The timing of agreement and A-movement in Ndebele

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1 Introduction

Bantu languages are characterized as having a NOM/ACC alignment in agreement. In many of them, the specific agreement pattern is the following: one ϕ probe (in T) always agrees with the highest DPs in the clause, and another ϕ probe (in Voice/v) never agrees with that DP. Despite being well known, this alignment is not well understood in Bantu languages. It is typically taken for granted that it should be derivable either from probe-goal locality alone or from the interaction between agreement and case known to exist in other NOM/ACC languages. Based on data from Zimbabwean Ndebele, I demonstrate that independently known properties of Bantu languages make it very difficult to device a locality-based or a case-based account of the NOM/ACC alignment in agreement (section 2). I then develop an alternative analysis, which capitalizes on a fairly uncontroversial assumption about this language family: that ϕ-agreement systematically cooccurs with movement, implemented as obligatory cooccurrence of ϕ-probes with the EPP on functional heads. The key to deriving the facts from this parameter is to abandon the requirement that EPP and ϕ be satisfied by the same goal and instead allow them to probe blindly, obeying only locality, cyclicity, and probe ordering statements. With this adjustment, the $\phi\rightarrow$EPP parameter derives the NOM/ACC agreement alignment (section 3), and, as it turns out, a number of seemingly unrelated properties of Ndebele ϕ-agreement and A-movement: defective intervention effects in VSO clauses (4.1), the optionality of subject raising and agreement (4.2), agreement uniformity in auxiliary verb constructions (4.3), and object agreement asymmetry in passives of ditransitives (4.4).

2 Agreement in Ndebele: facts and challenges

The core data in this paper come from Zimbabwean Ndebele (Bantu, Nguni group, S44), but many of the phenomena discussed here are very robust across the Bantu language family and have been discussed in the literature for related languages, such as Zulu (i.a. Van der Spuy 1993; Buell 2005; Adams 2010; Zeller 2006, 2008, 2012; Halpert 2012, 2015), Xhosa (Carstens & Mletshe 2015) and others (see e.g. Diercks & Carstens to appear for an overview).

2.1 Background on Ndebele agreement and A-movement

Ndebele exhibits subject agreement and object agreement. Subject agreement is obligatory, while object agreement appears only when the object is discourse-given.[1]

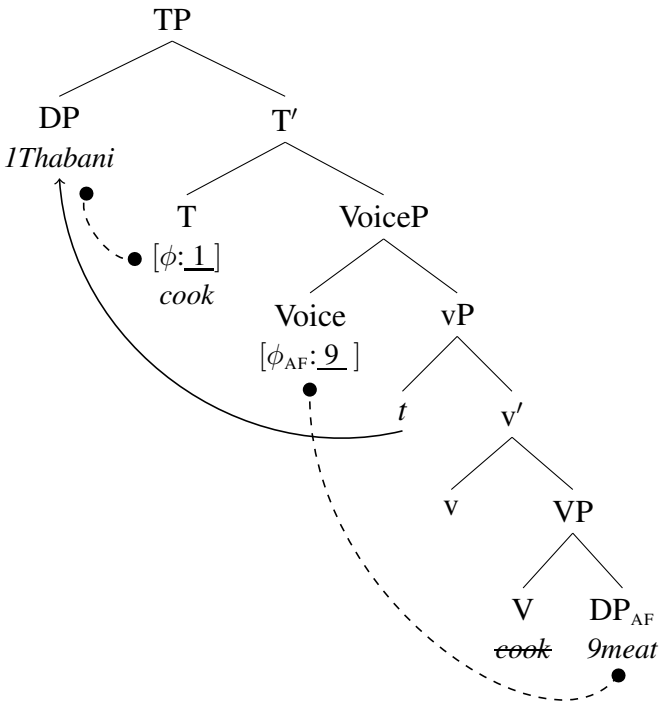
(1) a. U-Thabani **u**-za-**yi**-pheka i-nyama. *subject and object agreement*
A-1Thabani 1s-FUT-9o-cook A-9meat
'Thabani will cook the meat.

[1] Unless otherwise noted, all data in the paper come from my own fieldwork. The Leipzig convention is used for glosses, with the following additions: 1 – class 1 nominal prefix (etc.), 1s – class 1 subject agreement (etc.), 1o – class 1 object agreement (etc.), A – augment vowel, CNJ – conjoint, DSJ – disjoint, FV – final vowel.

b. U-Thabani **u**-za-pheka i-nyama. *only subject agreement*
A-1Thabani 1s-FUT-cook A-9meat
'Thabani will cook meat.'

To incorporate this, I assume, following Zeller 2008, 2015, that the object agreement probe is relativized to DPs bearing the Antifocus feature (AF), borne by all discourse-given DPs.[2] I follow the standard analysis of Bantu clause structure and assume that subject agreement is triggered by a ϕ probe in T, while object agreement by a ϕ probe in Voice (AgrS and AgrO/v in some literature). As shown in (2), the agreeing subject undergoes A-movement to Spec,TP. I assume that the verb in Ndebele moves to T.[3]

(2) Derivation of (3-a) (to be completed in (4))



Another important aspect of Ndebele clause structure is the fact that agreed-with objects undergo obligatory dislocation (right or left). In this paper, I will only discuss right-dislocation. Dislocation may be diagnosed by the so called *conjoint/disjoint* alternation in the verb form: if the object follows a conjoint verb, the object is inside vP (3-a); if an object follows a disjoint verb form, it is outside of vP (3-b) (in this, I follow the analysis of the same alternation in Zulu proposed e.g. in Van der Spuy 1993; Buell 2006; Halpert 2012).[4] As we see in (3-a), in-situ objects cannot control object agreement.

[2] Zeller (2008) proposes that, in Zulu, *all* agreement probes target AF DPs. In section 4.2, I show that this is not true for Ndebele, where subject agreement may target focused DPs, as well.

[3] In previous work (Pietraszko 2017b), I analyzed verb movement in Ndebele as terminating in v/Voice due to the evidence against movement of the verb to T or Asp, and the absence of evidence against the landing site in v/Voice. The data discussed here provide evidence for a landing site higher than Voice, which means the moves to a position between Voice and Asp. This detail is not crucial here and, for simplicity, I will represent verb movement as terminating in T.

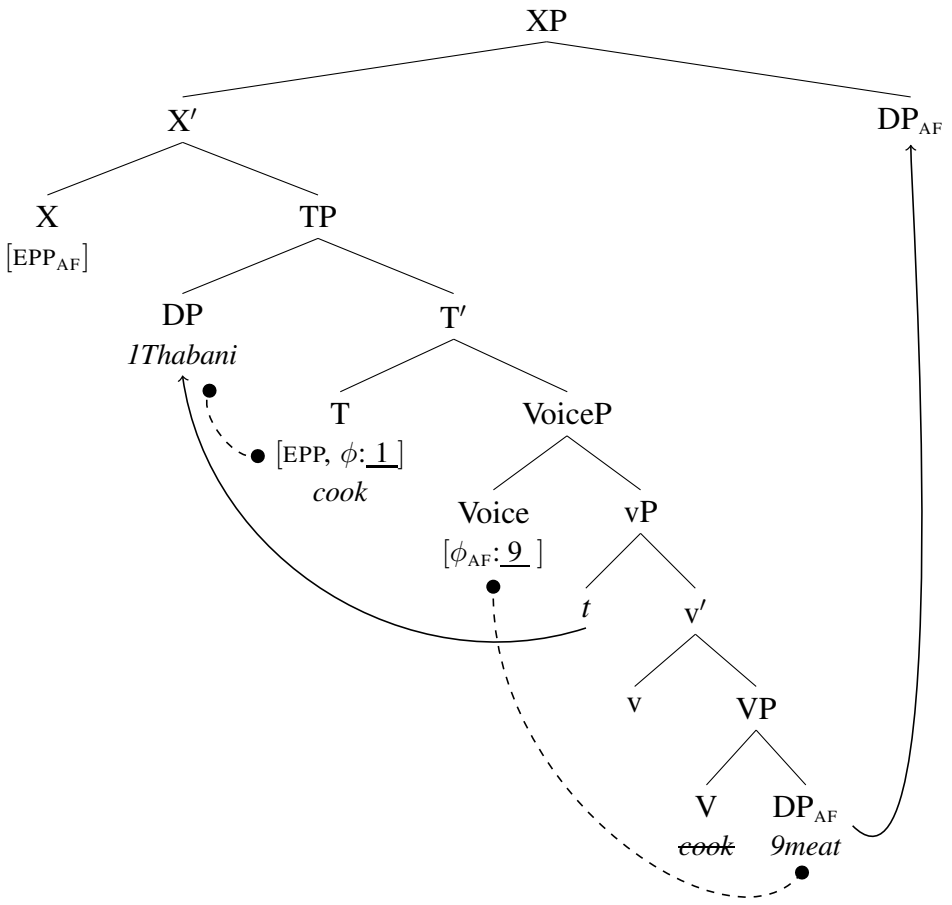
[4] Not all tenses exhibit the alternation. Present tense does, but e.g. future tense forms are ambiguous between conjoint and disjoint.

(3) a. UThabani u-∅-(*yi)-pheka [$_{vP}$ t_V inyama].
1Thabani 1s-CNJ-(*9o)-cook 9meat
'Thabani cooks meat.'

b. UThabani u-ya-yi-pheka [$_{vP}$ t_V t_i] inyama$_i$.
1Thabani 1s-DSJ-9o-cook 9meat
'Thabani cooks it, the meat.

The derivation in (2) is then not complete: it should involve a final step of object movement to the right periphery. I take this position to be a rightward specifier of a phrase above TP, whose head X triggers movement of DPs with the AF feature.

(4) Complete derivation of (3-a)



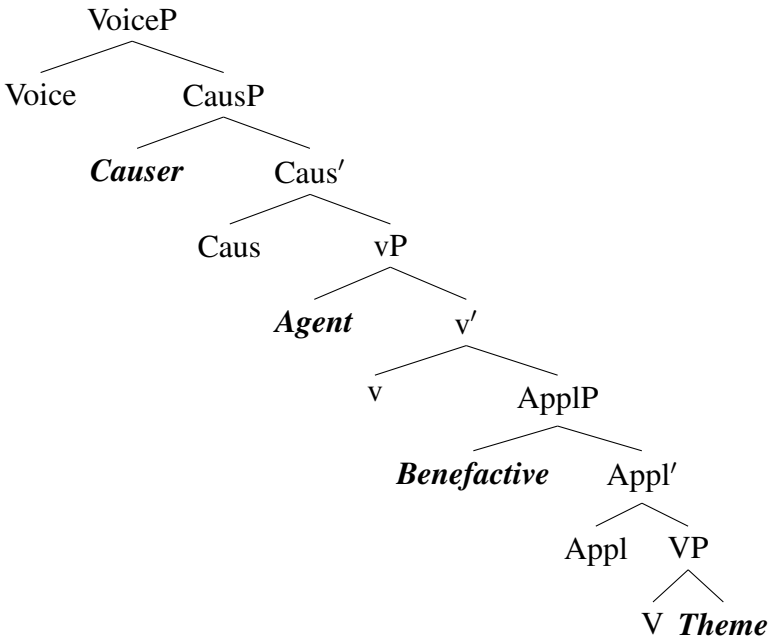
Since this paper is concerned with phenomena taking place inside TP, i.e. before object dislocation applies, I will represent the objects as located in their based positions, even when they control object agreement, keeping in mind that they undergo further movement once TP is merged with X. I return to the discussion of object dislocation in section 3.2.[5]

[5] Given the obligatory dislocation of agreed-with objects, a possible analysis of object agreement in this language is as clitic doubling/pronoun incorporation. Evidence against this analysis comes from the fact that, like subjects, objects can be agreed with by multiple probes, e.g. by a matrix and an embedded verb in a control construction:

2.2 The NOM/ACC alignment in agreement

Turning to the core data, subject agreement in Ndebele is always controlled by the highest DP in the argument structure domain, irrespective of where that DP is generated. I assume the argument structure domain in Ndebele has the following structure:

(5) Assumed syntax of the argument structure domain



I will use the term *canonical subject* to refer to the thematically highest DP in a given clause. The agreeing subject may be a Causer (6), an Agent (7), a Benefactive (8), or a Theme (9).

(6) U-Zodwa **u**-a-phek-is-a a-bantwana. *Causer subject*
A-1Zodwa 1s-PST-cook-CAUS-FV A-2child
'Zodwa made the children cook.'

(7) U-Thabani **u**-a-phek-a. *Agent subject*
A-1Thabani 1s-PST-cook-FV
'Thabani cooked.'

(8) A-bantwana **ba**-a-phek-el-w-a. *Benefactive subject*
A-2child 2s-PST-cook-APP-PSV-FV
'The children were cooked for.

(9) I-nyama **i**-a-phek-w-a. *Theme subject*
A-9meat 9s-PST-cook-PSV-FV
'The meat was cooked.

According to standard analysis of Bantu clause structure, the object agreement probe (here, Voice) is

(i) Ngi-za-si-zama uku-si-pheka i-sitshwala.
1sg-FUT-7o-try INF-7o-cook A-7porridge
'I will try to cook porridge'

For an account of long-distance object agreement in Ndebele see Pietraszko 2019.

structurally higher than the base position of any argument. One might, then, expect that the ϕ-probe in Voice should be able to find the canonical subject *before* it moves to Spec,TP. This would give rise to the subject controlling agreement on both Voice and T. This is not possible, irrespective of where the subject base-generated:

(10) *U-uZodwa **u**-a-**m**-phek-is-a a-bantwana. *Causer subject*
A-1Zodwa 1s-PST-1o-cook-CAUS-FV A-2child
'Zodwa made the children cook.'

(11) *U-Thabani **u**-a-**m**-phek-a. *Agent subject*
A-1Thabani 1s-PST-1o-cook-FV
'Thabani cooked.'

(12) *A-bantwana **ba**-a-**ba**-phek-el-w-a. *Benefactive subject*
A-2child 2s-PST-2o-cook-APP-PSV-FV
'The children were cooked for.

(13) *I-nyama **i**-a-**yi**-phek-w-a. *Theme subject*
A-9meat 9s-PST-9o-cook-PSV-FV
'The meat was cooked.

The canonical subject cannot control agreement in Voice even when it remains in situ (14).[6]

(14) a. Ku-a-phek-a u-Thabani. *Agent subject*
15-PST-cook-FV A-1Thabani
'Thabani cooked'

b. *Ku-a-**m**-phek-a u-Thabani.
15-PST-1o-cook-FV A-1Thabani
'Thabani cooked'

An in situ subject cannot control agreement on T either and T's unvalued ϕ-features are exponed by the default locative class 15. I will return to the absence of agreement with T in VS orders in sections 3 and 4.2. What's crucial at this point is that, despite being c-commanded by Voice, the in situ Agent is not a viable target for the ϕ probe in Voice. Again, this is true for all canonical subjects, irrespective of their base position:

(15) Ku-a-(***ba**)-phek-el-w-a a-bantwana ngu-mama. *Benefactive subject*
15-PST-(*2o)-cook-APP-PSV-A A-2child by-mother
'The children were cooked for by mother'

(16) Ku-a-(***yi**)-phek-w-a i-nyama ngu-mama. *Theme subject*
15-PST-(*9o)-cook-PSV-FV A-9meat by-mother
'The meat was cooked by mother'

This pattern of agreement is a clear case of the NOM/ACC argument alignment: the highest argument in the clause is treated uniformly by the agreement system, irrespective of its thematic

[6] In (14) and other similar examples, I use Distant Past forms (with the tense prefix *a-*), which do not exhibit the conjoint-disjoint alternation and are therefore compatible with the following DP being in-situ or dislocated. This is to make sure that the ungrammaticality of (14-b) and other similar examples is not due the agreement controller being dislocated or being in-situ.

status. However, given the structure in (2), it is not clear how this pattern arises, i.e. why the probe in Voice ignores the closest DP in its c-command domain. Three types of analysis come to mind. The first would be to hypothesize that the object agreement probe is, in fact, not in Voice, but rather in a position where it does not c-command the canonical subject. Second, it might be due to an interaction between agreement and case that prevents Voice from agreeing with the highest DP. And third, the pattern could follow from the timing of subject movement and object agreement. In the following subsections, I entertain each hypothesis and discuss the challenges they face. Then, in section 3, I develop a version of the last type of analysis, arguing that the NOM/ACC agreement alignment in Ndebele is due to the interaction between subject movement and object agreement. I demonstrate that this interaction is, in fact, a consequence of an independently motivated parameter for Bantu languages, according to which ϕ probes must cooccur with an EPP feature on the same head (Baker 2003, 2008; Collins 2004; Carstens 2005).

2.3 Hypothesis 1: A sufficiently low position of the object agreement probe

I assume that ϕ-agreement is a relation between a probe and a c-commanded goal, i.e. downward, not upward, probing (Chomsky 2000, 2001, cf. Adger 2003; Zeijlstra 2012; Bjorkman & Zeijlstra 2014; Merchant 2006, 2011; Baker 2008; Wurmbrand 2011). In order to derive the NOM/ACC agreement alignment from probe-goal locality, the following would have to hold: the highest argument in the clause is not c-commanded by the object agreement probe; it is only c-commanded by T. For instance, for a subjects generated in Spec,vP, the object agreement probe would need to be on v at the highest. This kind of probe would, however, find a Benefactive and a Theme, incorrectly predicting that both (15) and (16) should be grammatical with object agreement as shown in those examples.

Double object constructions are perhaps the most revealing case in this respect. First, both indirect objects (IO) and direct objects (DO) can control object agreement in Ndebele, despite the fact that IO asymmetrically c-commands DO in their base position.

(17) a. U-Thabani u-∅-**ba**-phek-el-a [$_{vP}$ t_V t_i i-nyama] a-bantwana$_i$.
A-1Thabani 1s-CNJ-2o-cook-APP-FV A-9meat A-2child
'Thabani is cooking meat for the children'

b. U-Thabani u-∅-**yi**-phek-el-a [$_{vP}$ t_V a-bantwana t_j] inyama$_j$.
A-1Thabani 1s-CNJ-9o-cook-APP-FV A-2child A-9meat
'Thabani is cooking the meat for children'

The absence of locality observed in (17-b) is only apparent: since the probe is looking specifically for a DP with the AF feature, the direct object in (17-b) is be the most local matching goal when the IO has no such feature. The interpretation corroborates this analysis. That object agreement is indeed fully local becomes apparent when both objects have AF, as diagnosed by the dislocated position of position of both objects. In those cases, only the indirect object may be agreed with:

(18) a. U-Thabani u-ya-**ba**-phek-el-a [$_{vP}$ t_V t_i t_j] a-bantwana$_i$ i-nyama$_j$.
A-1Thabani 1s-DSJ-2o-cook-APP-FV A-2child A-9meat
'Thabani is cooking the meat for the children'

b. *U-Thabani u-ya-**yi**-phek-el-a [$_{vP}$ t$_V$ t_i t_j] a-bantwana$_i$ i-nyama$_j$.
A-1Thabani 1s-DSJ-9o-cook-APP-FV A-2child A-9meat
'Thabani is cooking the meat for the children'

Moreover, there can only be one object agreement morpheme on the verb:

(19) *U-Thabani u-ya-**{yi}-ba-{yi}**-phek-el-a [$_{vP}$ t$_V$ t_i t_j] a-bantwana$_i$ i-nyama$_j$.
A-1Thabani 1s-DSJ-{9o}-2o-{9o}-cook-APP-FV A-2child A-9meat
'Thabani is cooking the meat for the children'

Finally, a passive counterpart of the double object sentence in (18-a) can contain an object agreement probe:

(20) A-bantwana ba-a-**yi**-phek-el-w-a i-nyama.
A-2child 2s-PST-9o-cook-APP-PSV-FV A-9meat
'The children were cooked the meat.'

Putting this together, we conclude that in double object constructions i) there is one object agreement probe, ii) the probe c-commands both objects and iii) it's present in passive clauses. The syntax of (20) is, then, as follows:

(21) [$_{TP}$ children$_i$ [$_{T'}$ T$_\phi$ [$_{VoiceP}$ Voice$_\phi$ [$_{vP}$ v [$_{ApplP}$ t_i [$_{Appl'}$ Appl [$_{VP}$ V meat]]]]]]]
Agree *Agree*

This structure predicts that, when left in situ, the IO should control object agreement:

(22) [$_{TP}$ T$_\phi$ [$_{VoiceP}$ Voice$_\phi$ [$_{vP}$ v [$_{ApplP}$ children [$_{Appl'}$ Appl [$_{VP}$ V meat]]]]]]
Agree

As shown in (15), repeated below, this prediction is incorrect:

(23) Ku-(*__ba__)-phek-el-w-a a-bantwana ngu-mama. (repeated from (15))
15s-(*2o)-cook-APP-PSV-A A-2child by-mother
'The children are cooked for by mother'

More generally, these facts show that the NOM/ACC agreement alignment cannot be explained by discovering the correct location of the object agreement probe.

2.4 Hypothesis 2: The NOM/ACC alignment is due to case-discrimination in agreement

Let us turn to another possibility, which links agreement with case. It has been claimed for a number of languages that ϕ-agreement may be case-discriminating. For instance, Dative and Genitive DPs cannot control ϕ-agreement in many languages. A known example comes from Icelandic, in which Dative subjects do not control agreement on T.

(24) Þeim var hjálpað
they.DAT be.PST.SG helped
'They were helped.' (Icelandic, Holmberg & Hróarsdóttir 2003:998)

Similarly, Genitive subjects in Slavic languages like Russian and Polish cannot control subject agreement. The Polish example below shows the so called Genitive of Negation replacing Nominative marking on the subject when appearing in a negative clause.[7]

(25) a. Oni byli w domu. NOM → agreement
they.[NOM] be.PST.[3PL.MASC] at home
'They were at home.'

b. Ich nie było w domu. GEN → no (default) agreement
they.[GEN] not be.PST.[3SG.NEUT] at home
'They weren't at home.' (Polish)

What would it take for the agreement pattern in Ndebele to be explained in terms of case discrimination? The language would have to have a case system that assigns the same case to any DP that's base-generated in the highest position in the clause. Call that case Nominative. The ϕ-probe in Voice (but crucially, not the one in T) would have to discriminate against this case:

(26) $[_{\text{TP}}\ \text{T}_{\phi}\ [_{\text{VoiceP}}\ \text{Voice}_{\phi_{[\text{-NOM}]}}\ [_{\text{vP}}\ \text{DP}_{\text{NOM}}\ \ldots]]]$

In the configuration above, ϕ in Voice probes first but, since it discriminates against Nominative DPs, it does not locate the highest DP in the vP.

As straightforward as it may initially seem, there are two problems with this solution. First, known instances of case-discriminating agreement are ones where the probe is specified to look for a DP *with* a specific case (on the assumption that the terms 'nominative' and 'absolutive' refer to a specific case feature), or for a DP that is altogether caseless (on the assumption that 'nominative' and 'absolutive' amount to caselessness; Bittner & Hale 1996; Bobaljik 2008; McFadden & Sundaresan 2011; Kornfilt & Preminger 2015). I am not aware of instances of case-discrimination *against* one particular case marking. This would have to be implemented in one of two ways. One way would be to encode probe relativization as a disjunctive list (e.g. ACC ∨ DAT ∨ INST ...), which would include all case features found in the language but NOM (recall that object agreement in Ndebele can target any DP except for the highest one.) The other way would be to specify case features on DPs negatively (e.g. state 'accusative' as [−NOM, −DAT, −INSTR ...]) and have the probe be relativized to [−NOM], as is done in (26). Neither seems like a desirable move, but without one of those implementations, this type of case-discrimination is not statable.

Another possibility is to adopt a parametric setting that Bobaljik (2008) proposes for languages like Nepali. Based on revised Marantzian (1991) case hierarchy: *unmarked* > *dependent* > *lexical/inherent*, a language can be parametrized to exhibit agreement with i) all case types, ii) only the first two, i) only the first one or iv) none. If the cutoff for agreement is between dependent and lexical/inherent case and the language happens to have only one lexical/inherent case, we incidentally arrive at an agreement system which discriminates against a single case. Applying this to the issue at hand would mean that the highest DP in Ndebele has lexical/inherent case, and no other DPs bear that case. This is extremely unlikely. Recall that the set of DPs invisible to object agreement cannot be defined by any lexical or thematic properties. The only defining factor is structural: it is the highest DP in the argument structure domain. If the agreement cutoff were between unmarked and dependent case, the highest DP could also be dependent-case marked in order to be invisible

[7] In fact, Gen of Negation in Polish typically replaces Accusative, with the exception of existential constructions such as the one in (25).

to the probe. This is not a possibility either since the ban on object agreement with the highest DP holds in transitive and intransitive clauses alike. The only other option that the hierarchy gives us is to ban agreement with all DPs, which is obviously incorrect. Finally, and importantly, the highest DP is not generally immune to agreement – it controls agreement on T. This means that there can be no parameter banning agreement with it.

The second issue with the case-discrimination account sketched above is its deep incompatibility with what is known about case in Bantu languages, which have neither morphological case marking nor the kind of restrictions on DP distribution that have long been associated with case in other languages ("Vergnaud licensing"). This led some to argue that case is absent in this language family altogether (Harford Perez 1985; Diercks 2012; Carstens & Diercks 2013) or that it's rare (Van der Wal 2015; Sheehan & Van der Wal 2018). Others have proposed that Bantu language do have case but the system is quite different from that of NOM/ACC Indo-European languages (Baker 2003, 2008; Carstens 2001, 2011; Carstens & Mletshe 2015; Halpert 2012, 2015; Schneider-Zioga 2019). To the best of my knowledge, no existing theory of case in closely related languages is able to explain the NOM/ACC alignment in terms of case-discrimination. In Halpert's (2012, 2015) theory of case in Zulu, case is morphologically reflected as the presence or absence of the so called augment vowel on nominals (glossed as A). Augmentless DPs have a much more limited distribution than DPs with an augment. Like in Zulu, augmentless DPs in Ndebele can appear e.g. as in-situ subjects in negative sentences. When possible, augment drop is typically optional:

(27) A-ku-pheki (u)-Zodwa.
NEG-15-cook (A)-1Zodwa
'Zodwa didn't cook'

According to Halpert, Zulu has a two-case system. Structural case, licensed by a head between T and Voice, is exponed by the absence of an augment. DPs *with* an augment bear inherent case. If agreement on Voice is case-discriminating, we predict that it can target either augmented DPs or augmentless DPs. In general, only augmented objects can control object agreement.

(28) a. A-ngi-(*m)-boni Zodwa
NEG-1SG-(*1o)-see 1Zodwa
'I don't see Zodwa'

b. A-ngi-(m)-boni **u**-Zodwa
NEG-1SG-1o-see A-1Zodwa
'I don't see Zodwa'

However, the thematically highest DP cannot control agreement on Voice irrespective of the presence of an augment:

(29) a. A-ku-(*m)-pheki Zodwa.
NEG-15s-(*1o)-cook 1Zodwa
'Zodwa didn't cook'

b. A-ku-(*m)-pheki **u**-Zodwa.
NEG-15s-(*1o)-cook A-1Zodwa
'Zodwa didn't cook.'

If Halpert's theory is the correct theory of case in Ndebele (see Pietraszko to appear for an argument

that it is), the contrast between (28-b) and (29-b) cannot be due to case-discrimination.

Analyzing another closely related language, Xhosa, Carstens & Mletshe (2015) argue that in-situ subjects in this language may bear a number of different cases: structural, focus-related lexical case or theta-related inherent case.

(30) Different cases borne by in-situ subjects in Xhosa (Carstens & Mletshe 2015)

a. $[_{vP} \ldots \text{Agent}_{\text{Structural Case}}]$
b. $[_{vP} \ldots \text{Agent}_{\text{Focus Case}} \text{ Theme}]$
c. $[_{vP} \ldots \text{Theme}_{\text{Structural Case}}]$
d. $[_{vP} \ldots \text{Experiencer}_{\text{Inherent Case}}]$

In such a case system, Voice would have to discriminate against all the cases in (30). This appears to be incorrect: as Carstens & Mletshe seem to assume, direct objects in SVO clauses bear structural case; nonetheless, objects in SVO clauses can control object agreement.

Moreover, there is evidence that Voice does not discriminate against the case borne by Experiencer arguments in Ndebele. First, Experiencer subjects can be both preverbal and postverbal. As with all other subjects, they cannot control agreement on Voice, whether moved to Spec,TP (31-a) or left in situ (31-b).

(31) a. U-Zodwa u-(***m**)-dan-ile.
A-1Zodwa 1s-1o-sad-PST.DSJ
'Zodwa was sad.'

b. Ku-(***m**)-dan-e u-Zodwa.
15s-1o-sad-PST.CNJ A-1Zodwa
'Zodwa was sad.'

However, the same Experiencer argument can control agreement on Voice if it is not the highest DP in the clause. This is the case when the verb 'be sad' is causativized, whereby a higher argument, the Causer, is introduced:

(32) Ba-**m**-dan-is-e u-Zodwa.
2s-1o-sad-CAUS-PST.CNJ A-1Zodwa
'They made Zodwa sad.'

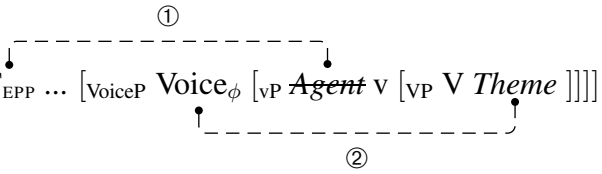
Thus, the case of the Experiencer argument is not the reason why Voice cannot agree with it in (31).

Finally, Baker (2003) argues that DPs which control ϕ-agreement in Kinande do not bear case in Bantu languages. In fact, many authors have independently argued that ϕ-agreement in Bantu languages is insensitive to case, irrespective of their view on the case system itself (i.a. Ndayiragije 1999; Baker 2003, 2008; Carstens 2001, 2011; Carstens & Mletshe 2015; Halpert 2012, 2015) Given all this, a case-discrimination based analysis of the puzzle at hand seems quite hopeless.

2.5 Hypothesis 3: NOM/ACC alignment is due to the timing of agreement and movement

The third way to derive the NOM/ACC agreement alignment in Ndebele is by manipulating the timing of subject movement and object agreement. In particular, the highest DP would have to move outside of the c-command domain of the object agreement probe before the probe initiates its operation.

Under the standard analysis of A-movement and agreement in Bantu languages, the first step of A-movement that targets the subject is triggered by EPP in T. Object agreement is triggered by a lower head, Voice (or AgrO). The necessary timing of operations would then have to be non-cyclic: T would have to probe before Voice:

(33) 

Analyzing the same facts in Zulu, Zeller (2015) proposes the following principle to enforce the desired order of operations:

(34) *The "T Always Probes First" principle* (Zeller 2015)
The first vP-external PROBE-GOAL relation in a derivation must involve the uninterpretable features of T.

As should be clear, this principle is a stipulation and should be avoided if possible (especially that admitting principles like this in the grammar rids the theory the restrictiveness brought by the assumption of cylicity).

As it turns out, it is possible to avoid (34). Note that the countercyclicity problem would not arise if the subject movement probe and the object agreement probe were both located in T. Such a derivation would be cyclic in the sense that no features of a higher head probe before the features of a lower head. This type of analysis has been proposed to account for (apparent) countercylic effects in Icelandic experiencer constructions (Holmberg & Hróarsdóttir 2003; Müller 2009) and for V-Stranding VP Ellipsis (Sailor 2018). However, there is good evidence that the object agreement probe is not located in T in Ndebele. In compound tenses, object agreement must be realized on the participle, while T is affixed to an auxiliary:

(35) Ngi-za-{*yi}-be ngi-sa-{yi✓}-pheka.
1SG-FUT-{*9o}-AUX 1SG-PROG-9o-cook
'I will still be cooking it'

There is another way for the subject movement feature and the object agreement probe to appear on the same head: both could be in Voice. This, in turn, would mean that the first step of A-movement subjects undergo in this language is a short middlefield movement to Spec,VoiceP. In the rest of the paper, I argue that this is indeed the case in Ndebele. In the next section, I lay out the details of the analysis and demonstrate how it derives the basic pattern of NOM/ACC alignment in agreement. In section 4, I provide further evidence for this analysis by showing that it offers a straightforward explanation for four other puzzles: i) defective intervention effects in VSO clauses i) the optionality of movement to Spec,TP, iii) the agreement uniformity in auxiliary verb construction, and iv) an object agreement asymmetry in passives.

3 Proposal: middlefield A-movement of the subject

A well known property of Bantu languages is the cooccurrence of agreement and movement (i.a. Collins 2004; Carstens 2005; Baker 2003, 2008). This is manifested robustly in the realm of canonical subjects, which must raise to Spec,TP in order to control agreement on T (36-a). In-situ subjects cannot control agreement (36-b).

(36) a. U-Thabani **u**-za-pheka i-nyama.
A-1Thabani 1s-FUT-cook A-9meat
'Thabani will cook meat'

b. *U-pheka [$_{vP}$ u-Thabani i-nyama].
1s-cook A-1Thabani A-9meat
'Thabani cooks meat'

As shown in (37-a), when the subject stays in-situ, T surfaces with a default agreement exponent (class 15). Default agreement morphology is not possible if the subject raised to Spec,TP (37-b).

(37) a. **Ku**-pheka [$_{vP}$ u-Thabani i-nyama].
15s-cook A-1Thabani A-9meat
'Thabani cooks meat'

b. *U-Thabani **ku**-pheka i-nyama.
A-1Thabani 15s-cook A-9meat
'Thabani cooks meat'

This one-to-one correlation between movement and agreement is very robust in Bantu languages and it underlies proposals to link EPP and ϕ in this language family. Carstens (2005) proposes that ϕ probes in Bantu languages have an EPP subfeature, notated as ϕ_{EPP}. Baker (2003) and Collins (2004) implement this parametrically: in Bantu languages ϕ is bundled with the EPP. I argue that the observed NOM/ACC alignment in agreement can be understood as following from this parameter. I will refer to it as the "$\phi\rightarrow$EPP Parameter".

(38) *The $\phi\rightarrow$EPP Parameter*
ϕ-probes in Bantu languages always cooccur with an EPP feature on the same head.

This parameter says that whenever we see ϕ, there is also an EPP, and when there is no EPP, there is no ϕ. (The EPP feature, on the other hand, can occur on its own.)

I further follow the standard view that there are (at least) two [ϕ,EPP] bearing heads in the clause: one responsible for subject agreement and the other for object agreement. I assume that those heads are T and Voice, respectively. The only new addition to these assumptions is that EPP and ϕ probe in different orders in each of these heads. In T, ϕ probes before EPP, while in Voice, EPP probes before ϕ. I represent this using the ordered set notation.[8]

(39) [$_{\text{TP}}$ T$_{\langle\phi,\text{EPP}\rangle}$ [$_{\text{VoiceP}}$ Voice$_{\langle\text{EPP},\,\phi\rangle}$ [$_{\text{vP}}$ *Agent* v [$_{\text{VP}}$ V *Theme*]]]]

As we will see, the $\langle$EPP, ϕ:_$\rangle$ bundle is optional in Voice. Additionally, I propose that VoiceP is a phase. The analysis is summarized below.

(40) Proposal
a. T has $\langle\phi$:_, EPP$\rangle$
b. Voice has $\langle$EPP, ϕ:_$\rangle$ optionally
c. Voice is a phase head

[8] I do not assume that all features of every head must be ordered with one another. Lack of ordering between EPP and ϕ would result in optionality in agreement of the kind observed in Icelandic (i.a. Sigurðsson & Holmberg 2008).

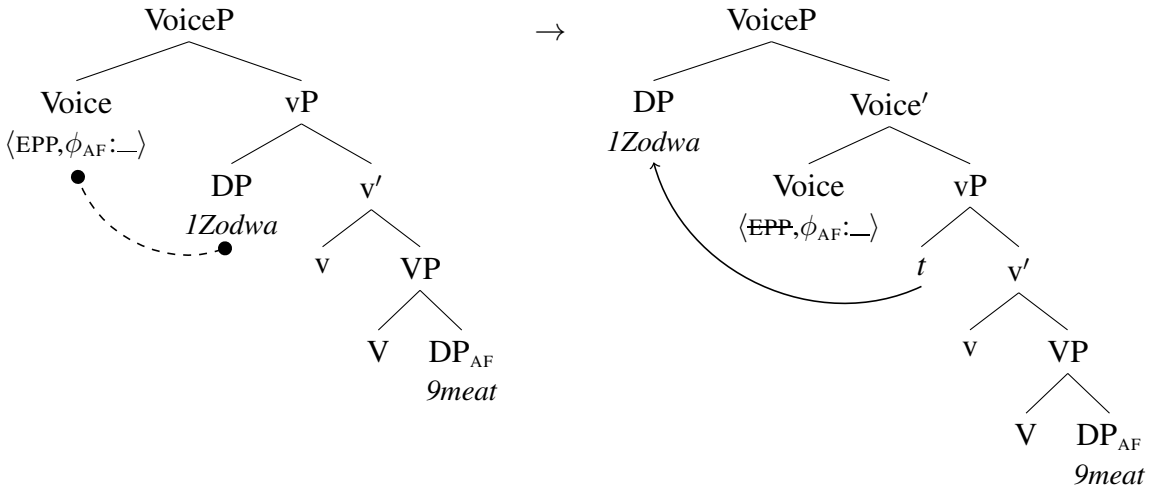
With these details in place, we can derive the NOM/ACC pattern in a cyclic way.

3.1 Deriving the core data

An SVO sentence with object agreement (41) arises when Voice hosts ⟨EPP, ϕ:__ ⟩. EPP, being the first element of the order set, probes first, finds the closest goal (here, the external argument) and triggers its movement of Spec,VoiceP (42).

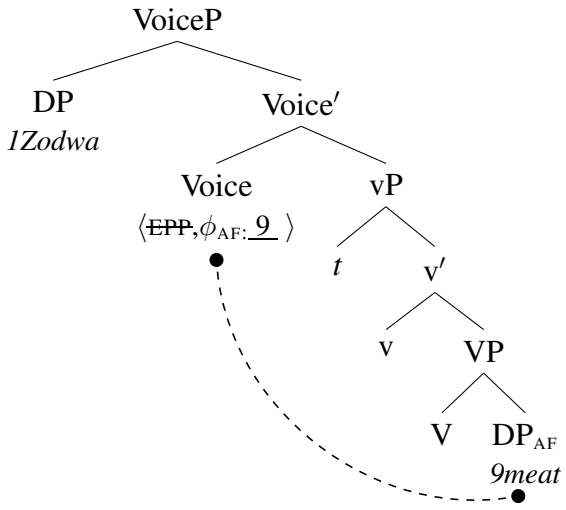
(41) U-Zodwa u-a-yi-pheka i-nyama.
A-1Zodwa 1s-PST-9o-cook A-9meat
'Zodwa cooked the meat'

(42) Step 1: EPP probes first and finds the external argument



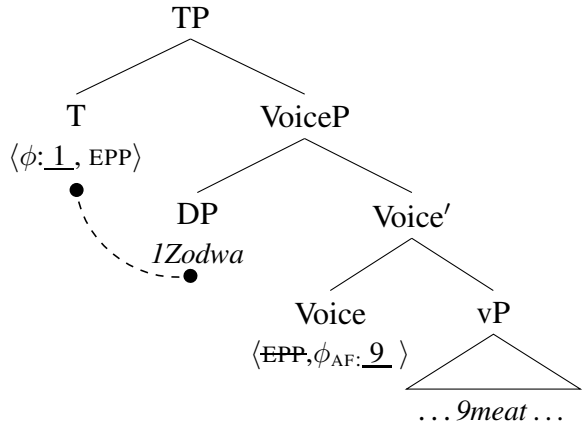
I assume that the EPP feature is deleted after it triggers its operation (see section 3.3 for a way to implement such deletion). This leaves Voice with an agreement probe, which finds the object due to its AF feature. (Since subject DPs can themselves have the AF feature, it is necessary to assume that movement traces are not visible to the ϕ-probe.)

(43) Step 2: The ϕ-probe in Voice, relativized to AF, finds the object

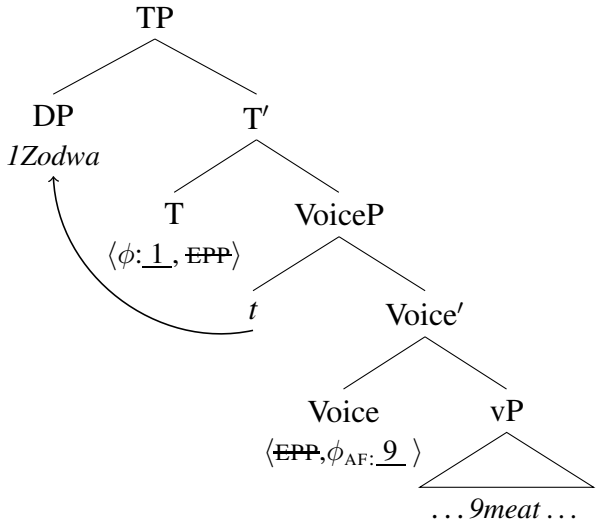


At this point in the derivation, object agreement has been established with the internal argument and the external argument has moved to the left edge of the inner phase. In this position, the external argument is accessible to the probes in T:

(44) Step 3: $[\phi]$ in T agrees with Zodwa



Step 4: EPP finds the same goal as ϕ



Since the EPP in Voice probes first, it is impossible for the external argument to control object agreement, despite being c-commanded by the object agreement probe. The Agent necessarily vacates the c-command domain of Voice before its ϕ-probe initiates its search. This derivation is cyclic in the sense that all features of Voice probe before any features of T do.

SVO sentences without object agreement, such as (45), arise when ϕ in Voice does not find a matching goal, i.e. when the object does not bear the AF feature. This correlates with the object being discourse new/part of focus.

(45) U-Zodwa u-a-pheka i-nyama.
A-1Zodwa 1s-PST-cook A-9meat
'Zodwa cooked (*the) meat'

The unvalued ϕ probe in Voice has zero exponence. This is different from an unvalued ϕ probe in T, whose exponence is that of class 15. As argued in Pietraszko 2019, the latter is the elsewhere case:

(46) a. [Voice, ϕ] $\rightarrow \varnothing$
b. $[\phi] \rightarrow$ /ɣu/ ('ku')

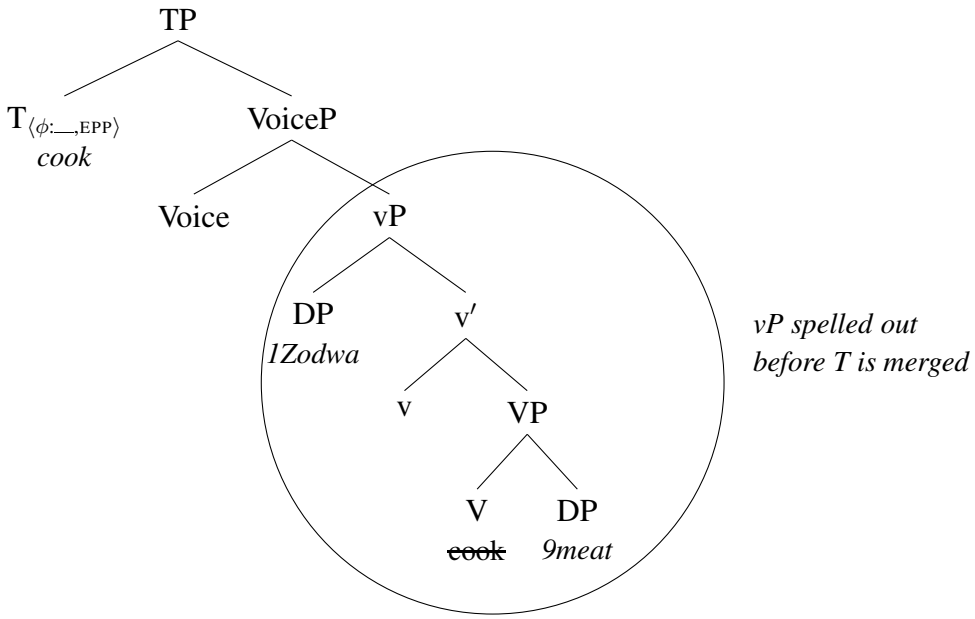
Now consider the VSO version of the same sentence:

(47) Ku-a-(***m**)-pheka u-Zodwa i-nyama.
15s-PST-(*1o)-cook A-1Zodwa A-9meat
'Zodwa cooked meat'

An in-situ subject is contained in the lower phase, and so probes in T cannot reach it. T's EPP remains unchecked and its unvalued ϕ-probe is realized as class 15 agreement. What does it take for the highest argument to *not* undergo A-movement? Voice must lack EPP, which would otherwise move the subject to the edge of the VoiceP phase, and then, inevitably, to Spec,TP. Recall that,

parametrically, ϕ-probes in Ndebele only occur on heads with an EPP feature. If there is no EPP, there can be no ϕ. This means that when the subject stays in situ, there is no ϕ-probe in Voice.

(48) Structure of (47)



A similar analysis was proposed by Carstens & Mletshe (2015) for Xhosa, namely that in VS orders T and v (the head responsible for object agreement for them) are both featurally deficient: they have neither EPP nor ϕ (nor Case).

(49) Carstens & Mletshe 2015:191

a. SVO: $[_{\text{TP}}\ \text{T}_{[+\text{EPP/Agr/Case}]} \ldots [_{\text{vP}}\ \text{v}_{[+\text{EPP/Agr/Case}]}$
b. VSO: $[_{\text{TP}}\ \text{T}_{[-\text{EPP/Agr/Case}]} \ldots [_{\text{vP}}\ \text{v}_{[-\text{EPP/Agr/Case}]}$

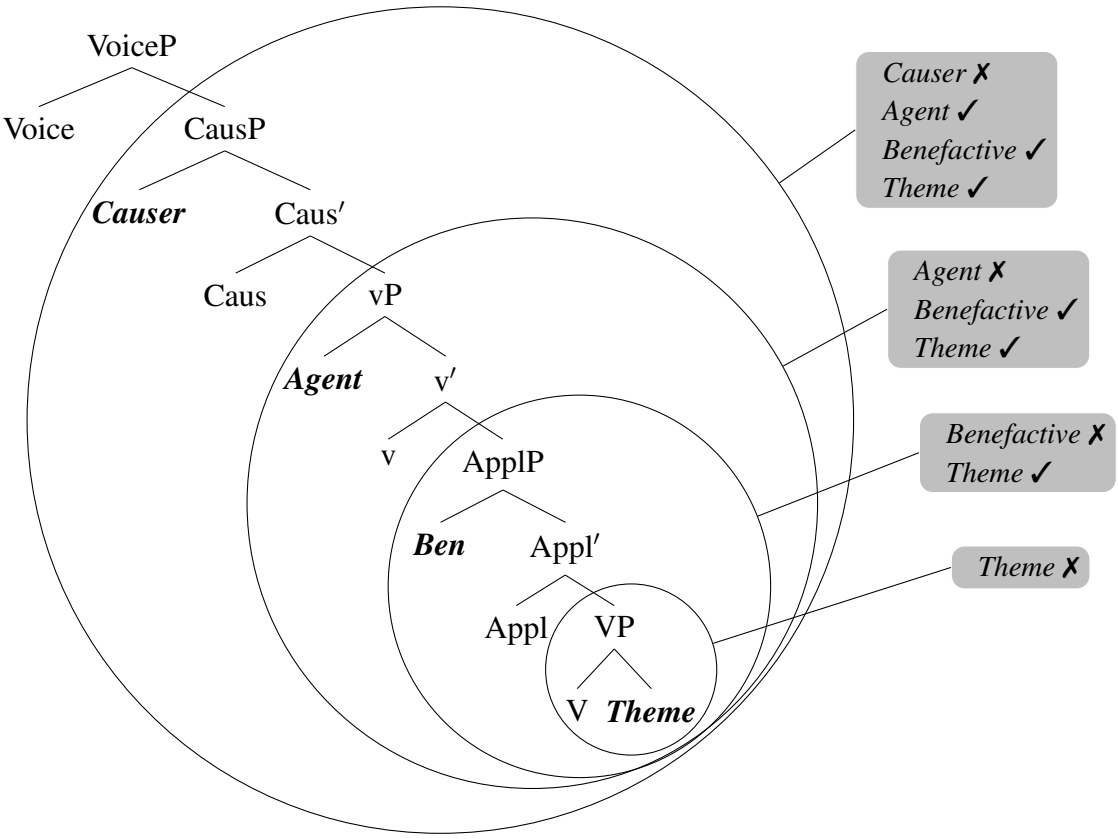
In this account, an in-situ subject is only possible when T is defective. For Carstens & Mletshe (2015), a defective T entails a defective v. To ensure this, they propose that the following principle holds in Xhosa:

(50) defective T $\leftrightarrow$ defective v

While this account derives the fact that an in-situ subject cannot control object agreement (v doesn't have an agreement probe in VS orders), it does not explain why the subject cannot control object agreement in *non*-defective clauses, before it is probed by T.

The present analysis derives the fact that raising and object agreement are not tied to the base generation position of DPs. No matter where a DP is generated, if it's the highest, it will move out of the search domain of the object agreement probe before it starts probing. This robust pattern in schematized in (51), where each circle corresponds to a different argument structure, each of which is illustrated in (52)-(55).

(51) Possible controllers of ϕ-agreement with Voice in different argument structures



(52) *Causer < Agent: Causer cannot control OAgr, Agent can*

a. I-nkazana$_i$ i-a-(***yi**)-phek-is-a t_i u-Thabani.
A-9girl 9s-PST-(*9o)-cook-CAUS-FV A-1Thabani
'The girl made Thabani cook.'

b. Ku-a-(***yi**)-phek-is-a i-nkazana u-Thabani.
15s-PST-9o-cook-CAUS-FV A-9girl A-1Thabani
'The girl made Thabani cook.'

c. I-nkazana$_i$ i-a-**m**-phek-is-a t_i u-Thabani.
A-9girl 9s-PST-1o-cook-CAUS-FV A-1Thabani
'The girl made Thabani cook.'

(53) *Agent < Benefactive: Agent cannot control OAgr, Benefactive can*

a. U-Thabani$_i$ u-a-(***m**)-phek-el-a t_i a-bantwana.
A-1Thabani 1s-PST-(*1o)-cook-APP-FV A-2child
'Thabani cooked for children.'

b. Ku-a-(***m**)-phek-el-a u-Thabani a-bantwana.
15s-PST-(*1o)-cook-APP-FV A-1Thabani A-2child
'Thabani cooked for the children.'

c. U-Thabani$_i$ u-a-**ba**-phek-el-a t_i a-bantwana.
A-1Thabani 1s-PST-2o-cook-APP-FV A-2child
'Thabani cooked for the children.'

(54) *Benefactive < Theme: Benefactive cannot control OAgr, Theme can*

a. A-bantwana$_i$ ba-a-(***ba**)-phek-el-w-a t_i i-nyama ngu-mama.
A-2child 1s-PST-(*2o)-cook-APP-FV A-9meat by-mother
'The children were cooked meat by mother.'

b. Ku-a-(***ba**)-phek-el-w-a a-bantwana i-nyama ngu-mama.
15s-PST-(*2o)-cook-APP-FV A-2child A-9meat by-mother
'The children were cooked meat by mother.'

c. A-bantwana$_i$ ba-a-**yi**-phek-el-w-a t_i i-nyama ngu-mama.
A-2child 2s-PST-9o-cook-APP-FV A-9meat by-mother
'The children were cooked the meat by mother.'

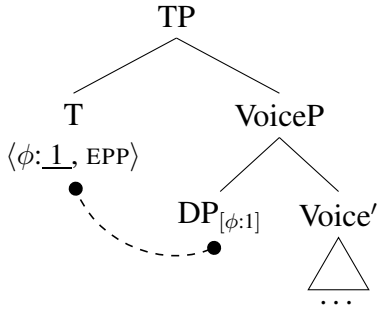
(55) *Theme only: Theme cannot control OArg*

a. I-nyama$_i$ i-a-(***yi**)-phek-w-a t_i ngu-mama.
A-9meat 9s-PST-(*9o)-cook-APP-FV by-mother
'The meat was cooked by mother.'

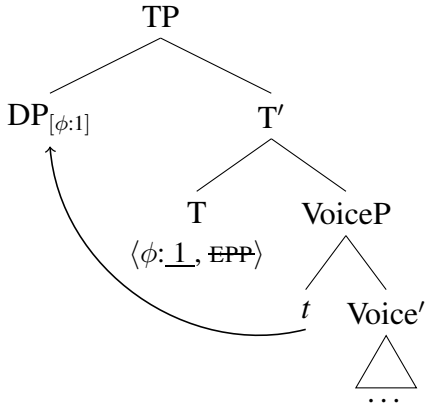
b. Ku-a-(***yi**)-phek-w-a i-nyama ngu-mama.
15s-PST-(*9o)-cook-APP-FV A-9meat by-mother
'The meat was cooked by mother.'

The key feature of this analysis is a specific interpretation of the $\phi \rightarrow$EPP parameter for Bantu languages. In particular, I take this parameter to be a requirement that ϕ probes cooccur with EPP, not as a requirement that the two be satisfied by the same goal. In some configurations, this ends up being the case due to locality. Consider, for instance, T, whose ϕ feature probes first. After ϕ-agreement has been established, EPP finds the same DP as the most local goal:

(56) Step 1: ϕ probes first

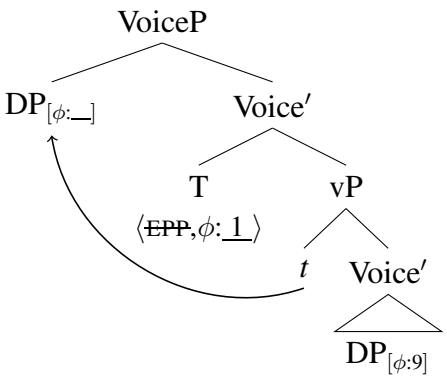


Step 2: EPP finds the same goal

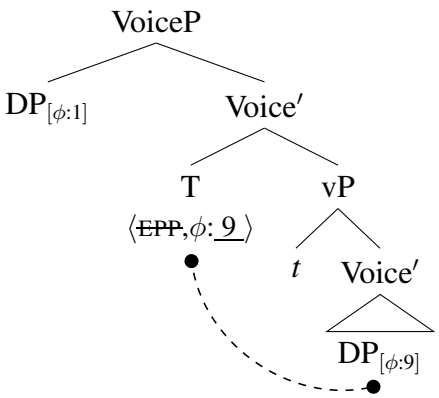


Thus, this order of operations incidentally results in agreement and movement targeting the same DP. If, however, probing takes place in the opposite order, EPP and ϕ can be satisfied by different goals, as is the case in probing by Voice (see section 3.3 for more discussion on this point).

(57) Step 1: EPP probes first



Step 2: ϕ finds a different goal



A consequence of the present proposal is an asymmetry between subject and object agreement: the head agreeing the with subject (T) triggers its movement; the head agreeing with the object (Voice) doesn't. Allowing EPP and ϕ to be satisfied by different goals explains the emergent NOM/ACC alignment in agreement, and, as we shall see in section 4, a number of other issues in Ndebele agreement and A-movement – issues that, to my knowledge, are widespread in the Bantu family.

Disjoint satisfaction of EPP and ϕ has been demonstrated for Zulu, as well (Halpert 2012, 2015). Even though T's ϕ and EPP in Zulu are typically satisfied by the same goal, it need not be so. The relevant data involve hyperraising constructions, such as (58):

(58) u-Zinhle$_i$ u-bonakala [ukuthi t_i u-zo-xova u-jeqe]
A-1Zinhle 1s-seem COMP 1s-FUT-make A-1steamed.bread
'It seems that Zinhle will make steamed bread.' (Zulu, Halpert 2015:230)

Halpert argues that hyperraising in Zulu involves agreement of matrix T with the embedded CP, which bears class 17 ϕ-features. This agreement makes the embedded subject accessible for raising and agreement with the matrix T. Thus, both the EPP and ϕ of the matrix T may establish a relation with the embedded subject, as shown in (59), deriving the sentence in (58).

(59) $[_{TP}$ uZinhle$_{\phi:1}$ $[_{T'}$ T$_\phi$ $[_{VP}$ seem $[_{CP_{\phi:17}}$ C $[_{TP}$ ⟨uZinhle$_{\phi:1}$⟩ T $[_{VP}$ make steamed bread]]]]]]
Agree *Agree*

Evidence for the initial agreement step between matrix T and the CP comes from the fact that matrix T may actually covary with class 17, instead of the class of the embedded subject:

(60) u-Zinhle$_i$ **ku**-bonakala $[_{CP_{\phi:17}}$ ukuthi t_i u-zo-xova u-jeqe]
A-1Zinhle 17s-seem that 1s-FUT-make A-1steamed.bread
'It seems that Zinhle will make steamed bread.' (Zulu, Halpert 2015:230)

Despite agreement being controlled by the CP, it is the embedded subject, not the entire CP, that undergoes raising to matrix subject. This is because CPs are not viable targets for EPP in Zulu, which can only be satisfied by a DP.

These interesting data show us that the [EPP,ϕ] bundling that has been posited for Bantu languages is not a requirement that these two probes be satisfied by the same goal. There are two

reasons why they often are: First, as a parameter, ϕ only appears on heads with an EPP; and second, most ϕ goals are also EPP goals (DPs). In the rare cases when a ϕ goal is not an EPP goal, as in the case of Zulu CPs, we observe the independence of those two probes. I argued in this section that operations deriving the NOM/ACC agreement alignment in Ndebele are another instance of ϕ and EPP probing independently of each other.

In the rest of this section, I address two questions raised by the present proposal. First, if object agreement does not trigger object movement, what mechanism is responsible for the observed dislocation of agreed-with objects? And second, why is it not possible of the ϕ probe in Voice to agree with the canonical subject in its specifier? I address each question in turn.

3.2 Implications for object dislocation

A consequence of the present analysis is that object dislocation is triggered by some other head than Voice. In this section, I suggest an analysis in which object dislocation is triggered by a probe located above TP and explain why object dislocation is contingent on both subject and object agreement.

Before that, it should be made clear that dislocated objects in Ndebele are indeed moved, and not base generated in the dislocated position. Under the base-generation view, object agreement would be controlled by a *pro* in a vP-internal object position. The *pro*-analysis is, however, incompatible with the fact that Ndebele allows movement out of dislocated objects. This is the case in raising-to-object CPs, which may undergo dislocation *after* the embedded subject has raised to matrix object. In (61-a), the embedded subject remains in the embedded clause, and the CP is inside the matrix vP, evidenced by the conjoint form of the matrix verb. Optionally, the embedded subject may raise to matrix object (61-b).

(61) a. Ngi-∅-funa$_k$ [$_{vP}$ t_k [$_{CP}$ ukuthi u-John a-buye.]]
1SG-CNJ-want COMP A-1John 1s-come.SBJV
'I want John to come'

b. Ngi-∅-funa$_k$ [$_{vP}$ t_k u-John$_i$ [$_{CP}$ ukuthi t_i a-buye.]]
1SG-CNJ-want A-1John COMP 1s-come.SBJV
'I want John to come'

After raising to object, the DP *John* may undergo right dislocation, reflected by the disjoined form of the matrix verb and the presence of object agreement with *John*.

(62) Ngi-ya-m-funa$_k$ [$_{vP}$ t_k t_i t_j] u-John$_i$ [$_{CP}$ ukuthi t_i a-buye.]$_j$
1sg-DSJ-1o-want A-1John COMP 1s-come.SBJV
'I want John to come'

Note that the CP from which *John* has moved is itself dislocated as it is linearized to the right of the dislocated DP *John*. In order for such movement to be possible out of the dislocated CP, there must be a point in the derivation where that CP is inside vP, showing that right dislocation involves movement (see Halpert & Zeller 2015 for the same analysis of the interaction between raising to object and dislocation in Zulu).

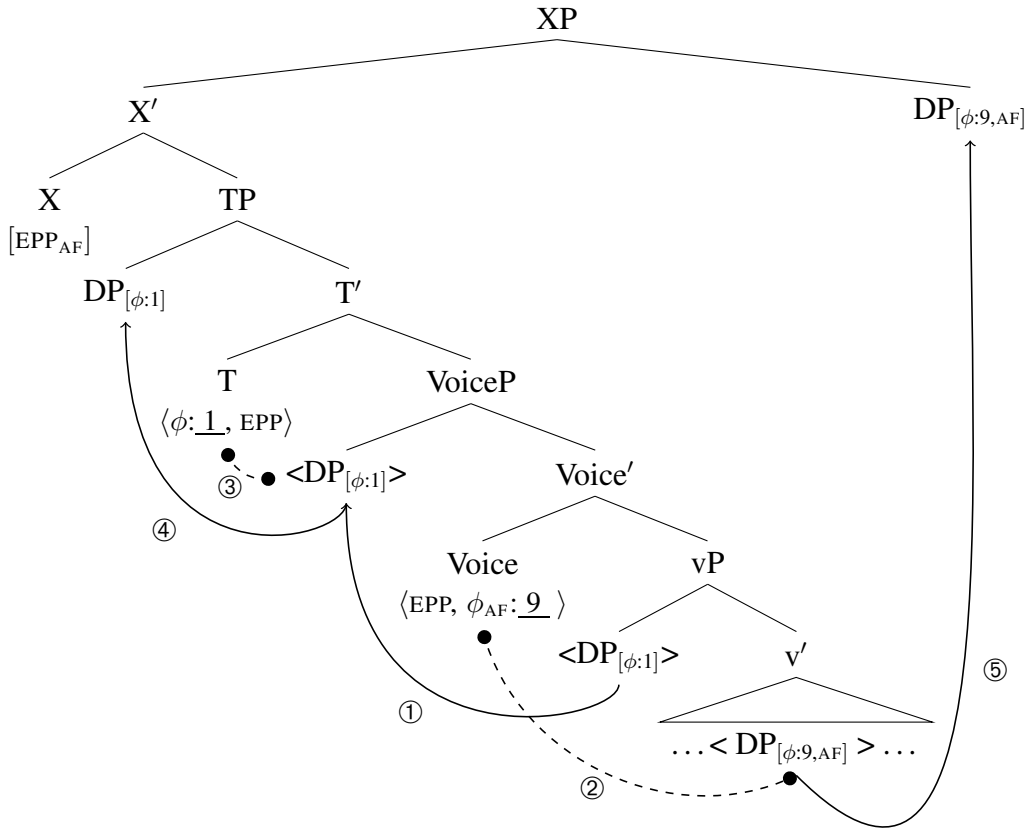
Returning to right dislocation, I propose that it is triggered by a probe located immediately above TP. This hypothesis is motivated by the fact that right dislocation can target temporal adverbs, such as *izolo* 'yesterday', which, by assumption, are base generated in the tense-aspect domain:[9]

[9] The right dislocation position of object is Zulu has also been proposed to be fairly high, namely AgrSP (Van der Spuy

(63) [$_{TP}$ Ngi-yi-phek-ile {izolo}] inyama {izolo}.
1SG-9o-cook-PST.DSJ yesterday meat yesterday
'I cooked meat yesterday.'

Following Zeller 2008, 2015, I propose that the dislocation probe in X is relativized to DPs with an AF feature.

(64) Object right dislocation

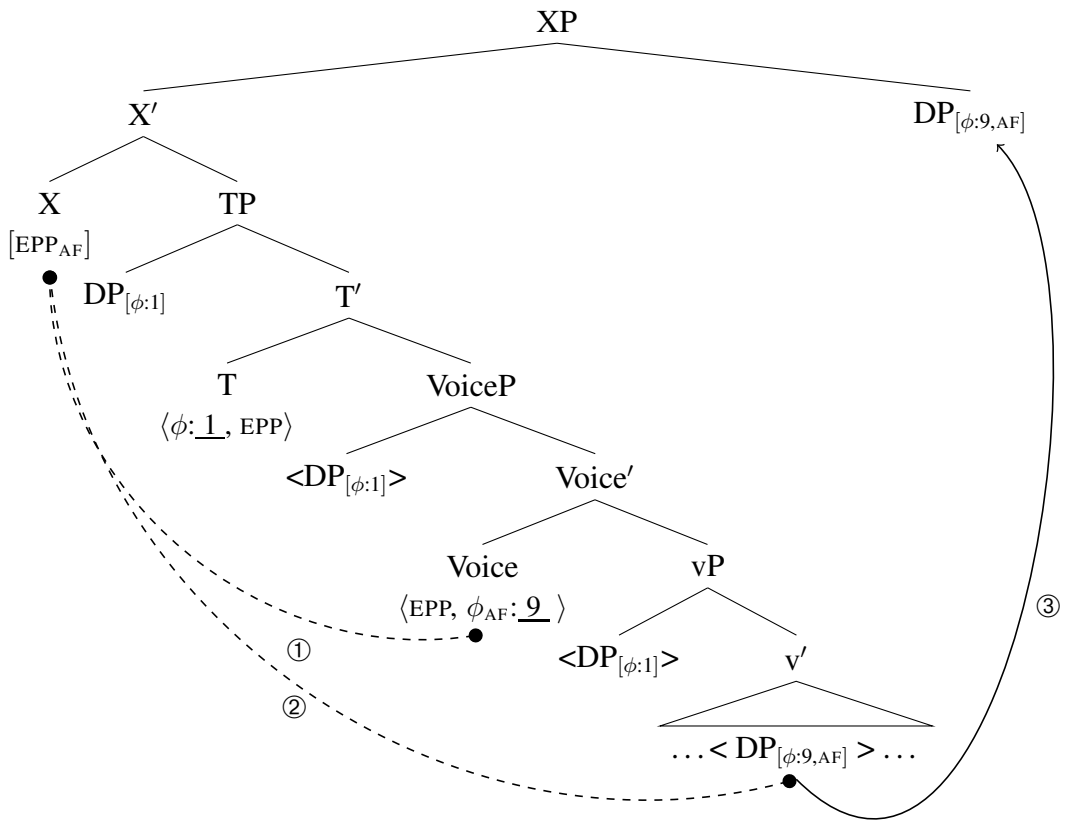


We can now see why object agreement entails object dislocation, despite the fact that two are not triggered by probes of the same head. The dislocation probe is relativized to AF-bearing DPs, just like the the ϕ probe in Voice. This means that, when there is a goal for object agreement, there is a goal for the dislocation probe, and vice versa. The two, then, always go hand in hand.

An immediate question arises: why can X access the in situ object across the VoiceP phase boundary? This is made possible by the fact that the ϕ-probe of Voice is relativized AF: [ϕ_{AF}], which, I propose, amounts for the probe having the AF feature. Thus, Voice is itself a matching goal for the dislocation probe. This means that the dislocation probe always finds Voice first (65).

1993). In contrast, Zeller (2015) and Cheng & Downing (2009) propose that right-dislocated objects are below T in Zulu. An analysis in which the dislocation probe in Ndebele is below T is also possible. The only necessary addition would be a constraint that prevents the dislocated object from being a possible target for A-movement to T. This constraint would likely fall under the umbrella movements that have been characterized as improper movement or movement to a freezing position.

(65) Object dislocation: EPP_{AF} finds AF in Voice and then in the object D



Following Rackowski & Richards 2005; Halpert 2012, 2015, I assume that, when a probe agrees with a phasal category, the phasal domain becomes transparent for that probe. Note that VoiceP cannot itself be dislocated as only DP satisfy the EPP fully. VoiceP is only a partially matching goal, which is enough to "unlock" the phase but not enough to undergo movement (in this respect, VoiceP is analogous to CP in Halpert's analysis of hyperraising in Zulu).

As we have seen in section 2.3, multiple DPs may undergo dislocation in Ndebele. This suggests that X's EPP is an *insatiable probe* (Deal 2015, 2020; Clem 2019a, b), meaning that it is not deleted after establishing one relation and consequently, it may attract multiple DPs. This is the case when both objects of an ditransitive sentence bear the AF feature. Recall that, in those cases, object agreement must be controlled by the higher, indirect, object:

(66) U-Thabani $[_{\text{VoiceP}}$ u-ya-**ba**-phek-el-a $\boldsymbol{t_i}\ t_j\ ]$ a-bantwana$_{\text{i}}$ i-nyama$_{\text{j}}$.
A-1Thabani 1s-DSJ-2o-cook-APP-FV A-2child A-9meat
'Thabani is cooking the meat for the children'

The dissociation of the object agreement probe from the dislocation probe makes it unsurprising that the direct object may be dislocated without controlling agreement. ϕ-agreement is not what's responsible for object dislocation. ϕ in Voice is a simple probe, which becomes inactive after being valued. The dislocation probe is an insatiable probe and it does not require ϕ agreement with its goals. It only requires access to the content of vP, made possible by agreement with the Voice head.

Another correct prediction of this account is that subjects bearing AF can also be dislocated. In (68), the subject is dislocated, while the object remains in situ (conjoint form, no object agreement):

(67) [$_{TP}$ U-∅-pheka i-suphu] u-Thabani.
1s-CNJ-cook A-9soup A-1Thabani
'Thabani is cooking soup.'

Note that, in order to find the subject in (68), EPP_{AF} in X need not look into the vP – agreeing subjects move out of vP before X is merged. As with multiple objects, X can dislocate both the subject and the object, in which case the verb has the disjoint form and object agreement:

(68) [$_{TP}$ U-ya-yi-pheka] i-suphu u-Thabani.
1s-DSJ-9o-cook A-9soup A-1Thabani
'Thabani is cooking the soup.'

Related to this is the generalization that dislocated subjects in Bantu languages must control subject agreement:

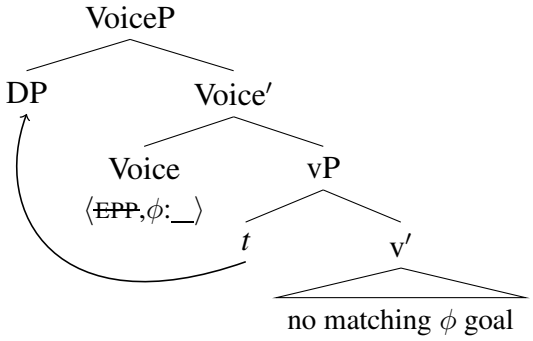
(69) *[$_{TP}$ Ku-∅-pheka i-suphu] u-Thabani.
15s-CNJ-cook A-9soup A-1Thabani
'Thabani cooked soup.'

In the literature on related languages with the same restriction on subject dislocation, it is typically asserted that subject dislocation must first proceed through Spec,TP. Subjects cannot be moved directly from their in-situ position to the dislocated position. This requirement is, however, poorly understood: we independently know that no such requirement is true for objects, which can be dislocated directly from their in-situ position. On the under hand, the ungrammaticality of (69) follows directly from the present account. An in-situ subject is inaccessible to probes located outside of VoiceP. What makes the subject accessible to X is EPP in Voice, which brings the subject to the edge of the VoiceP phase. In that position, however, the subject is also visible to probes T, resulting in subject agreement.

3.3 Probe Expansion

In section 3.1, I proposed that EPP and ϕ in Voice find different goals, deriving the NOM/ACC agreement alignment. One question remains unanswered: what happens when there is no matching goal for the ϕ-probe in Voice? This could be the case in intransitive clauses or in clauses with objects that don't have the AF feature, to which the ϕ probe in Voice is relativized. This is schematized below.

(70) No goal for ϕ in Voice



Two answers come to mind. First, in the absence of a c-commended goal, ϕ in Voice remains

unvalued and it spelled out with a null exponent (as proposed in section 3.1). The second possibility is that, after failing to locate a goal in its c-command domain, the ϕ probe undergoes cyclic expansion (Rezac 2003, 2004; Béjar & Rezac 2009). That is, it projects to the bar level, from which position it c-commands the DP in its specifier. If the subject in Spec,VoiceP has the AF feature, we would expect agreement in Voice to be controlled by the canonical subject. This, as we've seen, is not the the case: subject and object agreement may never be controlled by the same DP (71).

(71) *U-Thabani **u**-a-**m**-pheka i-nyama.
A-1Thabani 1s-PST-1o-cook A-9soup
'Thabani cooked soup.'

I propose that the absence of cyclic expansion of the ϕ probe in Voice is ultimately due to the ordering of EPP and ϕ in this head, i.e. the fact that EPP probes first. I follow Chomsky (1994)'s Bare Phrase Structure in assuming that the intermediate and maximal projections of given head are of the same category as the head. As far as other features of heads, their projection is determined by the following rule:

(72) *Probe Expansion*
Structural Description:
i. nodes α, β of the same category st. β is a root node immediately dominating α, and
ii. feature F of α that initiates and fails its search when in α
Structural Change: $\beta \rightarrow \beta_{[F]}$

According to this algorithm, projection, or "expansion", of probe features depends on their activity in the first cycle, i.e. in α. In order for a probe to project, it must i) initiate a search when in α and ii) fail that search. This scenario is schematized in (73).[10]

(73) F initiates and fails its search → F projects

There are two scenarios in which a probe doesn't project: when it initiates its search and succeeds (74) and when it does not initiated a search (75).

(74) F initiates its search and succeeds → F does not project

[10] I stay agnostic as to how non-probe (valued) features project.

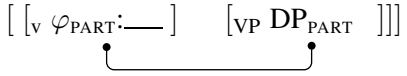
(75) F does not initiate its search → F does not project

Let us consider each of the three scenarios in turn. The first scenario, where the probe projects, is instantiated by classic cases of Cyclic Agree, discussed e.g. in Béjar & Rezac 2009. In Georgian, the ϕ probe in v is relativized to goals with the PART(icipant) feature (1/2 person DPs). The probe first searches it c-command domain (the first cycle). If it finds a PART-beaing DP, it agrees with it and does not probe further, giving rise to object agreement (76-a). When the probe doesn't find a matching goal, it projects to the bar-level, from where it can locate the DP in its specifier (76-b).

(76) A Cyclic Agree paradigm (data from Halle & Marantz 1993:117)

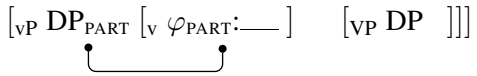
a. *Object accessible → agreement with object*

g-xatav
2sg-draw
'I draw you'



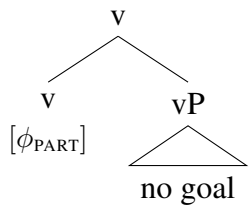
b. *Object inaccessible → agreement with subject required*

v-xatav
1sg.s-draw
'I draw him'



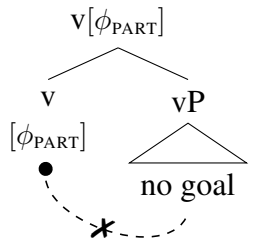
The expansion of the ϕ probe in Georgian follows from the Probe Expansion algorithm: the probe projects because it initiated a search in the first cycle and failed. The Merge of v and VP creates a constituent whose root node is of category v (by whatever labelling algorithm is appropriate). The output of this merge constitutes a structural description for Probe Expansion, even before any of v's features initiate probing. Probe Expansion may apply immediately here but its effect will be vacuous: since no feature initiated its search, no feature projects.

(77) Step 1: Output of Merge(v,VP); vacuous application of Probe Expansion



The next step is ϕ-probing. When no goal is located, Probe Expansion determines that the probe projects to the root node (78).

(78) Step 2: Failed ϕ-probing; Probe Expansion



The second scenario, where the probe does not project due to completing the search in the first cycle, can be illustrated with the same Georgian data. In (76-a), the probe finds a matching goal in the first cycle (the object), and we observe agreement with the object only. The probe cannot ignore the object, project and then agree with the subject in its specifier:

(79) *Object accessible → agreement with subject impossible*

*__v__-xatav
1sg-draw
Intended: 'I draw you'

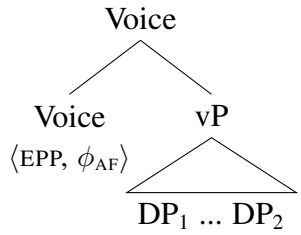
[$_{vP}$ DP_{PART} [$_{v}$ φ_{PART}:___] [$_{VP}$ DP_{PART}]]]

Since the probe succeeds its search, Probe Expansion determines that it does not project to the root node. Note that the Probe Expansion algorithm accomplishes what is often called *feature checking*, or *deletion of checked features*. Some implementation of said deletion is otherwise necessary, at least for features triggering structure building, such as selectional features or the EPP, as those features do not trigger operations recursively (with the exception of insatiable probes, for which a special formalization is required).

The third scenario requires an understanding of what configuration(s) allow a probe to not initiate its search. I do assume that (obligatory) operations apply whenever the structural description obtains (Chomsky 1957; Preminger 2014). I assume that all operations discussed here (EPP probing, ϕ probing, Probe Expansion) are such obligatory operations. The scenario we're looking for, then, is one where a probe does not "get a chance" to initiate its search before Probe Expansion is completed. This is the case when an EPP probe is ordered to apply before another probe, as detailed below.

Let us have a closer look at the operations triggered by Voice in Ndebele. Immediately after Voice is merged with vP, Probe Expansion may only apply vacuously, as no features of Voice initiated their operations:

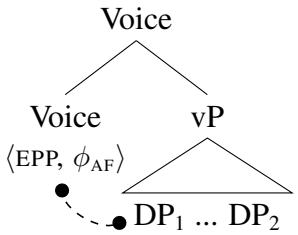
(80) Step 1: Output of Merge(Voice,vP); vacuous application of Probe Expansion



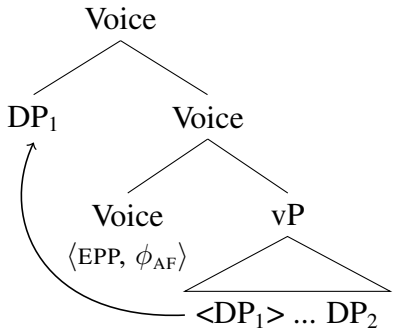
When the first feature of Voice, EPP, probes, it finds the highest DP in its domain, thus successfully completing the search. At this point, Probe Expansion determines that neither the EPP nor ϕ project:

the former has succeeded in finding a goal, the latter hasn't probed yet (81). The second component of the operation triggered by the EPP is Merge of the DP goal with the root node (82).

(81) Step 2: EPP probing, Probe Expansion



(82) Step 3: EPP-triggered Merge

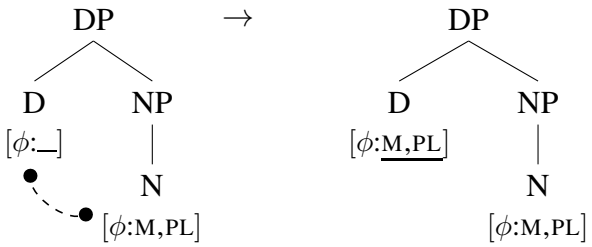


The structure in (82) is the output of the operation triggered by the EPP. Due to the probe ordering in Voice, ϕ can only start probing now. Note that (82) is the structural description for two operations: probing by ϕ in Voice and Probe Expansion applying to the new root node. Their relative timing has no significance – we may assume that the two operations apply simultaneously. What is crucial here is that Probe Expansion applies to root nodes. In this structure, the node that immediately dominates the Voice head is not the root node (due to DP movement triggered by the EPP). Therefore, no feature of Voice^0 can be projected at this point. If ϕ in Voice^0 fails the search of its c-command domain, it fails the search terminally. That is, probes ordered after an EPP feature do not expand.

The Probe Expansion algorithm does allow the projection of a feature ordered after another feature more generally. For instance, two agreement probes may be ordered with one another, and any one of them can project if it fails its search. This is because agreement probes, unlike the EPP, do not triggered structure building, and so they do not bleed Probe Expansion.

I close this section by discussing the implications of the Probe Expansion algorithm for probes that become goals, with specific reference to D(P)s. For languages in which determiners covary with the noun's ϕ features (gender, number), it is typically assumed that D hosts a ϕ-probe. Probe Expansion predicts that, when D successfully locates matching ϕ goals in its c-command domain, the probe does not project to the phrasal level. For simplicity, I assume that gender and number features originate in N:

(83) Successful ϕ probing by D; ϕ does not project to DP



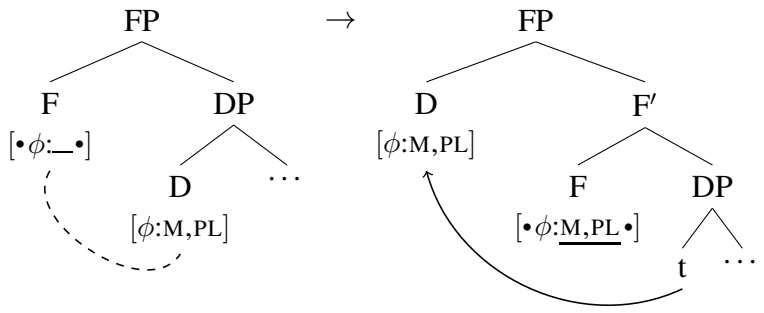
On the other hand, DPs themselves are ϕ goals and it is typically assumed that their ϕ features are a property of the entire DP. This would require projection of those features from D to DP, contrary to what Probe Expansion predicts. However, it is not easy to find convincing evidence that the goal ϕ features of D(P)s are present at the maximal projection level. Even if DPs are phases, any probe that

can access the maximal projection can access the head. I maintain, then, that agreement with "DPs" is, strictly speaking, agreement with their heads.

This raises a question about the interaction between agreement and movement. How do we deal with cases in which movement ostensibly tracks agreement? That is, structures in which what is moved seems to depend on what controls agreement on the same head? I believe that, in many cases, such a correlation between agreement and movement is spurious, as discussed above for Ndebele. Since both EPP and ϕ typically find goals of category D, they are likely to locate the same DP, although one of the probes will locate the head and the other the phrasal level. Since, as hypothesized above, ϕ-feature of Ds do not project to the DP level, the ϕ probe will agree with D. For the EPP, the closest matching node will be this D's maximal projection, resulting in phrasal movement.

In the scenario above, there is only an *appearance* of movement tracking agreement. In reality, there is a separate movement probe and a separate agreement probe which, due to locality, target different levels of the same DP. It seems perfectly possible that true cases of movement tracking agreement exist. They can be implemented as ϕ probes which automatically trigger movement of their goal. Following the convention in Heck & Müller 2007; Müller 2010, I notate such ϕ probes as $[\bullet\phi\bullet]$. This kind of probe would trigger the movement of the D *head* that it agrees with.

(84) Movement-triggering agreement



(84) is a case of (potentially long) head movement of D triggered by agreement. This is precisely the characterization of clitic doubling proposed in Rezac 2008; Roberts 2010; Preminger 2019 (although the explanation of why it is the head, and not the DP that moves is different.) A more general prediction is that D movement can only be triggered by features that do not project to DP.

Another set of predictions of the proposed Probe Expansion algorithm concerns the interaction between agreement and case. If Ds have unvalued case features that cannot be valued by anything inside the D's complement, Probe Expansion predicts the case probe to expand to the phrasal level. This means that case features are located on a higher level of the nominal phrase than ϕ features. This may have consequences for so called case-discriminating agreement, at least at the level of implementation. I must leave articulating these predictions in more detail for future work.

4 Further evidence

In this section, I discuss four puzzles in agreement and raising in Ndebele that receive a simple explanation under the proposed account of the NOM/ACC agreement alignment. The puzzles have been observed in other Bantu languages and they include: i) defective intervention effects VSO

orders, ii) optionality of subject movement and agreement, iii) a requirement that all verbal elements in a single clause must uniformly agree or uniformly not agree with the subject and iv) an object agreement asymmetry in passives of ditransitives.

4.1 Deriving defective intervention effects in object agreement

The account presented in the previous section derives the fact that in situ subject do not control agreement in Voice, despite being c-commanded by it.

(85) Ku-a-(***m**)-phek-a u-Thabani i-nyama.
15-PST-1o-cook-FV A-1Thabani A-9meat
'Thabani cooked meat'

In fact, Voice cannot agree with an object in that configuration either:

(86) Ku-a-(***yi**)-phek-a u-Thabani i-nyama.
15-PST-9o-cook-FV A-1Thabani A-9meat
'Thabani cooked meat'

(85) and (86) together look like a case of defective intervention: the higher DP cannot control agreement on Voice and at the same time it blocks agreement with a lower, otherwise legitimate, goal. It is difficult to see, however, what would make the the subject a defective intervener. As discussed in section 2.4, ϕ in Voice does not seem be to relativized to any specific case, so case-based intervention is an unlikely explanation.

The analysis proposed here derives the ungrammaticality of (86) in a straightforward way. Recall that, in order for the subject to stay in situ, Voice must lack its EPP probe. Since ϕ probes are parametrically restricted to appear only on heads with EPP, there is no ϕ probe on Voice when the subject stays in situ. This means that Voice cannot agree with *any* DP in VS orders. The term "intervention" is then only descriptively true of the phenomenon at hand. Technically, the intervention configuration never arises: if the intervener (the subject) is there (in situ), there is no probe to intervene with; and when the probe is present, the intervener is always moved out of the ϕ probe's c-command domain before probing begins.

4.2 Deriving the optionality of subject movement and agreement

The middlefield A-movement analysis provides a solution to a well known puzzle in Bantu syntax, namely the optionality of subject movement to Spec,TP. Why does T find the in-situ subjects sometimes but not always? Here the answer is the following: if Voice doesn't have the EPP, the subject is trapped in vP and is invisible to T.

A different solution has been proposed for Zulu by Zeller (2008, 2015) and for Xhosa by Carstens & Mletshe (2015). As discussed in section 3, Carstens & Mletshe propose that T optionally lacks EPP and ϕ. In the absence of those features, the subject remains in situ and doesn't control agreement on T. However, as pointed out by Zeller (2015), this account incorrectly predicts that there should be no subject agreement exponent whatsoever in VS orders (since there is nothing to expone). The facts are different (both in Zulu and Ndebele):

(87) a. Ku-a-phek-a u-Thabani.
15-PST-cook-FV A-1Thabani
'Thabani cooked'

b. *A-phek-a u-Thabani.
PST-cook-FV A-1Thabani
'Thabani cooked'

When T doesn't agree with the subject, its ϕ-probe is exponed as class 15 agreement. This, in turn, suggests that the probe is there but remains unvalued (Preminger 2014). In Pietraszko 2019, I argue that class 15 is the most underspecified class, whose geometry consists of just the topmost ϕ-node. Thus, the shape of an unvalued ϕ-probe is the same as the shape of the class 15 geometry (see Carstens 1991 for a similar characterization of class 15 in Swahili).

The other possibility, proposed by Zeller (2008, 2015) for Zulu, is that the probe on T is not in fact a ϕ-probe, but rather a probe that looks for topical DPs – specifically, DPs bearing the Antifocus feature. This is the analysis assumed here for *object* agreement and movement, but not for subjects, which can move to Spec,TP with or without theAF feature.

For Zeller (2008), the ϕ-probe in T is relativized to AF as well. Zeller's motivation for this is the fact that, in Zulu, in-situ subject are always in focus (narrow or wide presentational focus), while preverbal, agreeing subjects are topical. This is largely true in Ndebele, as well, as illustrated in (88) by the distribution of DPs modified by the focus particle *kuphela* 'only'.

(88) a. Ku-a-pheka [u-Thabani kuphela].
15s-PST-cook A-1Thabani only
'Only Thabani cooked.'

b. *[U-Thabani kuphela] u-a-pheka.
A-1Thabani only 1s-PST-cook
'Only Thabani cooked.'

In Zeller's account, *only*-DPs, being necessarily focused, do have the AF feature and therefore cannot raise to T. Theis correlation between agreement and antifocus does not hold for all Bantu languages, however. Schneider-Zioga (2007) shows that focused DPs in Kinande can control subject agreement in certain clause types (in brief, in clauses where topicalization of the subject is blocked.) Similar facts are found in Ndebele (Pietraszko 2017a, to appear): preverbal, agreeing subjects may be focused in some clause types. In Ndebele, the restriction observed in (88) holds only in root(-like) indicative clauses. Relative clauses and subjunctive clauses allow preverbal subject to be narrowly focused. (Carstens & Zeller to appear report that the same is true for some speakers of Zulu.) I illustrate this for Ndebele with a subjunctive clause in (89-a). Note that, as in indicative clauses, raising to Spec,TP is optional in subjunctive clauses (89-b).

(89) a. Ngi-funa ukuthi [u-Thabani kuphela] a-pheke.
1sg-want COMP A-1Thabani only 1s-cook.SBJV
'I want it to be the case that only Thabani cooks.'

b. Ngi-funa ukuthi ku-pheke [u-Thabani kuphela].
1sg-want COMP 15s-cook.SBJV A-1Thabani only
'I want it to be the case that only Thabani cooks.'

(89) shows that raising to Spec,TP and agreement with T cannot be linked to discourse related features: the same kind of focus is available for an in-situ and a raised subject.

In fact, there is evidence that A movement is not regulated by *any* feature of the moving DP in Ndebele. In cases when there is more than one movement probe, the DP is not required to move all the way to the highest position. Consider, for instance, the raising verb *qala* 'be.first', which selects subjunctive CPs. Evidence that it involves raising comes e.g. form active passive synonymy: (90-a) and (90-b) are truth conditionally equivalent.

(90) a. U-Zodwa u-qala [$_{CP}$ ukuthi a-pheke i-nyama]
A-1Zodwa 1s-first COMP 1-cook.SBJV A-9meat
'First, Zodwa cooks meat.'

b. I-nyama$_i$ i-qala [$_{CP}$ ukuthi i-phek-w-e ngu-Zodwa]
A-9meat 9s-first COMP 9-cook-PSV-SBJV by-Zodwa
'First, the meat is cooked by Zodwa.'

Since raising is optional, the subject may stay in its base generated position, in embedded Spec,vP in (91-a), or move all the way to the matrix Spec,TP (91-b).

(91) a. Ku-qala [$_{CP}$ ukuthi ku-pheke **u-Zodwa**.]
15s-first COMP 15-cook.SBJV A-1Zodwa
'First, Zodwa cooks.'

b. **U-Zodwa** u-qala [$_{CP}$ ukuthi a-pheke.]
A-1Zodwa 1s-first COMP 1-cook.SBJV
' First, Zodwa cooks.'

Under the hypothesis that A-movement is sensitive to some feature of the moving DP, it follows that the DP *Zodwa* in (91-a) does not have the feature A-movement probes look for, while the same DP in (91-b) does. What this account fails to capture is the fact that the subject can surfaces in two intermediate positions in this structure: the embedded Spec,TP (92-a) and matrix Spec,vP (92-b).

(92) a. Ku-qala [$_{CP}$ ukuthi **u-Zodwa**$_i$ a-pheke t_i.]
15s-first COMP A-1Zodwa 1-cook.SBJV
'First, Zodwa cooks.'

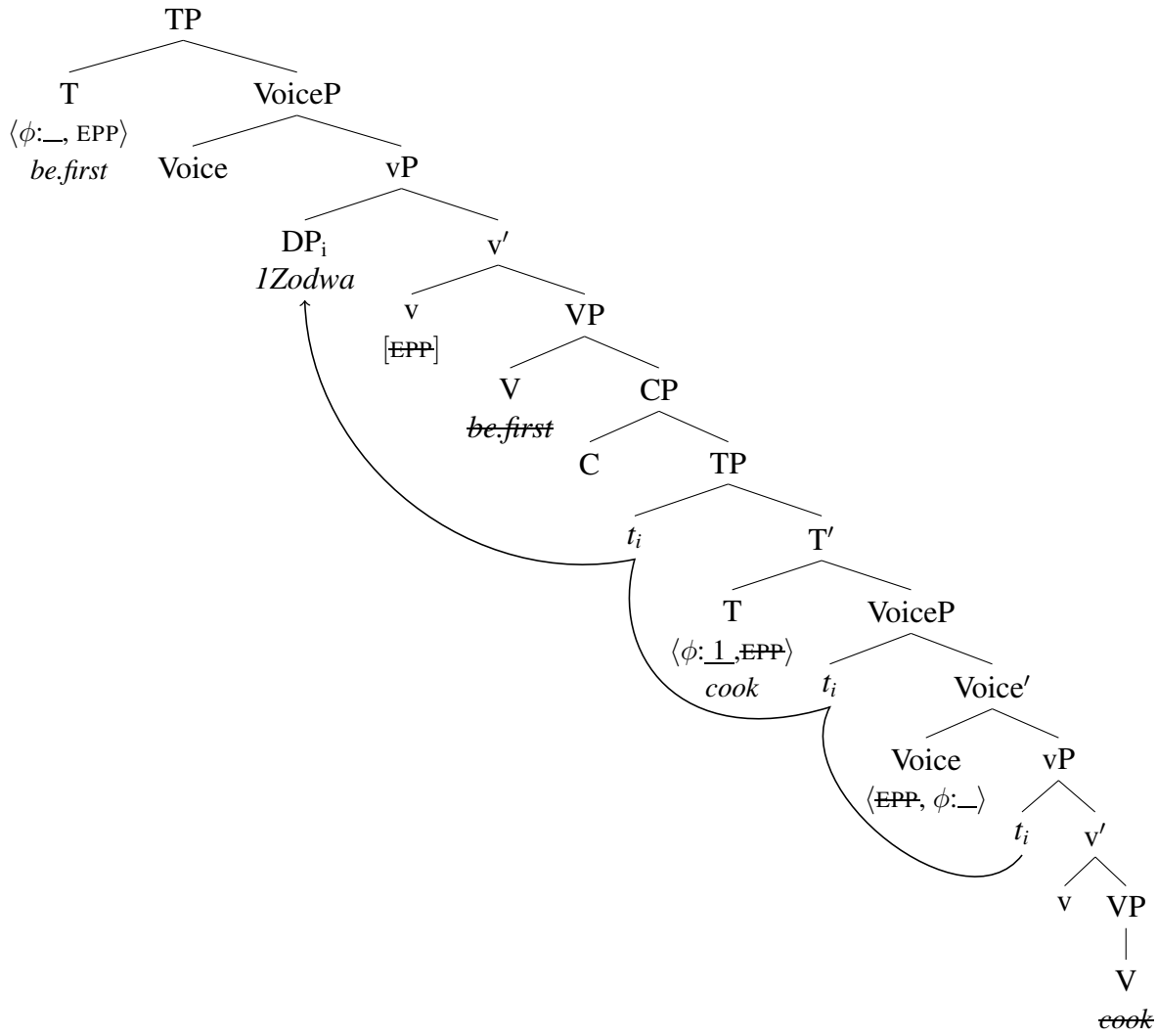
b. Ku-qala **u-Zodwa** [$_{CP}$ ukuthi t_i a-pheke t_i.]
15s-first A-1Zodwa COMP 1-cook.SBJV
'First, Zodwa cooks.'

(92-b) is perhaps the more striking case. The subject clearly has the feature that allows it to move to Spec,TP, since it does so in the embedded clause. The matrix T should then be able to find it, contrary to fact.

The conclusion I draw from these facts is that the extent of A-movement in Ndebele is not regulated by the features of the moving DP. Any DP is inherently a viable candidate for A-movement. What prevents it in some contexts is locality and the absence of movement probes. The derivation of (92-b) under the present account is given in (93). The embedded Voice has an EPP feature, triggering movement of the subject to Spec,VoiceP and consequently to Spec,TP. I assume that v in the matrix

clause can have an EPP feature optionally, which, when present, attracts the embedded subject.[11] Matrix Voice in (93) lacks EPP, and so the raised subject remains inside the inner phase, invisible to probes in T.

(93) Derivation of (92-b):



For completeness, I provide below the derivations of all the possible positions of the DP *Zodwa* instantiated in (91)-(92).

(94) a. (91-a): [$T_{\langle\phi,\text{EPP}\rangle}$ [$\text{Voice}_{(\langle\text{EPP},\,\phi\rangle)}$ [$v_{([\text{EPP}])}$ ... [C [$T_{\langle\phi,\text{EPP}\rangle}$ [Voice [**Zodwa** v]]]]]]]

b. (92-a): [$T_{\langle\phi,\text{EPP}\rangle}$ [$\text{Voice}_{(\langle\text{EPP},\,\phi\rangle)}$ [v ... [C [**Zodwa** $T_{\langle\phi,\text{EPP}\rangle}$ [$\text{Voice}_{\langle\text{EPP},\,\phi\rangle}$ [v]]]]]

c. (92-b): [$T_{\langle\phi,\text{EPP}\rangle}$ [Voice [**Zodwa** $v_{[\text{EPP}]}$ ... [C [$T_{\langle\phi,\text{EPP}\rangle}$ [$\text{Voice}_{\langle\text{EPP},\,\phi\rangle}$ [v]]]]]

d. (91-b): [**Zodwa** $T_{\langle\phi,\text{EPP}\rangle}$ [$\text{Voice}_{\langle\text{EPP},\,\phi\rangle}$ [$v_{[\text{EPP}]}$ ... [C [$T_{\langle\phi,\text{EPP}\rangle}$ [$\text{Voice}_{\langle\text{EPP},\,\phi\rangle}$ [v]]]]]

[11] I stay agnostic of what makes the subjunctive CP permeable for movement and agreement. Possibilities include the embedded DP moving to the CP edge or the CP becoming transparent due to agreement with a matrix probe (Halpert2012, 2015). This question is independent of the present discussion.

Note that raising is not always optional. Raising from Spec,VoiceP to Spec,TP is obligatory. A subject that remains in Spec,VoiceP would control agreement on T, but follow the verb. This, as we've seen before, is impossible:

(95) *U-∅-pheka u-Thabani. [$T_{\langle\phi,\text{EPP}\rangle}$ [**Zodwa** Voice [t_i v ...]]]]]]
1s-CNJ-cook A-1Thabani
'Thabani cooks'

The generalization that emerges about A-movement is that it is optional whenever it crosses a phase boundary: a VoiceP or a CP. Otherwise it's obligatory.

(96) *The Raising Generalization*
a. When raising crosses a phase boundary (VoiceP,CP), it is optional
b. When raising doesn't cross a phase boundary, it is obligatory.

Raising from Spec,VoiceP to Spec,TP is obligatory because it doesn't cross a phase boundary. To move out of a phase, something special is required (such an EPP feature on the phase head). Without a phasal boundary, raising is inescapable. In the next subsection, I discuss another case of obligatory raising.

4.3 Uniform agreement in auxiliary verb constructions

A single clause in Ndebele may host a number of auxiliary verbs associated with functional projections in the Tense/Aspect domain (Pietraszko 2017b). As an illustration, consider a construction that involves the default auxiliary *be* ("supporting" future tense inflection) and the aspectual auxiliary *se* expressing the meaning the English adverbs 'now/then' or 'already'.

(97) U-Thabani u-za-be e-se e-pheka.
A-1Thabani 1s-FUT-AUX 1s-AUX 1s-cook.PROG
'Thabani will be cooking then'

Multi-verb constructions of this type are very common in Bantu languages and their well-known property is full person/number/gender agreement on every verb. Assuming that every ϕ probe cooccurs with an EPP feature, the subject must move to the specifier of three different functional projections in (97) (say, two Asp heads and T). This is indeed the standard analysis of such constructions in other Bantu languages (Carstens 2001; Carstens & Kinyalolo 1989; Baker 2008, cf. Henderson 2006a, b).

As in simple tenses, the subject may stay in situ, in which case all three verbs surface with a class 15 agreement prefix:

(98) Ku-za-be ku-se ku-pheka u-Thabani.
15s-FUT-AUX 15s-AUX 15s-cook.PROG A-1Thabani
'Thabani will be cooking then'

What's special about multi-verb constructions is that no intermediate landing sites are available for the subject (99).

(99) a. *Ku-za-be ku-se u-Thabani e-pheka.
15s-FUT-AUX 15s-AUX A-1Thabani 1s-cook.PROG
'Thabani will be cooking then'

b. *Ku-za-be u-Thabani e-se e-pheka.
15s-FUT-AUX A-1Thabani 1s-AUX 1s-cook.PROG
'Thabani will be cooking then'

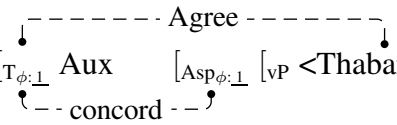
Such limited optionality of subject agreement and raising is puzzling given the notorious optionality of raising in the language, and the fact that, in other cases, raising can be terminated in an intermediate position, as discussed in the previous subsection. The present account, however, predicts exactly this pattern of raising in multi-verb constructions. The subject may stay in situ, where it is invisible to any probe higher than Voice. Movement to the edge of VoiceP, necessary for agreement with T, makes the subject visible to probes below T, as well. Hence, the subject has only two options: i) stay in situ and control agreement on no verb or ii) move all the way to T and control agreement on all verbs. Either way, auxiliary verbs end up behaving uniformly in triggering agreement and raising.

Note that the uniformity of agreement and raising in multiverb constructions provides further evidence that T invariably hosts EPP and ϕ. Agreement will a lower auxiliary, located e.g. in Asp, entails agreement with T. This only follows if T does not have the option to lack EPP and ϕ.[12]

Observing the same agreement and raising uniformity in Swahili auxiliary verb constructions, Henderson (2006a, b) concludes that they cannot involve multiple independent probes. Instead, he proposes that only T agrees with the subject, and lower verbs inherit the ϕ features from T via a concord mechanism. Applying this analysis to Ndebele Future Progressive tense would mean that the future tense T agrees with the subject, and the progressive Asp copies the ϕ-features from T:

(100) a. U-Thabani u-za-be e-pheka.
A-1Thabani 1s-FUT-AUX 1s-cook.PROG
'Thabani will be cooking then'

b. $[_{TP}\ \text{Thabani}_{\phi:1}\ [_{T_{\phi:\underline{1}}}\ \text{Aux}\ [_{Asp_{\phi:\underline{1}}}\ [_{vP}\ \text{<Thabani}_{\phi:1}\text{>}\ \text{v}\ \ldots]]]]$



This analysis untenable for Ndebele, where a multiverb construction may be externally an infinitival clause. Morphologically, infinitives are verb stems preceded by the class 15 prefix. They have no tense or agreement morphology (101-a). As we see in (101-b), the lack of agreement in the infinitival form of the auxiliary does not prevent the participle from exhibiting subject agreement.[13]

[12] Recall from section 3.1 that Carstens & Mletshe (2015)'s analysis of Xhosa includes the following implicational statement: defective T $\leftrightarrow$ defective v. This ensures that when T doesn't trigger subject agreement/movement, v cannot trigger object agreement/movement either. This statement says nothing about the defectivity of other functional projections. In order to get the data right, the statement would have to change so that all functional heads in the clause have the same defectivity status. Adapting this analysis in Ndebele is further complicated by the facts discussed immediately below, which show that an infinitival (i.e. a non-agreeing) T does not entail a non-agreeing Asp (or Voice, for that matter).

[13] It is an independent question of how the embedded participle agrees with class 1 of the matrix subject. One possibility is that (101-b) is a control construction with a PRO that shares the matrix subject's ϕ feautres. Another possibility is raising from the infinitive (under the Movement Theory of Control, Hornstein 1999 et seq). There is good reason to think that a version of the latter is the correct analysis, but this is orthogonal to the issue at hand.

(101) a. U-Thabani u-a-funa uku-pheka.
A-1Thabani 1s-PST-want INF-cook
'Thabani wanted to cook'

b. U-Thabani u-a-funa uku-ba e-pheka. (cf. (100-a))
A-1Thabani 1s-PST-want INF-AUX 1s-cook.PROG
'Thabani wanted to be cooking.'

The fact that the participle in (101-b) shows controlled agreement strongly suggests that agreement on the participle is an independent relation with a DP goal, as T in this contexts shows no sign of ϕ agreement with class 1.

In sum, the idea that canonical subjects complete a short A-movement step to the edge of VoiceP derives both the limited optionality of agreement/raising in multiverb constructioins and the more robust optionality in other types of raising (discussed in the previous subsection). The correct generalization about the extent of raising is in terms of domain opacity, not in terms of features of the moving DP.

4.4 Deriving object agreement asymmetry in passives

The final, but important, piece of evidence for A-movement to Spec,VoiceP comes from object agreement in passives. Double object constructions in Ndebele show some symmetrical properties. The indirect object and the direct object can both control object agreement (102) and they can both raise to subject under passivization (103).

(102) a. U-Thabani u-a-**ba**-phek-el-a $[_{vP}$ t_V $\boxed{t_i}$ i-nyama $]$ a-bantwana$_i$.
A-1Thabani 1s-PST-2o-cook-APP-FV A-9meat A-2child
'Thabani cooked meat for the children'

b. U-Thabani u-a-**yi**-phek-el-a $[_{vP}$ t_V a-bantwana $\boxed{t_j}$ $]$ inyama$_j$.
A-1Thabani 1s-PST-9o-cook-APP-FV A-2child A-9meat
'Thabani cooked the meat for children'

(103) a. **I-nyama$_j$** i-a-phek-el-w-a a-bantwana $\boxed{t_j}$.
A-9meat 9s-PST-cook-APP-PSC-FV A-2child
'The meat was cooked for children.'

b. **A-bantwana$_i$** ba-a-phek-el-w-a $\boxed{t_i}$ i-nyama.
A-2child 2s-PST-cook-APP-PSC-FV A-9meat
'The children were cooked meat.'

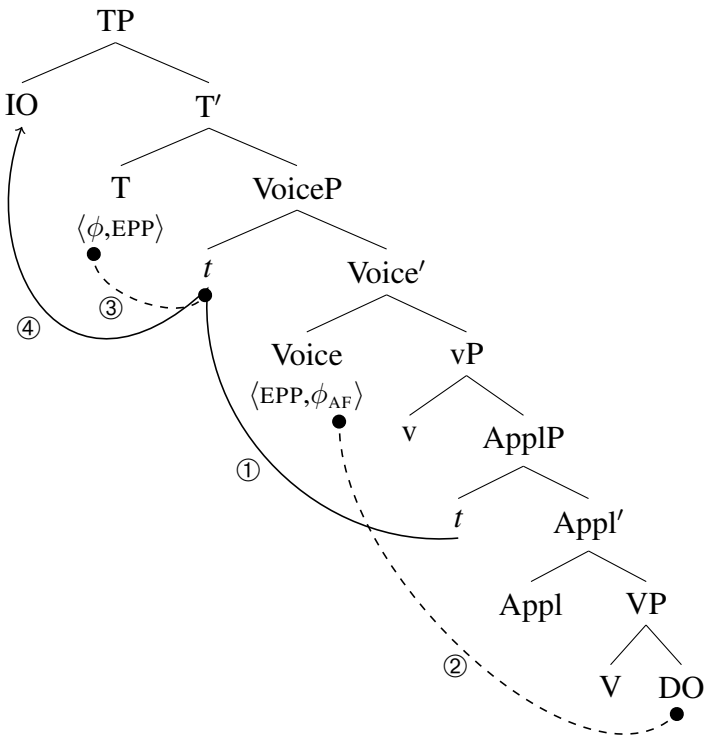
As discussed in section 2.3, there is evidence that the indirect object is a more local goal to Voice than the direct object: when both objects bear the AF feature, only the indirect object may control agreement. Given this structural asymmetry, why is it possible for the direct object to raise to Spec,TP in passives across the indirect object? One common analysis if this kind of symmetry is scrambling of the DO to a position in which it is a closer goal (or at least an equidistant goal) to T. What is the head that allows such scrambling? It's neither ApplP nor vP – each would overgenerate symmetric phenomena in the language, including object agreement (which is actually asymmetric) and raising of objects to Spec,TP across agents – a kind of inversion found in some Bantu languages (see Henderson 2011 for an overview), but not in Ndebele:

(104) #I-nyama i-a-pheka u-Thabani.
A-9meat 9s-PST-cook A-1Thabani
'The meat cooked Thabani.'
Cannot mean: 'Thabani cooked meat.'

This suggests that the landing site for such scrambling is higher than vP, e.g. in Spec,VoiceP. Further evidence that it is Voice that allows this inversion comes from the fact that we find it only in passive sentences, but not in active ones.[14] Given this, I propose that $\text{Voice}_{\text{PASS}}$ may have an extra EPP feature, triggering movement of the DO to the outermost specifier of VoiceP.

First, consider the derivation of a passive sentence with Voice having its usual $\langle$EPP,$\phi\rangle$. Due to locality, the IO moves to Spec,VoiceP and becomes the surface subject. The DO may control agreement on Voice if it has the AF feature, deriving (103-b).

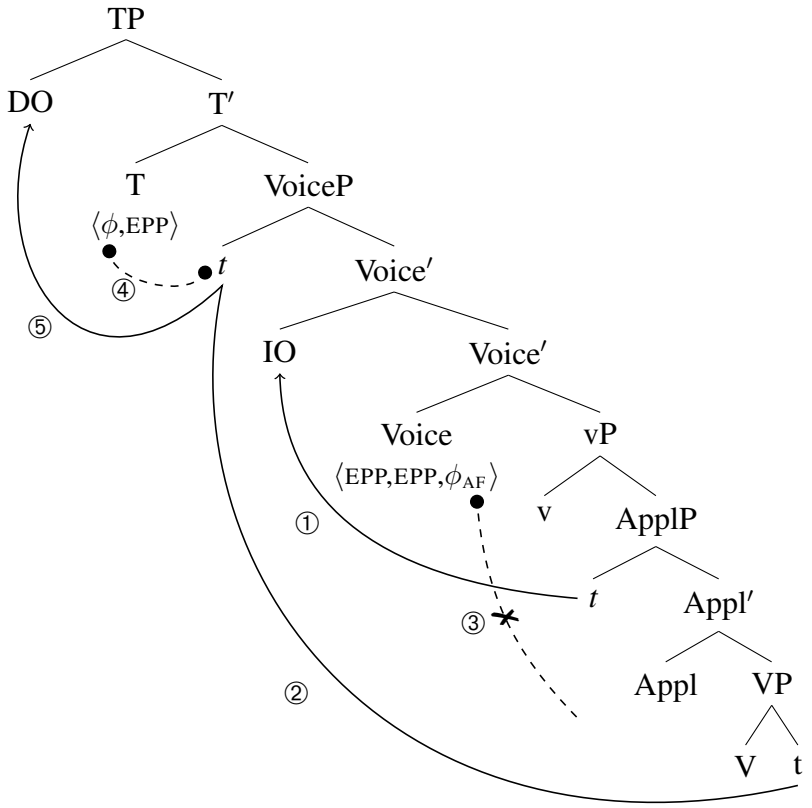
(105) IO passivization; DO may control ϕ-agreement on Voice



When $\text{Voice}_{\text{PASS}}$ has an extra EPP feature, it additionally triggers movement of the DO to its specifier. From this position, the DO object can raise to TP and control agreement on T.

[14] Ndebele has locative inversion and instrumental inversion, which may require a special kind of voice to invert with subjects. I leave the analysis of those constructions for future work.

(106) DO passivization; IO **cannot** control ϕ-agreement on Voice



I propose that, like the obligatory EPP in Voice, the optional EPP is ordered before ϕ. Consequently, both object move out of the vP before ϕ in Voice starts probing. When Voice has two EPP features, its ϕ probe fails its search. This accounts for the fact that, neither the DO nor the IO can control object agreement in this configuration:

(107) a. I-nyama i-a-(***yi**)-phek-el-w-a a-bantwana.
A-9meat 9s-PST-9o-cook-APP-PSC-FV A-2child
'The meat was cooked for children.'

b. I-nyama i-a-(***ba**)-phek-el-w-a a-bantwana.
A-9meat 9s-PST-2o-cook-APP-PSC-FV A-2child
'The meat was cooked for children.'

Thus, we derive an otherwise puzzling asymmetry between DOs and IOs:

(108) Object agreement asymmetry in passives:
a. in IO V DO passives, the DO can control object agreement
b. in DO V IO passives, the IO cannot control object agreement

Since the presence of ϕ in Voice, entails EPP in Voice, the IO, being the highest DP, will always move to Spec,VoiceP before ϕ in Voice start probing, escaping agreement with Voice the same way any canonical subject does. That is, IO cannot control object agreement in passives for the same

reason that *any* thematically highest DP cannot control agreement on Voice. Passives are especially interesting in this respect because $\text{Voice}_{\text{PASS}}$ allows an extra specifier, which may ultimately result in an inversion, with a lower DP moving to Spec,TP. For this reason, these facts are ultimately further evidence for a short middlefield A-movement of subjects in this language. In most cases, this movement is difficult to detect since the DP moving to that position moves further to Spec,TP, giving the appearance of direct movement from an in-situ position to Spec,TP. Passives reveal that movement of the highest DP to Spec,VoiceP and movement to Spec,TP are, in fact, independent.[15]

5 Conclusion and a look beyond Bantu

This paper addressed the question of why the thematically highest DP in Ndebele cannot control object agreement, despite being c-commanded by the object agreement probe. I argued that this exceptionless NOM/ACC agreement alignment can be understood as a consequence of the parameter that requires ϕ probes to cooccur with an EPP feature on the same head. The effect is that the first operation affecting the arguments in their base-generated positions is movement of the highest DP out of the c-command domain of the object agreement probe. Previous implementations of this parameter do not explore the possibility that the cooccuring ϕ and EPP probes may be satisfied by different goals. I demonstrated that allowing such disjoint satisfaction provides a straightforward explanation for the NOM/ACC agreement alignment and is further supported by the fact that it solves a number of seemingly independent issues in agreement and raising.

I argued that alternative accounts in terms of case-discriminating agreement or based on probe-goal locality alone are untenable for Ndebele, and likely for most Bantu languages. This is not to say that case-discrimination and the position of the object agreement probe do not underlie superficially similar patterns in other languages. The position of probes is, naturally, predicted to be a factor in regulating argument alignment in agreement in all languages. We also independently know that case-discrimination in agreement exists and is (at least partially) responsible for the emergence of a NOM/ACC agreement alignment in some languages. However, we also know that the NOM/ACC agreement alignment is not restricted to languages with NOM/ACC case alignment (e.g. Warlpiri, Chukchi (Bobaljik 2008), Burushaski (Baker 2010)), and so case-discrimination is not the only path to the NOM/ACC alignment in agreement available to languages. I proposed here that the path to the NOM/ACC alignment in Ndebele agreement is based only on its interaction of with movement.

In fact, we expect the movement-based path to NOM/ACC agreement alignment to be empirically distinguishable from a case-based path. In a language in which the NOM/ACC agreement pattern follows from case, we may encounter instances of subject agreement with a DP that's not base-generated as the highest DP in the clause – for instance, when the highest DP bears a case that the subject agreement probe is unable to agree with. This is the case in Icelandic, where a Number probe may agree with a thematically lower DP if the thematically higher DP bears Dative case. Admittedly, the Dative DP must move out of the probe's c-command domain for such agreement to obtain, otherwise it prevents agreement with *any* DP. In either scenario, the effect of case discrimination is that the Number probe cannot agree with the thematically highest DP despite c-commanding it at some point in the derivation. This kind of agreement pattern is predicted to be absent in a lan-

[15] Zeller (2015) offers a different analysis of the same pattern in Zulu. His analysis relies on the claim that subject movement to Spec,TP is also driven by the AF feature. Thus, a DO V IO passive is possible when the DO has AF and IO doesn't. As discussed above, it is clear that AF is not what triggers movement to Spec,TP in Ndebele. Moreover, this analysis would incorrectly predict subject-object inversion in active clauses as well.

guage with a (purely) movement-based agreement alignment, like Ndebele. As we have seen, there is no property of DPs in Ndebele that would allow the thematically highest DP to "escape its fate" as the canonical subject in terms of agreement. Naturally, the two paths are not mutually exclusive, providing a window for more variation.

Finally, there appears to be no good reason to reject, as a matter of principle, the existence of multiple paths to the same argument alignment in agreement. With respect to case, it is generally agreed that what we call NOM/ACC alignment and ERG/ABS alignment are each a generalization that may emerge in different ways in different languages. That is, it is not the case that every language with an ERG/ABS case pattern has the exact same case system. If only because what we call Ergative is not an ontological primitive: in some languages, it is analyzed in configurational terms (i.a. Bobaljik 1993; Laka 1993; Marantz 1991), e.g. as dependent case; in others, as inherent case (i.a. Laka 2006; Legate 2008; Aldridge 2004, 2008; Polinsky 2016). The same thing can be said about Accusative, Dative, and even Nominative (Baker 2015). Thus, a given argument alignment can arise from underlyingly different systems of case assignment that converge to give a fairly uniform surface pattern. Given this, one might, in fact, find it surprising that there should be a single underlying agreement system for all languages with a NOM/ACC alignment in agreement.

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