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) agrees with the highest DPs in the clause, and another ϕ-probe (in Voice/v) never agrees with the highest DP. Despite being well known, this pattern in Bantu languages is not well understood. 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 devise 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 in terms of the obligatory occurrence of EPP features alongside every head hosting a ϕ-probe. 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 Bantu agreement pattern (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 the 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]

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[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.

(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.

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

To capture 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 is triggered by a ϕ-probe in Voice (AgrS and AgrO/v in some of the literature). As shown in (2), the agreeing subject undergoes A-movement to Spec,TP. For simplicity, I assume that the verb in Ndebele moves to T.[3]

(2)   Derivation of (1-a) (to be completed in (4))
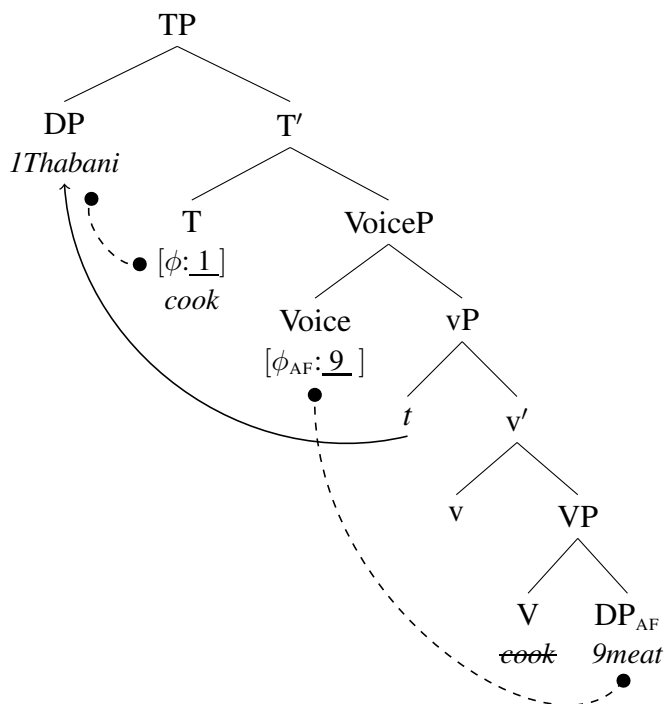
   Another important aspect of Ndebele clause structure is the fact that agreed-with objects undergo obligatory dislocation (right or left). In this paper, I will only discuss right-dislocation. Dislocation may be diagnosed by the so called *conjoint/disjoint* alternation in the verb form: if the object follows a conjoint verb, the object is inside vP (3-a); if an object follows a disjoint verb form, it is

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[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 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 that the verb 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.

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.

(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 thus 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 (1-a)
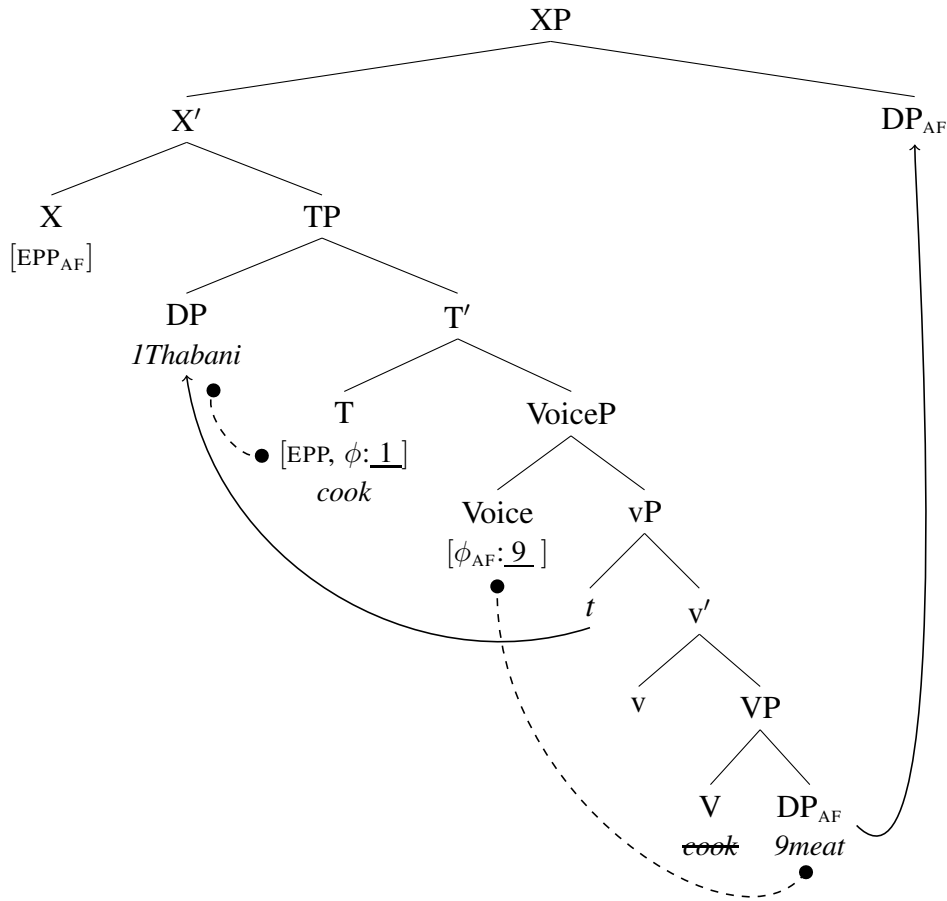
Since this paper is concerned with phenomena taking place inside TP, i.e. before object dislocation applies, I will represent objects as located in their based positions, even when they control object

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

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]

2.2 The NOM/ACC alignment in agreement

Turning to the core data, subject agreement in Ndebele is typically[6] 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 syntax:

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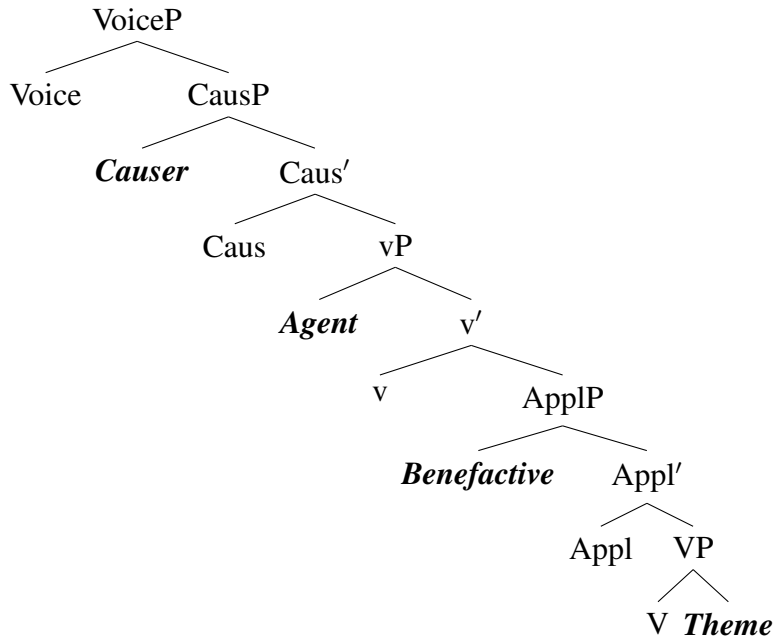
I will use the term *canonical subject* to refer to the thematically highest DP in a given clause. The agreeing subject may be a Causer (6), an Agent (7), a Benefactive (8), or a Theme (9).

(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.'

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[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:

(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.

[6] Exceptions to this are inversion constructions, including direct object passivization in double object constructions, which is discussed in section 4.4.

(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 the standard analysis of Bantu clause structure, the object agreement probe (here, Voice) is 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 is 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).[7]

(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 agreement prefix, namely class 15. I will return to the absence of agreement with T in VS orders in sections 3 and 4.2. What is crucial at this point is that, despite being c-commanded by Voice, the in situ Agent is not a viable target for ϕ-agreement with Voice. Again, this is true for all canonical subjects, irrespective of their base position:

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[7] 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 to incompatibility of subject-agreement on Voice with dislocation, nor its incompatibility with the absence of dislocation.

(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 example of NOM/ACC argument alignment: the highest argument in the clause is treated uniformly by the agreement system, irrespective of its thematic 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 analyses 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 from which it does not c-command the canonical subject. Second, this alignment 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 possibility 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 probing (Chomsky 2000, 2001; Preminger 2013; Preminger & Polinsky 2015; Polinsky & Preminger 2019; Diercks et al. 2020, Rudnev to appear, contra 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. For instance, for a subject generated in Spec,vP, the object agreement probe would need to be on v at the highest. Such a probe would, however, find a Benefactive or a Theme, incorrectly predicting that both (15) and (16) should be grammatical with object agreement as shown in those examples.

Double object constructions provide a further, clear argument against this hypothesis. 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 the most local matching goal whenever

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 both objects. In those cases, only the indirect object (the higher of the two) 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-⟦$\overline{\textbf{yi}}$⟧-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, passivized double object constructions have 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$_\phi$ $[_{vP}$ v$_\phi$ $[_{ApplP}$ t_i $[_{Appl'}$ Appl $[_{VP}$ V meat]]]]]]]]
– – Agree –'   *– – – – – – – Agree – – – – – –*

An account in terms of the height of the object probe therefore predicts that, when left in situ, the IO should control object agreement:

(22) $[_{TP}$ T$_\phi$ $[_{vP}$ v$_\phi$ $[_{ApplP}$ 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'

As should be clear, the same incorrect prediction would follow if the object agreement probe were in Voice, not in v. More generally, these facts show that the NOM/ACC agreement alignment cannot be explained by fine-tuning the 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 in a negative clause.[8]

(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. Let us 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 is not able to target 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 present in the language besides 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 these implementations, this type of case-discrimination is not statable.

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[8]   Genitive of Negation in Polish typically replaces Accusative, with the exception of existential constructions such as the one in (25), where it replaces Nominative.

A different possibility is to adopt the parametric setting that Bobaljik (2008) proposes for languages like Nepali. Based on the 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, iii) 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: these DPs are simply the highest DPs in their respective argument-structure domains. Suppose now that Ndebele has no inherent/lexical case and the cutoff for agreement is between unmarked and dependent case. In this were true, the highest DP could be invisible to the probe by being dependent-case marked. This, however, 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, the highest DP is not generally immune to agreement – it controls agreement on T. This means that there can be no language-wide parameter banning agreement with it.

The second issue with the case-discrimination hypothesis 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 abstract case in other languages ("Vergnaud licensing"; Vergnaud 1977; Chomsky & Lasnik 1977; Chomsky 1981). This has 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 languages 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 assigned by the augment itself. If agreement on Voice is case-discriminating, we predict that it can target either augmented DPs or augmentless DPs. This seems in initially plausible since, in general, only augmented DPs 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 Xhosa, another closely related language, 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. $[_{vP}$ Agent$_{\text{Structural Case}}$ $]$
b. $[_{vP}$ Agent$_{\text{Focus Case}}$ Theme $]$
c. $[_{vP}$ Theme$_{\text{Structural Case}}$ $]$
d. $[_{vP}$ 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 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, like all other subjects, can be either preverbal or 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' (the same verb used in (31)) is causativized, which results in the presence of a higher argument, the Causer:

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

'They made Zodwa sad.'

Thus, even if the Experiencer has an inherent case, this case cannot be the reason why Voice cannot agree with it in (31).

Finally, 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 of this, an analysis of the puzzle at hand in terms of case-discrimination seems quite hopeless.

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

A third way to derive the NOM/ACC agreement alignment in Ndebele is by manipulating the timing of subject movement and object agreement. In particular, we could assume that the highest DP moves out 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). These assumptions, when combined, entail that the timing of operations must be counter-cyclic: T would have to probe before Voice (33).

(33)   ①

$[_{TP}$ *Agent* T_{EPP} ... $[_{VoiceP}$ Voice$_{\phi}$ $[_{vP}$ ~~*Agent*~~ v $[_{VP}$ V *Theme* $]]]]$

②
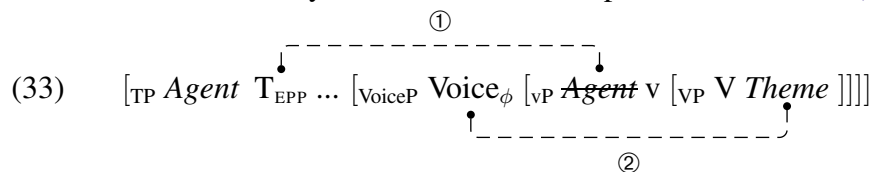
Analyzing the same facts in Zulu, Zeller (2015) proposes the following principle to enforce the desired order of operations:

(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 if we want to maintain the restrictiveness brought about by assuming cyclicity).

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 would 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) 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$^{\checkmark}$}-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 short, middlefield movement to Spec,VoiceP. In the remainder of this 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 agreement in Ndebele (and similarly-behaved Bantu languages). 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, ii) the optionality of movement to Spec,TP, iii) agreement uniformity in auxiliary verb construction, and iv) an object agreement asymmetry found in passives.

3   Proposal: middlefield A-movement of the subject

A well-known property of Bantu languages is the interdependence 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 raises 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 correspondence between movement and agreement is very robust in Bantu languages and it underlies proposals that 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 as parametric bundling of ϕ and EPP. I argue that the observed NOM/ACC alignment in agreement can be derived from this parameter (38).

(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 feature, and thus, where there is no EPP, there is no ϕ. (It is important to note that this is a one-way implication, and thus, the EPP feature 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 these heads are T and Voice, respectively. The only new addition to these assumptions is that ϕ and EPP probe in

different order in each of these heads. In T, ϕ probes before EPP, while in Voice, EPP probes before ϕ. (See Müller 2009 for an analysis of various types of argument alignment in terms of variable ordering of Agree and Merge/Move. For other proposals that capitalize on the relative timing of these operations, see i.a. Bruening 2005; van Koppen 2005; Anand & Nevins 2006; Heck & Müller 2007; Sigurðsson & Holmberg 2008; Asarina 2011; Halpert 2012, 2015; Richards 2013; Georgi 2014.) I represent probe ordering using the ordered set notation.[9]

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

As we will see, the $\langle\text{EPP},\phi\text{:}\_\rangle$ bundle is optional in Voice. Additionally, I propose that VoiceP is the locus of the verb-level phase. The analysis is summarized below.

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

With these details in place, we can derive the NOM/ACC pattern in a way that does not involve counter-cyclicity.

3.1   Deriving the core data

An SVO sentence with object agreement (41) arises when Voice hosts $\langle\text{EPP},\phi\text{:}\_\rangle$. EPP, being the first element of the ordered set, probes first, finds the closest goal (here, the Agent), and triggers its movement to 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

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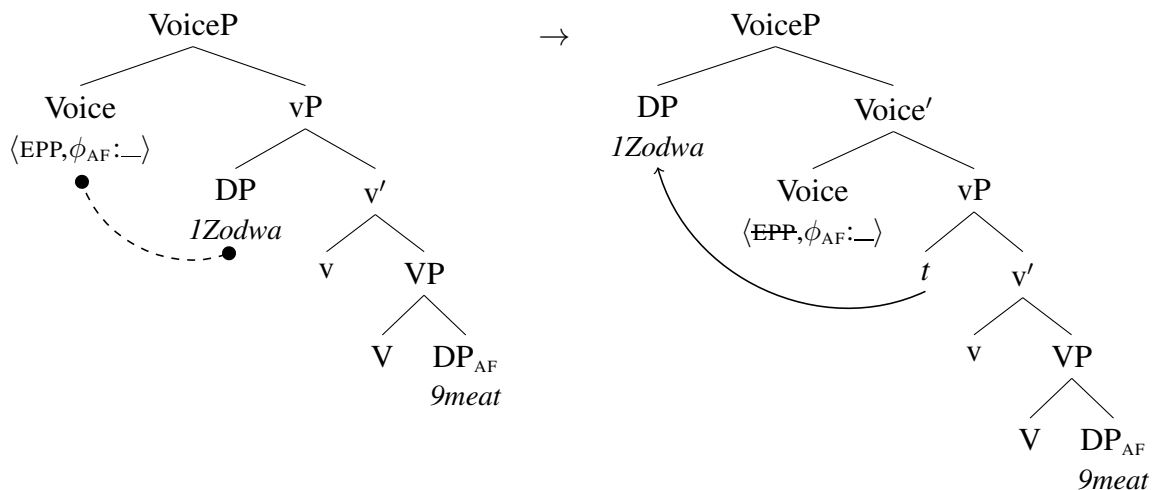
[9] I do not assume that all features of every head must be ordered with respect to one another. Lack of specified ordering between EPP and ϕ would result in the kind of optionality in agreement observed in Icelandic (see, i.a., Sigurðsson & Holmberg 2008).
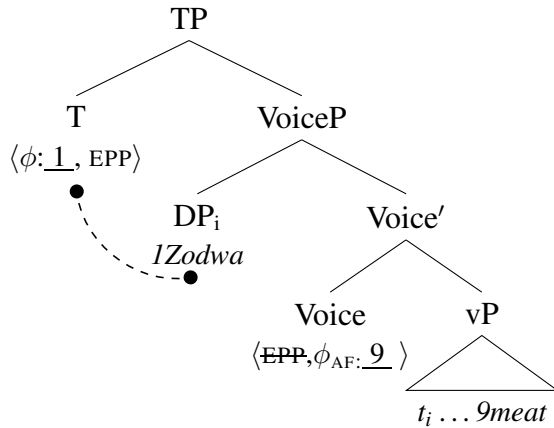
I assume that the EPP feature is deleted after it triggers this operation. This leaves Voice with an agreement probe, which finds the object due to its AF feature. (Subject DPs can themselves have the AF feature; however, it is well-established that traces/lower copies of moved constituents do not count for the purposes of minimality and intervention. See Holmberg & Hróarsdóttir 2003 and related literature.)

(43)   Step 2: The ϕ-probe in Voice, relativized to AF, finds the object
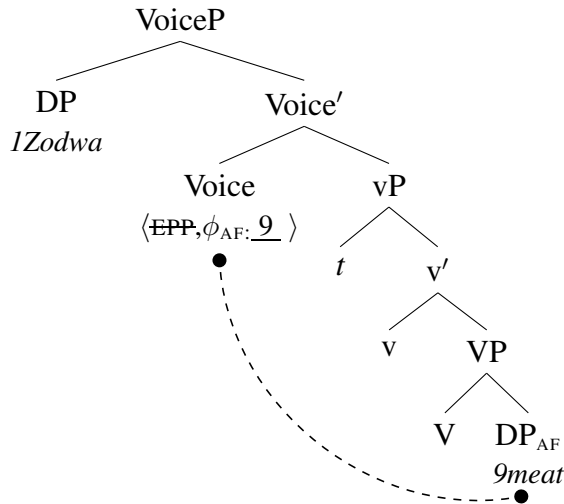
At this point in the derivation, object agreement has been established with the internal argument and the external argument has moved to the left edge of the VoiceP phase. In this position, the external argument is accessible to the probes in T:

(44)   Step 3: $[\phi]$ in T agrees with the Agent   Step 4: EPP finds the same goal as ϕ
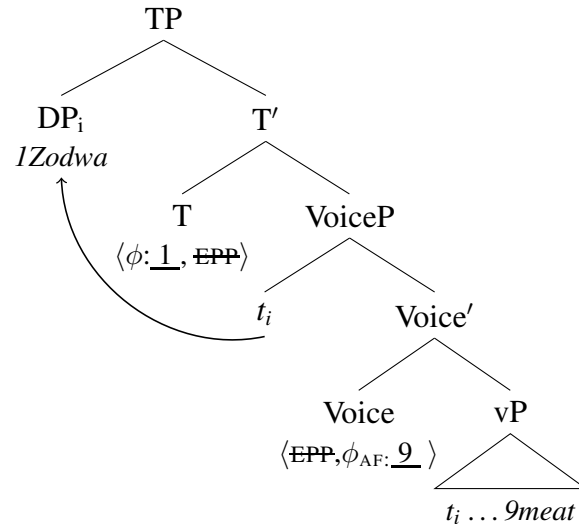
Since the EPP in Voice probes first, it is impossible for highest argument in VoiceP (in this case, the Agent) to control object agreement, despite being c-commanded by the object agreement probe in its base position. The Agent necessarily vacates the c-command domain of Voice before Voice engages in ϕ-probing. 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 an 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 meat'

The unvalued ϕ-probe in Voice has no overt exponence. This is different from an unvalued ϕ-probe in T, whose exponence is the class 15 agreement prefix *ku*:

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

As I argued in Pietraszko 2019, the class 15 prefix *ku* is the exponent of the most underspecified ϕ-geometry in the language, one that lacks gender, number, or person features.

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'

The 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.[10] 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 (38). 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.

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[10] I assume that an unchecked EPP feature does not cause a crash, similarly to unvalued ϕ-probes (Preminger, 2012, 2014).

(48)   Structure of (47)
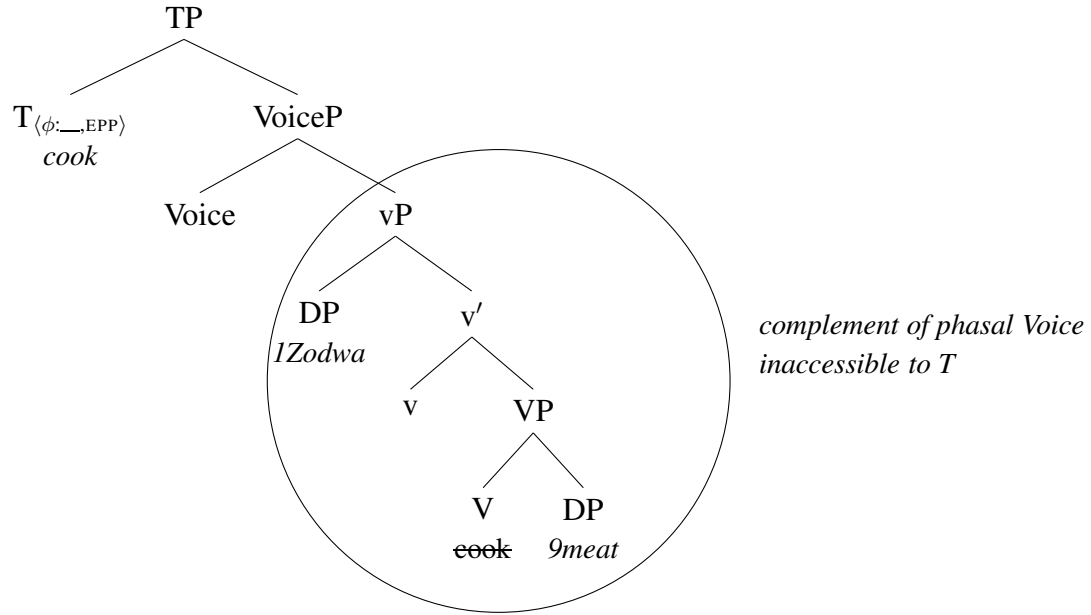
A similar analysis was proposed by Carstens & Mletshe (2015) for Xhosa, namely that in VS orders, T and v (the head responsible for object agreement for them) are both featurally deficient: they have neither EPP nor ϕ (nor Case).

(49)   Carstens & Mletshe 2015:191

    a.   SVO: $[_{TP} T_{[+EPP/Agr/Case]} \dots [_{vP} V_{[+EPP/Agr/Case]}]]$
    b.   VSO: $[_{TP} T_{[-EPP/Agr/Case]} \dots [_{vP} V_{[-EPP/Agr/Case]}]]$

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, and vice versa (capturing the fact that the presence of object agreement is contingent on the presence of subject agreement; see section 4.1 for a discussion of the same facts in Ndebele). To ensure this, Carstens & Mletshe 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 does not 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. It is also not clear what (50) would follow from, and so dispensing with it would be preferable. Finally, (50) appears to be factually wrong for Ndebele, where infinitival verb forms do not show subject agreement but they do allow object agreement:

(51)   Ngi-thambis-e   u-mama   [uku-**yi**-klina i-ndlu   kusasa].
        1sg-promise-PST.CNJ A-1mother   INF-9o-clean A-9house tomorrow
        'I promised mother to clean the house tomorrow.'

The temporal orientation of infinitive in (51) is different than the temporal orientation of the matrix clause (future and past, respectively). This strongly suggests that the infinitival clause is a TP (even

16

though its future orientation is interpreted relative to matrix tense; see e.g. Wurmbrand 2014 and references cited there). If the infinitive is indeed a TP, its T head is ϕ-defective as it does not show agreement with any DP. Nonetheless, Voice (or v, on Carstens & Mletshe's account) is not defective here since it agrees with the object. Thus, (51) shows that a ϕ-defective T does not entail a ϕ-defective Voice in Ndebele.[11]

The present analysis derives the fact that raising and object agreement are not tied to the absolute 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 ϕ-probing begins. This robust pattern in schematized in (52), where each circle corresponds to a different argument structure, each of which is illustrated in (53)-(56).

(52)   Possible controllers of ϕ-agreement with Voice in different argument structures
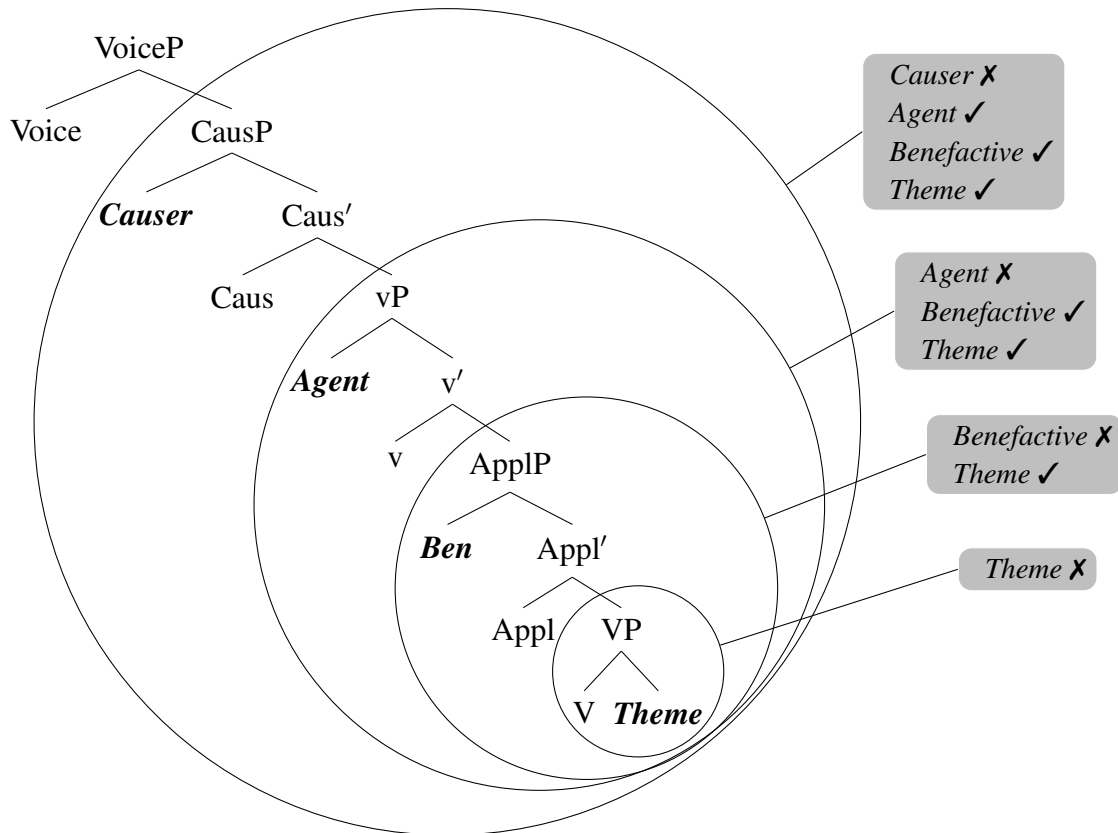
(53)   *Causer > Agent: Causer cannot control OAgr, Agent can*

  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.'

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[11] A possible reanalysis of these facts would be that the infinitival T *does* agree with its subject, but the subject is a PRO of class 15. This analysis would be incorrect for the following reason: if the infinitival clause contains a compound tense, i.e. an auxiliary and a participle, the auxiliary has the infinitival, non-agreeing form, while the participle shows full person/number/gender agreement (co-varying with the matrix subject). If the subject of the infinitival clause were a PRO of class 15, we would expect class 15 agreement on the participle, as well. See section 4.3 for examples and related discussion.

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.'

(54) *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.'

(55) *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.'

(56) *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 features on one and the same head, not as a requirement that the two be satisfied by the same goal. In some configurations, this identity of goals arises nevertheless, as a result of the interaction of timing with minimality. 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:
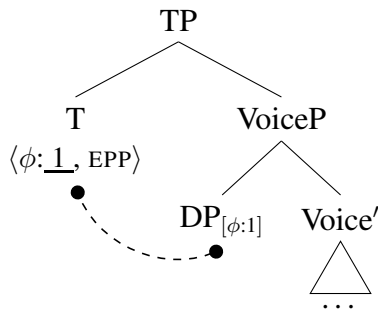
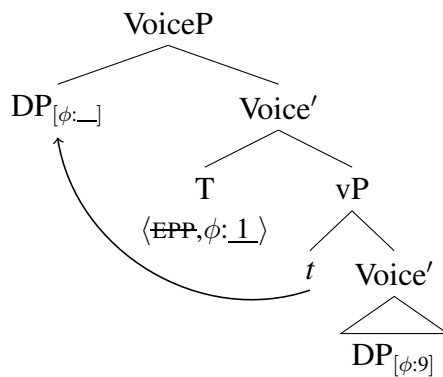(57)   Step 1: ϕ probes first   Step 2: EPP finds the same goal
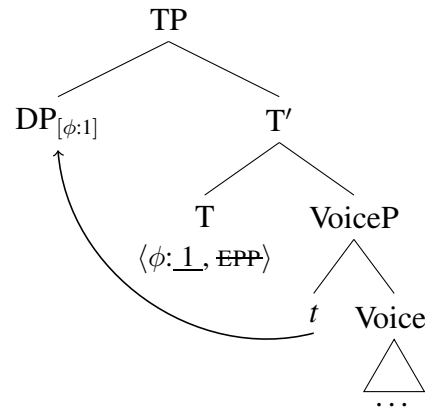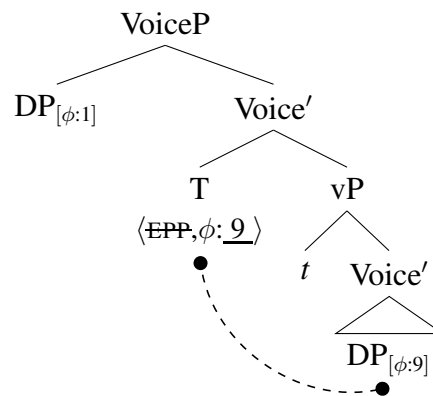

Thus, this order of operations incidentally results in agreement and movement targeting the same DP. If, however, probing takes place in the opposite order, EPP and ϕ can be satisfied by different goals, as is the case in probing by Voice (see section 3.3 for more discussion on this point).

(58)   Step 1: EPP probes first   Step 2: ϕ finds a different goal
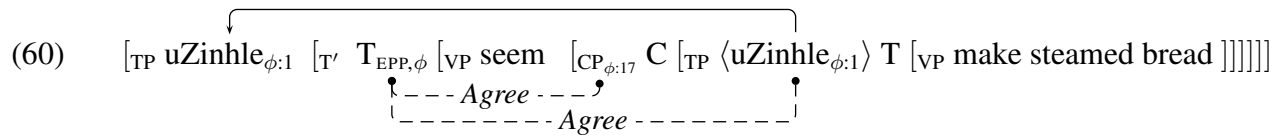

A consequence of this proposal is an asymmetry between subject and object agreement in these languages: the head agreeing the with subject (T) triggers its movement; the head agreeing with the object (Voice) does not. Allowing EPP and ϕ to be satisfied by different goals explains the emergent NOM/ACC 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 are typically satisfied by the same goal in Zulu, this need not be so. The relevant data involve hyperraising constructions, such as (59):

(59)   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 (60), deriving the sentence in (59).

(60)   [$_\text{TP}$ uZinhle$_{\phi:1}$ [$_\text{T}'$ T$_{\text{EPP},\phi}$ [$_\text{VP}$ seem [$_{\text{CP}\phi:17}$ C [$_\text{TP}$ ⟨uZinhle$_{\phi:1}$⟩ T [$_\text{VP}$ 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:

(61)   u-Zinhle$_i$ **ku**-bonakala [$_{\text{CP}\phi:17}$ 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 the matrix subject position in (61). This is because CPs are not viable targets for EPP in Zulu, which can only be satisfied by a DP.

These 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 three reasons why they often are: First, as a parameter, ϕ only appears on heads with an EPP; second, most ϕ goals are also EPP goals (DPs); and third, probing by ϕ on T is ordered before EPP probing (see the discussion above). 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 these two probes even in the case of T. 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 for the ϕ-probe in Voice to agree with the canonical subject *after* the subject has been moved to Spec,VoiceP? 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 (whereas the only movement triggered by Voice is movement of the highest argument in VoiceP, the subject, into the clausal middlefield). 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 introducing the analysis, 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 the base position of dislocated objects. This is the case in raising-to-object CPs, which may undergo dislocation *after* the embedded subject has raised to the matrix object position. In (62-a), the embedded subject remains in the embedded clause, and the CP is inside the matrix vP, as evidenced by the conjoint form of the matrix verb. Optionally, the embedded subject may raise to the matrix object position (62-b).

(62)   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 disjoint form of the matrix verb and the presence of object agreement with *John*.

(63)   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*. We thus have a dislocated CP from which raising to object has taken place. In order for this to be possible, there must be a point in the derivation where the dislocated CP is inside the matrix 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 the main issue, I propose that right dislocation is triggered by a probe located immediately above TP. This is motivated by the fact that right dislocation can target temporal adverbs, such as 'yesterday', which, by assumption, are base-generated in the tense-aspect domain:

(64)   [$_{TP}$ 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 (Antifocus) feature.

(65)   Object right dislocation
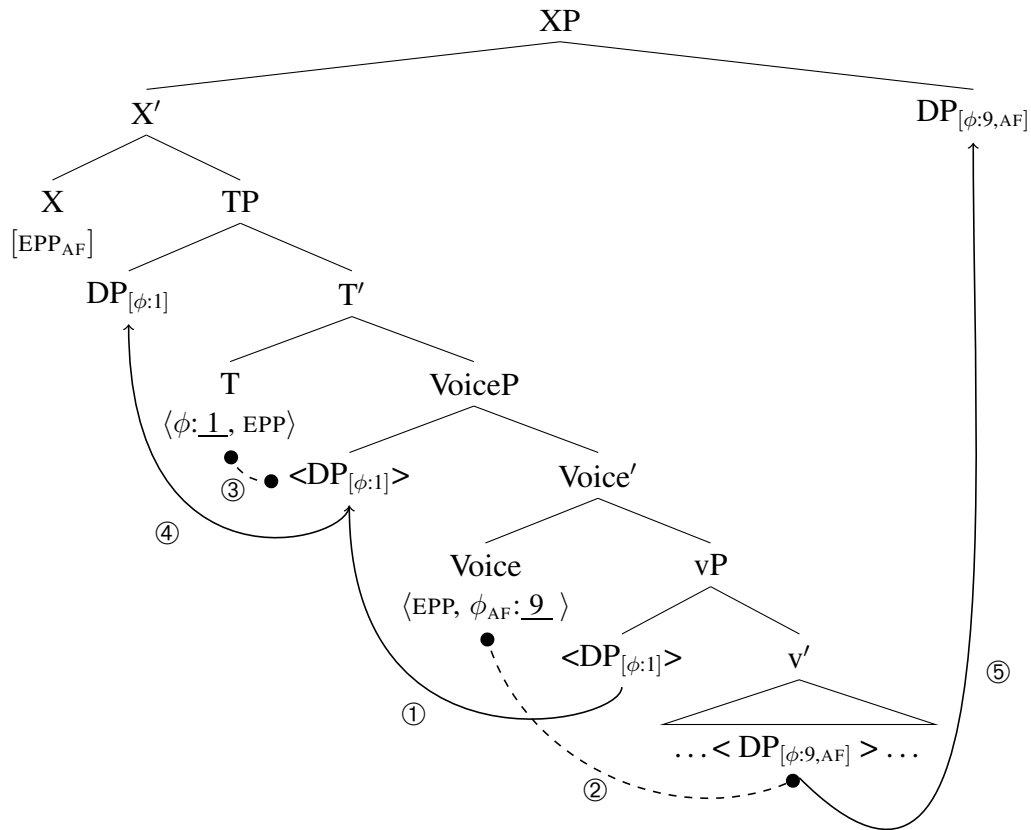
We can now see why object agreement entails object dislocation, despite the fact that two are not triggered by probes on the same head. The dislocation probe is relativized to AF-bearing DPs, just like the the ϕ-probe in Voice. This means that, when there is a goal for object agreement, there is a goal 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, I argue, is made possible by the fact that the ϕ-probe of Voice is relativized to AF: $[\phi_{AF}]$, which, I propose, amounts to Voice having the AF feature. Thus, Voice (and by Bare Phrase Structure (Chomsky, 1994), VoiceP) is itself a matching goal for the dislocation probe. This means that the dislocation probe always finds VoiceP first (66).

(66)   Object dislocation: EPP$_{AF}$ finds AF in VoiceP and then in the object DP
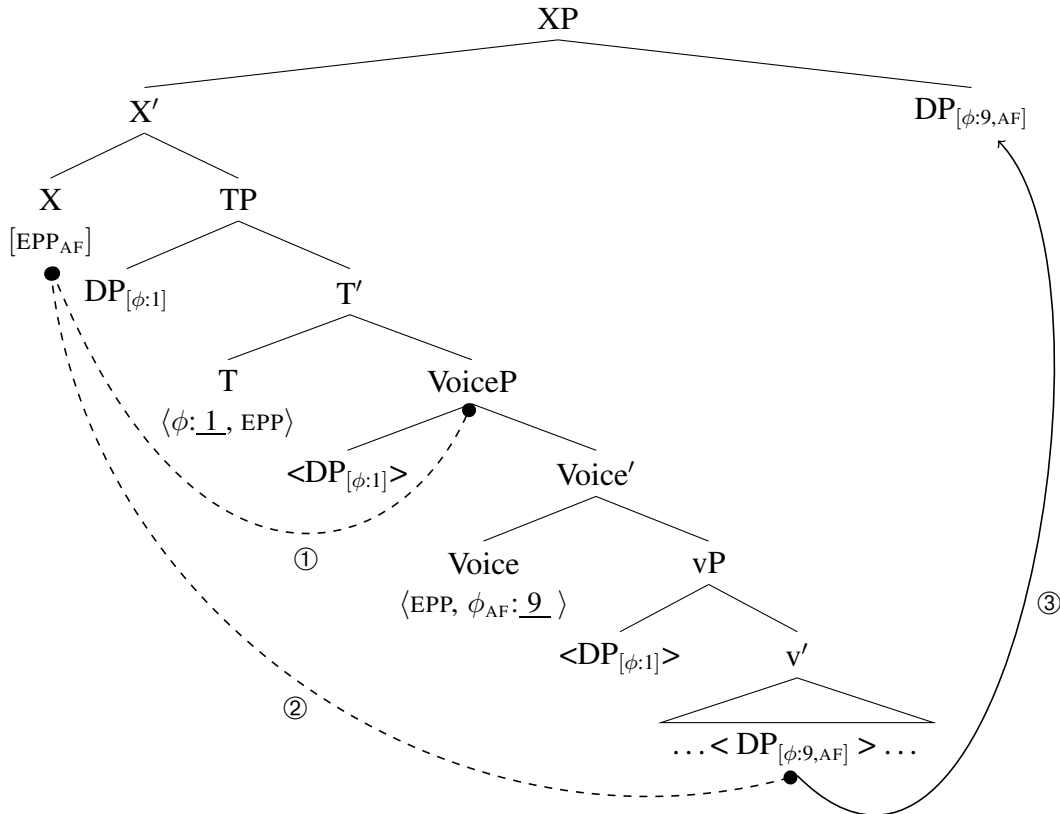
Following [Rackowski & Richards 2005](); [Halpert 2012](), [2015](), I assume that, when a probe agrees with a phasal category, the phasal domain becomes transparent for that probe. Note that VoiceP cannot itself be dislocated, as only DPs can satisfy the EPP on X fully. VoiceP is only a partially matching 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. (See [Bošković 1999]() for an alternative treatment of similar effects, in the context of multiple-wh movement.) This is the case when both objects of a double-object construction bear the AF feature (see also the analysis of (63), above). Recall that, in those cases, object agreement must be controlled by the higher, indirect, object:

(67)   U-Thabani [$_{VoiceP}$ u-ya-**ba**-phek-el-a $t_i\ t_j$] 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'

The dissociation of the object agreement probe from the dislocation probe makes it unsurprising that the direct object may be dislocated without controlling agreement, or more generally, that there can be multiple dislocated objects but only one instance of object agreement. ϕ-agreement is not what is responsible for object dislocation. ϕ in Voice is a simple (i.e. a non-insatiable) probe, which becomes inactive after being valued. The dislocation probe is an insatiable probe (and does not

require ϕ-agreement with its goals). It only requires access to the content of VoiceP, made possible by agreement with VoiceP itself.

Another correct prediction of this account is that subjects bearing AF can also be dislocated. In (69), the subject is dislocated, while the object remains in situ (conjoint form, no object agreement):

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

As predicted, X can dislocate both the subject and the object, in which case the verb has the disjoint form and object agreement morphology:

(69)　　[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 Ndebele and other Bantu languages must control subject agreement:
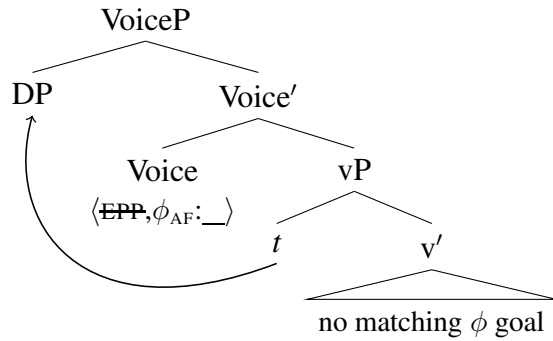
(70)　　*[TP Ku-∅-pheka　i-suphu] u-Thabani.
　　　　　　15s-CNJ-cook　A-9soup　A-1Thabani
　　　　　'Thabani cooked soup.'

The ungrammaticality of (70) falls under the generalization observed for many Bantu languages that vP-external subjects necessarily control subject agreement (see e.g. Buell 2008; Halpert 2012, 2015 for Zulu). One way this generalization could be derived is through a requirement that dislocation must proceed through an agreeing position, such Spec,TP. However, we independently know that no such requirement holds for objects, which can be dislocated directly from their in-situ position (see, e.g. (66)). On the under hand, the ungrammaticality of (70) follows directly from the present account. For the subject to remain in-situ, inside VoiceP, Voice must lack an EPP feature. This, in turn, means that Voice lacks a ϕ-probe, as well (recall (38), above). Since the ϕ-probe on Voice bears the AF feature that renders VoiceP a viable target for X, a ϕ-less VoiceP (without AF) cannot be 'unlocked'. Consequently, an in-situ subject will not only fail to trigger agreement on T, but also be inaccessible to dislocation by X.

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 aspect of this analysis requires elaboration: what exactly 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 do not have the AF feature, to which ϕ in Voice is relativized (71).

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(71)   No goal for ϕ in Voice

```
                    VoiceP
              ┌───────┴───────┐
             DP              Voice′
              ↑          ┌─────┴─────┐
              │        Voice          vP
              │    ⟨E̶P̶P̶,φ_AF:__⟩   ┌───┴───┐
              │                    t        v′
              └─────────────────────┘    ┌───┴───┐
                                    no matching φ goal
```

In section 3.1, I proposed that, in the absence of a c-commended goal, ϕ in Voice remains unvalued and is spelled out with a null exponent. One might expect, however, that, after failing to locate a goal in its c-command domain, the ϕ-probe would undergo cyclic expansion (Rezac 2003, 2004; Béjar & Rezac 2009). That is, it would project to the bar level, from which it would c-command the DP in its specifier (under sisterhood). If the subject in Spec,VoiceP has the AF feature, we would expect agreement in Voice to be controlled by the canonical subject in this scenario. This, as we have seen, is not the the case: subject and object agreement may never be controlled by the same DP (72).

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

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. Let us assume Chomsky (1994)'s Bare Phrase Structure (BPS), whereby the intermediate and maximal projections of given head are of the same category as the head. Crucially, however, I note here that reprojection of the probe to the level of the intermediate projection is not an automatic consequence of BPS alone. I follow Béjar & Rezac (2009) in taking probe expansion to be a syntactic operation. (In Béjar & Rezac's analysis, other operations can in fact be coupled with this particular derivational step; see ibid., p. 57 for example). A precise description of this operation is therefore required, and I provide one in (72):

(73)   *Probe Expansion*

        Structural Description:

                i. nodes α, β of the same category s.t. β is a root node immediately dominating α, and
                ii. feature F of α that initiates its search when in α

        Structural Change: $\beta \to \beta_{[F]}$

According to this definition, projection, or expansion, of probes depends on their activity in the first cycle, i.e. in α. In order to project, a probe must initiate a search when in α. Successful completion of the search in this first cycle is not relevant for probe expansion. In (74), I schematize a scenario where the probe fails to find a goal is its c-command domain, while (75) is a scenario where the F finds a goal.

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(74)   F initiates and fails its search   →   Projection of unvalued F

(75)   F initiates its search and succeeds   →   Projection of valued F

According to the definition of Probe Expansion, a probe does not project if it does not initiate its search in the first cycle:
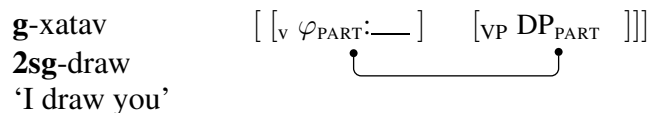
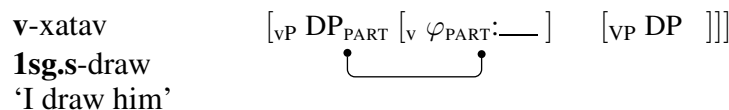(76)   F does not initiate its search   →   F does not project

Let us consider the three scenarios in turn. The first, where the probe fails its search and projects, is instantiated by classic cases of Cyclic Agree, discussed e.g. in Béjar 2003; 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 its c-command domain (the first cycle). If it finds a PART-beaing DP, it agrees with it, giving rise to object agreement (77-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 (77-b).

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

    a.   *Object accessible → agreement with the object*

        g-xatav $[\ [_v\ \varphi_{PART}\!:\!\underline{\quad}\ ]\quad [_{VP}\ DP_{PART}\ ]]]$
        2sg-draw
        'I draw you'

    b.   *Object inaccessible → agreement with the subject*

        v-xatav $[_{vP}\ DP_{PART}\ [_v\ \varphi_{PART}\!:\!\underline{\quad}\ ]\quad [_{VP}\ DP\ ]]]$
   **1sg.s**-draw
        'I draw him'

The expansion of the ϕ-probe in Georgian follows from the definition of Probe Expansion: 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. When the ϕ-probe in v find no goal in its c-command domain, Probe Expansion as defined in (73) determines that the probe projects to the root node:

(78)   Output of Merge(v,VP) $\rightarrow$ Failed ϕ-probing; Probe Expansion

The second scenario, where the probe completes the search in the first cycle, can be illustrated using the sentence in (77-a). Here, 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 agree with the subject in its specifier:

(79)   *Object accessible $\rightarrow$ agreement with subject impossible*


***v**-xatav
1sg-draw
Intended: 'I draw you'
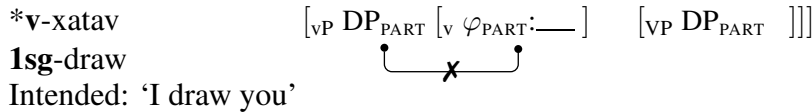
Probe Expansion determines that the valued probe projects to the root node, as probing was initiated in the first cycle. However, since the probe is already valued, it does not initiate another search, into the specifier.

The third scenario requires an understanding of what configuration(s) allow a probe to not initiate its search. I do assume that (obligatory) syntactic 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 are looking for, then, is one where a probe does not "get a chance" to initiate its search before Probe Expansion applies. This is the case when an EPP probe is ordered to apply before another probe, as will be detailed below.

Let us have a closer look at the operations triggered by Voice in Ndebele. First, Voice is merged with vP:
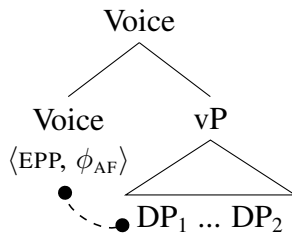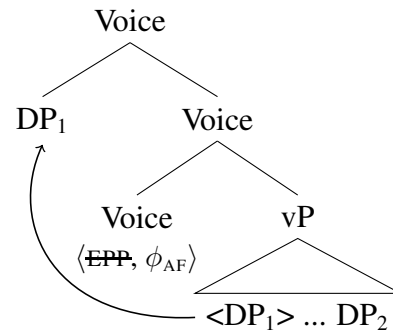
(80)   Step 1: Output of Merge(Voice,vP)
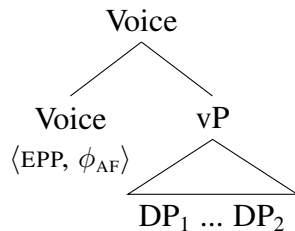
When the first feature of Voice, EPP, probes, it finds the highest DP in its domain, thus successfully

completing the search (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

$$Voice$$

Voice   vP
$\langle EPP, \phi_{AF} \rangle$

DP$_1$ ... DP$_2$

(82) Step 3: EPP-triggered Merge

$$Voice$$

DP$_1$ Voice

Voice   vP
$\langle \text{EPP}, \phi_{AF} \rangle$

<DP$_1$> ... DP$_2$

At this point, no probe expansion takes place: the EPP is deleted immediately after triggering its operation, while ϕ has not probed yet. Due to the probe ordering in Voice, ϕ can only start probing now. What happens if ϕ fails the search of its c-command domain? The answer is: it cannot expand. This is because 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.

Notice that the definition given for Probe Expansion in (73) does not categorically rule out probe expansion for the second of two ordered features. Bleeding of probe expansion for the second of two features only occurs when the first feature is one that results in structure-building (e.g. EPP).

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 agreement pattern discussed so far. The puzzles have been observed in other Bantu languages and they include: i) defective intervention effects VSO orders, ii) the 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 on Voice, despite being c-commanded by it.

(83) 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:

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

(83) and (84) together look like a case of defective intervention: the higher DP cannot control agree-ment 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 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 (84) 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 (38), there is no ϕ-probe in Voice when the subject stays in situ. This means that Voice cannot agree with *any* DP in VS orders. Strictly speaking, then, the phenomenon at hand is not an instance of intervention at all: 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 (by the EPP on Voice) before probing begins.

4.2   Deriving the optionality of subject movement and agreement

The current middlefield A-movement analysis provides a solution to another 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 does not 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 does not 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):

(85)   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 does not agree with the subject, its ϕ-probe is exponed as class 15 agreement. This, in turn, suggests that the probe is present but remains unvalued (Preminger 2009). 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 a ϕ-probe that has failed to be valued is identical with 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,

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which, as shown below, can move to Spec,TP with or without the AF feature.

For Zeller (2008), the ϕ-probe in T is relativized to AF as well.[12] Zeller's motivation for this account is the fact that, in Zulu, in-situ subjects 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 (86) by the distribution of DPs modified by the focus particle *kuphela* 'only'.

(86)   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 not have the AF feature and therefore cannot raise to T. This 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. For instance, relative and subjunctive clauses allow preverbal subjects 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 (87-a). Note that, as in other clause types, raising to Spec,TP is optional in subjunctive clauses (87-b).

(87)   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.'

(87) 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 a subjunctive CP. Evidence that it involves raising comes e.g. from active passive synonymy: (88-a) and (88-b) are truth conditionally equivalent.

(88)   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 t_i ngu-Zodwa]
            A-9meat 9s-first   COMP 9-cook-PSV-SBJV by-Zodwa
            'First, the meat is cooked by Zodwa.'

---

[12] Strictly speaking, Zeller does not use probe relativization. Rather, he proposes that AF is the only probing feature of T and that T's ϕ-agreement is parasitic on AF-probing. This renders the same predictions as a ϕ-probe relativized to AF.

Since raising is optional, the subject may stay in its base generated position, in embedded Spec,vP in (89-a), or move all the way to the matrix Spec,TP (89-b).

(89)　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 (89-a) does not have the feature that A-movement probes look for, while the same DP in (89-b) does. What this account fails to capture is the fact that the subject can surface in two intermediate positions in this structure: the embedded Spec,TP (90-a) and matrix Spec,vP (90-b).
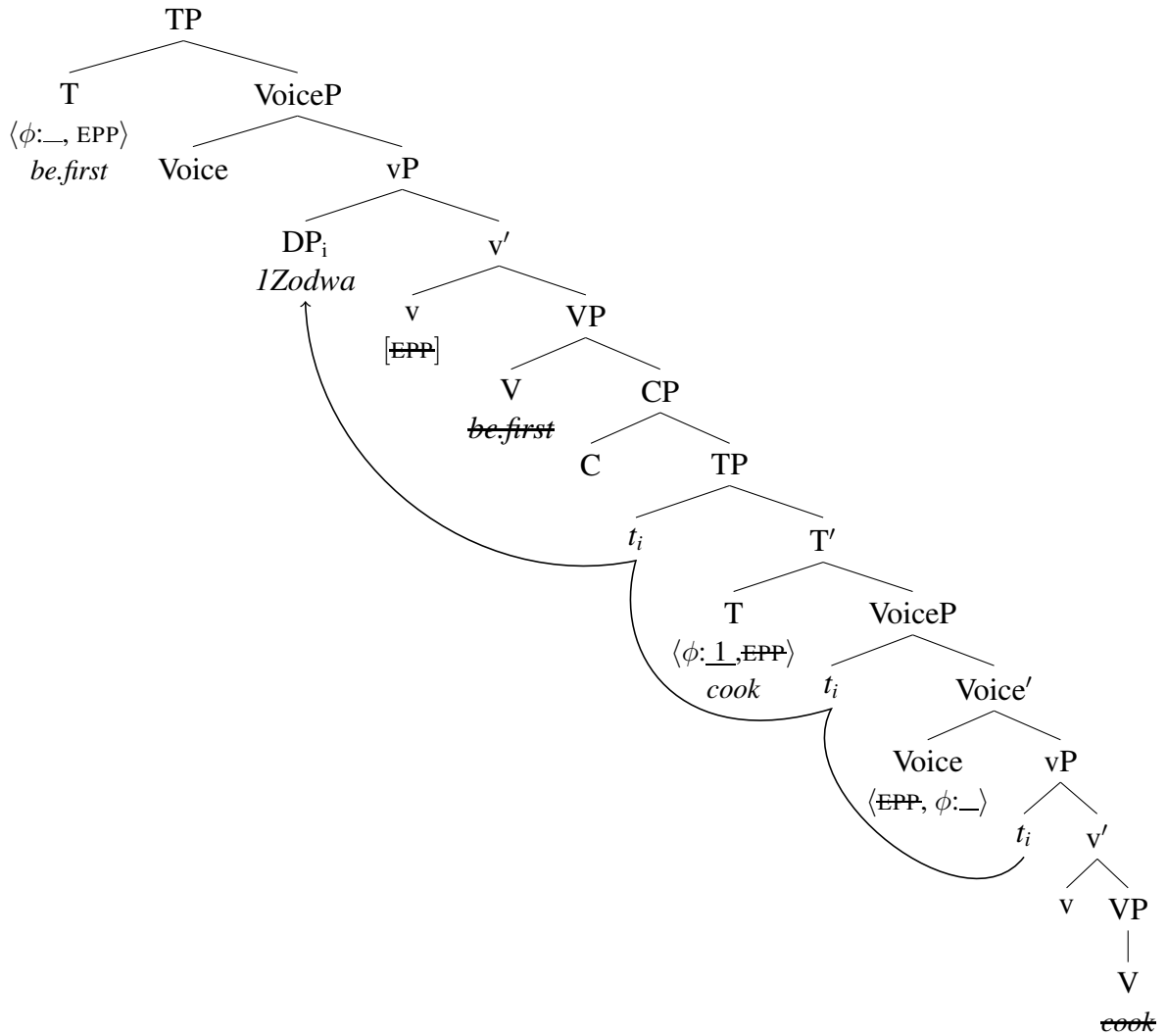
(90)　a.　Ku-qala [CP ukuthi **u-Zodwa**$_i$ a-pheke　　t_i.]
　　　　　15s-first　COMP A-1Zodwa 1-cook.SBJV
　　　　　'First, Zodwa cooks.'

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

(90-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 A-movement in some contexts is locality and the absence of movement probes, as per the current proposal. The derivation of (90-b) under the present account is given in (91). 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.[13] Matrix Voice in (91) lacks EPP, and so the raised subject remains inside the inner phase, invisible to probes in matrix T.

---

[13] I stay agnostic on 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 (Halpert 2012, 2015). This question is independent of the present discussion.

(91)   Derivation of (90-b):

TP
- T ⟨ϕ:__, EPP⟩ *be.first*
- VoiceP
  - Voice
  - vP
    - DP$_i$ *1Zodwa*
    - v′
      - v [~~EPP~~]
      - VP
        - V ~~be.first~~
        - CP
          - C
          - TP
            - t$_i$
            - T′
              - T ⟨ϕ:_1_,~~EPP~~⟩ *cook*
              - VoiceP
                - t$_i$
                - Voice′
                  - Voice ⟨~~EPP~~, ϕ:__⟩
                  - vP
                    - t$_i$
                    - v′
                      - v
                      - VP
                        - V ~~cook~~

For completeness, I provide below the derivations of all other possible positions of the DP *Zodwa* instantiated in (89)-(90).

(92)   a.   (89-a): Embedded Voice lack EPP; *Zodwa* invisible to embedded T
               $[\,T_{\langle\phi,\text{EPP}\rangle}\,[\,\text{Voice}_{(\langle\text{EPP},\,\phi\rangle)} \ldots [\,C\,[\,T_{\langle\phi,\text{EPP}\rangle}\,[\text{Voice}\,[\,\textbf{Zodwa}\,v\,]]]]]]]]$

        b.   (90-a): CP phase remains opaque; *Zodwa* is invisible to matrix probes
               $[\,T_{\langle\phi,\text{EPP}\rangle}\,[\,\text{Voice}_{(\langle\text{EPP},\,\phi\rangle)} \ldots [\,C\,[\,\textbf{Zodwa}\,T_{\langle\phi,\text{EPP}\rangle}\,[\,\text{Voice}_{\langle\text{EPP},\,\phi\rangle}\,[\,v\,]]]]]]$

        c.   (89-b): CP is transparent; both embedded Voice and matrix Voice have EPP
               $[\,\textbf{Zodwa}\,T_{\langle\phi,\text{EPP}\rangle}\,[\,\text{Voice}_{\langle\text{EPP},\,\phi\rangle} \ldots [\,C\,[\,T_{\langle\phi,\text{EPP}\rangle}\,[\,\text{Voice}_{\langle\text{EPP},\,\phi\rangle}\,[\,v\,]]]]]]$

   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 have seen before, is impossible:

(93)   *U-∅-pheka   u-Zodwa.   [T⟨φ,EPP⟩ [**Zodwa**ᵢ Voice [tᵢ v ...]]]]]]]]
        1s-CNJ-cook A-1Zodwa
        'Zodwa 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 is obligatory.

(94)   *The A-movement 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.

Movement from Spec,VoiceP to Spec,TP is obligatory because it does not cross a phase boundary. To move out of a phase, something special is required (e.g. an EPP feature on the phase head or agreement with the phasal category). Without a phase boundary, A-movement is inescapable. In the next subsection, I discuss another case of obligatory A-movement.

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'.

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

Multiverb constructions of this type are very common in Bantu languages and, as is well known, each such verb carries full person/number/gender agreement. Assuming, in line with the current proposal, that every φ-probe cooccurs with an EPP feature, the subject must move to the specifier of three different functional projections in (95) (say, two different AspPs and a TP). This is indeed the standard analysis of such constructions in other Bantu languages (Carstens 2001; Carstens & Kinyalolo 1989; Baker 2008, contra Henderson 2006a, b).
    As in simple tenses, the subject may stay in situ, in which case all three verbs surface with the default class 15 agreement prefix (see section 4.2 for discussion of the nature of this default prefix):

(96)   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 is special about multiverb constructions is that no intermediate landing sites are available for the subject (97).

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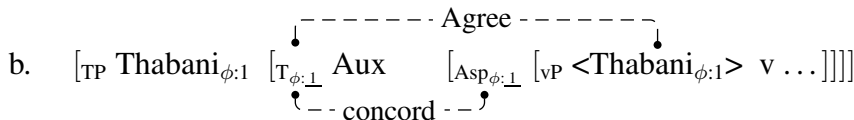   'Thabani will be cooking then'

     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'

These limitations on the optionality of subject agreement and A-movement are puzzling given the pervasive optionality of A-movement in the language, and the fact that, in other cases, A-movement can terminate in an intermediate position, as discussed in the previous subsection. The present account, however, predicts exactly this behavior of multiverb 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 whether they trigger agreement and movement.

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.[14]

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 the 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:

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

$$[_{TP} \text{Thabani}_{\phi:1} \ [_{T_{\phi:1}} \text{Aux} \quad [_{Asp_{\phi:1}} [_{vP} <\text{Thabani}_{\phi:1}> \ v \dots]]]]$$

    b. (Agree / concord diagram)

This analysis is, however, untenable for Ndebele, as it makes wrong predictions about compound tenses appearing in infinitival clauses. Morphologically, infinitives are verb stems preceded by the class 15 prefix. They have no tense or agreement morphology (99).

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

When an infinitival clause contains a compound tense, the auxiliary appears in its infinitival form but, crucially, the participle exhibits full agreement with the controller DP:[15]

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[14] Recall from section 3.1 that Carstens & Mletshe (2015)'s analysis of Xhosa includes the following implicational statement: defective T ↔ 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.

[15] It is an independent question how the embedded participle agrees with class 1 of the matrix subject. One possibility is that (100) is a control construction with a PRO that shares the matrix subject's ϕ feautres. Another possibility is A-

(100) U-Thabani u-a-funa   [uku-ba e-pheka].   (cf. (98-a))
A-1Thabani 1s-PST-want INF-AUX 1s-cook.PROG
'Thabani wanted to be cooking.'

The fact that the participle in (100) shows class-1 agreement strongly suggests that the ϕ-features on Asp (expressed on the participle) are not copied from T (the auxiliary), 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 constructions and the more robust optionality in other types of raising (discussed in the previous subsection). The correct generalization about the extent of A-movement in the language emerges from domain opacity (94), not from the features of the moving DP.

4.4 Deriving an object agreement asymmetry in passives of distransitives

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 (101) and they can both raise to subject under passivization (102).

(101) 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'

(102) a. **I-nyama$_j$** i-a-phek-el-w-a   a-bantwana $\boxed{t_j}$.
A-9meat 9s-PST-cook-APP-PSV-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-PSV-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 A-scrambling of the DO to a position in which it is a closer goal (or at least an equidistant goal) to T. Which head allows the scrambling? It is neither Appl nor v – each would overgenerate symmetric phenomena in the language. If the DO could optionally scramble to the outermost specifier of ApplP, we would expect object agreement to be truly symmetric, contrary to fact. If the DO could scramble to the edge of vP, we would expect the DO to raise to Spec,TP across an Agent. While some Bantu

movement 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.

languages, for instance Luguru (103), allow such a Theme-Agent inversion, this is not possible in Ndebele (104).

(103)   a.   Imw-ana ka-tula   ici-ya.
             1-child   1s-broke 7-pot
             'The child broke the pot.'

        b.   Ici-ya ci-tula   imw-ana.
             7-pot 7s-broke 1-child
             'The child broke the pot.'   Luguru, Marten & van der Wal 2014

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

Thus, the scrambling of the DO necessary for its passivization can be neither to the edge of ApplP nor to the edge of vP. Another possibility is scrambling to the edge of VoiceP. Under this hypothesis, inversion would arise due to the features of Voice. This offers a new way of understanding these facts: passive Voice can trigger A-scrambling, but active Voice cannot. This explains why inversion is possible in (102) but not in (104) – only the former is a passive sentence. We also derive the lack of symmetrical object agreement in active clauses (I turn to object agreement in passives shortly). Given this, I propose that Voice_PASS has an optional extra EPP feature, triggering movement of the DO to the outermost specifier of VoiceP. When present, this EPP feature will give rise to DO passivization. When the extra EPP is absent, the more local IO becomes the subject of the passive sentence.[16]

Despite this surface symmetry of DO and IO in passives, there remains a puzzling asymmetry between them, described in (105) and illustrated in (106).

(105)   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

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

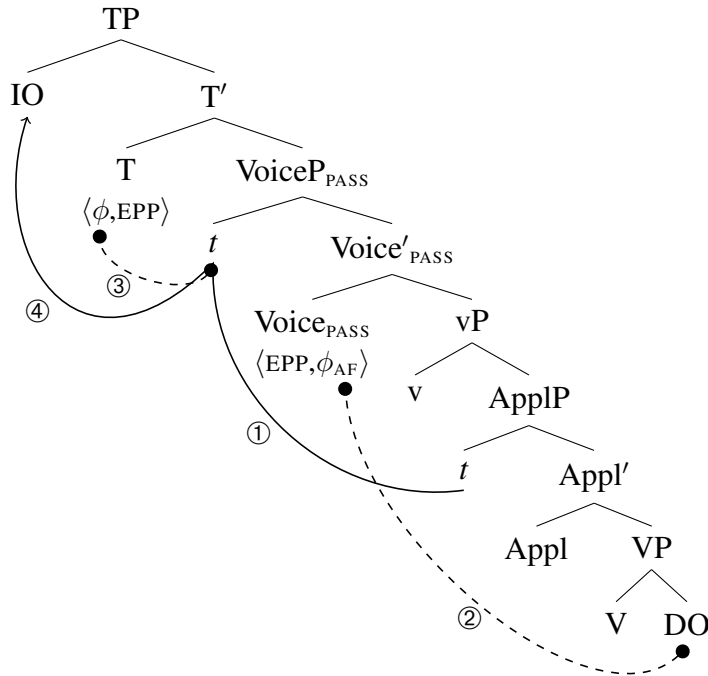   b.   I-nyama i-a-(***ba**)-phek-el-w-a   a-bantwana.
             A-9meat 9s-PST-2o-cook-APP-PSV-FV A-2child
             'The meat was cooked for children.'

The analysis proposed here accounts for both the symmetric behavior of the objects as far as movement to Spec,TP is concerned, and their asymmetric behavior in controlling object agreement.

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 ("object agreement") if it has the AF feature, deriving (106-a).
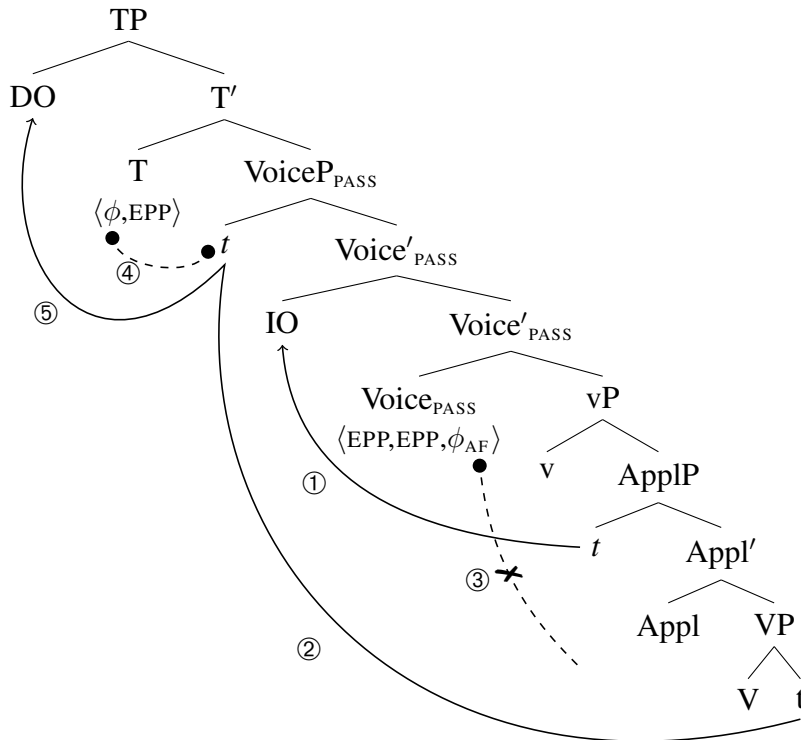
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[16] Ndebele has locative inversion and instrumental inversion in active clauses, which may require a special kind of Voice to invert with subjects. I leave the analysis of those constructions for future work.

(107)   IO passivization; DO may control ϕ-agreement on Voice (derivation of (106-a))

TP
IO — T′
T ⟨ϕ,EPP⟩
VoiceP$_{\text{PASS}}$
Voice′$_{\text{PASS}}$
Voice$_{\text{PASS}}$ ⟨EPP,ϕ_{AF}⟩
vP
v — ApplP
Appl′
Appl — VP
V — DO
① ② ③ ④

When 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.

(108)   DO passivization; IO **cannot** control ϕ-agreement on Voice (derivation of (106-b))

TP
DO — T′
T ⟨ϕ,EPP⟩
VoiceP$_{\text{PASS}}$
Voice′$_{\text{PASS}}$
IO — Voice′$_{\text{PASS}}$
Voice$_{\text{PASS}}$ ⟨EPP,EPP,ϕ_{AF}⟩
vP
v — ApplP
Appl′
Appl — VP
V — t
① ② ③ ④ ⑤

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

We can now see that the object agreement asymmetry in passives of ditransitives follows from the proposed analysis of agreement in the language. The reason why IOs cannot control object agreement in passives is because they are the thematically highest DP in the clause. The presence of ϕ in Voice (object agreement) entails EPP in Voice, which in turn entails movement of the highest DP (here, the IO) out of the vP before the object agreement features start probing. That is, IO cannot control object agreement in passives for the same reason that *any* thematically highest DP cannot control object agreement in any sentence. Passives are especially interesting in this respect because Voice_{PASS} allows an extra specifier, which allows a *different* DP to move to Spec,TP. For this reason, these facts are ultimately further evidence for short middlefield A-movement of the thematically highest DP 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, dissociable.[17]

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 agreement pattern 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 a scenario provides a straightforward explanation for the agreement pattern 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 other Bantu languages, as well. 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 in language. I proposed here that the path to NOM/ACC alignment in Ndebele agreement is based only on the interaction of ϕ-probing

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[17] 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.

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 is 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 e.g. 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 the presence of the Dative precludes agreement with any other DP, and Person agreement across the Dative is in any case ruled out. 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 language 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 (that is, in its inability to control object 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 upon that what we call NOM/ACC alignment and ERG/ABS alignment are each a generalization that may emerge in different ways in different languages. Specifically, 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 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 the appearance of a uniform surface pattern. Given this, one might, in fact, find it surprising if there were only one way to arrive at a NOM/ACC alignment in agreement.

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