there is a clear testable prediction that arises from this account, which is that anaphoric feature valuation (i.e. instances of surface downward valuation or apparent upward probing) ought to have interpretive effects, as they are rooted in interpretable, unvalued features. We showed that this was the case for Lubukusu/Kipsigis vs. Germanic CA, where Lubukusu/Kipsigis CA influenced interpretation of a sentence whereas Germanic CA is simply a case of feature covariance. This prediction is laid out in (41):

(41) *Anaphoric Agreement Corollary*

Upward-oriented agreement relations will have interpretive effects.

The Anaphoric Agreement Corollary could well explain the tendency of the Upward Agree theorists to rely on evidence from domains such as negative concord and sequence of tense, whereas the downward Agree theorists tend to focus on issues of (uninterpretable)  $\phi$ -feature agreement, though we leave a full evaluation of this prediction for future work (see, for example, Bjorkman & Zeijlstra 2019, and Preminger 2013).

With respect to the discussion of the directionality of Agree, we conclude that unvalued features only probe down. This does not deny, however, that there are instances of feature valuation where the valuer is structurally higher than the valuee, only that such instances are not instances of "pure" Agree, but instead are derived by movement followed by Agree. The result, therefore, is wide-reaching in providing support to a feature-valuation analysis of anaphors, in providing theoretical backstopping to the relatively common proposal that anaphors raise into their predicate (or into a local relationship with their antecedent) in order to ensure valuation/co-reference with that antecedent, and also in arguing that upward probing of Agree is an unnecessary component of the grammar, accomplished instead by anaphoric mechanisms that are quite general. The second part

of the paper provides a first proposal for a Phase Reference model of *v*Ps as event reference and proposed a range of ideas regarding both how this applies in basic instances, but also how this relevantly explains aspects of the Lubukusu CA puzzle. Clearly much research remains in all these domains – theories of Agree, documentation of CA cross-linguistically, and the development of the Phase Reference model – but the proposals here contribute to our current understanding of all three.

## Abbreviations

AP	applicative	PAPA	Principle for the Anaphoric Properties of Agreement
CA	complementizer agreement	PASS	passive
CAUS	causative	PL	plural
COMP	complementizer	PRF	perfective
if	interpretable feature	PRS	present
uF	uninterpretable feature	PST	past
FV	final vowel	SA	subject agreement
FCA	first conjunct agreement	SBJ	subjunctive
FUT	future	SG	singular
MPU	main point of the utterance	TA	tense agreement
OBJ	object		
OM	object marker		

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## Chapter 12

# The morphosyntax of allocutive agreement in Tamil

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In this paper I examine allocutive agreement in Tamil, a phenomenon in which an agreement suffix attached to the verb or other clause-final element indexes features not of any argument, but of the addressee of the speech act. I report in detail on the morphophonology, syntactic distribution and discourse use of this agreement, supplementing the basic facts reported by Amritavalli (1991) with several additional crucial details, and compare the Tamil data with what has been reported for other languages, especially Basque and Japanese. I then discuss the consequences of Tamil allocutive agreement for the theoretical treatment of how discourse information interacts with the morphosyntax, leading to a preliminary analysis of the patterns I find. The Tamil data presented in the paper provide interesting insights into the structural representation of the addressee and into how allocutive agreement is derived, in particular from how the relevant suffix is ordered relative to other verbal material.

## 1 Background

### 1.1 Introduction by example

In many colloquial varieties of Tamil (Dravidian; South Asia), one commonly comes across utterances of the following kind:

- (1) Naan džangiri vaang-in-een-ŋgæ.  
I Jangri buy-PST-1SG.SBJ-ALLOC  
'I bought Jangri.'<sup>1</sup>

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<sup>1</sup>Jangri is a delicious sweet made by deep-frying a type of lentil batter in flower shapes and then soaking them in sugar syrup.



Aside from the good news it brings to the hearer, (1) is of interest because it contains two different types of agreement stacked on top of each other. First, there is the suffix *-een*, which marks the unremarkable agreement of a finite verb with its subject that is found in a significant portion of the languages of the world. Second, there is the suffix *-ŋgæ*, glossed here as *ALLOC*, which marks a rather different kind of agreement that is far less widely attested. Specifically, rather than cross-referencing properties of one of the arguments of the verb, it provides information about the addressee, specifically that this sentence is addressed to either a group or an individual with whom the speaker would use polite forms. If addressed instead to a single person with whom the speaker would use familiar forms, this suffix is simply lacking, as in (2):

- (2) Naan d̥ʒaangiri vaang-in-een.  
I Jangri buy-PST-1SG.SBJ  
'I bought Jangri.'

As we will see directly, similar types of agreement with the addressee have been described for a number of other languages. It is most famously found in Basque (Oyharçabal 1993), where it is referred to as *allocutive agreement*, a term I will adopt here. Allocutive agreement is of considerable interest, both for the theory and typology of agreement systems, and for what it can tell us about the grammatical representation of speech acts and their participants. As such, looking into the precise distribution of and constraints on this kind of agreement will hopefully shed some light on currently ongoing discussion and controversy over the extent to which certain phenomena normally associated with discourse and semantics may actually have a morphological and syntactic side.

In this paper, I will present newly collected, detailed data on allocutive agreement in Tamil and compare it with what has been reported for other languages, especially Basque and Japanese. We will see that the Tamil facts resemble those from the other languages in the broad strokes, but that there are a number of interesting points of detail where Tamil differs in ways that are relevant for our theoretical understanding. I will discuss the data before the background of a recent body of work on the syntactic side of the representation of speech acts. Of particular interest here will be how allocutive agreement interacts with the phenomenon of monstrous agreement in the language discovered by Sundaresan (2012), where speech act participants also play a crucial role. I will conclude the paper with a preliminary analysis of the patterns and some discussion of how it can serve as a starting point for future investigations.

## 1.2 On allocutive agreement

Allocutive agreement (henceforth abbreviated as AllAgr), while far from common, has been identified in a number of languages from a wide selection of families (see Antonov 2015 for an initial typological overview). Adapting Antonov (2015) slightly, we can identify something as AllAgr if it has the following properties. First, it marks properties of the addressee of the current speech context, i.e. it provides information about the gender, number or politeness status of the person or persons to whom the utterance is directed. Second, it is not limited to cases where the addressee is an argument of the local predicate, so it is to be clearly distinguished from subject and object agreement, even instances where the 2nd person might behave in a special way. Third, it involves the use of grammaticalized morphological markers in the verbal or clausal inflectional system. This is meant to exclude e.g. special vocative forms like ‘madam’, ‘sir’ or ‘captain’ which may serve similar functions but are not grammaticalized in the same way and show different morpho-syntactic behaviors than true AllAgr.

As already noted, the classic example of AllAgr comes from Basque, for which the term was first introduced by Bonaparte (1862). In Basque, the use of AllAgr depends, in ways that vary across dialects, on the politeness relationship between the speaker and addressee as well as the number of the addressee, with the form reflecting the gender of the addressee (see also Oyharçabal 1993; Alcázar & Saltarelli 2014: ch. 5). In Standard Basque e.g., the agreement only crops up when the speaker and addressee would use the highly familiar form of address, and then only when the addressee is singular and is not additionally an argument of the verb. The examples from the Souletin dialect given in (3) (reported by Antonov 2015) illustrate the phenomenon:

- (3) a. etʃe-a      banu  
       house-ALL 1SG.go  
       ‘I am going to the house.’
- b. etʃe-a      banu-k  
       house-ALL 1SG.go-ALLOC.M  
       ‘I am going to the house.’ (familiar MALE addressee)
- c. etʃe-a      banu-n  
       house-ALL 1SG.go-ALLOC.F  
       ‘I am going to the house.’ (familiar FEMALE addressee)
- d. etʃe-a      banu-sy  
       house-ALL 1SG.go-ALLOC.RSP  
       ‘I am going to the house.’ (respected addressee)

Example (3a) gives the baseline, where the verb only shows 1.SG agreement with the subject. The remaining examples all have the same basic meaning, but add allocutive suffixes to this verb form cross-referencing the addressee, in (3b) a familiar ACC addressee, in (3c) a familiar female, and in (3d) an addressee with whom the speaker would use the polite form.<sup>2</sup> These suffixes indicate information about the addressee independent of it being an argument. Furthermore, they are fully grammaticalized verbal inflection forms, appearing in the normal position for agreement in the language and involving (nearly) the same forms as those used to agree with a 2nd familiar ergative argument (see Antonov 2015: 66f. for discussion of the forms). What we have here thus clearly meets our criteria for AllAgr.

There are some additional interesting properties of Basque AllAgr – not necessarily exhibited by the phenomenon in other languages, as we will see, and thus not definitional of AllAgr in general – that should be noted here. First, the appearance of the allocutive suffixes is not actually *independent* of the addressee being an argument, but rather requires that it is *not*. If the addressee is one of the arguments, it will be coindexed with the appropriate (ergative, absolutive or dative) 2nd person argument agreement, and AllAgr will not appear.<sup>3</sup> Second, in contexts where the conditions for it are met, AllAgr is obligatory, i.e. we are dealing with a fully grammaticalized system, not optional marking of familiarity or respect (at least in Basque). Third, AllAgr is generally restricted to root clauses and, at least in many dialects, is not possible in questions.

Miyagawa (2017) has argued that Japanese politeness marking should also be analyzed as a type of AllAgr. Japanese has a range of constructions and markers belonging to its system of “honorifics”, which encode various types of social relationships between the speech act participants and different nominal arguments in a given clause. These include lexical choices and verbal affixes that reflect honorification toward the subject or the object which will not be of direct concern to us here, because they crucially involve arguments and need not relate to the addressee. There is also, however, verbal marking used to indicate politeness or honorification from the speaker toward the addressee, as in (4), from Miyagawa (2017):

- (4) a. Watasi-wa piza-o tabe-mas-u.  
I-TOP pizza-ACC eat-ALLOC-PRS  
'I will eat pizza.' (formal)

<sup>2</sup>This last form is only in use in certain dialects. In others, including the standard, the form with no AllAgr in (3a) would be used with a formal addressee.

<sup>3</sup>This plausibly reduces to the fact that Basque independently blocks a single referent from being coindexed with multiple agreements (e.g. in reflexives), and argument agreement is obligatory (Antonov 2015).

- b. Watasi-wa pizza-o tabe-ru.  
 I-TOP pizza-ACC eat-PRS  
 'I will eat pizza.' (colloquial)

Here again, the marker is clearly giving information about the addressee, independent of what the arguments of the verb are, and furthermore it is a clearly grammaticalized part of the verbal inflectional system, appearing as a suffix on the verb, inside of a tense suffix.

What makes the case here a bit trickier than the Basque one is that Japanese doesn't have straightforward argument agreement, never seeming to indicate standard  $\phi$ -featural information (i.e. person, number or gender) about subjects or objects. Indeed, Japanese is usually regarded as an agreementless language. However, as noted above, the language *does* indicate honorification towards the subject or object in certain constructions, at least some of which have been argued to involve a type of agreement (see e.g. Boeckx & Niinuma 2004). Furthermore, Miyagawa (2017) argues that the lack of prototypical agreement elsewhere in the language should not at all dissuade us from recognizing the politeness marking as a type of agreement. If we assume that there is a universal set of grammatical features, which are overtly manifested in all languages (his principle of Strong Uniformity, from Miyagawa 2010), then the lack of  $\phi$ -agreement on T actually leads us to *expect*  $\phi$ -agreement on C, i.e. something like AllAgr. It just happens to be the case that the type of  $\phi$ -features overtly manifested in the language have to do with honorification rather than person, number or gender.

AllAgr patterns have also been reported for Pumé (isolate; Venezuela), Nambikware (isolate; Brazil), Mandan (Siouan; North America) and Beja (Cushitic; Northeast Africa), as summarized by Antonov (2015). Beyond the criteria for identifying AllAgr we have already discussed, Antonov notes several points about the typology of the phenomenon. First, languages differ in what information about the addressee they encode, with gender and varying types of familiarity or politeness being perhaps most common, and number being rather less common. Indeed, in his sample it seems to be found only in Basque, and even here it is limited in most dialects to the fact that AllAgr only appears when the addressee is singular.<sup>4</sup> Second, languages also differ in how AllAgr interacts with the argument status of the addressee. As noted above, it is ruled out in Basque when one of the arguments is 2nd person, but this restriction does not seem to apply in any of the other languages surveyed. Finally, while there is some variation in

<sup>4</sup>That is, one can infer a partial singular/plural contrast from the fact that allocutive marking is always lacking when the addressee is plural, though the lack of marking may have other causes as well. There are, however, apparently some dialects that allow explicit marking of a plural addressee. See Antonov (2015) for brief discussion and references.

the distribution of AllAgr across clause types, there are clear generalizations to be made. The core environment, where AllAgr is found in all of the languages considered, is root declarative clauses. There is then a fair amount of variation across the languages in whether it is also found in other types of root clauses, i.e. interrogatives, exclamatives and imperatives. Basque, for example, excludes it in all of these, Beja allows it in all of them, and Japanese allows it in interrogatives and exclamatives, but not imperatives. Finally, in all of these languages, AllAgr is heavily restricted or entirely ruled out in embedded clauses. The details about embedding have been, as far as I am aware, most carefully examined for Japanese, and it is perhaps no surprise then that it is here that some embedded environments have been reported to allow the phenomenon. I will return to this issue once I have presented the relevant data from Tamil.

From a theoretical perspective, AllAgr is highly intriguing because it seems to involve an active role for information about the speech act in the morphosyntax. It is clear that the identity of the author and addressee of an utterance, as well as its time and location, play a role in the semantic and pragmatic interpretation, and thus must be encoded somehow in the discourse context. This is necessary, among other things, for the appropriate interpretation of so-called indexical items, like 1st and 2nd person pronouns and expressions like 'here' and 'now'. What is less obvious is whether we need to assume that a representation of such information is accessible in the syntax. AllAgr potentially offers evidence that we do. One could argue that, if it really is an instance of morphosyntactic agreement, then there must be some representation of the addressee in the syntax that it is agreeing *with*. As we will discuss in Section 3.1, this has led to the idea in much recent work that AllAgr targets the syntactic representation of the discourse context.

The only prior work on AllAgr Tamil that I am aware of is Amritavalli (1991). That (unfortunately all too brief) article reports the central data, including a number of insightful observations, and compares the Tamil facts with those in the closely related languages Kannada and Telugu. However, (as a contribution to a festschrift) it does not have the space to explore the data in detail, and there are a number of important points that it does not touch upon. The current paper will attempt to fill this gap by providing a careful and extensive description of the empirical situation with respect to AllAgr in Tamil. We will see that it displays a number of properties in the language that are of theoretical interest, some of which distinguish it crucially from what has been reported for other languages.

### 1.3 Some relevant properties of Tamil

Tamil is a Southern Dravidian language, spoken by approximately 70 million people, primarily in southern India and Sri Lanka, as well as a significant diaspora, e.g. in Malaysia, Singapore, Mauritius and South Africa. As the second classical language of India after Sanskrit, it has a written tradition going back over two thousand years. For better or worse, the written standard is extremely conservative, approximating a rather archaic variety of the language, and differs significantly in all aspects of grammar and lexicon from contemporary spoken varieties. This leads to a marked diglossia, such that there is even a spoken version of the literary language used e.g. for newscasts and political speeches. While there is arguably a contemporary standard version of the spoken language, used e.g. in films and television talk shows (see e.g. Schiffman 1999; Asher & Annamalai 2002), there is no generally agreed-upon written form for this variety, nor is there any standard romanization. The AllAgr that is of interest here is very much a phenomenon of the colloquial language, not the written standard, and the form of the data presented will reflect this fact. I adopt essentially the transliteration used by Sundaresan (2012), which attempts to reflect the phonology of the standard colloquial variety, without going into too much phonetic detail.

Contemporary Tamil is also characterized by extensive dialectal variation, reflecting communities defined by geography as well as socio-economic and religious factors. Here as well, the variation is relevant for our considerations of AllAgr. For one thing, the phenomenon is largely restricted to non-Brahmin dialects, plausibly related to the fact that Brahmin dialects use different forms for 2nd plural and polite agreement than the one that is involved in AllAgr. I conducted sessions with three speakers of Iyer Brahmin Tamil from Chennai and Tiruchirapalli, in which I was able to confirm that they make little or no use of AllAgr in their native dialect.<sup>5</sup> Furthermore, while the basic AllAgr patterns are found in a wide array of colloquial varieties, there is variation – at least partly geographic – in the frequency with which it is used. My primary informant is from Pollachi, in the Kongu Nadu region surrounding Coimbatore, which is reputed

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<sup>5</sup>However, they generally use a hybrid of Brahmin and non-Brahmin colloquial Tamil when speaking with non-Brahmins. In such circumstances they do make use of AllAgr, though to a more limited extent. Being regularly exposed to other spoken varieties in the media and daily interactions, they also have passive command of its use by other speakers. I found in my sessions that they have clear intuitions about core uses of AllAgr, but are less certain about points of detail. I will refer to this dialect as *Central Iyer* henceforth, and will note at certain points where these speakers have intuitions that differ in an interesting way from those of my primary informant.

to be an area that makes particularly heavy use of AllAgr. This has the advantage that he has quite robust intuitions about the phenomenon. I will follow local practice and refer to his dialect as *Kongu Tamil*. I also collected preliminary data from two speakers of Singapore Tamil, which suggest that the phenomenon is more restricted there and also subject to different constraints regarding the ordering of affixes, as will be briefly mentioned below. Given all of these factors, I have chosen to focus here on the patterns found in the speech of my Kongu Tamil informant, as he was able to provide the most extensive and consistent data on AllAgr. Thus unless otherwise indicated, the examples provided here come from my sessions with him. Note that I have made no attempt to systematically investigate the dialectal distribution of the phenomenon, but am simply registering here that relevant differences do exist. Speakers of other dialects of the language should thus not be expected to agree with all of the judgments reported.

Regarding the research methodology, with my Kongu Tamil and Central Iyer informants, I used a questionnaire of pre-constructed sentences, combined with elicitation based on translation of English examples for some of the more complex structures. The questionnaire was based on a combination of my own prior observations of the phenomenon in naturally occurring speech, data from Amritavalli (1991) and additional sentences constructed based on patterns reported for other languages in the literature. With the two informants from Singapore, I collected basic judgment data on the core patterns in brief, informal interviews.

Tamil is a highly inflecting language with a strongly agglutinative character, though it shows some fusional tendencies, and is almost exclusively suffixing. Syntactically speaking, it is SOV and indeed quite generally head-final, allows pro-drop of all arguments and has long-distance anaphors. The language has a nominative-accusative case system with differential object marking, and distinguishes a total of six or seven cases marked by suffixes on nouns and pronouns in addition to the unmarked nominative. The pronominal system includes an inclusive/exclusive distinction in the first person and a local/distal distinction in the third person forms. Politeness is indicated by plural forms in the 2nd person and by distinct pronominal forms in the 3rd person (historically related to older plural forms), and occasionally also with plural marking on nouns. Three genders are distinguished – masculine, feminine and neuter – corresponding essentially to the notional status of the referent, and play a role in both the pronominal and verbal agreement systems. The language has a range of complex predication constructions, and its verbs display an impressive array of participial and nominalized forms, many of which can head particular types of non-finite clauses, and often include aspectual marking. Finite verbs can be marked for transitivity, aspect, passive and middle voice, mood, negation, tense and agreement (Sundaresan &

McFadden 2017). There are, however, interesting restrictions on co-occurrence, as e.g. mood, negation and agreement are essentially in complementary distribution (Amritavalli & Jayaseelan 2005).

Let us focus then on agreement. Standard verbal agreement targets the highest nominative argument in the clause, which is typically the subject, but may also be an object if the subject is marked with a (quirky) dative or locative case, as in (5) from Baker (2015).<sup>6</sup>

- (5) En-ækkü andæ poŋŋü teeve-ppaḍ-r-aa  
 I-DAT that girl.NOM need-suffer-PRS-3SG.F  
 ‘I need the girl.’

The form of the agreement reflects person and number, as well as gender in the 3rd person and politeness in the 2nd and 3rd persons. The inclusive/exclusive distinction is *not* reflected by agreement, there being a single 1st plural form used for both. Table 1 shows the regular agreement paradigms for the simple present tense and imperative forms of *ooḍü* ‘run’.<sup>7</sup>

Table 1: Regular verb agreement in Tamil

	SG	PL
1	ooḍü-r-eeen	ooḍü-r-oom
2	ooḍü-r-æ	ooḍü-r-iingæ
3F	ooḍü-r-aa	ooḍü-r-aangæ
3M	ooḍü-r-aan	ooḍü-r-aangæ
3POL	ooḍü-r-aarü	ooḍü-r-aangæ
3N	ooḍü-dü	ooḍü-dü
IMP	ooḍü	ooḍü-ŋgæ

The agreement suffix follows all aspect, tense and voice markers. We can see an example of a moderately complex, fully inflected finite verb in (6), where the combination of an aspectual marker followed by the suffix *kittü* and a form of ‘be’ forms a progressive, to which tense and agreement are further suffixed.

<sup>6</sup>Transliteration and formatting have been modified to fit the system used elsewhere in the paper.

<sup>7</sup>The *-r-* suffix found before the agreement suffixes outside of the 3rd neuter forms marks the present tense. Tense marking generally interacts in odd ways with neuter agreement.

- (6) Kausalya paḍi-ččü-kiṭṭü-ru-nd-aa  
Kausalya study-ASP-NOM-BE-PST-3SG.F  
'Kausalya was studying.'

The finite verb, terminated by the agreement suffix, is typically the final element in a root declarative clause (aside from extraposed material), but it can be followed by further suffixes that we might expect to be in the C domain, e.g. the complementizer *-nnü* as in (7a) or the polarity question particle *-aa* as in (7b):

- (7) a. Venkaṭ [Kausalya paḍi-ččü-kiṭṭü-ru-nd-aa]-nnü          so-nn-aan  
Venkaṭ [Kausalya study-ASP-NOM-BE-PST-3SG.F]-COMP say-PST-3SG.M  
'Venkaṭ said that Kausalya was studying.'
- b. Kausalya paḍi-ččü-kiṭṭü-ru-nd-aa|-aa?  
Kausalya study-ASP-NOM-BE-PST-3SG.F-Q  
'Was Kausalya studying?'

The *-l* that suddenly appears before the question particle in (7b) is part of the underlying form of the agreement suffix, which is deleted in coda position, but surfaces when a vowel-initial suffix immediately follows within the same word. This is a common phenomenon in the morphophonology of Tamil, and crops up also in the various plural agreement forms ending in *-ŋgæ*, which surface as *-ŋgæ|-* before vowel-initial subjects. As we will see, this includes AllAgr marker.

## 2 The core data

In this section I will present the empirical details on Tamil AllAgr, again based on a combination of what was already reported by Amritavalli (1991) and what I have collected in the work with my informants. We will see that it meets all the criteria to be considered genuine allocutive agreement, but that it also shows interesting details in its behavior that distinguish it from what has been reported for Basque, Japanese and other languages.

### 2.1 The morphophonology of the suffix

A central part of the argument that the Tamil phenomenon of interest here really is a type of agreement, rather than e.g. a specialized vocative (along the lines of English *sir/ma'am* or certain uses of *guys*) or a speech act particle (like those discussed for Romanian and West Flemish by Haegeman & Hill 2013), comes from the form and position of the actual marker. Let us take the basic example we started with in (1), repeated here in (8), as a basis for the discussion:

- (8) Naan  $\text{\textcircled{d}}$ aangiri vaang-in-een- $\eta$ gæ.  
 I Jangri buy-PST-1SG.SBJ-ALLOC  
 ‘I bought Jangri.’

As we see, the shape of the allocutive suffix is  $-\eta$ gæ. It turns out that this serves as a rather general *plural* marker throughout the language. Looking back at Table 1, we see that it is the final component of all of the 2nd and 3rd person plural agreement markers (setting aside the 3rd neuter marker, which simply doesn’t distinguish number), and it is the marker attached to the verb root to form (2nd) plural imperatives. Furthermore, it, or the related form  $-g$ æ, is used as the plural marker in a number of nominal categories, as shown by the examples in Table 2.

Table 2: Number marking in Tamil nominals

	SG	PL
1EXCL	naan	naa $\eta$ gæ
2	nii	ni $\eta$ gæ
3M	avan	ava $\eta$ gæ
‘girl’	po $\eta$ ŋũ	po $\eta$ ŋũgæ
‘tree’	maram	maraa $\eta$ gæ

In the (rather common) case that a noun or pronoun stem ends in a nasal, it is impossible to tell whether the plural suffix is  $-g$ æ or  $-\eta$ gæ.<sup>8</sup> But even with vowel-final nouns, there is a fair amount of variation between the two. Interestingly enough, the two main instances where the plural ending is unambiguously  $-\eta$ gæ are both in the 2nd person, in the 2nd person pronoun itself (since 2nd singular *nii* ends in a vowel) and in the plural imperative suffix, which is  $-\eta$ gæ regardless of what the verb root ends in. To summarize all of this we can say that  $-\eta$ gæ is a plural ending which always occurs in the 2nd person and variably occurs elsewhere. Note again that the 2nd plural forms are also used for politeness with singular addressees. As we will see below, this will allow us to understand its use in AllAgr as also involving plural marking.

Example (8) also demonstrates that the allocutive marker attaches to the clause-final verb, after all of the other inflectional suffixes that might precede it, including tense, aspect, voice and argument agreement. This is also true when the

<sup>8</sup>Note that in all of these cases, whether with  $-g$ æ or  $-\eta$ gæ, there is an underlying final  $-l$ , which surfaces when any vowel-initial suffix follows.

verb has a modal or negative suffix rather than agreement. Again, the allocutive marker follows at the very end of the verb form, as demonstrated by the sentences in (9), based on examples from Amritavalli (1991).

- (9) a. koɭandæ ippadʒi sejjæ-kkuuɖaadü-ŋgæ  
child like.this do-must.not-ALLOC  
'The child should not act in such a way.'
- b. Venkaɭ varæ-læ-ŋgæ  
Venkat come-NEG-ALLOC  
'Venkat didn't come.'

As we will see in more detail below, the marker can also appear in clauses without a verb, like (10a), and even in fragmentary or elliptical utterances that aren't even clauses, as in (10b) and (10c):

- (10) a. naan aatʃookkaaran-ŋgæ  
I automan-ALLOC  
'I am an auto rickshaw driver.'
- b. indæ payyan-ŋgæ  
this boy-ALLOC  
'this boy' (e.g. as answer to 'Who's next?')
- c. illæ-ŋgæ  
no-ALLOC  
'No' (as answer to polar question)

It is important to note that the AllAgr marker can also co-occur with unambiguous vocatives. It occurs strictly attached to the verb, with the vocative obligatorily coming outside (typically extraposed past the end of the clause), which confirms that *-ŋgæ* itself cannot be a vocative:

- (11) a. naan va-r-een-ŋgæ saar  
I come-PRS-1SG.SBJ-ALLOC sir  
'I'll take my leave, sir.'
- b. \*naan va-r-een saar-ŋgæ  
I come-PRS-1SG.SBJ sir-ALLOC

The basic generalization is that the marker attaches to whatever is final in the clause or sub-clausal utterance (again, ignoring extraposed material), regardless

of what category that might be. Note, though, that it is clearly a bound form, not an independent word or particle. It never appears alone, or after a pause, always being attached to a preceding word. Indeed, the sequence *ŋg-* is not licit word-initially in Tamil phonotactics.<sup>9</sup>

## 2.2 Distribution of allocutive agreement

Let us now turn to the conditions under which allocutive agreement appears and does not appear in Tamil. The central determining factor is the identity of the addressee and their relationship with the speaker. There is only one allocutive suffix in the language – unlike e.g. Basque, which distinguishes two or three forms depending on the dialect – thus the number of distinctions that can be made is minimal.<sup>10</sup> Quite simply, the agreement is found whenever *niŋgæ* would be the appropriate 2nd person pronoun, i.e. when the addressee is plural or is a singular individual with whom the speaker would use the polite form of address. Thus an utterance like (12) would be appropriate when addressed to a group of friends or to an adult stranger, but not to an individual friend.<sup>11</sup>

- (12) *enæ-kkũ teri-læ-ŋgæ*  
 me-DAT know-NEG-ALLOC  
 ‘I don’t know.’

Note again that the addressee is not in any way an argument of ‘know’, or of any other overtly expressed predicate in the sentence, nor does the addressee figure in as an adjunct in any way to the eventuality described here. The only role for the 2nd person here is as the addressee of the speech act. This again makes it clear that what we are seeing is not any kind of argument agreement, or even something like an “ethical dative”, but rather true AllAgr.

A question we might ask then is what happens with AllAgr when the 2nd person is an argument of some predicate in the utterance. As we noted above, AllAgr

<sup>9</sup>I will not attempt to determine here whether it should be considered a suffix or an enclitic, in part because I am not familiar with any arguments about whether this is actually a meaningful distinction in the language.

<sup>10</sup>The language does additionally have two particles, feminine *-qii* and masculine *-qaa*, which have a similar function in marking properties of the addressee – specifically gender and intimacy – but their morphosyntactic behavior is somewhat different (e.g. they can co-occur with the *-ŋgæ* suffix, strictly ordered after it, and show different ordering relative to the polar question particle to be discussed below). How exactly they fit into the overall picture presented here is a matter of ongoing research.

<sup>11</sup>For my Central Iyer speakers, the allocutive suffix is only used to reflect politeness, not plural, i.e. for them (12) could not be used with a group of friends.

is blocked in Basque in such circumstances, while some of the other languages discussed by Antonov (2015) allow it. Tamil shows a somewhat mixed behavior, which is quite instructive. When the *subject* is 2nd person and it triggers regular argument agreement on the verb, AllAgr is ruled out, as shown in (13):<sup>12</sup>

- (13) a. \* eppaḍi iru-kk-iingæ-ŋgæ?  
           how be-PRS-2PL-ALLOC  
           ‘How are you?’  
       b. \* niingæ rombaa smart-aa iru-kk-iingæ-ŋgæ  
           you.PL very smart-PRED be-PRS-2PL-ALLOC  
           ‘You’re very smart.’

The question is whether the problem here is the fact that the addressee is an argument at all, or that it triggers agreement. This is resolved by the examples in (14), all of which involve 2nd person arguments combined with AllAgr:

- (14) a. naan onga[-æ] paḍatt-læ paa-tt-een-ŋgæ  
           I you.PL.OBL-ACC film-LOC see-PST-1SG.SBJ-ALLOC  
           ‘I saw you in a film.’  
       b. onga[-ūkkū] coffee veenūm-aa-ŋgæ?  
           you.PL.OBL-DAT coffee want-Q-ALLOC  
           ‘Do you want coffee?’  
       c. niingæ saap-[-t-aach-aa-ŋgæ?  
           you.PL eat-ASP-RES-Q-ALLOC  
           ‘Have you eaten?’  
       d. \* niingæ saap-[-t-iingæ]-aa-ŋgæ?  
           you.PL eat-PST-2PL-Q-ALLOC  
           ‘Did you eat?’

(14a) shows that AllAgr is perfectly fine with a 2nd person direct object, and (14b) shows the same with a quirky dative subject. Datives never trigger agreement in the language, so here the AllAgr is the only agreement with the addressee. We see something similar in (14c), where the main predicate of the clause is in a resultative participial form which doesn’t host argument agreement. AllAgr only fails in cases like (14d), where there is a (finite, non-negative, non-modal,

<sup>12</sup> At least one of my Central Iyer speakers accepts examples like these where AllAgr appears on top of 2nd person subject agreement.

non-participial) verb form capable of bearing argument agreement, with a 2nd person subject in the nominative case, which thus triggers that agreement. At least descriptively then, it seems that double expression of agreement with the addressee – both argument agreement and AllAgr – is ruled out.

Now let us consider the further conditions on the appearance of AllAgr, once we've restricted our attention to utterance contexts with the right kind of addressee and no 2nd person argument agreement. We've already seen that AllAgr *can* appear in root declaratives and various fragmentary utterances. Furthermore, unlike in at least some dialects of Basque, it can appear in root interrogatives. (14b) and (14c) above show it in polar questions, and (15) demonstrates its use in a *wh*-question:

- (15) ev|avũ    aag-um-ŋgæ?  
       how.much become-FUT-ALLOC  
       ‘How much will it come to?’ (i.e. ‘How much does it cost?’)

One crucial point in all of this is that, when its conditions are met, AllAgr is obligatory, at least for my Kongu Tamil informant. I.e. when one would use *niingæ* with the addressee, only something like (16a) is possible. Leaving off the *-ŋgæ* signals non-politeness, and thus (16b) is ill-formed in such a context.

- (16) a. rombaa thanks-ŋgæ  
       very    thanks-ALLOC  
       ‘Thanks a lot’  
       b. \*rombaa thanks (to a polite addressee)  
       very    thanks

This is strong evidence that this use of *-ŋgæ* is fully grammaticalized agreement.

Next, we must consider embedded environments, where AllAgr has been reported to be blocked or at least heavily restricted in other languages. Interestingly enough, Tamil seems to be more permissive here, though there are some complications in the judgments. As a starting point, examples like (17) are grammatical. Note that the *-ŋgæ* suffix is showing up outside of the embedded argument agreement *-aa-*, but inside of the complementizer *-nnũ*, thus clearly inside a clause that is the complement of a verb meaning ‘say’.

- (17) Maya [avæ poot[t-læ    dzejkkæ-poo-r-aa-ŋgæ-nnũ]    so-nn-aa  
       Maya [she contest-LOC win-go-PRS-3SG.F-ALLOC-COMP] say-PST-3SG.F  
       ‘Maya said that she would win the contest.’

Exactly which conditions must be satisfied to allow such embedded AllAgr is still under investigation, as the empirical situation and the relevant intuitions quickly get rather tricky. One recurring issue is that, when the AllAgr suffix immediately follows the argument agreement, as in (17), there are some processing difficulties that arise, in particular the tendency to interpret the two suffixes as a single plural argument agreement suffix.<sup>13</sup> It thus takes some care to ensure that judgments of ungrammaticality do not reflect an unintended parse.

A more interesting complication with embedding, especially under attitude predicates, is that there is often some flexibility or ambiguity as to whether the embedded clause is interpreted for various purposes relative to the utterance speech act or relative to the speech act or attitude expressed by the matrix attitude predicate. This is relevant of course for AllAgr, because it expresses information about the addressee and potentially also the relationship between that addressee and the author (i.e. whether the latter would use the familiar or formal form of address with the former). Consider example (17) in this light, assuming that the entire sentence has been uttered by Tom to Venkat, and that it is reporting on Maya saying the equivalent of ‘I’m going to win’ to Kausalya. We can reasonably ask now whether the embedded AllAgr reflects Tom showing respect to Venkat (the utterance speech act) or Maya showing respect to Kausalya (the embedded speech act). In this case, my informant reports that it can only reflect respect being shown by Tom in the utterance speech act toward Venkat. There are other cases where intuitions are more uncertain, and what we observe is clearly affected by things like the type of the matrix attitude predicate and the plausibility of the various scenarios in a given context. These concerns make it especially difficult to determine the constraints on when AllAgr is possible in embedding contexts, which readings are available, and what a speaker’s rejection of a particular example should be attributed to. For now I will thus simply report that AllAgr is possible in some complement clauses, but probably not in all, and leave a more complete investigation of the facts for future work.

There is, however, one point on which I will already say more, because the judgments here are relatively clear, and the pattern is extremely interesting and highly relevant for the theoretical treatment of AllAgr. As background, consider the pattern of “monstrous agreement” investigated in detail by Sundaresan (2012):

- (18) *Maya<sub>i</sub> [taan<sub>i,\*j</sub> poot[ti-læ dʒejkkæ-poo-r-een-nnũ ] so-nn-aa*  
*Maya ANAPH contest-LOC win-go-PRS-1SG-COMP say-PST-3SG.F.SBJ*  
 ‘Maya<sub>i</sub> said that she<sub>i</sub> would win the contest.’

<sup>13</sup>Recall from Table 1 that *-ŋgæ* is the second component of several plural agreement forms, where the first component marks gender and/or person.

Sentences like (18) have a matrix speech verb embedding a clause where the subject, expressed as an anaphor, is co-referent with the matrix subject. What is interesting is that the argument agreement on the embedded verb in cases like this can be 1SG. But this indicates not the actual speaker of the utterance, i.e. not Tom in the example we discussed above, but Maya, the author of the speech act described by the matrix speech predicate. This should make it clear that the representation of speech act participants will be highly relevant for the derivation and interpretation of such sentences, and indeed, Sundaresan (2012) analyzes monstrous agreement in terms of indexical shift, with the syntactic representation of the embedded speech act playing a crucial role.

Now, if both monstrous agreement and AllAgr imply the involvement of information about speech act participants in the morphosyntax, we might expect interesting things to happen if we can manage to get them to co-occur. Fortunately, we can, and the results do not disappoint. Consider (19):

- (19) *Maya<sub>i</sub> [taan<sub>i,\*j</sub> poott-læ    ɕejkkæ-poo-r-ee-n-ŋgæ-nnũ] so-nn-aa*  
*Maya [ANAPH contest-LOC win-go-PRS-1SG-ALLOC-COMP] say-PST-3SG.F*  
 ‘Maya<sub>i</sub> said that she<sub>i</sub> would win the contest.’

The combination of the two interesting types of agreement does indeed seem to be possible, as we have the monstrous 1s suffix *-een* immediately followed by the allocutive *-ŋgæ*. The reading is similar to what we saw in (17), but with two important differences. First, whereas in (17) the embedded subject *avæ* could be either coreferent with the matrix subject *Maya* or not, here the coreference is obligatory, as *taan* is a long-distance anaphor, and *Maya* is the only appropriate binder around.<sup>14</sup> Second, in this case the politeness implied by the AllAgr is reported as having been shown by Maya to the addressee of the embedded speech act (in our scenario above this would be Kausalya). In other words, when we have AllAgr in an embedded clause that also contains monstrous agreement, it seems to have to make reference to the embedded speech act. In the absence of monstrous agreement, reference is apparently made instead to the utterance speech act, even when the suffix shows up in the embedded clause as we saw in (17). These facts will need to be investigated in more exhaustive detail in future work, but the preliminary picture they paint is highly suggestive about the kind of analysis that we should pursue for AllAgr, as we will see in Section 3.

<sup>14</sup>Actually, monstrous agreement structures place very specific restrictions, such that the long-distance anaphor in subject position must be bound by the attitude holder of the immediately embedding predicate. Thus, while in other contexts *taan* has some more flexibility in the choice of its antecedent, in (19) it would be quite fixed to *Maya* even if some additional potential perspective holder were present elsewhere in the sentence (see Sundaresan 2012 for details).

Moving away from complement clauses, Tamil also allows AllAgr in some other types of embedding. For example, it can be found in certain adverbial clauses, like the temporal adjunct built on a completive participle in (20):

- (20) [ naan vitt-ukkü poo-ji-[[ü-ŋgæ ], call paṇḍ-r-ēen-ŋgæ  
I house-DAT go-PTCP-COMPL-ALLOC call do-PRS-1SG.SBJ-ALLOC  
'When I get home, I'll call.'

Perhaps relatedly, it is perfectly fine on a very common kind of hanging topic construction, built by following the topic itself with a participial form of the verb meaning 'come', as we seen in (21):

- (21) [ naan va-ndü-ŋgæ ], naa|ækki Coimbatore-ukkü  
I come-PTCP-ALLOC, tomorrow Coimbatore-DAT  
poo-v-ēen-ŋgæ  
go-FUT-1SG.SBJ-ALLOC  
'As for me, I'm going to Coimbatore tomorrow.'

Notice incidentally that ALLOC marking actually appears twice in (20) and (21) – once on the embedded part and once on the root clause. This doubling seems to be optional.

### 2.3 Affix ordering and doubling

Recall that in Basque, AllAgr is ruled out in questions in addition to embedded clauses. It has been proposed that this is because AllAgr realizes C and is thus in competition with question particles and with the complementizers found in embedding. Japanese shows that this can't be a general property of AllAgr, since it does allow the marking in questions, as we see in (22) from Miyagawa (2017):

- (22) Dare-ga ki-mas-u ka?  
who-NOM come-ALLOC-PRS Q  
'Who will come?'

Note then that the AllAgr marker *-mas* appears below not just the question particle *ka*, but also the tense suffix *-u*. This leads Miyagawa (2017) to argue that, while AllAgr involves the C domain, its morphological realization in Japanese is lower in the structure, near T.

Consider now what happens in similar cases in Tamil. We have seen above that Tamil is also perfectly happy to have its AllAgr marker *-ŋgæ* appear on a *wh-* or

polar-interrogative. Indeed, it is actually quite common on short fragment and tag-question-like utterances, which are marked by the polar question particle *-aa*. What is potentially odd is how *-ngæ* is ordered relative to this particle. Consider a minimal pair building on examples from above:

- (23) a. *niingæ saap-t-aačč-aa-ngæ?*  
 you.PL eat-ASP-RES-Q-ALLOC  
 ‘Have you eaten?’  
 b. *niingæ saap-t-aaččü-ngæ]-aa?*  
 you.PL eat-ASP-RES-ALLOC-Q  
 ‘Have you eaten?’

(23a) and (23b) differ only in the order of the AllAgr marker and the question particle. In (23a), the AllAgr suffix comes at the end, outside of the question particle, while in (23b) it comes before it.<sup>15</sup> In other words, both orders of the two suffixes are possible. More examples show that this ordering alternation (again accompanied by predictable morphophonological effects) is fairly general.<sup>16</sup>

- (24) a. *illij-aa-ngæ? ~ illi-ngæ]-aa?*  
 no-Q-ALLOC no-ALLOC-Q  
 various uses, e.g. ‘Isn’t it?’, ‘No?’, tag question  
 b. *appadj-aa-ngæ? ~ appadj-ngæ]-aa?*  
 like.that-Q-ALLOC like.that-ALLOC-Q  
 ‘Oh really?’, ‘Is that so?’  
 c. *ko.ɭandæ ippadj seji-laam-aa-ngæ? ~ ko.ɭandæ ippadj*  
 child like.this do-SBJV-Q-ALLOC child like.this  
*seji-laam-ngæ]-aa?*  
 do-SBJV-ALLOC-Q  
 ‘Is it right for the child to do this?’  
 d. *Naan dzej-čč-een-aa-ngæ? ~ Naan dzej-čč-een-ngæ]-aa?*  
 I win-PST-1SG.SBJ-Q-ALLOC I win-PST-1SG.SBJ-ALLOC-Q  
 ‘Did I win?’

Especially with the fragment utterances, the order with the AllAgr preceding the question particle is the preferred one, but both are entirely possible under the

<sup>15</sup>The other minor differences we see are the result of regular morphophonology. In (23a), the final *ü* of the resultative suffix is deleted before a vowel-initial suffix, and the final *l* of the allocutive suffix is deleted in coda position.

<sup>16</sup>The first version of (24c) is from Amritavalli (1991). She did not discuss the other order, with ALLOC before Q, in her paper.

right circumstances.<sup>17</sup> This variation in the order of the affixes is surprising, and is not generally found in the inflectional morphology of the language. That is, the various temporal, aspectual, voice-related and other suffixes that can appear on verb forms are rigidly ordered relative to each other, and two given suffixes generally cannot have their order reversed (for extended discussion on this point, see Sundaresan & McFadden 2017).<sup>18</sup>

Indeed, it gets even more interesting. In the cases where the AllAgr suffix can appear either before or after the Q particle, it is actually possible for it to be doubled, appearing simultaneously in both positions:<sup>19</sup>

- (25) a. *appadi-ŋgæ[-aa-ŋgæ?*  
like.that-ALLOC-Q-ALLOC  
'Oh really?'
- b. *niingæ saapt-aaččü-ŋgæ[-aa-ŋgæ?*  
you.PL eat-RES-ALLOC-Q-ALLOC  
'Have you eaten?'
- c. *onga[-ukkü coffee veṇum-ŋgæ[-aa-ŋgæ?*  
you.PL-DAT coffee want-ALLOC-Q-ALLOC  
'Would you like coffee?'

It should be noted that, at least for my primary Kongu Tamil informant, such structures are not particularly marked, nor do they correspond to elevated or exaggerated politeness. Doubling of this kind is quite unexpected, and again, I am aware of no other piece of grammaticalized morphology in the language that behaves this way.

An obvious question to ask then is whether the different ordering and doubling possibilities are associated with interpretive differences. We might expect, e.g., that the two orders would correspond somehow to distinct scope readings of some kind. The data here are tricky on this point, and it will ultimately require more careful empirical work, ideally with multiple informants who speak

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<sup>17</sup>This seems to be a point of dialectal variation. The preference described in the main text holds for all of my informants from India, but my Singapore informants reported that they would only use the AllAgr-Q order, and that they identify the other order with speakers from India.

<sup>18</sup>As pointed out by an anonymous reviewer, the fact that the ordering of tense-aspect-voice morphology is rigid while that involving apparent C elements is more varied is in line with proposals of Aboh (2015), according to which structural variation is found at phase edges.

<sup>19</sup>Note that this is distinct from the kind of "doubling" in (13) above that was impossible for my Kongu Tamil informant. There we had 2nd plural argument agreement plus AllAgr, whereas here we have two instances of AllAgr.

relevant dialects. However, to a first approximation, the two orders seem to differ in how the question is biased. Consider the following pairs, with the distinct translations offered by my Kongu Tamil informant:

- (26) a. *illij-aa-ŋgæ?* vs. *illi-ŋgæ[-aa?*  
 no-Q-ALLOC      no-ALLOC-Q  
 ‘It’s not, is it?’ ‘Isn’t it?’
- b. *appadjj-aa-ŋgæ?* vs. *appadjj-ŋgæ[-aa?*  
 like.that-Q-ALLOC      like.that-ALLOC-Q  
 ‘So, it is the case?’ ‘Is that the case?’
- c. *Naan dzej-čč-een-aa-ŋgæ?*      vs. *Naan dzej-čč-een-ŋgæ[-aa?*  
 I      win-PST-1SG.SBJ-Q-ALLOC      I      win-PST-1SG.SBJ-ALLOC-Q  
 ‘I won, didn’t I?’      ‘Did I win?’

The Q-ALLOC order seems to be biased towards confirmation, whereas the ALLOC-Q order seems unbiased, a genuine request for information. So in the first variant in (26b) with Q-ALLOC order, the speaker is expecting that the answer will be ‘yes’, and is just asking for confirmation – e.g. in order to get the addressee to admit something or just to be absolutely sure of something. But in the second variant with ALLOC-Q order, the speaker genuinely doesn’t know what the answer will be, and is asking in order to find out.

We can ask then what happens to the interpretation in cases of doubling. Here the judgments are subtle, and not all of the examples I checked seem to behave the same, but in one case where my informant did have a clear intuition, the doubling pattern goes together with the Q-ALLOC order in being biased towards confirmation. Consider the following minimal triplet of examples repeated from above, now with information added about the bias on the question:

- (27) a. *niŋgæ saap-t-aačč-aa-ŋgæ?*  
 you.PL eat-ASP-RES-Q-ALLOC  
 ‘Have you eaten?’ (speaker expects that addressee has)
- b. *niŋgæ saap-t-aačč-ŋgæ[-aa?*  
 you.PL eat-ASP-RES-ALLOC-Q  
 ‘Have you eaten?’ (speaker doesn’t know)
- c. *niŋgæ saapt-aačč-ŋgæ[-aa-ŋgæ?*  
 you.PL eat-RES-ALLOC-Q-ALLOC  
 ‘Have you eaten?’ (speaker expects that addressee has)

It should be stressed at this point that the description of the interpretations here, especially in the doubling case, is highly preliminary. Note for example that it is a bit difficult to lock down exactly what the bias is. In the pair in (28) below (again based on examples from above, but now with additional interpretive information), it is still the ALLOC-Q order that comes with a bias, and the Q-ALLOC order that is neutral, but the direction of the bias is difficult to pin down. My informant reports that this might be how you ask someone as part of a routine, where you can anticipate what the answer will be based on your familiarity with their coffee drinking habits. But it does not seem to be restricted to either an expectation that they will say yes or an expectation that they will say no. The Q-ALLOC order in (28b) again shows no bias and is a genuine request for information, while the doubling in (28c) again patterns with the ALLOC-Q in showing a bias that is difficult to pin down.

- (28) a. *onga[-ükkü coffee veenum-aa-ŋgæ?*  
you.PL-OBL-DAT coffee want-Q-ALLOC  
'Do you want coffee?' (some bias, direction not clear)
- b. *onga[-ükkü coffee veenum-ŋgæ[-aa?*  
you.PL-OBL-DAT coffee want-ALLOC-Q  
'Do you want coffee?' (no bias)
- c. *onga[-ükkü coffee veenum-ŋgæ[-aa-ŋgæ?*  
you.PL-OBL-DAT coffee want-ALLOC-Q-ALLOC  
'Do you want coffee?' (some bias, direction not clear)

Wide-reaching generalizations about the affects of ALLOC-affix ordering beyond the specific examples discussed are thus not yet supported.

### 3 Towards an account

#### 3.1 Theoretical preliminaries

The phenomenon of AllAgr is clearly of great theoretical interest. As already noted in Section 1.2, some basic information about each utterance – including the identity of the author and the addressee, as well as the time, location and other similar parameters – is obviously relevant for semantic and pragmatic interpretation, and so it is uncontroversial that such information must be encoded in some way in the representation of the discourse context. The question is whether such information is already represented in some form in the syntax. For indexical pronouns, for example, it is clear that we must assume a morphosyntactic status

for person features, as they play a role in various agreement and binding operations, but it is entirely plausible that their relationship with the actual author and addressee of a given utterance is only established in the semantics. That is, a feature like [2] or [+participant, –author] would be treated no differently in the morphosyntax than a feature like [PL], and the association with the utterance context – and in particular the identity of the discourse participants – would only play a role in the interpretive component when reference is determined.

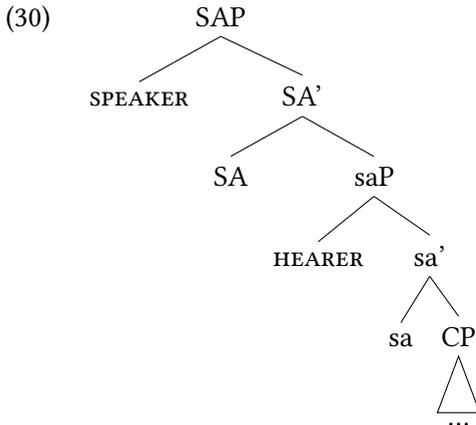
However, it is more difficult to imagine how an approach like this would work in the case of AllAgr, for two reasons. First, AllAgr encodes information about addressees beyond just their role in the discourse context, including their gender, number or status relative to the speaker, depending on the specific language. This seems to imply sensitivity to the actual identity of the addressee of a given utterance, as opposed to the simple fact that there *is* an addressee for every typical utterance. Second, while indexical pronouns appear as syntactic arguments or adjuncts, and clearly contribute to the asserted meaning of the sentences where they are found, AllAgr is again orthogonal to whether the addressee plays a role as an argument or adjunct, and clearly does not contribute anything to the assertion. That is, a Basque sentence like (29), repeated from above, does *not* assert something like ‘The speaker is going to the house, and the addressee is a female individual familiar to the speaker’.

- (29) etʃe-a      banu-n  
house-ALL 1.SG.go-ALLOC.F  
‘I am going to the house.’ (familiar female addressee)

Rather, it asserts something more like ‘The speaker is going to the house’, and comes with something like a presupposition, such that it can only be uttered felicitously when the addressee is a female individual familiar with the speaker. Thus we have morphosyntactic agreement, which by the nature of what “agreement” means must be *with* something, but that something is not an argument or adjunct that we would normally expect to be part of the syntactic representation.

This has led a number of recent authors to conclude that AllAgr provides evidence for a literal syntactic representation of the discourse context, including information about the speech-act participants (Haegeman & Hill 2013; Miyagawa 2012; 2017; Zu 2015; Haegeman & Miyagawa 2016). This work generally builds on and adapts what is sometimes called the neo-performative hypothesis of Speas & Tenny (2003), which is in turn a reinterpretation of proposals by Ross (1970). The basic idea is that the speech-act participants are represented not just in the semantics and pragmatics, but also in the syntax, by quite normal syntactic material that happens (generally) not to be pronounced. Setting aside a number of

important details, I will follow Hill (2007) and Miyagawa (2017) in assuming that the left periphery of the relevant clause types includes a (potentially internally complex) Speech Act Phrase (SAP).<sup>20</sup> The *SPEAKER* and *HEARER* (or *AUTHOR* and *ADDRESSEE*) of the speech act are then directly represented by (silent, essentially pronominal) elements introduced in specifiers of this functional structure, as in (30):



Following Miyagawa (2017) in particular, AllAgr then represents straightforward agreement with the *HEARER* in Spec-saP. Since the *HEARER* is actually represented syntactically, its various  $\phi$ -features will be available and thus can be reflected in the form of the allocutive suffixes on the verb.<sup>21</sup> The usual assumption is that the probe for AllAgr is located somewhere in the C domain. This helps to explain why the agreement targets the speech act domain, whereas classic subject agreement in T targets something lower down in the argument domain. It also provides an

<sup>20</sup>For Speas & Tenny (2003), who adopt assumptions about phrase structure from Larson (1988); Hale & Keyser (1993); etc., this SAP has a shell structure including two head positions, two specifier positions and a complement. Hill (2007); Haegeman & Hill (2013); and Miyagawa (2012; 2017) update this by splitting it up into two phrases, SAP for the speaker and saP for the addressee.

<sup>21</sup>An anonymous reviewer is concerned that treating Tamil AllAgr as agreement with the representation of the addressee neglects the fact that it reflects politeness, which characterizes not just the addressee, but also the speaker's relationship with the addressee. While this is accurate as a description of the pragmatics of the situation, the *grammatical* situation is correctly treated by the description in the main text. In Tamil (and many other languages), politeness is treated grammatically as a property inherent to referents and behaves essentially like another  $\phi$ -feature, which cross-classifies with 2nd and 3rd person as well as gender and number. The undeniable relation to the speaker seems to come in pragmatically, in the sense that an individual will be associated with a polite feature from the perspective of a particular speaker.

approach to restrictions on AllAgr in things like interrogatives in certain languages, under the idea that a question particle competes with the AllAgr probe to realize C. Finally, the impossibility of AllAgr in (most) embedding contexts can be attributed to the fact that SAP and saP are only projected in root clauses. Miyagawa thus argues in detail (see especially Miyagawa 2012), that AllAgr is a “root phenomenon” in the sense of Emonds (1970).

In fact, these attempts to analyze AllAgr fit into a broader trend of arguing for an expanded left periphery containing a syntactic representation of the speech act and its participants. Sundaesan (2012) argues that the (limited) possibility of projecting a SpeechActP in the complement of certain attitude predicates (primarily speech predicates) is responsible for the phenomenon of indexical shift. Haegeman & Hill (2013) make crucial use of SAP in their analysis of a series of verbal particles in Romanian and West Flemish, which serve to “signal the speaker’s attitude or his/her commitment towards the content of the utterance and/or of his relation towards the interlocutor” (p. 9). Zu (2015) uses the SAP to analyze speaker-related allocutive agreement in Jingpo and conjunct marking in Newari, which relates the subject of a clause either to a preceding subject or to the speech act participants. Sundaesan’s work here is especially relevant because, as discussed above, it investigates the monstrous agreement pattern in Tamil.

Her analysis makes crucial use of an SAP in the embedded clause, containing a representation of the speech act associated with matrix ‘say’, which then plays an important role in the determination of argument agreement in the embedded clause. The anaphoric subject *taan* is unable to trigger agreement, thus agreement is instead with a coreferent 1st person form, the interpretation of which is “shifted” by the embedded SAP to be relative to the author of the matrix speech predicate rather than the author of the utterance context. This thus provides evidence, independent of AllAgr, for the syntactic representation of information about speech-act participants in Tamil.

### 3.2 The proposal

I will assume to begin with that the work mentioned in the previous section is on the right track. In particular, there is a syntactic representation of the speech act in the left periphery of the clause which includes information about the speech act participants, and AllAgr is a case of the addressee playing an active role in the morphosyntax.<sup>22</sup> But this still leaves a number of interesting issues open. First,

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<sup>22</sup>For simplicity, from here on out I will speak in terms of a single SAP rather than distinguishing the speaker-introducing SAP from the hearer-introducing saP.

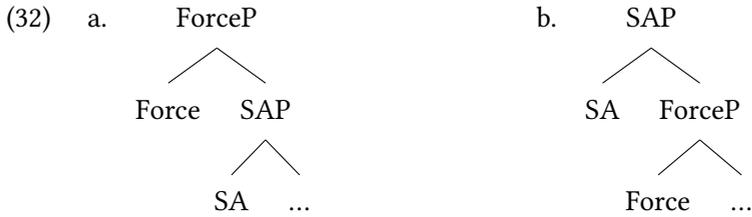
where exactly is the SAP located, and how does it interact with other elements in the left periphery, in particular the material relevant for forming interrogatives? Second, how does the overt AllAgr morphology actually relate to that syntactic representation? Third, what is behind the facts we observed in Section 2.3 involving variation in the ordering and even doubling of the allocutive suffix?

The simplest analysis would be that *-ngæ* directly realizes the HEARER in the SAP. In other words, the Tamil phenomenon wouldn't really be allocutive *agreement* per se, but rather a direct spell out of (at least one of the  $\phi$ -features of) the otherwise silent HEARER in Spec-saP in Miyagawa's tree in (30). This has some initial plausibility given the facts about where the *-ngæ* suffix occurs, at the end of the clause after all of the other inflectional suffixes on the clause-final verb. Given that Tamil is a strictly head-final language, this is where we expect something near the top of the functional sequence, like the SAP, to show up.

There are some issues with this idea, however. First, the fact that it shows up as a suffix on the clause-final verbal material suggests that it realizes a head in the functional sequence, not a specifier, i.e. not the actual representation of the addressee. Second, it runs into trouble with the variable ordering of the *-ngæ* suffix and the polar question particle *-aa*, a subset of which are repeated in (31).

- (31) a. *illij-aa-ngæ?* ~ *illi-ngæ[-aa?*  
           no-Q-ALLOC   no-ALLOC-Q  
           various uses, e.g. 'Isn't it?', 'No?', tag question
- b. *appadjj-aa-ngæ?* ~ *appadjj-ngæ[-aa?*  
           like.that-Q-ALLOC   like.that-ALLOC-Q  
           'Oh really?', 'Is that so?'

The question is which of these two orders we should actually expect if *-ngæ* is realizing something in SAP. Both the question particle and the SAP should be somewhere in the C domain, i.e. in the left periphery of the clause higher than T, and it is that idea that has been employed to explain why AllAgr is incompatible with questions in Basque. But since at least Rizzi (1997) we are generally willing to recognize a richer structure in this region of the clause, involving a series of (more or less strictly ordered) heads. We can assume that there is a head responsible for indicating whether a clause is interrogative, declarative etc. – let's adopt Rizzi's Force, though this may be an oversimplification – in addition to the SAP heads. The trees in (32) give the two obvious logical options for how these two heads could be ordered with respect to each other above the rest of the clause, and we must decide which is more likely to be correct.



It seems to me that, semantically speaking, only (32b) is plausible. If SAP really introduces the representation of the speech act participants and related information, then it is setting the stage for the entire sentence. It provides the background against which a question is asked, including who is asking and answering, and the order in (32b) seems to best reflect this. The order in (32a), on the other hand, would seem to imply that the contents of the SAP are part of what the question in Force is being asked about. If SAP comes above Force, and both are realized by overt affixes, then by the Mirror Principle, SAP should come after Force in linear order. So if we assume that allocutive *-ngæ* realizes something in SAP, and the question particle *-aa* realizes Force, then we should get the order in (33a):

- (33) a. *niɪŋæ saapt-aačč-aa-ŋgæ?*  
 you.PL eat-RES-Q-ALLOC  
 ‘Have you eaten?’
- b. *niɪŋæ saapt-aaččŭ-ŋgæ|-aa?*  
 you.PL eat-RES-ALLOC-Q  
 ‘Have you eaten?’

Indeed we do get this order, but of course the whole point is that we *also* get the reverse order shown in (33b). Now, we could conclude that this is simply a morphological quirk. We could say that the syntax really corresponds to something like (33a) with the expected ordering of AllAgr outside of the question particle, but that there is then a post-syntactic process that optionally flips their order. Again however, this has some problems. For one thing, it doesn’t have a good way of dealing with doubling, i.e. the fact that the AllAgr marker can simultaneously show up in both positions relative to the question particle. For another, if the two orderings are identical in the syntax, being differentiated only in the morphological portion on the PF branch the derivation, it predicts that there should be no meaning difference between them, under the standard assumption that PF doesn’t feed into LF. But this is incorrect – as we saw in Section 2.3, the Q-ALLOC order seems to be biased towards a particular answer, while the ALLOC-Q seems

to be a more neutral request for information. I hesitate to draw any firm analytical conclusions from this, again because the empirical situation is unsettled, but what it suggests at least is that the ordering difference involves something more substantial than just post-syntactic morphology.<sup>23</sup>

Therefore, I'd like to propose something (slightly) more interesting. First, for the ALLOC-Q order we need to reaffirm the idea that *-ŋgæ* really is agreement. That is, it does not realize anything in SAP directly, but rather the features of something in SAP being reflected elsewhere in the structure. This lets us put the question particle in Force, below SAP, getting the broad semantics right, with AllAgr realizing an even lower head that agrees with the addressee in SAP. This has to be distinct from the head that realizes argument agreement, because we get both types of agreement simultaneously, even when both are below the question particle, as in the second variant in (24d), repeated in (34).

- (34) Naan dʒej-čč-een-ŋgæ[-aa?  
 I win-PST-1SG.SBJ-ALLOC-Q  
 'Did I win?'

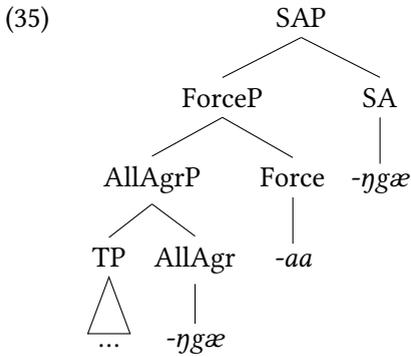
Given the ordering facts, though, the locus of low AllAgr should be very close to, and just a bit higher than, that of argument agreement, itself just above T.

For the order where *-ŋgæ* shows up after the question particle, something different must be going on. Again by the Mirror Principle, it must be realizing a higher position in the left periphery, which as far as I have found only comes below the (rather high) complementizer *-nnŭ*. We can thus potentially place it even as high as SAP itself. This opens up the possibility that *this* instance of *-ŋgæ* isn't agreement in the T region, but is more directly spelling out something relating to the representation of the addressee. Perhaps the simplest assumption is that it is the *sa* head itself, which agrees in  $\phi$ -features with the representation of the addressee in its specifier, but it could potentially even be a clitic spelling out that addressee directly. The presently available data do not put me in a position to

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<sup>23</sup>As an anonymous reviewer notes, there are a number of ways one could attempt to derive the two surface orders from a single underlying structure by purely syntactic means, e.g. if SAP and Force were just distinct (bundles of) features on a single head, with some version of equidistance allowing them (or elements related to them) to be realized in either order, or if the entire ForceP could optionally move into Spec-SAP. However, such approaches suffer from the same problems in dealing with the interpretation and especially the doubling facts and thus can be set aside, at least in the absence of some theory that could tie them to bias in question interpretations.

defend any specific proposal. The following structure gives an idea of how this might look:<sup>24</sup>



This approach has the clear advantage that it provides two distinct structural positions for the allocutive suffix, and thus will allow a natural account of the doubling data.<sup>25</sup> It does not explain the subtly different readings available with the two orders, but it does at least allow an account to be formulated, once the facts are better understood, because the two positions for allocutive suffixes have different sources. The idea is basically as follows. The baseline is that an Agree relationship is established between the representation of the addressee and the AllAgr head above T, which itself has no semantic consequences. An additional relationship can be established with a higher head in the SAP region, but if this is done, it has the semantic consequence of introducing a bias with respect to a polar question. The results of this higher Agree relation are always pronounced when they obtain. The lower one is usually also pronounced, but can be optionally left off when the higher one is pronounced. When only the lower is pronounced, we get the ALLOC-Q order and no bias, because the higher Agree operation has not occurred. Anytime the higher is pronounced, we get the bias, because this is derived by the higher Agree operation. But in this case pronunciation of the lower Agr is optional, so we get both doubling and the Q-ALLOC order, both with the semantics of bias.

<sup>24</sup>One should not take the label “AllAgr” too seriously, and of course this leaves open how exactly the higher *-ηgæ* relates to the actual representation of the addressee. As an anonymous reviewer points out, the relationship between AllAgr and SAP could constitute evidence for the possibility of upward Agree (e.g. Zeijlstra 2012) though see also Diercks et al. (2020 [this volume]).

<sup>25</sup>As pointed out by a reviewer, for the various types of fragmentary utterances discussed above, where both orders and doubling of AllAgr are possible, we can imagine something like a sluicing analysis. I.e. there is a full clause structure going up to SAP, with remnant material moved into a left-peripheral position, followed by ellipsis of TP.

We can also take some first steps towards an analysis of the embedding facts and the interaction of AllAgr with monstrous agreement. As noted above, Sundaresan (2012) analyzes monstrous agreement in terms that require an SAP in the embedded clause which encodes information about the embedded speech act rather than the matrix one. Among other things, the contexts in which monstrous agreement is possible are constrained by the conditions on when such an embedded SAP can be projected, and the optionality of monstrous agreement in certain speech complements amounts to optionality in whether the SAP will be present. Now, under the proposal being considered here, at least the lower AllAgr probe is not itself in the SAP region, thus we do not necessarily predict that AllAgr will only be available in embedded clauses that contain their own SAP – a lower AllAgr above T could at least potentially Agree with some higher representation of an addressee.<sup>26</sup> We do, however, have clear expectations about how the presence of an embedded SAP should be relevant for the *interpretation* of AllAgr. If there is an embedded SAP, we expect on minimality grounds that an embedded *-ngæ* suffix must be Agreeing with that, and not with the matrix SAP associated with the utterance speech act. If monstrous agreement implies an embedded SAP, then we predict that an accompanying embedded AllAgr will reflect properties of the addressee of the embedded speech act (and her relationship with the embedded author), not of the addressee of the utterance speech act. This is precisely what we observed in the contrast between (17) and (19) above, repeated in (36):

- (36) a. Maya [avæ poott-læ dzejkkæ-poo-r-aa-*ngæ*-nnü] so-nn-aa  
 Maya [she contest-LOC win-go-PRS-3SG.F-ALLOC-COMP] say-PST-3SG.F  
 ‘Maya said that she would win the contest.’ (speaker being polite)
- b. Maya<sub>i</sub> [taan<sub>i,\*j</sub> poott-læ dzejkkæ-poo-r-*een-ngæ*-nnü]  
 Maya [ANAPH contest-LOC win-go-PRS-1SG-ALLOC-COMP]  
 so-nn-aa  
 say-PST-3SG.F  
 ‘Maya<sub>i</sub> said that she<sub>j</sub> would win the contest.’ (Maya being polite)

In (36a) without monstrous agreement, we can presume that there is no embedded SAP, thus the embedded AllAgr is interpreted relative to the utterance speech

<sup>26</sup>This of course raises important and complicated questions of mechanics. In particular, how would such an Agree relation be constrained to probe specifically for the  $\phi$ -features of addressee representations, and what are the locality implications? Consideration of such issues must wait until we have a better grasp on the empirical situation. Especially relevant here will be the comparison with other types of agreement which involve the C domain, in particular upward and downward complementizer agreement, as discussed by Diercks et al. (2020 [this volume]).

act, and so it is the utterance speaker, Tom in our scenario from above, who is showing politeness to the addressee, Venkat. In (36b), on the other hand, monstrous agreement establishes the presence of an embedded SAP, relative to which the embedded AllAgr must be interpreted. Thus it is the author of the embedded speech act Maya who is showing politeness towards her addressee, Kausalya.

Of course, this account clearly still leaves a number of open questions, both large and small, many of them resulting from the preliminary state of our understanding of the empirical situation surrounding AllAgr in Tamil and in general. I have already discussed the uncertainty with regard to the precise nature of the two positions where agreement can be realized, the relationship between the orderings with the question particle and the bias interpretations, and the mechanics of the apparent long-distance agreement when AllAgr appears in non-monstrous embedded clauses. To this we can add the precise nature of the ban on AllAgr when there is 2nd person argument agreement,<sup>27</sup> the issue of why Tamil AllAgr only marks number (and related politeness), but not gender or person distinctions, as well as a host of comparative questions, e.g. why Tamil permits AllAgr more readily in embedding than Basque does. Nonetheless, I hope to have shown on a general level that the Tamil data add further support to a framework where information about the discourse participants is represented and active in the syntax, and on a more specific level that AllAgr interacts in interesting ways with question formation and indexical shift, and that we should recognize two distinct positions for its realization.

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<sup>27</sup>Note that in the analysis proposed here, AllAgr and 2nd person argument agreement involve distinct probes Agreeing with distinct goals, so it's difficult to see what could prevent them from both applying in the same clause. Comparison with other languages as well as the dialectal variation on this point might suggest that the ban does not reflect anything deeply syntactic but rather something about surface realizations.

## Abbreviations

ACC	accusative	OBL	oblique
ALL	allative	PL	plural
ALLOC	allocutive marker	PRED	predicative
ANAPH	anaphor	PRS	present
ASP	aspect	PST	past
COMP	complementizer	PTCP	participle
DAT	dative	Q	question particle/marker
EXCL	exclusive	RES	resultative
F	feminine	RSP	respected addressee
FUT	future	SBJ	subject
LOC	locative	SG	singular
M	masculine	TOP	topic
NEG	negation		
NOM	nominative		

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## Chapter 13

# Distinct featural classes of anaphor in an enriched person system

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This paper tackles the fundamental question of what an anaphor actually is – and asks whether the label “anaphor” even carves out a homogenous class of element in grammar. While most theories are in agreement that an anaphor is an element that is referentially deficient in some way, the question of how this might be encoded in terms of deficiency for syntactic features remains largely unresolved. The conventional wisdom is that anaphors lack some or more  $\phi$ -features. A less mainstream view proposes that anaphors are deficient for features that directly target reference. Here, I present different types of empirical evidence from a range of languages to argue that neither approach gets the full range of facts quite right. The role of PERSON, in particular, seems to be privileged. Some anaphors wear the empirical properties of a PERSON-defective nominal; yet others, however, are sensitive to PERSON-restrictions in a way that indicates that they are inherently specified for PERSON. Orthogonal to these are anaphors whose distribution seems to be regulated, not by  $\phi$ -features at all, but by perspective-sensitivity. Anaphors must, then, not be created equal, but be distinguished along featural classes. I delineate what this looks like against a binary feature system for PERSON enriched with a privative [SENTIENCE] feature. The current model is shown to make accurate empirical predictions for anaphors that are *insensitive* to PERSON-asymmetries for the PCC, animacy effects for anaphoric agreement, and instances of non-matching for NUMBER and PERSON.

## 1 Overview

The conventional wisdom is that an anaphor like *himself* is anaphoric because it lacks independent reference. At the same time, it differs from a pronoun like *him*



because an anaphor must already be bound in the syntax, in a way that the pronoun need not, and indeed *cannot*, be (Conditions A and B of the Binding Theory, respectively of Chomsky 1981). In Minimalism, this idea is captured by proposing that the anaphor lacks some feature in the syntax. Valuation or checking of this feature under Agree by another element (a nominal or functional head), triggers anaphoric binding at LF. Construing binding in terms of Agree has the advantage that the characteristic distributional properties of local anaphora (Binding Condition A of Chomsky 1981), falls out epiphenomenally (Hicks 2009). What still remains very much an open question, however, is the featural content of what the anaphor and its antecedent Agree for. The mainstream view is that anaphors are  $\phi$ -deficient nominals (Heinat 2008; Kratzer 2009; Reuland 2001; 2011; Rooryck & Vanden Wyngaerd 2011). But there is another, less central view, which proposes to capture the referential dependency of anaphors by arguing that they directly lack referential features (Adger & Ramchand 2005; Hicks 2009).<sup>1</sup>

The goal of this paper is to show that, while these views tell us parts of the story, they crucially obscure others. Once we broaden our field of scrutiny to include a range of empirical phenomena from a number of different languages, a more nuanced pattern emerges. The PERSON-feature, in particular, is shown to play a rather central divisive role with respect to anaphora. Based on their antecedence-taking properties, the Anaphor Agreement Effect (AAE) (Rizzi 1990), and certain types of morphological underspecification and  $\phi$ -matching, some anaphors seem to lack the PERSON feature. However, PERSON-restrictions reflected in anaphoric agreement, sensitivity to PCC effects, and a rarely discussed 1st, 2nd, vs. 3rd asymmetry in anaphoric antecedence (Comrie 1999), suggest that certain other anaphors are inherently specified for PERSON. Running orthogonal to both is a class of perspective-sensitive anaphora (including so-called logophora Clements 1975) whose antecedence is regulated by perspective-holding with respect to some predication containing the anaphor (Sells 1987; Kuno 1987; Koopman & Sportiche 1989; Giorgi 2010; Pearson 2013). Recent work has argued that such relationships must also be implemented in terms of a syntactic dependency between the anaphor and its antecedent (Sundaesan 2012; Pearson 2013; Nishigauchi 2014; Charnavel 2015). If this is correct, then anaphora thus doesn't target a single homogenous class of nominal. Rather, it picks out nominals that all end up being referentially bound by featurally distinct routes. This then begs the question of what an anaphor actually is, and whether it even makes sense to talk about an anaphor as a coherent class of grammatical elements.

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<sup>1</sup>See also Diercks et al. (2020 [this volume]) for a very interesting discussion of the featural make-up of anaphors and their agreement behavior.

Standard theories classify PERSON into three categories: 1st, 2nd, and 3rd. I argue here that such a classification is not fine-grained enough to capture all the referential distinctions the full range of anaphors in language needs recourse to. We need (at least) six referential categories, as illustrated in Table 1.

Table 1: Person Cross-Classification

Features	Category	Exponents
[+AUTHOR, +ADDRESSEE, SENTIENCE]	1INCL.	<i>naam</i> (Tamil, 1INCL.PL)
[+AUTHOR, -ADDRESSEE, SENTIENCE]	1EXCL.	<i>naanga</i> (Tamil, 1EXCL.PL)
[-AUTHOR, +ADDRESSEE, SENTIENCE]	2	<i>you</i>
[-AUTHOR, -ADDRESSEE, SENTIENCE]	3	<i>him, sie</i> (German), <i>si</i> (Italian)
[SENTIENCE]	REFL	Anaphors in Bantu
∅	NULL	<i>ziji</i> (Chinese), <i>man</i> (German)

Table 1 shows that there is not one, but three, non-1st and non-2nd PERSON-categories. The [SENTIENT] feature is marked on nominals that denote individuals that have the ability to be mentally aware and bear a mental experience, and in turn entails semantic animacy. Categories that are contentful for PERSON, [ $\pm$ AUTHOR] and [ $\pm$ ADDRESSEE], thus automatically bear this feature. Articulated PERSON-classifications involving similar binary features have, indeed, been previously proposed (see e.g. Nevins 2007, Anagnostopoulou 2005, a.o.). The novel contribution of this paper is that it provides empirical support for such a feature system from a relatively untested empirical phenomenon, namely that of anaphora.<sup>2</sup>

Against such a featural system, we have the typology of anaphors given in Table 2. This will be shown to capture the full range of empirical properties demonstrated by anaphors, discussed in the course of the paper.

The model developed here makes testable empirical predictions with respect to the PCC,  $\phi$ -matching, SENTIENCE effects in anaphoric agreement, and the AAE. I show that these are positively confirmed, attesting to the validity of the current approach.

<sup>2</sup>This said, it should be clarified from the outset that one of the central goals of this paper is to provide empirical evidence from anaphora for the greater articulation of PERSON-features, and not for the claim that such features should necessarily be modelled in terms of a binary feature structure. Put another way, such a level of articulation may well also be modelled through feature hierarchy systems such as Harley & Ritter (2002) or a lattice-based model of PERSON-partitions like Harbour (2016).

Table 2: Four classes of anaphor

Class	PERSON-Features	Exponents
3rd-anaphor	[−AUTHOR, −ADDRESSEE, SENTIENCE]	<i>taan</i> (Tamil), <i>zich (zelf)</i> (Dutch)
REFL	[SENTIENCE]	Bantu anaphors
NULL-anaphor	∅	<i>ziji</i> (Chinese), <i>zibun</i> (Japanese)
Class	Non- $\phi$ -Feature	Exponents
Perspectival anaphors	[DEP]	<i>taan</i> , <i>ziji</i> , <i>sig</i> (Icelandic)

## 2 Phi-based views of anaphora

In this section, I present an overview of the theoretical and empirical support for approaches that define anaphoricity in terms of  $\phi$ - or referential deficiency in syntax.

### 2.1 Theoretical background and motivation

One of the main advantages of the  $\phi$ -deficiency approach is its theoretical parsimony. All the approaches predicated on this idea build on the fundamental assumption that an anaphor is defined by its lacking one or more  $\phi$ -features.  $\phi$ -features are independently motivated in language – be it as an inherent property of nominal elements or as an acquired property on verbal ones. Such an approach thus avoids the inelegant pitfall of positing features that are peculiar to anaphors alone. The theoretical motivation for such a view may be traced back (at least) to an observation by Bouchard (1984) that a nominal needs a full set of  $\phi$ -features to be LF-interpretable. As such, any nominal that lacks a full  $\phi$ -feature specification must get its missing  $\phi$ -features checked in syntax, on pain of being subsequently uninterpretable at LF.

Theories that are based on the  $\phi$ -deficiency view do not form one homogeneous class: in fact, they differ significantly with respect to ancillary assumptions regarding the internal structure and overall feature-composition of an anaphor and, in some cases, also the nature of the Agree dependency between the anaphor and its antecedent. A fundamental variation arises with respect to assumptions concerning what  $\phi$ -featural deficiency actually means. For one thing, is

the anaphor simply unvalued for  $\phi$ -features or does it lack them altogether (and how can we tell)? For another, does it lack some  $\phi$ -features or all (and again, how can we tell)? Kratzer (2009) proposes, for instance, that anaphors are “minimal pronouns” – they lack not just the values, but also the attributes, for all  $\phi$ -features. Agree (or feature unification, in Kratzer’s system) allows an anaphor to acquire all and only those features it actually surfaces with, yielding a transparent mapping between syntax and morphology. Rooryck & Vanden Wyngaerd (2011), alternatively, propose that anaphors are merely lacking in  $\phi$ -values, which get valued in the course of the derivation via Agree. An issue that crops up in this context is what formally distinguishes an anaphor from a pronoun bearing identical  $\phi$ -features in the same structural position, once the anaphor’s  $\phi$ -features have been valued. Rooryck & Vanden Wyngaerd (2011) suggest a brute-force solution: inherited features must be distinguished from inherent features by their bearing a “\*” featural diacritic. Yet others (Heinat 2008; Reuland 2001; 2011; Déchaine & Wiltschko 2012) present independent arguments to distinguish anaphors from other nominals, not featurally, but in terms of their internal structure. Regardless of how this is formalized, however, this is a central problem that *any* account that anaphors are deficient for a feature that is assumed to underlie *all* nominals: the anaphor must continue to be distinguished from other nominals at the interfaces after this deficiency has been “cured” via Agree.

The fundamental motivation of the reference deficiency view, in contrast, is that while the  $\phi$ -features of a nominal restrict its domain of reference (in the evaluation context), they crucially don’t exhaust it.  $\phi$ -features introduce presuppositions that restrict, via partial functions, the lexical entry of nominals (Heim & Kratzer 1998), as in (1):

- (1)  $\llbracket \text{she} \rrbracket^{c,g} = \lambda x: x \text{ is female \& } x \text{ is an atom.}x$

Hicks (2009) further notes that, under a  $\phi$ -deficiency view, anaphors that are overtly specified for all their  $\phi$ -features, like reflexives in English, would be predicted to behave like deictic pronouns. While conceding that “One possibility could be that the morphological features are only assigned to the reflexive once they receive a value from the Agree relation”, he rightly points out that, “as soon as we allow this we lose the original diagnostic for determining what is an anaphor and what is a pronoun according to their overt  $\phi$ -morphology” (Hicks 2009: 111). Hicks proposes, instead, that anaphoric dependence is built on operator-variable features, along the lines of Adger & Ramchand (2005). An anaphor is a semantically bound variable: this is transparently reflected in its syntactic profile, with an unvalued VAR feature. An R-expression or a (deictic) pronoun, in contrast, is born with an inherently valued VAR, with values being integers or letters that

are arbitrarily assigned in the course of the derivation.<sup>3</sup> Quantifiers, like *all* and *some* have OP features [OP:  $\forall$ ] and [OP:  $\exists$ ], respectively, yielding derivations like (2a) and (2b) for (2):

- (2) Every toddler injures herself.
- a. Every<sub>[OP:  $\forall$ ]</sub> toddler<sub>[VAR:  $x$ ]</sub> injures herself<sub>[VAR:  $\_$ ]</sub>
  - b. Every<sub>[OP:  $\forall$ ]</sub> toddler<sub>[VAR:  $x$ ]</sub> injures herself<sub>[VAR:  $x$ ]</sub>

Hicks also assumes that *every* nominal has a VAR feature: this in turn ensures that an anaphor will be bound by the closest c-commanding nominal that has a valued VAR feature, yielding Condition A epiphenomenally.

Below, I discuss some of the empirical properties that may be taken to support the mainstream  $\phi$ -deficiency approach. But the notion of referential defectiveness in an approach like Hicks (2009) is itself crucially predicated on  $\phi$ -defectiveness, given the afore-mentioned idea that  $\phi$ -features presuppositionally restrict nominal reference. As such, many of the empirical properties below may arguably be captured under the referential-deficiency view, as well. I will henceforth use the term “ $\phi$ -based” to subsume both  $\phi$ -deficiency and reference-deficiency approaches to anaphora.

## 2.2 Anaphora and phi-matching

Anaphors must typically match their antecedents for  $\phi$ -features, a crosslinguistic tendency that has been explicitly noted as a required condition on binding in syntax textbooks and elsewhere (Sag et al. 2003; Carnie 2007; Heim 2008). Thus, (3) is ungrammatical because the anaphor has 1SG  $\phi$ -features which don't match the 3MSG features of its binder:

- (3) \*He <sub>$i$</sub>  saw myself <sub>$i$</sub> .

Such  $\phi$ -matching seems to be a restriction on simplex anaphors as well, as illustrated by the ungrammaticality of the German counterpart to (3) in (4):

- (4) \*Er <sub>$i$</sub>  sah mich <sub>$i$</sub> .

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<sup>3</sup>This is not a trivial assumption. If Hicks were to assume, instead, that R-expressions and pronouns were lexically distinguished in terms of their VAR-values, a valued VAR would simply reduce to a referential index, in turn violating the Inclusiveness Condition in Chomsky (1995: 381). Hicks assumes, therefore, that a pronoun or R-expression is born with a feature whose value is simply a *pointer* or *instruction* to be converted to an arbitrary integer or letter upon Merge.

Under a  $\phi$ -deficiency approach, this falls out for free. If an anaphor must have one or more unvalued  $\phi$ -features and anaphoric binding is triggered by the anaphor having its  $\phi$ -features valued, via Agree, then such  $\phi$ -matching is, indeed, precisely what is predicted. But this arguably also falls out naturally under a reference-deficiency approach as in Hicks (2009) (or Adger & Ramchand 2005). The difference is that, here, such a restriction would be the result of a *semantic incompatibility* between the projected presuppositions of the individual nominals in the binding relation.

There are, of course, cases where no  $\phi$ -matching can be discerned, as in Albanian, Chinese, Yiddish or Russian. This is illustrated for the Albanian examples below (Woolford 1999: 270–271, see also Hubbard 1985: 91):

- (5) Drites<sub>i</sub>                      dhimset                      vetja<sub>i</sub>.  
 Drita.DAT=3SG.DAT pity.3SG.PAST.NACT ANAPH.NOM  
 ‘Drita<sub>i</sub> pities herself<sub>i</sub>.’
- (6) Vetja<sub>i</sub>=me<sub>i</sub>                      dhimset.  
 ANAPH.NOM=1SG.DAT pity.3SG.PRS.NACT  
 ‘I<sub>i</sub> pity myself<sub>i</sub>.’

However, what such examples show is the *absence* of overt  $\phi$ -matching, not the *presence* of overt *non*-matching. Under Kratzer (2009), a minimal pronoun (or anaphor) is bound by a dedicated reflexive *v* which, in addition to its  $\phi$ -features, will transmit its “signature” reflexive feature to the anaphor. This means that “sometimes the signature feature is all that is ever passed on to a minimal pronoun” (Kratzer 2009: 198). It is when this happens, Kratzer proposes, that the anaphor is spelled out as an invariant form, as in the Albanian examples above. Note, however, that this is already a deviation from a purely  $\phi$ -deficient approach to anaphora. An alternative that stays truer to its  $\phi$ -deficiency premise might be to posit that there is a single anaphoric form that is syncretic for all PERSON, NUMBER, and GENDER combinations. In contrast, far from posing a problem for the reference-deficiency view, such patterns might be taken to be evidence in favor of it. Under an analysis like Hicks (2009), such invariant forms might simply be taken to be the transparent spell-out of anaphors that have a VAR feature (that has been valued under Agree) and nothing else.

Explicit cases of non- $\phi$ -matching could involve some sort of mismatch between the semantic and grammatical  $\phi$ -features on the antecedent and the anaphor. Such a situation obtains in the minimal pair (7) and (8), involving so-called “imposters”<sup>4</sup> (Collins & Postal 2012: 97, 15–17):

<sup>4</sup>Collins & Postal (2012: 5, Ex. 10) define an imposter as “a notionally X person DP that is grammatically Y person, X ≠ Y.”

- (7) [The present authors]<sub>i</sub> are proud of ourselves<sub>i</sub>.  
(8) [The present authors]<sub>i</sub> are proud of themselves<sub>i</sub>.

As Collins & Postal (2012) show, a sentence like (7) is only grammatical when *the present authors* has a notional 1st-person feature, i.e. is used by the speaker to refer to themselves in the 3rd-person. This indicates that (7) doesn't really involve a  $\phi$ -mismatch at all: rather, the antecedent has two distinct types of PERSON-feature, a grammatical one that is 3rd-PERSON, and a semantic one that is 1st-PERSON, and the anaphor is free to Agree with either.

To sum up then, antecedence  $\phi$ -matching for anaphora falls out for free under  $\phi$ -based views – albeit syntactically in the  $\phi$ -deficiency view, and semantically in the reference-deficiency one. One might take this to mean that  $\phi$ -matching doesn't by itself constitute a particularly strong empirical argument for either approach.<sup>5</sup> Yet, whereas  $\phi$ -featural matching entails strict  $\phi$ -feature identity, semantic matching yields  $\phi$ -feature identity in the *default case*, but crucially not always. The requirement in the case of the latter is  $\phi$ -feature consistency, not  $\phi$ -feature matching. In Section 5.1, I discuss a case where there is featural consistency in the absence of feature-matching: this could only have been achieved via a semantic route.

### 2.3 Morphological underspecification of anaphors

Going by restrictions placed on their antecedence, a remarkable number of anaphors crosslinguistically seem to fail to mark the full range of  $\phi$ -distinctions in the given language. The identity and range of these features is parametrized. Thus, Korean *caki* and Dravidian *taan* are underspecified for gender alone: i.e. can take antecedents of any gender, but these must be 3SG; German *sich* (and its Germanic relatives) seem to be underspecified for both gender and number; Japanese *zibun* is unmarked for person and gender; and Chinese *ziji* seems to be maximally underspecified.

Under a  $\phi$ -deficiency view, these distinctions can be captured in one of two ways. Assuming that a bound variable starts out  $\phi$ -minimal (Kratzer 2009), we could propose that an anaphor acquires all and only those  $\phi$ -features it actually surfaces with. Concretely, then, Tamil *ta(a)n* or Korean *caki* would receive PERSON and NUMBER features alone but not GENDER; Japanese *zibun* would receive NUMBER alone, while *ziji* would receive “signature” feature [reflexive] and thus remain unspecified for all  $\phi$ -features. The morphology, then, straightforwardly spells out this featural state-of-affairs. Of course, this implies that an anaphor be born, not just lacking values for  $\phi$ -features, but lacking the relevant  $\phi$ -attributes

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<sup>5</sup>I thank an anonymous reviewer for bringing up this point.

themselves. Notice, incidentally, that such a solution is not obviously available for the reference-deficiency view since the relationship to  $\phi$ -features is not encoded directly in the syntax.

Nevertheless, under both views, morphological underspecification could simply be relegated to the morphological component, in particular to rules of exponence for the anaphors in question. Let us assume that the anaphor has all its  $\phi$ -features valued at the time of SpellOut. The Vocabulary Insertion rule for the exponent *ta(a)n* in Tamil might then look like that in (9):

$$(9) \quad [3, \text{SG}, \text{D}] \leftrightarrow \text{ta}(a)n$$

Under (9), all *m, f, n* GENDER combinations that are 3SG will be spelled out syncretically as *ta(a)n*. Chinese *ziji*, in contrast, might have a maximally underspecified SpellOut rule, as in (10):

$$(10) \quad [\text{D}] \leftrightarrow \text{ziji}$$

Since (10) makes reference to no  $\phi$ -features whatsoever, we would get syncretism across all PERSON, NUMBER, and GENDER categories for this anaphoric form.<sup>6</sup>

While a system like Kratzer's can directly capture the crosslinguistic robustness of morphological underspecification, a purely morphological solution would have to seek independent explanations, e.g. a functionalist explanation (Rooryck & Vanden Wyngaerd 2011), for its universality.<sup>7</sup> Finally note that, under a  $\phi$ -valuation approach, it is perfectly possible for an anaphor to be expounded with all its  $\phi$ -features (as in Zapotec, Thai, or even English), as well. Such an anaphor would have to satisfy the condition that it have *all* its  $\phi$ -features valued at the time of SpellOut; additionally, it would have to be ensured that the SpellOut rule itself not be underspecified for any  $\phi$ -feature. Such data, of course, don't pose a challenge for the reference-deficiency view either.

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<sup>6</sup>Of course, the anaphor would still need to be distinguished from a deictic pronoun with the same features in that position: e.g. either via featural diacritics (Rooryck & Vanden Wyngaerd 2011) or structurally (Heinat 2008; Déchaine & Wiltschko 2012), as discussed.

<sup>7</sup>"The more specific a form is in terms of its feature makeup, the more restricted (i.e. effective) its reference. The situation is quite different for reflexive forms: since they have a local antecedent by definition and derive their reference from that antecedent, there is no need for them to be referentially restricted themselves. This does not exclude a situation where a reflexive has a rich set of distinctions ...but it does predict that underspecified forms, if they occur, will be found in the reflexive paradigm rather than in the nonreflexive one" (Rooryck & Vanden Wyngaerd 2011: 45).

## 2.4 Anaphor Agreement Effect (AAE)

One of the strongest arguments for the  $\phi$ -deficiency view is, perhaps, the Anaphor Agreement Effect (AAE). This refers to the observation, going back to Rizzi (1990), and revised periodically since Woolford (1999), Tucker (2011), Sundaesan (2016), that anaphors cannot trigger “normal” (i.e. covarying)  $\phi$ -agreement. Rizzi’s original observation was motivated by minimal pairs like the one below, from Italian (Rizzi 1990: 3):

- (11) A loro interess-ano solo i ragazzi.  
to them interest-3PL only the boys.NOM  
‘They<sub>i</sub> are interested only in the boys<sub>i</sub>.’
- (12) \* A loro interess-ano solo se-stessi.  
to them interest-3PL only them-selves.NOM  
‘They<sub>i</sub> are interested only in themselves<sub>i</sub>.’ (Intended)

Italian has a nominative-accusative case system:  $\phi$ -agreement is triggered by a nominative argument. Thus, in (11), the nominative object ‘the boys’ triggers 3rd-person plural agreement on the verb. But if we replace this object with a plural nominative anaphor, as in (12), the sentence becomes ungrammatical. In contrast, a sentence like (13) (Rizzi 1990: 33) where the anaphor appears in the genitive such that the co-occurring verb surfaces with default 3rd-person singular agreement, is fully licit:

- (13) A loro import-a solo di se-stessi.  
to them matters-3SG only of them-selves  
‘They<sub>i</sub> only matter to themselves<sub>i</sub>.’

A key difference between (12) and (13) is that the anaphor triggers verb agreement in the former, but doesn’t do so in the latter. Strikingly, the grammaticality of these sentences seems to be directly conditioned by this contrast: (12), where the anaphor should trigger agreement is ungrammatical whereas (13) where the anaphor doesn’t trigger agreement is fine. Patterns such as these suggest that languages avoid structures where an anaphor directly triggers agreement on its clausemate verb. As such, Rizzi (1990: 28), proposed that “[T]here is a fundamental incompatibility between the property of being an anaphor and the property of being construed with agreement.” Subsequent analyses (Woolford 1999; Haegeman 2004; Tucker 2011) have tested the validity of the AAE against a wider range of languages.

These investigations reveal that languages may choose to circumvent an AAE violation in a number of additional ways. Some, like Inuit, may simply detransitivize the predicate in question (Woolford 1999; Bok-Bennema 1991). Others, like the Malayo-Polynesian language Selayereese, Modern Greek and West Flemish have been reported to “protect” the anaphor from triggering agreement by embedding it inside another nominal (Woolford 1999; Haegeman 2004). In Sundaresan (2016), I argue that Tamil adopts an “agreement switch” strategy. When the anaphor occurs in the agreement-triggering case (nominative), co-varying  $\phi$ -agreement is exceptionally triggered by *some other nominal* with valued  $\phi$ -features in the local domain. Such a strategy is arguably also reported for Kutchi Gujarati in Patel-Grosz (2014) and Murugesan & Raynaud (to appear). Based on such patterns, I update Rizzi’s AAE as follows in Sundaresan (2016: 23): “Anaphors cannot directly trigger covarying  $\phi$ -agreement which results in covarying  $\phi$ -morphology.”

While it remains far from clear why a particular language adopts the particular repair strategy it does, the AAE itself emerges as a crosslinguistically robust constraint. It should be obvious that the AAE is a clear argument in favor of any analysis that defines anaphora in terms of  $\phi$ -feature deficiency. If an anaphor itself lacks  $\phi$ -features, then such an anaphor should not be able to serve as a Goal to value the  $\phi$ -features on a probing T or *v*, yielding the AAE (as argued by Kratzer 2009). Under the reference-deficiency approach,  $\phi$ -feature defectiveness is presupposed but not featurally encoded. Given that agreement is a featural dependency, however, the AAE doesn’t come for free under such a view.

### 3 Complicating the picture

The previous section has presented two main ideas regarding the feature composition of anaphora. We have also seen the anaphoric phenomena that constitute the main empirical arguments, to a greater or lesser degree, for these views. Here, I bring arguments to bear showing that the anaphoric landscape is actually more nuanced and complex, in a way that neither view can adequately capture by itself. To this end, I present two main types of evidence:

- (i) Perspectival anaphora which are defined by a deficiency of a perspectival feature.
- (ii) Anaphors that are sensitive to PERSON asymmetries.

The first type of evidence shows that  $\phi$ -features (or features that are built on  $\phi$ -features, like referential features) are not enough to capture the full range of

anaphoric patterns in language. The second shows that the PERSON feature is privileged over other types of  $\phi$ -feature for purposes of anaphora – something that a simple  $\phi$ - (or reference) deficiency view is not articulated enough to handle.

### 3.1 When phi-features aren't enough: Perspectival anaphora

Perspectival anaphora have been reported for a number of languages, e.g. Malayalam (Jayaseelan 1997), Japanese (Kuno 1987; Nishigauchi 2014), Icelandic (Hellan 1988; Sigurðsson 1991), French (Charnavel 2015), Italian (Giorgi 2010), Abe (Koopman & Sportiche 1989), and Ewe (Pearson 2013), a.o. Such anaphors are defined by their sensitivity to grammatical perspective, as noted. Concretely, the antecedent of such an anaphor must denote a perspective holder, mental or spatial, towards some predication containing the anaphor.

Evidence showing that such perspective-holding is syntactically regulated – which I discuss below – suggests that perspective-sensitivity must be directly encoded in the featural make-up of such anaphors. For instance, I propose in Sundaresan (2012; 2018) that a perspectival anaphor is born with an unvalued “DEP” feature, the valuation of which feeds semantic binding. The DEP-feature is formally identical to Hicks’ VAR: it is an attribute-value pair that takes arbitrarily assigned integers/letters as value. The fundamental difference from Hicks’ system lies in the notion that not every deictic pronoun and R-expression is born with a *valued* DEP-feature. Rather, in a given phase, only one other nominal, by virtue of its dedicated structural position in the specifier of a Perspectival Phrase, is born with a valued DEP.

#### 3.1.1 Sentience, sub-command, subject-orientation

In cases of perspectival anaphora, certain nominals are systematically excluded from potential antecedence. Non-sentient antecedents are ruled out, for instance, as illustrated below for the Chinese anaphor *ziji* (Huang & Liu 2001):

- (14) Wo bu xiaoxin dapo-le ziji de yanjing.  
I not careful break-ASP ANAPH POSS glasses  
'Not being careful, I broke my own glasses.'
- (15) \*Yanjing<sub>i</sub> diao-dao dishang dapo-le ziji<sub>i</sub>.  
glasses drop-to floor break-ASP ANAPH  
'[The glasses]<sub>i</sub> dropped to the floor and broke themselves<sub>i</sub>.' (Intended)

Under a simple  $\phi$ -deficiency view, both ‘the glasses’ with 3PL features in (15) and ‘I’ with 1SG features in (14) should qualify as potential Goals for valuing the  $\phi$ -features on the anaphor, thus both (14) and (15) should be grammatical. A possible way out might be to propose that the sentience restriction applies only later, at LF. The syntax would thus *overgenerate*; at LF, non-sentient nominals involved in the Agree relation would be systematically filtered out, leaving only sentient nominals as potential antecedents behind.

While this initially looks promising, we have nevertheless weakened the link between  $\phi$ -features and reference by bringing in sentience through the back door. Second, the fact that the English counterpart to (15) is perfectly grammatical suggests that a proposal that is predicated on the notion that the anaphors in both languages are featurally identical may be misguided. Finally, patterns of so-called “sub-command”, like those in (16–17), reported also for Italian (Giorgi 2006) and Malayalam (Jayaseelan 1997), suggest that the LF filtering account is too simple. The contrast between Chinese (16) vs. (17) shows that a sentient nominal, that is itself embedded inside another nominal, may antecede *ziji* (despite clearly not c-commanding it), just in case the embedding nominal is itself *non-sentient*:

(16) Wo de jiaoao hai-le ziji.

I 's pride hurt-ASP ANAPH

‘[My<sub>i</sub> pride]<sub>j</sub> hurt self<sub>i/\*j</sub>.’

(17) Wo de meimei hai-le ziji.

I 's sister hurt-ASP ANAPH

‘[My<sub>i</sub> sister]<sub>j</sub> hurt self<sub>j/\*i</sub>.’

To deal with such data, non-sentient nominals that have Agreed with *ziji* can no longer be filtered out blindly. Rather, the system must now have a way to look *inside* the nominal, at another nominal in a particular structural position, and evaluate the sentience of this inner nominal – a messy state-of-affairs. But if such anaphors are defined in terms of something other than  $\phi$ -features – e.g. in terms of a feature that presupposes sentience (like the perspectival DEP-feature or an animacy feature itself), the account becomes considerably simpler. The antecedent can simply be the closest visible nominal in the search domain of the anaphor that bears this feature.

A different sort of problem has to do with the so-called “subject orientation” of anaphora. Perspectival anaphors typically only take subjects, not objects, as antecedents. While this initially looks like evidence in favor of a syntactic treatment, there are systematic exceptions in both directions. What really matters for antecedence is perspective-holding: it just so happens that subjects tend to denote

perspective-holders more than objects do. Here, again, an account in terms of  $\phi$ -feature deficiency would find it much harder (than one that encodes perspective-sensitivity directly) to deal with the problem of how certain nominals can be systematically “skipped” in this manner.

### 3.1.2 One language, two anaphors

In Sundaesan (2012: 85, 84a–b), I reported that, in certain Tamil dialects, (local) reflexivity may be expressed either with a dedicated anaphoric form *ta(a)n*, as in (19), or with a pro-form *avan*, that is syncretic with a 3MSG deictic pronoun, as in (18):

- (18) Raman- $\check{u}$ kk $\check{u}$ <sub>*i*</sub> avan- $\check{a}$ -yee <sub>$\{i,j\}$</sub>  pi $\check{d}$ ikka-l $\check{a}$ .  
 Raman-DAT he-ACC-EMPH like-NEG  
 ‘Raman<sub>*i*</sub> didn’t like (even) himself<sub>*i*</sub>/him<sub>*j*</sub>.’
- (19) Raman<sub>*i*</sub> tann- $\check{a}$ -yee <sub>$\{i,*j\}$</sub>  pi $\check{d}$ ikka-l $\check{a}$ .  
 Raman[NOM] ANAPH-ACC-EMPH like-NEG  
 ‘Raman<sub>*i*</sub> didn’t like (even) himself <sub>$\{i,*j\}$</sub> .’

Many languages have dedicated reflexive forms, simplex or complex. Others, like Frisian, Old English, and Brabant Dutch, use a reflexive form that is syncretic with the deictic pronominal one (see Rooryck & Vanden Wyngaerd 2011 for discussion). However, for a single language to allow both types of anaphor in the same position is more peculiar. Such differences correlate with systematic differences in interpretation. The use of *ta(a)n* in (19) favors an interpretation from the perspective of the antecedent, whereas the use of the pronoun doesn’t.

The challenge for the  $\phi$ -deficiency view is this: If *ta(a)n* and *avan* are purely  $\phi$ -deficient elements, why are they spelled-out differently, and interpreted in distinct ways? One might posit that they are both deficient for different  $\phi$ -features. But this then doesn’t explain why the interpretive difference between them has to do with something that putatively has nothing to do with  $\phi$ -features, namely perspective-holding. Note, too, that we cannot claim, as before, that the two anaphors start out featurally identical in syntax and are distinguished only later, at LF, since the anaphors have different morphological forms as well. Under a reference deficiency view like Hicks (2009), we would face essentially the same problems, since it would be assumed that *ta(a)n* and *avan* would have identically valued VAR features at the point of spell-out.

Such data thus show that we need a distinct featural class for perspectival anaphors. We could then say that *avan* is  $\phi$ - or reference-deficient while *ta(a)n*

is DEP-deficient, this then accounting for its perspectival nature. There is, indeed, nothing to prevent a single language from having both types of anaphor in its lexicon. We will see, however, that the class of perspectival anaphora runs orthogonal to others: i.e. perspectival anaphors may also be deficient for certain types of  $\phi$ -features and vice-versa.

### 3.2 PERSON-asymmetries in anaphora

A different kind of evidence involves data showing that anaphors in certain languages are sensitive to 1st/2nd vs. 3rd-PERSON asymmetries.

#### 3.2.1 PCC effects

The PCC,<sup>8</sup> both Strong and Weak, has been shown to apply to a wide range of languages. For instance, Bonet (1991) discusses this effect for Arabic, Greek, Basque, Georgian, English, Swiss German and many Romance languages. Additional languages such as Georgian, Kiowa, Bantu languages like Chambala, the Malayo Polynesian language Kambera, Warlpiri, Passamaquoddy and many Slavic languages are reported in Haspelmath (2004), Béjar & Řezáč (2003), Doliana (2013), among others.

(20a–20b) show the Strong PCC at work in French (all French examples below are taken from Raynaud 2017):

(20) Strong PCC (French):

a. ✗ 1/2ACC > 3DAT

\* Ils        me        lui        présentent.  
3PL.NOM 1SG.ACC 3SG.DAT introduce.3PL

‘They introduce me to him/her.’

b. ✗ 1/2ACC > 1/2DAT

\* Ils        me        te        présentent.  
3PL.NOM 1SG.ACC 2SG.DAT introduce.3PL

‘They introduce me to you.’

PCC effects are revealing for the purposes of anaphora because, in certain languages, anaphors pattern just like 1st- and 2nd-person pronouns with respect to

<sup>8</sup>“*Strong PCC*: In a combination of a weak direct object and an indirect object [clitic, agreement marker, weak pronoun], the direct object has to be 3<sup>rd</sup> person.

*Weak PCC*: In a combination of a weak direct object and an indirect object [clitic, agreement marker, weak pronoun], if there is a third person it has to be the direct object.” (Bonet 1991: 182)

both Strong and Weak PCC effects (Kayne 1975; Herschensohn 1979; Bonet 1991; Anagnostopoulou 2003; 2005; Rivero 2004; Nevins 2007; Adger & Harbour 2007). Compare French (21a) (originally from Kayne 1975: 173), with French (20a), and (21b) with (20b):

(21) Strong PCC with reflexives (French):

a. ✗ REFL ACC > 3DAT

\* Elle<sub>i</sub> se<sub>i</sub> lui est donnée entièrement

She REFL.ACC 3MSG.DAT is given.FSG entirely

'She<sub>i</sub> have herself<sub>i</sub> to him entirely.'

b. ✗ REFL ACC > 1/2DAT

\* Ils<sub>i</sub> se<sub>i</sub> me présentent

they REFL.ACC 1SG.DAT introduce.3PL

'They<sub>i</sub> introduce themselves<sub>i</sub> to me.'

Furthermore, just as postulated by the Strong PCC, as long as the direct object is a weak 3rd-person element, weak indirect objects of all person may combine with it. Crucially, in such cases, the reflexive *se* may also licitly combine with it as an indirect object – thus showing itself once again to pattern according to the PCC:

(22) ✓ 3ACC > DAT:

a. Elle me l'a donné.

she me.DAT 3SG.ACC=HAVE.3SG GIVE.MSG

'She gave it to me.'

b. Elle<sub>i</sub> se<sub>i</sub> l'est donné.

she herself.DAT 3SG.ACC=BE.3SG GIVE.MSG

'She<sub>i</sub> gave it to herself<sub>i</sub>.'

Rosen (1990) and Baker (2008) also report analogous data for Southern Tiwa, an Algonquian language.

### 3.2.2 Anaphoric agreement

The same sensitivity to PERSON-asymmetries on the part of anaphors is played out in a different empirical realm, namely that of agreement. In certain languages – e.g. in Bantu languages like Swahili (Woolford 1999), Chicheŵa (Baker 2008),

and Ndebele (Bower & Lottridge 2002), and in Warlpiri (Legate 2002) – the anaphor triggers “anaphoric agreement” on the verb. This is agreement marking that differs from the normal  $\phi$ -paradigm in that language. Thus, the special *ji* marking on the verb in Swahili (24) (contrast with 23) does not  $\phi$ -covary, so is a form unique to the anaphor alone:

- (23) Ahmed a-na-m/\**ji*-penda Halima  
 Ahmed 3SBJ-PRS-3OBJ-love Halima.  
 ‘Ahmed loves Halima.’
- (24) Ahmed a-na-*ji*/\*m-penda mwenyewe.  
 Ahmed 3SBJ-PRS-REFL/\*3OBJ-love himself  
 ‘Ahmed<sub>i</sub> loves himself<sub>i</sub>.’ (emphatic)

Furthermore, this *ji*- prefix contrasts with the clearly  $\phi$ -agreeing elements of the paradigm in Swahili (Thompson & Schleicher 2001: 245), Table 3.

Under a  $\phi$ -deficiency approach, such data would be genuinely difficult to capture because they show that the anaphor must be featurally distinguishable from all other nominals at the point at which it triggers verbal agreement. We could imagine, for the sake of argument, that the anaphor does, indeed, have some or all  $\phi$ -features unvalued when it is merged in the structure. However, we would still need a mechanism to ensure that it inherits only a *proper subset* of features from its binder, in a way that identifies it as being featurally distinct from its binder even after feature-valuation. We might avail ourselves of Kratzer (2009)’s [anaphoric] feature here. But of course, as we have already observed, once such a choice is made, we have already made the implicit move away from a purely  $\phi$ -deficiency view.

To make matters even more complicated, Baker (2008) shows that such anaphoric agreement patterns unmistakably like agreement triggered by 1st- and 2nd-PERSON pronouns and *unlike* 3rd-PERSON agreement. 1st- and 2nd-PERSON agreement is crosslinguistically categorially restricted: e.g. adjectives don’t show PERSON-agreement. Interestingly, adjectival agreement in languages like Chicheŵa, and other Bantu languages, inflect for the NUMBER and GENDER of the anaphor, but cannot reflect the anaphoric agreement that shows up on the verb (Baker 2008: 150–151, 86a–b, in Chicheŵa):

- (25) Ndi-na-i-khal-its-a *pro*[CL4] y-a-i-kali.  
 1SS-PAST-4O-become-CAUS-FV CL4-ASSOC-CL4-fierce  
 ‘I made them (e.g. lions) fierce.’

Table 3: Swahili object agreement paradigm

$\phi$	OBJECT-MARKER	VERB-FORM
1SG	-ni-	a-na- <u>ni</u> -penda <i>(s)he loves me</i>
2SG	-ku-	a-na- <u>ku</u> -penda <i>(s)he loves you</i>
3{M/F}SG (CLASS 1)	-m/mw-	a-na- <u>m</u> -penda <i>(s)he loves him/her</i>
1PL	-tu-	a-na- <u>tu</u> -penda
2PL	-wa- or -ku-	a-na- <u>wa</u> -pendeni
3PL (class 2)	-wa-	a-na- <u>wa</u> -penda
3NSG (class 3)	-u-	a-na- <u>u</u> -penda
3PL (class 4)	-i-	a-na- <u>i</u> -penda
3NSG (class 5)	-li-	ana- <u>li</u> -penda
3PL (class 6)	-ya-	ana- <u>ya</u> -penda
3NSG (class 7)	-ki-	ana- <u>ki</u> -penda
3PL (class 8)	-vi-	ana- <u>vi</u> -penda
3NSG (class 9)	-i-	ana- <u>i</u> -penda
3PL (class 10)	-zi-	ana- <u>zi</u> -penda
3NSG (class 11)	-u-	ana- <u>u</u> -penda
3NSG (class 14)	-u-	ana- <u>u</u> -penda
3NSG (class 15)	-ku-	ana- <u>ku</u> -penda
3NSG (class 16)	-pa-	ana- <u>pa</u> -penda
3NSG (class 17)	-ku-	ana- <u>ku</u> -penda
3NSG (class 18)	-mu-	ana- <u>mu</u> -penda

- (26) Ndi-na-dzi-khal-its-a                      *pro*[+ana] w-a-m-kali.  
 1SS-PAST-REFL-become-CAUS-FV                      CL1-ASSOC-CL1-fierce  
 ‘I made myself fierce.’

This shows that anaphoric agreement is a kind of PERSON agreement. Interestingly furthermore, Bantu anaphors can be anteceded by 1st, and 2nd person nominals (in addition to 3rd, as attested by 26), again suggesting that they have some feature(s) in common with these. The parallels between 1st- and 2nd-PERSON agreement and anaphoric agreement don’t stop here, as Baker discusses. Possessive determiners and adpositions – categories that can manifest 1st- and 2nd-PERSON agreement – can also allow anaphoric agreement in Greenlandic (Bittner 1994) and Slave (Rice 1989), respectively.

The fact that certain anaphors are sensitive to PERSON-asymmetries reflected in phenomena like the PCC and anaphoric agreement, shows the following: (i) such anaphors are themselves not underspecified for PERSON (at least at the point where the trigger agreement) (ii) (and potentially relatedly), anaphors of this kind must have something in common with 1st- and 2nd-person pronouns, which is absent on 3rd, (iii) the  $\phi$ -feature-specification of such an anaphor must be different from all other nominals at this stage of the derivation (for the case of anaphoric agreement).

### 3.2.3 A gap in anaphoric antecedence: 1st/2nd vs. 3rd

Many anaphors only take 3rd-PERSON antecedents: e.g. German *sich*, Romance *se/si*, Japanese *zibun*, Korean *caki*, and Dravidian *ta(a)n*. A glance at anaphors that take local (1st/2nd-PERSON) antecedents initially reveals a somewhat baffling picture.

There are anaphors that allow 1st, 2nd-PERSON antecedents, but these crucially also allow 3rd (see Huang & Liu 2001, for a discussion of Chinese *ziji* in this regard). It is tempting to conclude from this that anaphors can take 1st/2nd-PERSON antecedents only if they also take 3rd-PERSON ones. Yet, a pro-form like *mich* in German *can* take a 1st-person antecedent while not also taking a 3rd (or a 2nd):

- (27) Ich(/\*Du/\*Sie) schlug mich.  
 I/\*you/\*she hit refl.ACC  
 ‘I hit myself.’  
 ✗ ‘You hit yourself.’  
 ✗ ‘She hit herself.’

Interestingly, however, *mich* is ambiguously anaphoric or pronominal (as indeed is *dich*). This suggests that there is no *unambiguous* anaphoric form anteceded by 1st/2nd but not 3rd. Table 4 for Lezgian (Northeast Caucasian) tells us that this cannot be accurate either (Haspelmath 1993: 184).

Table 4: Pro-forms in Lezgian (absolutive, singular)

Person	Anaphor	Pronoun/Dem.
1st	<i>žuw</i>	<i>zun</i>
2nd	<i>žuw</i>	<i>wun</i>
3rd	<i>wič</i>	<i>am</i>

In Table 4, *žuw* is an unambiguously anaphoric form, anteceded by 1st and 2nd, but not 3rd.<sup>9</sup> But note that Lezgian has, not one, but two dedicated reflexive forms.

What we don't seem to have is a language that is the *inverse* of one like Italian, German, Tamil or Korean: i.e. where the anaphor that takes a local antecedent has a dedicated reflexive form while the one that takes a 3rd-PERSON antecedent has a form that is syncretic with a pronoun. In other words, the correct restriction is that in (28), which is also reported in Comrie (1999) as a typological gap:

- (28) In a language with only one unambiguously anaphoric form, this must correspond to an anaphor that takes a 3rd-PERSON antecedent.

It is hard to see how a  $\phi$ -based account would be able to capture the generalization in (28). An anaphor that is  $\phi$ -minimal in the sense of Kratzer (2009), for instance, should, by default, place no PERSON-restrictions on antecedence: i.e. such an anaphor should behave like Chinese *ziji*. Such data shows that anaphors need access to a more articulated featural system, one which can also distinguish inherent asymmetries within the categories of PERSON.

## 4 Proposal: Unequal anaphors

In this section, I motivate a formal syntax and semantics for anaphora that simultaneously identifies anaphora as constituting a meaningful nominal category, while also postulating an articulated featural inventory that is rich enough to derive its internal heterogeneity in syntax, semantics, and morphology.

<sup>9</sup>English may be similar, but forms like *himself* arguably contain a syncretic pro-form (as in the German case) + “self” marker.

#### 4.1 What is an anaphor?

The discussion above has shown that anaphors in natural language are not created equal. Some anaphors are contentful for PERSON in a way that others are not. Yet others are sensitive to properties that are arguably entirely orthogonal to  $\phi$ -features, like perspective, which also seems to be syntactically instantiated. The data that we have seen so far thus supports the view that there are many (featural) routes to anaphora. In other words, two nominals may qualify as being both anaphoric, despite being featurally quite distinct. This then naturally raises the question of what an anaphor actually is, and whether the notion of anaphora is now so diffuse as to be taxonomically worthless.

The definition in (29) proposes that anaphors are both syntactically and semantically non-homogenous. At the same time, it is specific enough to identify anaphors as a meaningful nominal category in syntax and semantics:

(29) Working definition of an anaphor:<sup>10</sup>

**In the syntax:** An anaphor defines a nominal that is featurally deficient for a (potentially unary) set  $\gamma$ , which must then be checked under Agree with a nominal that is valued for  $\gamma$ , potentially via intervening functional heads.

**In the semantics:** An anaphor defines a bound variable or a reflexivizing predicate that co-identifies two arguments of a predicate. For those semantic anaphors that are also syntactic anaphors, feature valuation of  $\gamma$  leads either to variable binding, with the Goal for  $\gamma$  binding the Probe for  $\gamma$ , or arity reduction.<sup>11</sup>

**Output = referential covaluation:** The individuals that the binder/bindee denote in the evaluation context covary with respect to one another.

The definition in (29) ensures that the kind of feature that an anaphor lacks is one that a non-anaphoric nominal is inherently born with – since it is a non-anaphoric nominal that must ultimately check the featural deficiency on the anaphor. This means, the missing feature cannot be something like case (which would be checked by a functional head), but must uniquely target the kind of information that is *inherent* to other nominals, such as a  $\phi$ - or reference-feature (like Hicks' VAR) or a perspectival feature (as in the DEP feature from my previous work). The different features all trigger the same kind of Agree mechanism which then feeds binding at LF, yielding referential identity as the common output. The

<sup>10</sup>I thank Giorgos Spathas (p.c.) for helping me finesse aspects of this definition.

<sup>11</sup>See Spathas (2010; 2015) for arguments that anaphors are semantically non-homogenous, with some being bound variables and others arity reducing predicates.

definition also leaves open the possibility that certain nominals, for instance bound variable pronouns, fake indexicals (Kratzer 2009) or certain types of A-bar elements,<sup>12</sup> count as anaphoric via the semantic route alone – i.e. without having a featurally defective nominal counterpart in the syntax.

## 4.2 A more articulated feature system

Against this background, I now propose that a more articulated PERSON-categorization than the standard 1st, 2nd, and 3rd is needed to capture the featural distinctions between the two classes of anaphor called for here. I base this on a bivalent rather than a privative feature system. I will avail myself of the binary features [ $\pm$ AUTHOR] and [ $\pm$ ADDRESSEE] and a private feature [SENTIENCE].

(30) Featural definitions:<sup>13</sup>

- a. [+AUTHOR] = the reference set contains the speaker of the evaluation context (default: utterance-context)
- b. [+ADDRESSEE] = the reference set contains the hearer(s) of the evaluation context (default: utterance context).
- c. [SENTIENCE] = the reference set contains an individual (or individuals) that is mentally aware and capable of bearing mental experience in the evaluation context.

Note that while we can think of [SENTIENCE] as a kind of PERSON feature, in the sense that it has a clear relation to [ $\pm$ AUTHOR] and [ $\pm$ ADDRESSEE], it does not carve up the space of referents like these features do in terms of the participants of a speech act. Given the definition of the [SENTIENCE] feature in (30), it is clear that all individuals that are contentful for PERSON – i.e. individuals that are [ $\pm$ AUTHOR] and [ $\pm$ ADDRESSEE]) – must automatically also bear the [SENTIENCE] feature. At the same time, we can also have elements that only bear the [SENTIENCE] feature.<sup>14</sup>

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<sup>12</sup>What precisely the membership of this class of elements is, is outside the scope of the current paper, and must remain an open question for now.

<sup>13</sup>The definitions for [+AUTHOR] and [+ADDRESSEE] are adapted from Halle (1997); Nevins (2007)'s definitions for [ $\pm$ PARTICIPANT] and [ $\pm$ AUTHOR]. The [SENTIENCE] feature is akin to the [ $\pm$ MENTAL STATE] feature in Reinhart (2000).

<sup>14</sup>The introduction of the privative [SENTIENCE] feature thus does not actually constitute a counter-argument to proposals like Bobaljik (2008: 4) which argues that

“the traditional three-value person system over-generates, allowing for the expression of universally unattested distinctions. By contrast, a two-valued, binary feature system

A cross-classification of [ $\pm$ AUTHOR] and [ $\pm$ ADDRESSEE] together with [SENTIENCE] thus yields the set of PERSON-categories in Table 6.<sup>15</sup>

The real innovation of such a system is that it defines three distinct types of non-1st and non-2nd PERSON category which our classes of anaphor can now invoke. The NULL category is based on the  $\emptyset$  and thus defines an entirely PERSON-less form. The second category is specified as having PERSON features that are *negatively opposed* to those carried by 1st and 2nd-PERSON, this being precisely the kind of distinction that a binary feature system allows us to make. The third category, REFL, defines nominals that are featurally underspecified: these bear the [SENTIENCE] feature and nothing else. We will see that such featural underspecification characterizes anaphors involved in patterns of anaphoric agreement, discussed for some Bantu languages, above.<sup>16</sup>

Against the featural classification in Table 6, I distinguish four categories of anaphor (Table 7).

### 4.3 NULL-PERSON anaphors

A NULL-PERSON anaphor must have an unvalued PERSON-feature that is valued in the course of the syntactic derivation by a nominal or functional head in the Agree domain. The empirical signature of such an anaphor is that it can take antecedents of all PERSON.

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[ $\pm$ SPEAKER] and [ $\pm$ HEARER] (or any equivalent notation) is not only restricted to a four-way contrast, it in fact yields exactly the maximally attested contrasts and excludes precisely those distinctions that are unattested.”

What we have in our featural toolbox is not a three-value PERSON-system, but a strictly two-value PERSON system. Concretely, [SENTIENCE] picks out a proper superset of the union of the set of referents picked out by [ $\pm$ AUTHOR] and [ $\pm$ ADDRESSEE]. It bears a strong similarity to the privative [EMPATHY] feature proposed in Adger & Harbour (2007), but involves none of the cultural connotations that Adger and Harbour attribute to the [EMPATHY] feature. I thank an anonymous reviewer for bringing this potential concern to my attention.

<sup>15</sup>Of course, we could also underspecify the PERSON-features themselves to yield a more comprehensive set of categories, as in Table 5, fleshed out with language help from the Surrey syncretisms database (Baerman 2002).

However, I will seek to model syncretism effects for [ $\pm$ AUTHOR] and [ $\pm$ ADDRESSEE] via morphological, rather than featural, underspecification, where possible, to keep the featural toolbox more parsimonious.

<sup>16</sup>A [SENTIENCE] marked nominal might also, in addition, characterize expletives (like German *man*) in this class (Nevins 2007; Ackema & Neeleman 2018), which have been argued to be  $\phi$ -featurally deficient, but nevertheless presuppose the sentience of their referent.

Table 5: Person Cross-Classification (w/- feature-underspecification).

Features	Category	Exponents
[+AUTHOR, SENTIENCE]	1	<i>I, we</i>
[+ADDRESSEE, SENTIENCE]	1INCL $\wedge$ 2	<i>-nto</i> (Muna, 2HON.SG=1INCL.DU)
1. [-AUTHOR, SENTIENCE]	$\neg$ 1	<i>ale</i> (Amele, 2=3.DU)
[-ADDRESSEE, SENTIENCE]	$\neg$ 2	–
[SENTIENCE]	REFL	Anaphors in Bantu
$\emptyset$	NULL	<i>ziji</i> (Chinese), <i>man</i> (German)
[-AUTHOR, -ADDRESSEE, SENTIENCE]	3	<i>him, sie</i> (German), <i>si</i> (Italian)
[+AUTHOR, +ADDRESSEE, SENTIENCE]	1INCL.	<i>naam</i> (Tamil, 1INCL.PL)
2. [+AUTHOR, -ADDRESSEE, SENTIENCE]	1EXCL.	<i>naangal</i> (Tamil, 1EXCL.PL)
[-AUTHOR, +ADDRESSEE, SENTIENCE]	2	<i>you</i>

Table 6: Person Cross-Classification (no feature-underspecification).

Features	Category	Exponents
[+AUTHOR, +ADDRESSEE, SENTIENCE]	1INCL.	<i>naam</i> (Tamil, 1INCL.PL)
[+AUTHOR, -ADDRESSEE, SENTIENCE]	1EXCL.	<i>naangal</i> (Tamil, 1EXCL.PL)
[-AUTHOR, +ADDRESSEE, SENTIENCE]	2	<i>you</i>
[-AUTHOR, -ADDRESSEE, SENTIENCE]	3	<i>him, sie</i> (German), <i>si</i> (Italian)
[SENTIENCE]	REFL	Anaphors in Bantu
$\emptyset$	NULL	<i>ziji</i> (Chinese),

Table 7: Four classes of anaphor

Class	PERSON-Features	Exponents
3rd-anaphor	[-AUTHOR, -ADDRESSEE, SENTIENCE]	<i>taan</i> (Tamil), <i>zich (zelf)</i> (Dutch)
REFL	[SENTIENCE]	Bantu anaphors
NULL-anaphor	$\emptyset$	<i>ziji</i> (Chinese), <i>zibun</i> (Japanese)
Class	Non- $\phi$ -Feature	Exponents
Perspectival anaphors	[DEP]	<i>taan, ziji, sig</i> (Icelandic)

### 4.3.1 Deriving phi-matching (NULL-PERSON)

We noted again that anaphor-antecedence  $\phi$ -matching is typically a prerequisite crosslinguistically. In the simplest scenario, a NULL-PERSON anaphor has not just unvalued PERSON, but also unvalued NUMBER, and GENDER features. Such an assumption is compatible for the Chinese anaphor *ziji*, given that it places no  $\phi$ -restrictions on its antecedent. In such a scenario, all the  $\phi$ -features on the anaphor would simply receive the same values as those on its antecedent, under Agree, yielding  $\phi$ -matching as an obligatory result. A less straightforward scenario is that the NULL-PERSON anaphor lacks only the PERSON feature but is born with inherently valued NUMBER and/or GENDER features (e.g. Japanese *zibun*).

What is to prevent such an anaphor from only matching the PERSON value of its antecedent but differing in values for NUMBER and GENDER? It makes sense to think that, in such a case,  $\phi$ -mismatch is ruled out semantically. This follows from the condition that referential identity typically yields identity of  $\phi$ -features. Put another way, an anaphor (e.g. *zibun*) cannot, in the default case, corefer with a nominal without matching it for *all*  $\phi$ -features. If  $\phi$ -matching is not enforced in the syntax, it will typically be enforced in the semantics, once binding is established, as we have already discussed. But as already mentioned, the two routes to referential identity can be teased apart empirically. I discuss a concrete instance of such a scenario in Section 5.1.

### 4.3.2 Deriving morphological underspecification (NULL-PERSON)

The morphological underspecification of anaphors could be captured for a NULL-PERSON anaphor, but it would have to be relegated to the morphological component. This follows from the assumption that a NULL-PERSON anaphor start out being *unvalued* for PERSON. This means that, once it becomes  $\phi$ -valued under Agree, it will end up with a full set of  $\phi$ -features. Any surface lack of  $\phi$ -featural distinctions on such an anaphor will necessarily have to follow from the underspecification of Vocabulary Items, as again in (31) and (32):

(31) [D]  $\leftrightarrow$  *ziji*

(32) [3, SG, D]  $\leftrightarrow$  *ta(a)n*

Thus, the *theory* itself doesn't actually make any predictions for increased frequency of underspecification on such anaphors, compared to their deictic pronominal counterparts. Such patterns would thus have to follow from functional considerations (Rooryck & Vanden Wyngaerd 2011), by proposing that anaphors lack, not just the values but also the attributes, for  $\phi$  features (Kratzer 2009), by using featural diacritics to distinguish valued features from inherent ones (Rooryck

& Vanden Wyngaerd 2011) or by distinguishing anaphors from other pro-forms with respect to their internal structure (Heinat 2008; Déchaine & Wiltschko 2012) – along the lines discussed in Section 2.3.

### 4.3.3 Deriving the Anaphor Agreement Effect (NULL-PERSON)

The AAE, as we saw, is the restriction that an anaphor cannot directly trigger covarying  $\phi$ -morphology. AAE effects are straightforwardly captured with a NULL-PERSON anaphor, as long as we make two, fairly uncontroversial, assumptions.

First, the timing of Agree operations is crucial. We must ensure that the anaphor has not itself been valued for  $\phi$ -features by the time a functional head (like T or  $v$ ) comes around looking to Agree with it.<sup>17</sup>

Second, we must assume that partial agreement with T or  $v$  is ruled out. After all, a NULL-PERSON anaphor is only born unvalued for PERSON. In other words, X (Probe) cannot Agree with Y (Goal) if Y has even one unvalued  $\phi$ -feature.<sup>18</sup> Concretely, this means that a NULL-PERSON anaphor with a valued NUMBER and/or valued GENDER feature should nevertheless not be able to trigger covarying agreement for these features on the verb. Agreement must be an “all or nothing” operation.<sup>19</sup> Finally, anaphoric agreement of the kind noted for Swahili and Chicheŵa has also been classified as a type of AAE. Such agreement is not a property of

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<sup>17</sup>For a non-local anaphor in subject position (e.g. Tamil *ta(a)n*, Sundaesan 2016; 2018), this falls out straightforwardly, because the Agree Probe (e.g. T) is merged before the nominal binder. In a local reflexive sentence, with an object anaphor, we can have subject or object agreement. With object agreement, the logic is the same. The Probe is  $v$ , which is merged earlier than the nominal binder subject. Subject agreement typically involves cases of a nominative object under a subject which, being oblique, cannot itself trigger agreement, as in Italian (11–13). The Probe is T and is actually merged *higher* than the binder. To explain why the AAE still holds, we must thus make some additional assumption, e.g. that “subject agreement” with an in-situ nominative object involves successive cyclic Agree via  $v$ . It would then be the first Agree cycle that runs into earliness problems as the other types of agreement.

<sup>18</sup>Note that this is distinct from another phenomenon sometimes referred to as partial agreement which, as a reviewer correctly points out, is well attested. This is of the following abstract form. X (Probe) Agrees with Y (Goal), which is fully specified for all  $\phi$ -features; but X only marks (and potentially also only Agrees for) a proper subset of these features. For instance, German nouns have fully valued case, PERSON, NUMBER, and GENDER features. But adjectives modifying such nouns show agreement with them only for case, NUMBER, and GENDER, and plausibly do not even Probe them for PERSON. Partial agreement in this sense is, of course, fully possible in the current system and is not what I am talking about here.

<sup>19</sup>On the other hand, if it turns out that there *are* languages that allow covarying agreement for GENDER and NUMBER in such cases, then the current system has a way to make sense of this. The idea would be that, in such languages, partial agreement is allowed, perhaps as a parametric choice. What is strictly ruled out, however, is a scenario where a NULL-PERSON anaphor triggers covarying agreement for PERSON.

NULL-PERSON anaphors. Given that they have no valued PERSON-feature themselves, they are not expected to trigger agreement (that additionally patterns like 1st and 2nd-PERSON agreement) on T or *v*.

#### 4.4 3rd-PERSON anaphors

A 3rd-PERSON anaphor has the feature specification [ $-$ AUTHOR,  $-$ ADDRESSEE], and is negatively specified with respect to 1st- and 2nd-PERSON. The empirical signature of such an anaphor is that it allows only 3rd-PERSON antecedents.

3rd-PERSON anaphors must be distinguished from *non*-anaphoric 3rd-PERSON pro-forms, which will also have the same feature-specification. Assuming that anaphora is defined in terms of feature-deficiency (which is “rectified” via Agree), this means that 3rd-PERSON anaphora must be defective for a non-PERSON feature. Such anaphors could thus have an unvalued NUMBER or GENDER feature. Alternatively, or additionally, such anaphors could be deficient for a perspectival feature like DEP (Sundaresan 2012; 2018).

##### 4.4.1 Deriving phi-matching (3rd-PERSON)

Since a 3rd-PERSON anaphor can start out unvalued for NUMBER and GENDER, we predict that we would have syntactic feature matching for these features, because they will be valued by Agree with the antecedent. But matching for 3rd-PERSON must be via the semantic route since the anaphor is born with this feature already valued.

##### 4.4.2 Deriving morphological underspecification (3rd-PERSON)

As with NULL-PERSON anaphors, morphological underspecification must be captured either functionally, structurally, via featural diacritics, or by positing that the anaphor lacks featural attributes, not just values.

##### 4.4.3 Deriving the Anaphor Agreement Effect (3rd-PERSON)

Given the discussion above for NULL-PERSON anaphors, we predict that a 3rd-PERSON anaphor should also be subject to the AAE. Central to this conclusion is the afore-mentioned premise that partial agreement with a functional head is ruled out. In other words, it cannot be the case that a 3rd-PERSON anaphor can satisfy a Probe by triggering agreement for this feature alone. I assume, as before, that having unvalued NUMBER and GENDER features will render the 3rd-PERSON anaphor unable to serve as an appropriate Goal for  $\phi$ -agreement. Finally,

the timing of Agree is again crucial. The AAE holds just in case the anaphor has not had its own  $\phi$ -features valued in the course of binding via Agree, by its nominal antecedent, at the stage when the functional head is trying to Probe it.

#### 4.5 The 1/2 vs. 3 antecedence gap

Consider now the 1/2 vs. 3 antecedence gap in (28), repeated below:

- (33) In a language with only one unambiguously anaphoric form, this must correspond to an anaphor that takes a 3rd-PERSON antecedent.

Both classes of anaphor seen so far are well-behaved with respect to (33). 3rd-PERSON anaphors allow only 3rd-PERSON antecedents; NULL-PERSON anaphors allow antecedents of all PERSON. The only scenario that would allow 1st/2nd-antecedence while *disallowing* 3rd, would be if the anaphor were itself specified as [+AUTHOR] or [+ADDRESSEE] (or some combination thereof). But there don't seem to be dedicated *anaphoric* forms for 1st and 2nd-PERSON alone in any language. For instance, bound-variable uses of 1st and 2nd-PERSON forms (see discussion of so called "fake indexicals" in von Stechow 2002; Kratzer 2009, a.o.) as in (34) always *also* involve an indexical use:

- (34) I am the only one who broke my laptop this week.

But it is admittedly not so clear why this is the case.<sup>20</sup>

#### 4.6 PCC effects and anaphoric agreement: REFL anaphors

We observed earlier that anaphors in French and Southern Tiwa are sensitive to the PCC, just like 1st and 2nd-PERSON pronouns in these languages. If the PCC is a person restriction that affects all (weak) grammatical objects that are (positively or negatively) specified for PERSON, then it follows that 3rd-PERSON anaphors would be subject to the same restriction as 1st- and 2nd. This, in turn, could be taken to argue that anaphors in such languages belong to the 3rd-PERSON class. An additional assumption that is needed, of course, is that, in such languages, a *non-anaphoric* 3rd-person pro-form must lack PERSON altogether.

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<sup>20</sup>Perspectival anaphors are *obviative*: i.e. cannot *cannot* refer to the perspective of the utterance-context participant (Sundareshan 2012; 2018; Sundareshan & Pearson 2014). E.g. perspectival anaphora in Italian (Giorgi 2010) and Icelandic (Hicks 2009; Reuland 2011, a.o.) are used only across subjunctive clauses – an obviative mood that precludes the utterance-speaker's perspective (Hellan 1988; Sigurðsson 2010). If this is correct, then we can imagine that interpreting the perspectival feature on the anaphor together with a feature that is [+AUTHOR] or [+ADDRESSEE] (or both) leads to semantic incompatibility, perhaps even a contradiction.

The fact that anaphoric agreement patterns with 1st- and 2nd-PERSON agreement could be accounted for by positing that such agreement is regulated by sensitivity to a positively or negatively specified PERSON-feature. But we also saw that anaphoric agreement in a given language is distinct from all other forms in the  $\phi$ -paradigm in that language (see again (23) vs. (24) and the  $\phi$ -paradigms in Table 3). This means that the 3rd-PERSON anaphor must be featurally distinct from all other nominals at the time of triggering agreement. Assuming, as before, that partial  $\phi$ -agreement is ruled out, this is harder to implement. After all, once such an anaphor has been valued for any NUMBER, GENDER or other (e.g. DEP) features, what is to distinguish it from another nominal (e.g. a non-anaphoric 3rd-PERSON pronoun) which bears these features inherently? One could underspecify the SpellOut rule for agreement, but this seems clearly the wrong way to go: it doesn't explain why such agreement is triggered by an anaphor as opposed to any other pro-form with these features.

A bigger challenge comes from sentences like (35), repeated from (26):

- (35) Ndi-na-dzi-khal-its-a                      *pro*[+ana] w-a-m-kali.  
 1SS-PAST-REFL-become-CAUS-FV                      CL1-ASSOC-CL1-fierce  
 'I made myself fierce.'

Patterns like (35), reported for other Bantu languages like Ndebele (Bowerman & Lottridge 2002) and Swahili (Woolford 1999), show us that the anaphor needs to share some features in common with 1st and 2nd-PERSON as well which, of course, a 3rd-PERSON anaphor doesn't.

This is where the privative [SENTIENCE] feature comes into play. As discussed, such a feature underlies all nominals with contentful PERSON. An anaphor that takes a 1st and 2nd-PERSON antecedent, as in (35), is simply featurally underspecified for all features except the [SENTIENT] feature. The empirical signature of such an anaphor (labelled "REFL") is that it takes only sentient antecedents. To explain the unique form of anaphoric agreement in such languages, we must assume that no other nominal in the language is featurally underspecified such that it denotes [SENTIENT] and nothing else, at the point in the derivation where the anaphor triggers agreement on the verb. This means, in turn, that the anaphor cannot already have Agreed with its antecedent by this point (assuming that such an Agree operation would render the anaphor and its antecedent featurally indistinguishable).

#### 4.7 **Perspectival anaphora**

In the current system, perspectival anaphora comes out as a strictly orthogonal category. As such, perspectival anaphors can, in theory, be defined for NULL-

PERSON and 3rd-PERSON anaphors, as well as REFL. Dravidian *ta(a)n* is a 3rd-PERSON anaphor in the current system, and is additionally perspectival. It is thus spelled out by the rule in (36), after having had the [DEP] feature valued by its binder:

(36) [-AUTHOR, -ADDRESSEE, SENTIENCE, Dep: *x*, sg] ↔ *taan*

We saw earlier that, in certain Tamil dialects, it is possible to have two locally bound reflexive forms – a 3MSG *avan* (non-perspectival, syncretic) and *ta(a)n* (perspectival) (cf. 18 vs. 19), from Sundaesan (2012). In the current system, the anaphor *avan* would be spelled out by the rule in (37):

(37) [-AUTHOR, -ADDRESSEE, SENTIENCE, m, sg] ↔ *avan*

Although the anaphoric and pronominal variants of *avan* would differ in terms of which NUMBER and GENDER features they were born with – they would be indistinguishable post-valuation. They would thus both be subject to the SpellOut rule in (37), yielding syncretic *avan* in this dialect.

Chinese *ziji* is a NULL-PERSON anaphor but is also perspectival, given its sentience and sub-command restrictions (cf. 16 vs. 17). Note, though, that it could also be REFL. Being featurally marked [SENTIENT], its sentience restriction would follow automatically. How do we decide? With *ziji*, we see not only animacy restrictions but also thematic restrictions on antecedence: ultimately, it is subject-oriented like all perspectival anaphors are and singles out an antecedent that denotes a perspective-holder (Huang & Liu 2001). As such, we don't need to encode the animacy restriction on *ziji* separately with [SENTIENT]; it comes out for free with DEP, which is independently needed anyway. So the SpellOut rule for *ziji* is just that in (38):<sup>21</sup>

(38) [Dep:*x*] ↔ *ziji*

## 5 Empirical predictions

The current system makes a range of testable empirical predictions. Below, I show that many of these are, indeed, confirmed.

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<sup>21</sup>This raises the interesting question of whether we can ever superficially “tell” the difference between a NULL-PERSON perspectival anaphor and a REFL perspectival anaphor. Perhaps not. The latter is possibly just ruled out under conditions of featural economy: i.e. the grammar avoids simultaneously using two features that accomplish the same goal, in this case specifying animacy.

## 5.1 $\phi$ -matching and its absence

The current model derives anaphor-antecedence  $\phi$ -matching in two ways. With a NULL-PERSON anaphor, all  $\phi$ -matching could happen featurally, e.g. if such an anaphor is born with *all* its  $\phi$ -features unvalued. With a 3rd-PERSON anaphor, matching for NUMBER and GENDER alone may happen featurally; PERSON-matching is always enforced in the semantics, as a result of referential identity between the anaphor and its binder.

But as mentioned earlier, this distinction can be tested empirically. In particular, featural matching should imply strict  $\phi$ -feature identity since it comes about via goal-probe feature-copying under Agree. Semantic matching, on the other hand, results in  $\phi$ -feature identity *in the default case*, but not always. Rather, the requirement is that, applying the interpretation of the two sets of  $\phi$ -features to a single referent does not yield a *contradiction* (e.g. a single referent cannot be simultaneously 1st and 2nd-PERSON).

But this predicts that we should observe anaphor-antecedent  $\phi$ -mismatches, just in case applying the interpretation of the two sets of  $\phi$ -features to a single referent *does*, indeed, yield a consistent interpretation. In prior work (Sundaresan 2012; 2018), I argue that this prediction is confirmed in so-called “monstrous agreement” sentences in Tamil. *Monstrous agreement* refers to the phenomenon where the predicate of a 3rd-person speech report surfaces with 1st-person agreement in the scope of a 3rd-PERSON anaphor. I propose that, in such cases, the anaphor *ta(a)n* is bound by a shifted 1st-PERSON indexical (Schlenker 2003; Anand 2006) which also triggers the 1st-PERSON agreement on the verb. We thus have a scenario where an anaphor and its local binder have clearly non-identical PERSON features, and yet have identical reference. We can make sense of this precisely because it happens under conditions of indexical shift.

It is entirely consistent for a single referent to be both the speaker of a matrix speech event (thus [+AUTHOR] with respect to the speech event) and *not* the speaker or ADDRESSEE with respect to the utterance-context (thus, [-AUTHOR, -ADDRESSEE] with respect to the utterance-context). There is no contradiction. Note, crucially, that *ta(a)n* is a 3rd-PERSON anaphor; thus, referential identity is enforced semantically, not via feature-matching.

A different prediction is that a NULL-PERSON anaphor, being unvalued for PERSON, has to match its antecedent for PERSON, but not necessarily for NUMBER and GENDER. Indeed, such NUMBER mismatches are possible in Hausa (Haspelmath 2008: 42, 8): crucially, Hausa anaphors can be anteceded by all PERSON (Newman 2000), showing that they belong to the class of NULL-PERSON anaphor.

## 5.2 PCC effects

We predict that NULL-anaphora should not be restricted like 1st- and 2nd-PERSON for PCC, since they lack PERSON. This, too, seems to be confirmed. Thus, in Bulgarian, a language that shows the Weak PCC, PCC effects do not obtain with the reflexive clitic *se* (Rivero 2004: 500) and also Nevins (2007):

- (39) Na Ivan mu se xaresvat tezi momicheta.  
to Ivan DAT REFL like-3PL these girls  
'Ivan likes these girls.'

Crucially, Bulgarian *se* is underspecified for PERSON and can take antecedents for 1st, 2nd, and 3rd-PERSON.

## 5.3 AAE and the timing of Agree

I observed earlier that the timing of Agree plays a central role in deriving the AAE. Concretely, the anaphor cannot serve as a Goal for Agree for T or *v* because it has unvalued  $\phi$ -features of its own. This in turn predicts that, in cases where an anaphor has already had its  $\phi$ -features valued by Agree with its antecedent at the stage in the derivation where T/*v* Probes it, the AAE should not hold. This prediction seems to be met. In recent work Murugesan (2018) presents case studies from Gujarati showing that objects in this language Agree with T, not *v*. This means an object anaphor has already had its  $\phi$ -features valued by its antecedent in [Spec, *v*] by the time T Probes it. It is precisely in such a configuration that the AAE seems not to hold. Murugesan argues that similar situations arise in Archi, Ingush, and Shona.

## 5.4 Sentience and animacy effects

I have argued that an anaphor that triggers anaphoric agreement, as in the Bantu languages is of the REFL class, featurally underspecified as [SENTIENT]. The obvious prediction, then, is that anaphors in such languages will not only allow antecedents of all PERSON, which we have already seen to be true, but that they will *not* allow non-sentient antecedents which (properly) includes inanimate antecedents. Such a restriction does, indeed, seem to be initially confirmed. Woolford (1999) and Vitale (1981) report for Swahili, a language with anaphoric agreement, that object agreement may only be triggered by animate entities.

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# Name index

- Abels, Klaus, 135  
Abney, Steven, 55, 73, 80, 81, 84, 91  
Aboh, Enoch, 410  
Ackema, Peter, 325, 350, 447  
Acquaviva, Paolo, 75  
Adams, Nikki B., 201, 219, 224  
Adger, David, 17, 32–34, 36, 170, 213,  
334, 426, 429, 431, 440, 447  
Aissen, Judith, 122  
Alcázar, Asier, 393  
Alexiadou, Artemis, 74, 77, 310  
Aljović, Nadira, 183, 184  
Alsina, Alex, 201, 211, 217  
Amritavalli, R., 391, 396, 398–400, 402,  
409, 422  
Anagnostopoulou, Elena, 170, 206, 208,  
427, 440  
Anand, Pranav, 167, 455  
Annamalai, E., 397  
Antonov, Anton, 393–395, 404  
Arregi, Karlos, 9–11, 20, 149, 150, 173,  
181  
Arsenijević, Boban, 363, 369, 370  
Asarina, Alya, 287–290  
Asher, Ronald E., 397  
Atlamaz, Ümit, 149, 150, 173  
  
Badecker, William, 180, 181, 186, 188,  
190, 191, 193, 194  
Baerman, Matthew, 447  
Baier, Nico, 18, 74  
  
Baker, Mark C., 3, 4, 12, 14, 16, 19, 45,  
74, 75, 117, 118, 120–122, 131–  
134, 142, 149, 150, 157, 173,  
201, 205, 208, 211, 216, 222,  
225, 294, 295, 339, 348, 352,  
399, 440, 441  
Bárány, András, 125, 222, 295  
Barshi, Immanuel, 140, 141  
Barss, Andrew, 319  
Bartos, Huba, 81, 92  
Bayer, Josef, 185, 325  
Bárány, András, 135<sup>12</sup>  
Beaudoin-Lietz, Christa, 200, 203  
Beavers, John, 367, 368  
Begović, Muamera, 183, 184  
Béjar, Susana, 149, 150, 160, 170, 439  
Belletti, Adriana, 135, 247, 253  
Benmamoun, Elabbas, 9, 10, 149, 150,  
173  
Bentley, Mayrene E., 205  
Bhatt, Rajesh, 9–11, 149, 150, 173, 180,  
221, 222, 271, 272, 308, 312–  
314, 325  
Biberauer, Theresa, 223  
Bittner, Maria, 443  
Bjorkman, Bronwyn, 5, 8, 59, 63, 159,  
213, 249, 291, 294–297, 299,  
330, 348, 349, 353, 381  
Bliss, Heather, 286, 309  
Bobaljik, Jonathan D., 7, 9, 14, 74, 119,  
135, 150, 222, 291, 294, 295,  
309, 310, 380, 446

*Name index*

- Boeckx, Cedric, 32, 313, 395  
Bögel, Tina, 80  
Bok-Bennema, Reineke, 435  
Bonaparte, Louis-Lucien, 393  
Bonet, Eulàlia, 149, 150, 173, 439, 440  
Borer, Hagit, 77, 225  
Börjesson, Kristin, 276, 359  
Borsley, Robert D., 10  
Bossi, Madeline, 373  
Bossong, Georg, 122  
Bouchard, Denis, 428  
Bowern, Claire, 441, 453  
Bošković, Željko, 8, 11, 63, 73, 135, 136,  
182, 194, 195, 249, 273, 291,  
309, 312, 313, 319, 362  
Branan, Kenyon, 8  
Brandner, Ellen, 325  
Branigan, Phil, 279, 280, 282–285, 290,  
309, 310  
Bresnan, Joan, 201, 217, 245, 250  
Brinson, Leslie, 99  
Browne, Wayles, 183  
Bruening, Benjamin, 280–285, 309  
Buell, Leston C., 201, 210  
Burroni, Francesco, 238, 263  
Bury, Dirk, 325  
Butt, Miriam, 80, 127, 308, 314, 329  
Bárány, András, 131  
Béjar, Susana, 12, 88, 89, 100, 226, 249,  
328, 331, 348, 377  
Caldani, Paul, 174  
Canac-Marquis, Réjean, 363  
Cardinaletti, Anna, 98  
Carnie, Andrew, 430  
Carstens, Vicki, 4, 16, 72, 74–76, 78,  
87–89, 94, 100, 184, 250–252,  
348, 350, 353, 355, 359, 360,  
377, 378  
Cecchetto, Carlo, 32, 35  
Chandra, Pritha, 308  
Charnavel, Isabelle, 363, 426, 436  
Choi, Hye-Won, 336  
Chomsky, Noam, 1, 2, 4, 6, 7, 14, 17,  
18, 21, 31–35, 37, 42, 51, 63,  
71, 74, 75, 85–87, 90, 93, 98,  
102, 103, 105, 133, 149, 150,  
157, 160, 208, 220, 222, 225,  
247, 249, 271, 273, 296, 310–  
312, 318, 325, 332, 333, 347–  
349, 356, 363, 364, 426, 430  
Chung, Sandra, 18, 74, 81  
Cinque, Guglielmo, 243, 318  
Clements, George N., 426  
Cole, Peter, 362  
Collins, Chris, 33, 35, 36, 431, 432  
Comrie, Bernard, 426, 444  
Corbett, Greville G., 1, 3, 75, 118  
Creissels, Denis, 218  
Croft, William, 53  
Cruschina, Silvio, 253  
Cuartero, Juan, 298  
D'Alessandro, Roberta, 21, 183, 224,  
242, 245, 247, 248, 253, 254,  
256–258, 300  
Dalrymple, Mary, 14, 16, 18, 117, 118,  
120, 122–129, 138, 139, 142,  
143, 300  
Danon, Gabi, 74, 75, 87  
Davies, William, 339  
Dayley, Jon P., 82  
de Cuba, Carlos, 320  
de Swart, Peter, 122  
Deal, Amy Rose, 63, 141, 170  
Déchaine, Rose-Marie, 209, 429, 433,  
450  
Dékány, Éva, 81

- den Besten, Hans, 351  
den Dikken, Marcel, 74, 81, 82, 92, 108,  
157  
Diercks, Michael, 87, 89, 185, 221, 348,  
349, 353–356, 358, 360, 373–  
376, 378, 419, 420, 426  
Diesing, Molly, 98, 121  
Doliana, Aaron, 439  
Don, Jan, 53  
Donati, Caterina, 32, 35, 325  
Doron, Edit, 151, 172  
Dowty, David, 368  
Drummond, Alex, 189  
Dubinsky, Stanley, 339  
Duranti, Alessandro, 200, 217, 219
- Ebert, Christian, 320  
Egidi, Francesco, 236  
Elbourne, Paul, 365  
Elizabeth, Ritter, 76  
Embick, David, 150, 172  
Emonds, Joseph, 415  
Epstein, Samuel David, 360
- Fanselow, Gisbert, 325, 329  
Fasanella, Adriana, 223  
Fennig, Charles D., 122  
Ferrari, Franca, 75  
Ferrari-Bridgers, Franca, 236  
Forker, Diana, 278, 290, 309, 321, 323,  
324, 329, 331, 335, 336  
Fortuny, Jordi, 223  
Fox, Danny, 157  
Frampton, John, 357, 359  
Frank, Robert, 8, 291  
Frantz, Donald G., 286  
Frascarelli, Mara, 244, 253  
Fry, Brandon J., 279  
Fuß, Eric, 3, 350
- Gagliardi, Annie, 323  
Gallego, Ángel J., 157  
Garey, Howard, 368  
Gavruseva, Elena, 74, 80  
Gazdar, Gerald, 314  
Georgi, Doreen, 167, 325, 328, 329  
Gil, David, 53  
Giorgi, Alessandra, 426, 436, 437, 452  
Githinji, Peter, 201  
Giusti, Giuliana, 80, 94  
Givón, Talmy, 219  
Good, Jeff, 211  
Grimshaw, Jane, 46, 72  
Grohmann, Kleanthes, 135  
Gutmann, Sam, 357, 359
- Haddican, William, 224  
Haegeman, Liliane, 5, 24, 74, 80, 185,  
251, 348, 350–353, 400, 413–  
415, 434, 435  
Haider, Hubert, 325, 329  
Hale, Kenneth, 48, 287, 414  
Halle, Morris, 9, 149, 150, 160, 446  
Halpert, Claire, 161, 354  
Hamilton, Michael David, 279  
Harbour, Daniel, 170, 427, 440, 447  
Harder, Andreas, 236, 252  
Harford Perez, Carolyn, 354  
Harizanov, Boris, 208  
Harley, Heidi, 427  
Hartman, Jeremy, 287–290  
Haspelmith, Martin, 80, 125, 272, 277,  
329, 439, 444, 455  
Hazout, Ilan, 77  
Heck, Fabian, 298  
Heim, Irene, 429, 430  
Heinat, Fredrik, 363, 426, 429, 433,  
450  
Hellan, Lars, 436, 452

*Name index*

- Henderson, Brent, 204, 208  
Hengeveld, Kees, 53  
Herschensohn, Julia, 440  
Hetzron, Robert, 80  
Hicks, Glyn, 355–357, 363, 426, 429–  
431, 438, 452  
Hill, Virginia, 24, 400, 413–415  
Hinzen, Wolfram, 23, 349, 363, 364,  
367, 369–371  
Hiraiwa, Ken, 87  
Hoekstra, Jarich, 351  
Höhn, Georg, 210  
Hole, Daniel, 141  
Holmberg, Anders, 98, 224, 325  
Hooper, Joan, 320  
Hornstein, Norbert, 5, 34, 324, 325  
Hovdhaugen, Even, 53  
Huang, James, 436, 443, 454  
Hubbard, Philip, 431  
Hyman, Larry M., 200, 211, 213  
  
Idiatov, Dmitry, 353  
Iorio, David, 208, 220  
  
Jackendoff, Ray, 368  
Jayaseelan, K. A., 399, 436, 437  
Jelinek, Eloise, 98  
Jerro, Kyle, 201  
Jiménez-Fernández, Ángel L., 250, 297  
Johannessen, Janne Bondi, 10, 11  
Jones, Samantha, 236  
Julien, Marit, 210  
  
Kalin, Laura, 11, 122, 151, 156, 157, 162,  
181, 208  
Kawasha, Boniface, 353, 374  
Kayne, Richard, 4, 47, 82, 440  
Keine, Stefan, 122, 167, 222, 271, 312,  
314  
  
Keyser, Samuel, 48, 414  
Khalilova, Zaira, 276, 277, 290, 321,  
322, 329  
Khan, Geoffrey, 151, 172  
Kibrik, Aleksandr, 323  
Kihm, Alain, 75, 86  
Kimenyi, Alexandre, 201  
King, Tracy Holloway, 127  
Kinyalolo, Kasangati K. W., 79, 210  
Kiparsky, Paul, 333  
Kiss, Katalin, 81, 92  
Kiss, Tibor, 325, 329  
Koeneman, Olaf, 62, 325  
Koopman, Hilda, 12, 45, 74, 75, 325,  
426, 436  
Kornfilt, Jaklin, 287  
Kramer, Ruth, 75, 86, 208  
Kratzer, Angelika, 13, 48, 426, 429, 431,  
432, 435, 441, 444, 446, 449,  
452  
Krifka, Manfred, 320, 368  
Kula, Nany C., 200, 204, 218  
Kuno, Susumo, 426, 436  
  
Laenzlinger, Christopher, 106  
Lahne, Antje, 314  
Laka, Itziar, 158  
Lambertelli, Giulio, 239–241, 255, 256,  
264, 265  
Lambrecht, Knud, 124, 250, 253  
Landau, Idan, 5  
Larson, Brooke, 57  
Larson, Richard, 48, 414  
Lebeaux, David, 34, 102  
Lecarme, Jacqueline, 75, 86  
Ledgeway, Adam, 236, 238, 239, 241,  
255, 264, 265, 276, 293  
Lee-Schoenfeld, Vera, 363

- Legate, Julie A., 8, 22, 51, 291, 294,  
314, 441
- Letsholo, Rose, 353, 360, 380
- Liu, Luther, 436, 443, 454
- López, Luis, 77, 183
- Loporcaro, Michele, 236, 246
- Lotridge, Victoria, 441, 453
- Lüdtke, Helmut, 236
- MacKenzie, Marguerite, 279, 280, 282–  
285, 290, 309, 310
- Mahajan, Anoop, 308, 325
- Mancini, Anna Maria, 236, 241, 242,  
254, 257
- Marantz, Alec, 9, 15, 51, 131, 149, 150,  
222
- Marlo, Michael R., 200, 203, 213, 215
- Marten, Lutz, 200, 204, 218
- Martinović, Martina, 333
- Marušič, Franc Lanko, 9, 11, 149, 150,  
173, 180, 181, 184, 186, 188, 190,  
191, 193, 194
- Marác, László, 351
- Matić, Dejan, 320
- Matushansky, Ora, 325, 329
- McCloskey, James, 118, 136
- McCreight, Katherine, 255
- McFadden, Thomas, 398, 410
- McGinnis, Martha, 137
- Mchombo, Sam, 201, 245, 250
- McPherson, Laura, 151
- Merchant, Jason, 255
- Miestamo, Matti, 109
- Miyagawa, Shigeru, 3, 6, 21, 24, 244,  
250, 258, 287, 296, 297, 394,  
395, 408, 413–415
- Mletshe, Loyiso, 89
- Moravcsik, Edith A., 15, 119, 219
- Morimoto, Yukiko, 200
- Mosel, Ulrike, 53
- Moshi, Lioba, 201, 217
- Moulton, Keir, 360
- Müller, Gereon, 122, 276, 324, 325, 329,  
332, 339, 359
- Müller, Stefan, 325, 329
- Munn, Alan, 10
- Muriungi, Peter, 211
- Murphy, Andrew, 182, 186, 194, 195
- Mursell, Johannes, 224
- Murugesan, Gurujegan, 435, 456
- Myers, Scott, 210
- Nash, Jay, 120
- Neeleman, Ad, 37, 45, 350, 447
- Nevins, Andrew, 9–11, 20, 76, 87, 149,  
150, 167, 173, 180, 181, 186, 188,  
190, 191, 193, 194, 208, 427,  
440, 446, 447, 456
- Newman, Paul, 80, 103, 455
- Nformi, Jude, 380
- Ngoboka, Jean Paul, 201, 204, 217, 218
- Ngonyani, Deo, 201
- Niinuma, Fumikazu, 395
- Nikolaeva, Irina, 14, 16, 18, 117, 118,  
120, 122–129, 134, 136–140, 142,  
143, 300
- Nilsen, Øystein, 325
- Nishigauchi, Taisuke, 426, 436
- Nordlinger, Rachel, 255
- Norris, Mark, 4, 18, 74, 107–109
- Noyer, Rolf, 150, 172
- Nunes, Jairo, 34, 208
- Nurse, Derek, 199
- Obata, Miki, 360
- Oseki, Yohei, 91, 93
- Oyharçabal, Beñat, 392, 393

*Name index*

- Paciaroni, Tania, 236, 237, 243, 244,  
246, 253, 262
- Panoussi, Estiphan, 151
- Parrino, Flavio, 236
- Patel-Grosz, Pritty, 435
- Payne, Doris L., 140, 141
- Pearson, Hazel, 426, 436, 452
- Perlmutter, David M., 117
- Pesetsky, David, 7, 40, 62, 75, 157, 247,  
249, 252, 255, 271, 325, 357–  
359, 361
- Philippson, Gérard, 199
- Pica, Pierre, 362
- Picallo, M. Carme, 77
- Polak, Louise, 200, 203, 215
- Polinsky, Maria, 8, 12, 13, 122, 274–  
276, 284, 286, 289–295, 299,  
308, 309, 312–321, 323, 324,  
336, 348
- Pollard, Carl J., 117, 119
- Postal, Paul M., 117, 431, 432
- Potsdam, Eric, 8, 122, 274–276, 289–  
295, 299, 308, 309, 312–321,  
323, 324, 336, 361
- Preminger, Omer, 3, 12–15, 93, 149,  
150, 161, 208, 249, 272, 291,  
294, 295, 314, 328, 330, 348,  
381
- Pretorius, Rigardt, 218
- Priestly, Tom M. S., 183
- Puškar, Zorica, 182, 183, 186, 194, 195
- Pustejovsky, James, 368
- Putnam, Michael, 348
- Pylkkänen, Liina, 137, 138, 214
- Quicoli, A. Carlos, 363
- Rackowski, Andrea, 8
- Ramchand, Gillian, 426, 429, 431
- Ranero, Rodrigo, 216
- Rao, Meghana, 353, 373–376
- Raynaud, Louise, 435, 439
- Reinhart, Tanya, 358, 446
- Reuland, Eric, 5, 13, 319, 355–358, 362,  
426, 429, 452
- Řezáč, Milan, 12, 88, 89, 100, 170, 226,  
249, 328, 331, 348, 377, 439
- Rice, Keren, 443
- Richards, Marc, 210, 351
- Richards, Norvin, 8, 109, 255
- Riedel, Katharina, 200, 201, 204–206,  
208, 217, 223
- Riemsdijk, Henk van, 45
- Ritter, Elizabeth, 76, 427
- Rivero, María Luisa, 440, 456
- Rizzi, Luigi, 6, 77, 93, 243, 284, 291,  
295, 298, 317, 416, 426, 434
- Roberts, Ian, 98, 208, 209, 213, 220,  
223, 245, 253, 257, 327
- Roehl, Karl, 223
- Rooryck, Johan, 5, 13, 349, 355–357,  
359, 379, 426, 429, 433, 438,  
449
- Rosen, Carol, 440
- Ross, John Robert, 413
- Rossi, Alfredo, 236, 237, 243, 244, 252,  
259–262
- Rugemalira, Josephat M., 201, 217
- Runner, Jeffrey T., 361
- Ryan, Kevin, 151
- Safir, Ken, 353, 356, 360, 362, 380
- Sag, Ivan A., 117, 119, 430
- Saltarelli, Mario, 393
- Schadeberg, Thilo C, 201
- Schiffman, Harold, 397
- Schleicher, Antonia Folárin, 441
- Schlenker, Philippe, 455

- Schmellentin, Claudia, 339  
Sells, Peter, 312, 426  
Şener, Serkan, 73, 137, 289, 290  
Sheehan, Michelle, 23, 57, 219, 221,  
363, 364, 367, 369–371  
Shlonsky, Ur, 77, 93, 98, 106, 107, 352  
Sichel, Ivy, 94  
Sigurðsson, Halldór Ármann, 436, 452  
Sikuku, Justine, 203, 354, 378, 379  
Simango, Silvester Ron, 201  
Simons, Gary F., 122  
Smith, Peter W., 7, 10–12, 149, 150,  
157, 173, 181  
Spathas, Giorgos, 445, 445<sup>10</sup>  
Speas, Peggy, 413, 414  
Spencer, Andrew, 80, 95  
Sportiche, Dominique, 12, 136, 363, 426,  
436  
Ssekiryango, Jackson, 215  
Starke, Michal, 98  
Steel, Susan, 4  
Stegovec, Adrian, 222  
Stenius, Erik G., 320  
Sternefeld, Wolfgang, 325, 339  
Stiebels, Barbara, 329  
Storto, Gianluca, 99  
Sundaresan, Sandhya, 24, 25, 356, 392,  
397, 398, 406, 407, 410, 415,  
420, 426, 434–436, 438, 450–  
452, 454, 455  
Surányi, Balázs, 325, 329  
Szabolcsi, Anna, 74, 81, 82, 92, 325  
  
Tenny, Carol, 368, 413, 414  
Thompson, Ellen, 368, 369  
Thompson, Katrina Daly, 441  
Thompson, Sandra, 320  
Thwala, Nhlanhla, 201  
Toivonen, Ida, 108, 109  
  
Toosarvandani, Maziar, 74, 75, 88, 89,  
108  
Torrego, Esther, 7, 40, 62, 75, 247, 249,  
252, 271, 357–359, 361  
Torrence, Harold, 353  
Travis, Lisa deMena, 327, 368  
Tucker, Matthew A., 434  
Tuller, Laurice, 79  
  
Underhill, Robert, 80  
Uriagereka, Juan, 325  
Urogdi, Barbara, 320  
Ussery, Cherlon, 158  
  
Vallduví, Enric, 336  
van der Koot, Hans, 37  
van der Wal, Jenneke, 199–201, 208,  
210, 212, 214, 219–221, 224,  
248, 250, 300, 354  
van Koppen, Marjo, 149, 150, 173, 185,  
251, 348, 350–353, 358  
van Lier, Eva, 53  
van Urk, Coppe, 74, 75, 88, 89, 108,  
151, 157, 162, 245, 251  
Vanden Wyngaerd, Guido, 5, 13, 349,  
355–357, 359, 379, 426, 429,  
433, 438, 449  
Vendler, Zeno, 368  
Verkuyl, Henk, 368  
Vinokurova, Nadya, 19  
Vitale, Anthony J., 456  
von Stechow, Arnim, 322, 325, 452  
  
Walkow, Martin, 9–11, 149, 150, 173,  
180  
Wasike, Aggrey, 87, 348  
Watanabe, Akira, 351  
Weisser, Philipp, 122  
Willer-Gold, Jana, 11, 180, 181, 184, 186,  
188, 190, 193–195

*Name index*

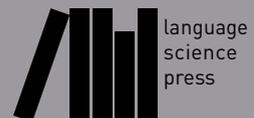
- Wiltshko, Martina, 209, 429, 433, 450  
Wolf, Matthew, 170  
Woolford, Ellen, 16, 19, 120, 121, 221,  
431, 434, 435, 440, 453, 456  
Wu, Danfeng, 63  
Wurmbrand, Susi, 7, 12, 40, 59, 135,  
157, 249, 273, 294, 309, 310,  
348, 349, 352, 353, 356, 363  
  
Yokoyama, Tomohiro, 217  
  
Zaenen, Annie, 11, 272  
Zagona, Karen, 368  
Zanuttini, Raffaella, 5  
Zeijlstra, Hedde, 2, 5, 8, 12, 37, 53, 59,  
62, 63, 247, 249, 291, 294–  
297, 299, 330, 348, 349, 352,  
353, 381, 419  
Zeller, Jochen, 45, 200, 201, 203, 204,  
208, 217, 218, 224  
Zu, Vera, 24, 413, 415  
Zwart, C. Jan-Wouter, 351, 352



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# Agree to Agree

Agreement is a pervasive phenomenon across natural languages. Depending on one's definition of what constitutes agreement, it is either found in virtually every natural language that we know of, or it is at least found in a great many. Either way, it seems to be a core part of the system that underpins our syntactic knowledge. Since the introduction of the operation of Agree in Chomsky (2000), agreement phenomena and the mechanism that underlies agreement have garnered a lot of attention in the Minimalist literature and have received different theoretical treatments at different stages. Since then, many different phenomena involving dependencies between elements in syntax, including movement or not, have been accounted for using Agree. The mechanism of Agree thus provides a powerful tool to model dependencies between syntactic elements far beyond  $\phi$ -feature agreement. The articles collected in this volume further explore these topics and contribute to the ongoing debates surrounding agreement. The authors gathered in this book are internationally renowned experts in the field of Agreement.

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