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Agreement and person in anti-agreement

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Abstract Many languages display correlations between subject-verb agreement and subject extraction that have come to be known as anti-agreement effects. This paper explores an anti-agreement effect found in many Bantu languages whereby a third person singular human subject triggers a unique verbal agreement marker when the subject is extracted. It is argued that co-variation of certain morphological properties of constructions with subject extraction points to an agreement relation between C and T underlying the anti-agreement effect, a conclusion that converges with proposals from Richards (2001) and Boeckx (2003) about the nature of extraction. I also argue that although this agreement relationship involves full sets of phi-features, the differing values acquired by the feature [person] in the nominal and verbal domains often makes it appear as if [person] is uniquely affected in anti-agreement contexts. Finally, I argue that variation in how anti-agreement is spelled out in a language is determined by morphological quirks of the language, especially the organization of its agreement paradigm. I illustrate this latter point using the framework of distributed morphology.

Keywords Anti-agreement · Bantu · Phi features · Distributed morphology

1 Introduction

In many languages the agreement relation between an argument and a verb is suppressed or altered when the argument is extracted. These so-called anti-agreement effects (AAEs) have been discussed for a variety of languages, including Berber (Ouhalla 1993, 2005; Ouali 2008), Chamorro (Chung 1982; Schneider-Zioga 2002),

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Halkomelem (Gerdts 1980), Yimas (Phillips 1996, 1998), Turkish (Ouhalla 1993; Kornfilt 1991, 1997), Ibibio (Baker 2008), and the Italian dialects of Fiorentino and Trentino (Brandi and Cordin 1989). A few representative examples appear below. In the (a) examples, subject extraction has taken place. The (b) examples show that canonical agreement with the subject cannot occur in these contexts.

(1) a. Man tamghart ay yzrin Mohand? *Berber*
which woman COMP see-PART Mohand
'Which woman saw Mohand?'
b. *Man tamghart ay t-zra Mohand?
which woman COMP 3FEM.SG-see Mohand (Ouhalla 1993:479)

(2) a. Quante putele è vegnú con ti? *Trentino*
how-many girls is come with you
'How many girls came with you?'
b. *Quante putele le è vegnude con ti?
how-many girls 3.PL.FEM is come.FEM.PL with you
(Brandi and Cordin 1989:124)

(3) a. Nawm m- ∅- kul cpul-um? *Yimas*
who-PL COMP WH.ABS 2.PL.ACC hit-PL
'Who hit you all?'
b. *Nawm pu- kul cpul-um?
who-PL 3.PL.ABS 2.PL.ACC hit-PL (Phillips 1996:351)

Many Bantu languages also display AAEs. In the context of subject extraction, for instance, the subject agreement marker that normally occurs in an SVO sentence is replaced by a different marker that appears only when the subject has been extracted.[1] Examples from Bemba, taken from Cheng (2006:197), appear in (4). In (4a) the canonical agreement marker /a-/ is prefixed to the verb. In (4b), however, the subject has been extracted and the /a-/ marker is replaced by a different marker, /u-/. (4c) shows that the canonical marker is impossible in this context[2]:

(4) a. Umulumendo **a**-ka-belenga ibuku. *Bemba*
1boy 3**SG**-FUT-read 5book
'The boy will read the book.'
b. umulumendo ú-**u**-ka-belenga ibuku
1boy 1REL-**AAE**-FUT-read 5book
'the boy who will read the book'

[1] I restrict attention in this paper to subject relative clauses to allow for more consistent comparisons and because the relative marker plays a crucial role in the discussion; however, there are other contexts in Bantu where AAEs are typical. In general, Bantu languages lack wh-movement in questions, but many require that questioned subjects be clefted. Other languages, such as Kinande, have wh-movement with focused elements that resembles but may be distinct from clefting (see Schneider-Zioga 2007). AAEs are characteristic of these contexts as well.

[2] Following Cheng, I have spelled out the relative marker (REL) and the anti-agreement morphemes (AAE) separately in (4b). In natural speech, however, these would be collapsed into a single long vowel.

c. Umulumendo ú-**a**-ka-belenga ibuku
1boy 1rel-**3SG**-fut-read 5book

In all of these languages, AAEs occur in the context of subject extraction and affect the agreement relation between the subject and verb. Despite these general similarities, however, Bantu AAEs have a number of properties that distinguish them from AAEs in other languages. Two of these distinctions will be the focus of this paper. First, AAEs in Bantu do not surface as 'default' agreement as in Berber or Trentino or lack of an agreement morpheme as in Yimas. Rather, as seen above in (4), a special morpheme is employed that replaces the canonical agreement morpheme and only occurs as an agreement morpheme in the AAE context. Clearly the status of this morpheme must be addressed in any account of Bantu AAEs. In particular, we must ask what sorts of features it encodes and is sensitive to.

The second central observation is that, with non-pronominal subjects, Bantu AAEs are limited only to singular nouns of noun class 1 (the human class in Bantu). AAEs are not detectable with third person plural subjects or third person singular subjects of other noun classes. In the latter cases, normal subject-verb agreement is preserved in subject extraction. This is demonstrated below[3]:

(5) a. Abalumendo ba-ka-belenga ibuku. *Bemba*
2people 3PL-FUT-read 5book
'The people will read the book.'
b. abalumendo a-ba-ka-belenga ibuku
2people 2REL-3PL-FUT-read 5book
'the people who will read the book'

(6) a. Ulukasu lu-shitilwe leelo.
11axe 11SA-buy.PERF.PASS today
'The axe was bought today.'
b. úlukásu ú-lúshítílwe léélo
11axe 11REL-11SA-buy.PERF.PASS today
'the axe that has been bought today' (Cheng and Kula 2007:(2b))

This restriction on Bantu AAEs is surprising in light of Ouhalla's (1993) observation that AAEs in many languages result in a verb that is marked for third person singular, no matter the person and number feature content of the extracted subject. A result of this is that AAEs cannot be detected when the extracted subject is third person singular. Ouhalla's (1993) conclusion about these facts was that third person singular in these languages was a 'default' form of the verb, requiring no underlying agreement features. Therefore, when agreement features are suppressed in an AAE context, third singular agreement arises. Here, however, we have seen that nearly

[3]Here and throughout I mark tone where it indicated in the source material of cited data. Unfortunately, I did not mark tone when eliciting original data and these data appear without tone marking. Unless another source is cited, Bemba data are from Patricia Mupeta (p.c.).

the opposite generalization holds true for Bantu: AAEs in these languages are only detectable with third singular subjects, and then only those of noun class 1.

In the limited literature on Bantu AAEs, the empirical observations noted above have received little attention. Clearly, however, any satisfactory account of AAEs in Bantu must cover these facts. Moreover, the account must also have the potential to explain the default nature of AAEs in the languages Ouhalla discusses if AAEs in this pool of languages are to be explained under the same umbrella. Finally, it is well known that AAEs tend to be a local phenomenon, occurring with local subjects, but typically not local objects or embedded subjects (facts I illustrate in Sect. 2). Any account of AAEs must therefore also potentially explain their locality. I attempt such an account in this paper. At its core is the claim that an Agree relation between sets of phi-features in C and T underlies Bantu AAEs, and that this relation uniquely affects the value of the feature [person]. Once this conclusion is placed in the context of system of extraction that relies on 'strong chain' violation and repair (Richards 2001; Boeckx 2003), the locality restrictions on AAEs are also potentially explained.

This paper is organized as follows: in Sect. 2, I review the issues regarding AAEs and locality, limiting attention to Ouhalla (1993) and Cheng (2006). I show that though these authors take opposing approaches to the locality restrictions on AAEs, neither is able to capture the locality restrictions on these effects in a natural way. In Sect. 3, I show how the proposal that there is an agreement relation between C and T has the potential to capture AAE locality restrictions in an indirect way, a proposal that finds support in the system of strong chain violation and repairs developed by Richards (2001) and Boeckx (2003). I then demonstrate that the morphosyntactic facts from Bantu strongly suggest that this is the correct approach and that, among phi-features, values of the feature [person] are uniquely affected by this Agree relation. In Sect. 4, I implement these conclusions in a distributed morphology framework, showing that this framework is well-suited to the present understanding of AAEs as a kind of syntactic impoverishment rule.

2 AAEs and locality

AAEs suggest a deep connection between the nature of agreement and the possibility of movement. Over the past fifteen years, the consensus that has developed in the literature is that AAEs result from locality restrictions on movement and/or binding (Brandi and Cordin 1989; Ouhalla 1993; Schafer 1995; Schneider-Zioga 2007; Richards 2001; Cheng 2006). Authors have argued that the subject's final landing site and its position of extraction are 'too close' in some sense, resulting in an AAE. However, efforts to capture this locality restriction in terms of an independently-defined locality domain have been unsuccessful. I review some of these efforts in this section.

2.1 Ouhalla (1993) and the complete functional complex

In pioneering work on the subject, Ouhalla (1993) seeks an explanation for AAEs in the A-bar disjointness requirement of Aoun and Li (1990). This requirement dictates that a pronoun must be 'A-bar free' in the smallest Complete Functional Complex

(CFC) which contains it, one result being that a pronoun cannot be bound by an antecedent in A-bar position within the same clause. Taking the assumption that rich agreement morphology necessarily licenses a null pronoun, Ouhalla argues that such a null pronoun in the subject position would violate the A-bar disjointness requirement in the context of subject extraction since the null pronoun and its antecedent would be 'too close,' within the same CFC. Therefore, agreement on the verb is suppressed in order that a resumptive subject *pro* will not be licensed. This agreement suppression is what results in 'default' agreement, or an AAE, in the presence of an extracted subject.

Ouhalla's account has much in common with an earlier proposal about resumption found in McCloskey (1990), leading to what continues to be a perceived deep connection between the nature of AAEs and resumption. Working on Irish, McCloskey notes that while resumptive pronouns often resume extracted objects, they do not typically resume locally extracted subjects. McCloskey (1990) argues that this ban on subject resumption was due to the fact that a subject pronoun would be 'too close' to its antecedent. Therefore, resumption in such local subject positions is not an option.

Both McCloskey and Ouhalla argue for their accounts partially based on the observation that the AAEs and resumption effects associated with the local subject position disappear when the extracted subject originates in an embedded clause. For example, no AAE is present in the embedded Berber verb form in (7a), and (7b) shows that a subject resumptive pronoun is possible in embedded subjects in Irish. Both authors can account for these phenomena since the null or resumptive pronoun is not too close to its A-bar antecedent, being contained in a distinct CFC.

(7) a. Man tamghart ay nna-n qa t-zra Mohand? *Berber*
Which woman COMP said-3PL that 3FS-saw Mohand
'Which woman said that she saw Mohand?' (Ouhalla 1993)

b. an fear ar shíl mé go raibh sé breoite *Irish*
the man COMP thought I COMP was he ill
'the man that I thought was ill' (McCloskey 1990)

These facts make it clear that locality plays a role in AAEs. However, Ouhalla's claim that the minimal CFC is the relevant locality domain wrongly predicts that resumption in local object positions should be ruled out along with resumption in local subject positions. As McCloskey (1990) shows, however, Irish allows local object resumption. Ouhalla (1993:fn. 9) tentatively suggests that perhaps this is due to a peculiar property of Irish pronouns, but it is not clear why this property applies to pronouns in object position, but not local subject position (where they are disallowed, as we have seen). Moreover, further work on a wider range of languages has revealed that resumption in local object positions is quite common in the world's languages while resumption in local subject positions remains rare. On the agreement side of things, agreement with locally extracted objects is also common (see, for example, object relatives in many southern Bantu languages, as illustrated in Sabel and Zeller 2006). In short, it seems Ouhalla's locality restriction is not local enough. Rather, if the locality restrictions on AAEs are due to an independently defined locality domain, that domain must include the local subject position, but not the local object position.

2.2 Cheng (2006) and anti-locality

In recent years, there have been attempts at refining the notion of a 'too close' restriction on syntactic operations, now standardly referred to as anti-locality. One influential attempt is Grohmann (2000) who is concerned with anti-local considerations that constrain movement. Grohmann divides the syntactic tree into three distinct 'prolific domains,' the ω-domain (consisting of CP and its related projections), the ϕ-domain (IP and related projections), and the θ-domain (VP and related projections). Given this division, Grohmann proposes the Anti-Locality Hypothesis, which states that movement within a prolific domain is ruled out. Movement cannot take place, say, from the specifier of FocusP to the specifier of TopicP within the ω-domain, nor can movement take place from, say, the specifier of TP to the specifier of AgrSP within the ϕ-domain. Any licit movement operation must involve two domains.

Given what we have said about the apparent highly local nature of AAEs, it is not surprising that anti-locality has been invoked as the derivational cause of AAEs. This is the approach taken in Cheng (2006) in an attempt to account for AAEs in Bantu. Dealing chiefly with Bemba, Cheng begins by observing differences between subject and object relative clauses. While relativized objects are followed by a relative marker that is identical to a full demonstrative (8b), relativized subjects are followed by the verb, which carries a prefixed relative marker as well as an anti-agreement marker (8c).

(8) a. Umulumendo a-ka-belenga ibuku. *Bemba*
1boy 3SG-FUT-read 5book
'The boy will read the book.'

b. ibuku ilyo umulumendo a-ka-belenga
5book 5REL 1boy 3SG-FUT-read
'the book that the boy will read'

c. umulumendo ú-u-ka-belenga ibuku
1boy 1REL-AAE-FUT-read 5book
'the boy who will read the book' (Cheng 2006)

Cheng argues that the facts of AAEs in Bemba are the results of the language overcoming anti-locality violations in the course of subject extraction. Following Grohmann (2000), Cheng assumes that movement within a single prolific domain is too local for the computational system. She also assumes Grohmann's Condition on Domain Exclusivity, stated below:

(9) *Condition on Domain Exclusivity*
An object O in a phrase marker must have an exclusive occurrence in each Prolific Domain $\Pi\Delta$, unless duplicity yields a drastic effect on the output; that is, a different realization of O in that domain $\Pi\Delta$ at PF.

Note that the effect of the CDE is to allow violations of the Anti-Locality Hypothesis, but only if all copies of a moved element within a single domain are spelled out in phonologically distinct ways. Applying this understanding to the Bemba relatives above, Cheng argues that the prefixed relative marker in the subject relative in (8c) is equivalent to the full demonstrative in the object relative in (8b), the former being reduced for phonological reasons.[4] Both, she argues, are spell-outs of a copy-trace

of the relativized NP as it moves through SpecCP on its way to its final position. A derivation for the Bemba object relative in (8b) appears in (10) where ⓤ represents the Copy Spell-Out operation[5]:

(10) [DP [CP ibuku [CP ibuku [IP umulumendo ... V ...]]]]
ⓤ
ibuku *ilyo* umulumendo...

In likewise fashion, Cheng also argues that the anti-agreement morpheme is a spelled-out copy of the extracted subject, spelled out to satisfy the Anti-Locality Hypothesis and the CDE. For this argument to hold, however, Cheng is forced to relax Grohmann's definition of the ω-domain to include not only CP projections, but also the canonical subject position as well, which Cheng takes to be SpecIP. Cheng justifies this revision via Rizzi's (1997) claim that the highest projection of the IP domain (FinP in Rizzi's terms) ambiguously mediates between the CP and IP domains. In (11), the copy of the extracted subject in SpecIP is spelled out as the anti-agreement morpheme while the copy in the lower SpecCP is spelled out as a (phonologically reduced) demonstrative:

(11) [DP [CP umulumendo [CP umulumendo [IP umulumendo ... V ...]]]]
ⓤ ⓤ
umulumendo *u-* *u-* kabelenga...

Cheng's account of Bantu AAEs is somewhat unsatisfying both empirically and conceptually. First, as the spell-out of a copy of the relativized NP, the AAE morpheme must have a pronominal status in Cheng's system. Since it is replacing canonical subject agreement, the latter must also be pronominal. Two problems follow from these assumptions. First, one wonders why two pronouns referencing the same class of nouns (the AAE and canonical agreement morphemes) should differ in shape. That is, if what one needs to rescue the derivation is a subject-oriented pronoun, why

[4]This assumption is based on analogy with an argument from Demuth (1995) for Sotho. Demuth demonstrates that a topicalized adverb results in a full demonstrative-like relative marker even in subject relatives, using this to argue that in (i) the subject/relative prefix is a portmanteau morpheme composed of a phonologically collapsed relative demonstrative and the regular subject agreement prefix.

(i) batho bá-phehá-ng dijó *Sotho*
2person 2REL.2SM-cook-RL 8food
'people that cook food'

(ii) batho báo kajéno bá-phehá-ng dijó
2person 2REL today 2SM-cook-RL 8food
'people that today cook food' (Demuth 1995)

While this argument is persuasive, the facts cannot be repeated for Bemba (as Cheng notes) and there is no guarantee that the two languages are the same in this regard. Furthermore, Demuth does not rule out the possibility that the presence of the topic in the Sotho example in (ii) is triggering the use of a distinct relativization strategy rather than simply a phonological effect.

[5]Cheng assumes a head-raising analysis of relatives, à la Kayne (1994), in which the relativized NP starts out within the clause in its case position before being extracted to SpecCP. Under her account, this requires raising the head NP of the relative clause through two specifiers of CP. Below, I follow Cheng in assuming the head-raising analysis; however, I assume a single CP specifier position.

not use the canonical one? An account for what precisely makes the decision between the use of *a-* and *u-* in (8) above is lacking. Relatedly, it would seem that Cheng's account cannot explain why Bantu AAEs are limited to third person singular subjects of noun class 1. This generalization is not considered by Cheng, but it would seem that any account which does not have room for referencing specific person, number, and/or noun class features is incapable of accounting for it. Second, since Cheng's account relies on copy spell-out repairing anti-locality violations, it is not clear how this account can be extended to anti-agreement phenomena in other languages, including the Berber or Trentino examples noted in (1) and (2) above. In these languages, there is no distinct morpheme that can be identified as a minimal copy spell-out pronominal.

What I would chiefly like to draw attention to here, however, is the contrast between Cheng and Ouhalla's use of locality to define the domain for anti-agreement. While we noted above that Ouhalla's Complete Functional Complex defined a domain too large to include AAEs while excluding local object resumption, Cheng finds that Grohmann's definition of prolific domains creates a condition too small to capture even AAEs alone. Thus, Cheng is forced to redefine the ω-domain, making it large enough to include SpecIP. Thus, while the intuition remains that AAEs have something to do with locality, both of these accounts fail to capture the necessary domain in a natural, independent way. Neither the standard domain of locality (the complete functional complex) nor the standard domains of anti-locality (prolific domains) are sufficient, casting significant doubt on whether a locality-based account of AAEs is appropriate. This doubt is magnified by the wildly different conclusions that Cheng and Ouhalla's use of (anti-)locality leads them to regarding the nature of AAEs. For Ouhalla, AAEs result because a (null) pronoun *must not* be licensed in SpecIP. For Cheng, the AAE morpheme is a pronoun that *must* be realized in SpecIP.[6]

Below, I discuss an alternative account of Bantu AAEs that is not based on a formulation of (anti-)locality, but in which representational distance does play a role, thus capturing the intuition that AAEs have to do with locality without relying on the latter as a causal explanation. I then argue that this account, once other assumptions are made, lends itself naturally to an explanation of the nature and shape of the AAE morpheme as well as the fact the fact that Bantu AAEs are limited to third singular class 1 NPs.

3 AAEs as C-T agreement

The fact that AAEs in Bantu are restricted to singular class 1 NPs and do not appear with other NP subjects suggests that AAEs cannot be regarded as simply 'default'

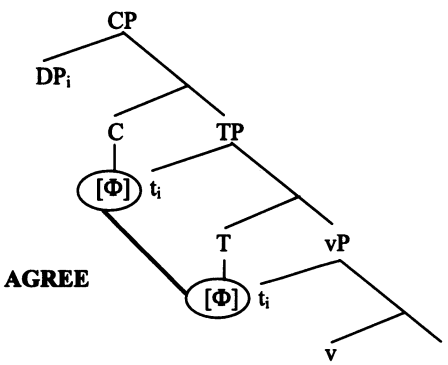
[6] In an important series of articles on this topic, Schneider-Zioga (2000, 2007) also invokes anti-locality as a partial way to account for AAEs. Briefly, Schneider-Zioga argues that canonical subjects in Kinande reside in the left periphery, co-indexed with a null resumptive *pro* in SpecIP. Since extracting left peripheral subjects to another left peripheral position for focus or relativization would violate anti-locality, Schneider-Zioga shows convincingly that to-be-extracted subjects start out in SpecIP. Assuming that only non-structurally case-marked NPs may undergo extraction in Kinande, Schneider-Zioga argues that unlike canonical agreement, AAEs cannot assign case. Its occurrence thus enables extraction of subjects in SpecIP by virtue of denying them case. Though this is quite a different approach to Bantu AAEs than that of Cheng (2006), the two have in common that they seem to have no way to explain why AAEs are limited to class 1 nouns and why the AAE morpheme has the shape that it does.

agreement that shows up in the absence of agreement features. Rather, it seems that any account of Bantu AAEs must make reference to specific phi-features. This in turn suggests that an account of AAEs purely in terms of movement and/or locality domains is not possible. Rather, the mechanics of agreement itself must play a central role. Below, I develop such an account. It has two main components. First, the core of my analysis is that an agreement relation between sets of phi-features in C and T underlies AAEs in Bantu, with the phi-features of C 'overwriting' those of T under an Agree relation. This idea coincides with a proposal in Boeckx (2003) that an Agree relation between C and T is one possible way for movement from SpecTP to SpecCP to form a chain that is legible at the interfaces. I explore this connection more in Sect. 3.1 and show that this relation is potentially able to capture the necessary connection between AAEs and locality missed by the accounts explored above, as well as give us hints about the nature of the AAE morpheme in Bantu. The second part of my analysis in Sect. 3.2 involves a closer examination of the morphosyntax of Bantu AAE morphemes and is based upon the claim, related but contrastive to those recently put forth by Ouhalla (2005), Carstens (2008), and Henderson (2009) and originally observed by Kinyalolo (1991), that the agreement relation that underlies AAEs uniquely affects the expression of the phi-feature [person], but not necessarily the expression of the phi-features [class] and [number.] I show how this conclusion allows for an account of the morphology of AAEs in Bantu as well as other languages.

3.1 The C-T Agree relation and locality

A central claim of this paper is that in AAE contexts, when a subject XP is extracted from SpecTP to SpecCP in a language with phi-features in C and T, phi-features in T must come into agreement with those in C.[7] The result affects the expression of the phi features in T, giving rise to AAEs.

(12)



[7]Following standard assumptions (see Chomsky 2000, 2001), I take an *Agree* relation to consist of two sequential components: (i) a *Match* relation established between a set of unvalued features (a 'probe') and a c-commanded set of valued features (a 'goal'), and (ii) a valuation operation (*Agree*) that assigns the value of the latter set of features to the former. Movement is not required for Match/Agree to take place. Rather, movement takes place in response to other features (the EPP in Chomsky 2000, 2001; 'feature strength' in Chomsky 1995; Richards 2001. I adopt the latter terminology here.).

As I will illustrate in Sect. 3.2, the morphology of AAEs in some Bantu languages reflects the Agree relation in (12) rather directly. However, while I take the account in (12) to be the basic explanation for AAEs, it clearly needs refinement. In particular, we must ask exactly which phi-features are present in C and T and which subset of them is involved in the agreement relation between the two. We must also ask whether there is any evidence for this connection. I return to this momentarily. First, however, I wish to point to out, as Boeckx (2003) does, that the analysis in (12) has the potential to capture the connection between AAEs and locality. Recall the difficulties in deriving AAEs purely from locality domains discussed above in Sect. 2. In the present account, however, any locality restrictions on AAEs would follow not from defined locality domains, but simply from general locality restrictions on the operation Agree and the closeness of the heads C and T.

To elaborate, let us take the standard position that Agree is subject to minimality; that is, Agree may not take place between two objects if a third object of the same kind intervenes between them. In that case, the more representational space between two objects in a given structure, the more likely some sort of intervention will occur, preventing Agree from holding. For example, we would not generally expect Agree to be able to hold between, say, phi-features of C and object-related phi-features of v, since in the usual cases a set of subject-related phi-features in T would intervene between them, violating minimality. On the other hand, in situations in which C selects T there can be no intervener between them. In that case, an Agree relation between C and T is virtually guaranteed. Thus, the idea that a C-T Agree relation underlies AAEs potentially explains why AAEs tend to be limited to local subject positions. Agree is a relation subject to minimality and thus, all other things being equal, tends to be very local, as in the case of local subject extraction.

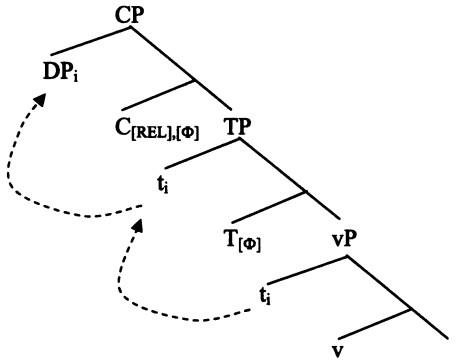
The claim that a C-T Agree relation underlies AAEs in Bantu finds a theoretical context in the theory of extraction detailed in Boeckx (2003), based upon the insights of Richards (2001). Briefly, Boeckx builds upon Richard's (2001) proposal that any movement chain may contain only one 'strong' feature. A 'strong' feature for Richards is a feature which requires a local configuration with the element that checks it, typically requiring that element to move to the specifier of the head containing the feature. In Bantu, for instance, it is generally accepted that the checking of phi-features requires movement, resulting in a spec-head relation between, say, the subject and T (Kinyalolo 1991; Carstens 2001). In Richards' terms, then, phi-features are strong in Bantu (and SpecTP is a 'strong position'). The reason Richards insists that each movement chain contain only one strong position is due to his conception of the function of feature strength. This is given in (13)

(13) A strong feature instructs PF to pronounce the copy in a chain with which it is in a feature checking relation. (Richards 2001:105)

With the understanding in (13), any chain containing two strong positions would result in conflicting instructions to PF about which copy in the chain to pronounce, a situation I refer to as a strong chain violation. Given this, chains with more than one strong position are undesirable and in principle ruled out. To apply this in the present context, subject extraction presents a difficulty since it requires an XP to move from one strong position (SpecTP, in which phi-features are checked) to another (SpecCP,

in which distinct phi-features as well as the feature responsible for relative movement is checked). The result is a movement chain with two strong positions, an impossible syntactic object in Richards' system. The structure in (14) is thus ruled out:

(14)



Given this restriction, however, the question arises whether it is to be taken as a condition on derivations or on representational outputs. Though Richards takes the former position, assuming that strong chain violations do not occur in narrow syntax, his conditions are clearly formulated as interface conditions, imposed by PF. It is therefore easy to imagine them as conditions on representations, violable in narrow syntax as long as they are repaired before the representation reaches PF after Spell-Out. This line of thought is taken up by Boeckx (2003) who argues for two specific ways in which strong chain violations (which he refers to as PUC violations—violations of his Principle of Unambiguous Chains) can be repaired. In the first strategy, 'stranding,' the element undergoing movement leaves a piece of itself in the lower strong position as it moves to the higher one. Effectively, this creates a representation in which the strong nature of both positions can be satisfied: PF spells out something in each strong position. Boeckx argues that this repair strategy is behind what is commonly known as resumption. The second strategy for repairing strong chain violations, *Agree*, involves establishing an agreement relation between the features that define the two strong positions. This option effectively cancels out the strong nature of the lower feature by making it identical with the higher feature.[8] Thus, instructions to PF are not in conflict. This option typically results in non-agreement between the lower strong feature and the moved element. Boeckx treats a large class of non-agreement phenomena as resulting from the Agree repair strategy, of which AAEs are a small subset.

[8] A reviewer asks why the situation is not reversed; that is, why doesn't the higher feature come into agreement with the lower feature instead? After all, this is the typical situation with agreement: the features of a c-commanding probe become identical to those of a lower goal. Under the system of strong chain violation and repair argued for in Boeckx (2003), however, the trigger for this Agree relation is two strong features in the same chain. If the second instance of movement isn't to be phonologically vacuous, it must be the feature strength of the higher feature that is retained by this Agree operation. Since conflicting feature strengths are resolved by resulting feature identity, the lower feature must become identical with the higher feature and not vice versa. The fact that in AAEs it always seems to be the phi features of T (and not C) that are affected could thus be taken as an argument that the C-T Agree relation underlying AAEs takes place for the purpose of repairing a 'strong chain' PUC violation in Boeckx's sense.

The chief purpose of briefly discussing the Richards/Boeckx understanding of extraction is to demonstrate that the C-T Agree relation I argue is behind AAEs in Bantu has an independently-argued-for theoretical context. Given that phi-features are strong in Bantu, Bantu languages with phi-features in both C and T will define a strong chain violation in the context of local subject extraction. If I am correct that a C-T Agree relation underlies the AAEs that occur in such contexts, this could be understood as a way to repair this violation.[9]

It is not possible in this paper to offer a full defense of the Richards/Boeckx system of strong chain violation and repair using Bantu data. However, a few preliminary observations can be made. First, given the Boeckx/Richards system, one expects that languages with object agreement (interpreted here as valued phi-features on little v) would not exhibit AAEs when the object is extracted since presumably the phi-features of the subject (or phi on T) would count as interveners for an Agree relation between C and little v. The Agree rescue strategy being unavailable, one would expect resumption would be required. This seems to be the case. In Bantu languages with object agreement such as Swahili, object extraction requires that object agreement be expressed on the verb.[10] I take this as evidence for a null resumptive *pro*.[11]

(15) a. Faraja a-li-wa-piga waana.
Faraja 3SG-PST-3PL.OBJ-hit 2children
'Faraja hit the children.'

b. waana amba-o Faraja a-li-wa-piga (*alipiga)
2children REL-3PL Faraja 3SG-PST-3PL.OBJ-hit
'the children whom Faraja hit'

With non-local subjects, predictions are less clear. Because the phi-features of the local subject, object, or phi on T would intervene between C and the non-local subject, one would expect resumption to be the preferred strategy. On the other hand, given the fact that non-local subject extraction might be accomplished through short, local, successive-cyclic steps, one might predict that the Agree strategy is available at the local level, giving rise to AAEs even with a non-local subject. In fact, both strategies are available in some languages, as Schneider-Zioga (2000) shows for Kinande. In (16a), the lack of an AAE on the lower verb can be taken to indicate the presence of a null resumptive *pro*. In (16b), the lower verb displays an AAE, which can be interpreted as the result of local extraction and C-T agreement in the lower clause.[12]

[9] Boeckx's (2003) system also seeks to explain why one often finds local subject resumption exactly in the contexts in which one does not find AAEs: when the Agree repair strategy is blocked, the stranding strategy (resumption) must be employed. This is applicable to the Swahili facts discussed below.

[10] Object agreement in Swahili is required with most animate objects and possible (under certain semantic conditions) with inanimate objects.

[11] A reviewer asks about cases in which there is no agreement and also no resumption between strong positions. One can imagine, say, a language with obligatory object agreement which does not display such agreement or a resumptive pronoun when the object is extracted. I have not come across such a language in the Bantu family. If such a language were found, it would certainly be a challenge to the Boeckx/Richards system. I reiterate that a full defense of that system is beyond the scope of this paper.

[12] In fact, Schneider-Zioga (2000) also makes the argument that AAEs in the lower clause are due to local movement to SpecCP of the lower clause, though her account of AAEs differs from the one proposed here.

(16) a. IyOndI yO Kambale 'akaBula nga **a**-langIra Marya? *Kinande*
who that-AGR Kambale wonders if AAE-sees Mary
b. IyOndI yO Kambale 'akaBula nga-yO **u**-langIra Marya?
who that-AGR Kambale wonders if-AGR AAE-sees Mary
'Who does Kambale wonder if __ sees Mary?'
(Schneider-Zioga 2000:(16a,b))

Finally, note that in the present account, AAEs rely upon the presence of phi-features in both C and in T. However, it is possible that this is a point of parametric variation. If, for instance, phi-features are absent in C in some language, the underlying C-T Agree relation would not be possible. This is arguably the case in Swahili, a Bantu language which does not display AAEs with local subject relativization. In (17b) there is no AAE morpheme and the canonical agreement marker occurs. Moreover, the extracted local subject is resumed by a pronominal that has been fronted and cliticized to the relative complementizer.

(17) a. Mchana a-li-soma kitabu. *Swahili*
1girl 3SG-PAST-read 7book
'The girl read the book.'
b. mchana amba-**ye** a-li-soma kitabu
1girl REL-**her** 3SG-PAST-read 7book
'the girl who read the book'

The fact that Swahili displays resumption rather than AAEs in local subject extraction is an interesting fact in itself, one predicted by the Boeckx/Richards system (see fn. 9 above). However, what I would like to address here is the question of why Swahili does not display AAEs, or, in present terms, why the local C-T Agree relation is not available in (17b). An explanation may lie in the nature of the relative complementizer *amba*. Note that this complementizer is not like that of Bemba and the other Bantu languages examined here. Rather than consisting of agreement morphology and being related in form to functional elements such as demonstratives, it is invariant and has the morphological shape of a bare lexical verb meaning 'say'. As Henderson (2004) has argued, this suggests that the relative complementizer in Swahili has a [+V] feature that must be checked by some verbal element occupying C, a V2 effect similar to that seen in Germanic. This also explains why alternative relativization strategies in Swahili, while lacking *amba*, also require some verbal element to move to C to check its verbal feature. In (18a), the agreement-tense clitic complex has moved to C, while in (18b) the (tenseless) verb has moved to C (see Barrett-Keach 1986; Ngonyani 1999 for further support and similar analyses).[13]

As a reviewer points out, in the case where AAEs do not surface in the lower clause, as in (16a), one might assume that movement is not strictly local, but takes place in one fell swoop. Alternatively, it might be assumed that the lower C simply lacks phi-features and therefore C-T agreement is not possible and resumption is required.

[13] I hasten to note this account is not complete because it does not explain why the subject resumptive pronoun in (18a, 18b) must be overt even though subject-related phi-features capable of licensing a null *pro* subject are present in T. I must leave this for future work.

(18) a. [CP Mchana a-li$_i$ [TP ye t$_i$ [VP soma kitabu]]]
1girl 3sg-pst her read 7book
'the girl that read the book'

b. [CP mchana a-soma$_i$ [TP ye t$_i$ [VP t$_i$ vitabu]]]
1girl 3sg-read her 8books
'the girl who reads books'

It is plausible that this strong verbal character of C in Swahili correlates with the lack of phi- features in C in Swahili, especially in light of the argument I will make below in Sect. 3.2.2 that phi-in-C has an essentially nominal character.[14,15]

Determining whether or not a combination of C-T agreement and resumption like that described above can account for the full interaction of extraction and subject/object agreement phenomena obviously requires more work than can be accomplished in this paper (see Henderson 2006 for an initial attempt). However, if the present account is on the right track and the local nature of AAEs follows from the local nature of agreement itself (within a system of strong chain violation and repair), then variation is expected along two parameters, namely, (i) distance between the agreeing heads (and the presence of potential interveners) and (ii) the presence or absence of (strong) phi-features. The above facts demonstrate that this variation exists. Explanations of AAEs based solely upon rigidly defined locality domains would seem to rule such variation out.

In this section, I have established what I take to be the core mechanics behind AAEs, namely, an Agree relation between phi-features in C and T, triggered by a strong chain violation. In the next section, I turn to the particular morphological facts of Bantu languages, demonstrating that AAEs in Bantu display morphological evidence for the C-T Agree relation discussed above. I also offer an account for why AAEs in Bantu are limited to class 1 singular NPs.

3.2 The morphosyntax of Bantu AAEs

In this section, I highlight facts about the morphosyntax of Bantu AAEs previously discussed in Henderson (2009) that point toward the conclusion that a C-T Agree relation underlies AAEs. As will be seen, the form of the AAE marker is often determined by the form of the relative marker, itself determined under agreement by the augment of the relativized noun phrase. I also show that the typical values of the phi-features in C and T differ with regard to the feature person, which is expressed as

[14]Boeckx (2003:88) also invokes the verbal nature of complementizers in order to explain the possibility of local subject resumption in Edo. However, he claims this is because such complementizers are a part of serial verb constructions. In Swahili, this is unlikely, as serial verb constructions are not possible.

[15]This is not to say, however, that all languages that lack an agreeing complementizer will necessarily lack AAEs since other language-specific morpho-phonological factors may come into play. For example, both Kirundi and Kinyarwanda, two closely related languages, lack relative complementizers. However, while Kirundi lacks AAEs, Kinyarwanda does not (for data, see Kimenyi 1980:61 for Kinyarwanda, and Sabimana 1986:189 (1a, 2a) for Kirundi). On the present approach, the conclusion must be that Kinyarwanda has phi-features in C but does not express them morpho-phonologically, while Kirundi must lack such features altogether.

referentiality when in C, but as traditional person distinctions when in C. I nevertheless argue that these features are compatible under Longobardi's (2008) denotation hypothesis.

3.2.1 The augment, relative complementizer, and the AAE morpheme

Before the agreement relationship between C and T can be clearly understood, we must first explore the agreement relationship between C and an extracted NP as expressed by the agreeing relative marker. Many Bantu languages employ a relative marker in subject relatives that is expressed as a vowel or CV sequence prefixed to the verb form. Typically, this prefix is identical to a similar prefix on the relativized noun phrase. This co-variation is illustrated below using Luganda and Bemba:

(19) a. **e**-kitabo e-ki-yulise *Luganda*
AUG-7book **7REL**-7AGR-torn
'the book that is torn'
b. **a**-kambe **a**-ka-meyeyse
AUG-12knife **12REL**-12AGR-broken
'the knife that is broken'
c. **a**-basajja **a**-ba-kola
AUG-2men **2REL**-3PL-work
'the men who are working' (Walusimbi 1996)

(20) a. **u**-mulumendo **u**-u-ka-belenga ibuku *Bemba*
AUG-1boy **1REL**-1SM-FUT-read 5book
'the boy who will read the book'
b. **a**-balumendo **a**-ba-kabelenga ibuku
AUG-2people **2REL**-3PL-FUT-read book
'the people who will read the book'
c. **i**-tabu **i**-li-a-kon-we-ke
AUG-5table **5REL**-5SA-break-PASS-STAT
'the table that was broken'

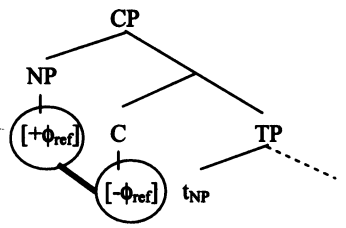
I take the relative marker vowel to be an agreeing relative complementizer (perhaps a reduced form of the full relative marker, an assumption made by Kinyalolo 1991, Cheng 2006, and Carstens 2008). The prefix on the NPs above is known in the literature as the 'augment'. Not all Bantu languages employ the augment. Its function is not well understood and may vary across languages. Most researchers, however, note that the augment encodes aspects of referentiality. In general, indefinite and unspecified NPs (such as question words, NPI, and focused NPs) must lack the augment (Hyman and Katamba 1993; Progovac 1993).[16] The augment always precedes a noun class prefix in the morphology of the noun, and its shape is determined by the noun class of the prefix it attaches to. In languages with a simple vowel augment, its shape is usually identical to the vowel of the noun class prefix it attaches to (see Nurse and

[16]However, there are exceptions here as well. A reviewer notes that in Nguni Bantu languages, contrastively focused NPs in clefts as well as in V-S inversion constructions display the augment vowel.

Philippson 2003:17), while in other languages the augment is expressed by a full CV prefix.[17]

The co-variation seen in (19, 20) above suggests that there is an agreement relation between the relativized NP and the relative complementizer. Given that the augment may encode referentiality, noun class, and number, I assume that these are the features involved in this relation.[18] This is illustrated below in (21). Here, an unvalued set of phi-features in C is valued by the inherently-valued phi-features in the relativized NP.

(21)



AGREE

$[\phi_{ref}]$ = [ref], [num], [class]

The identity of the relative marker vowel thus reflects agreement with the relativized NP. This is important since in AAE contexts the AAE morpheme is also typically identical to the relative marker vowel. The facts can be difficult to see clearly since very often the two vowels are adjacent and collapse phonologically. This is the case in the Bemba example above, repeated here. Though, following Cheng (2006), I have spelled out the REL and AAE morphemes separately, in natural speech these would be collapsed into a single long vowel:

(22) umulumendo ú-u-ka-belenga ibuku ==> *ú:kabelenga*
1boy 1REL-AAE-FUT-read 5book
Bemba

'the boy who will read the book' (Cheng 2006)

The facts are clearer in Dzamba. In this language, the negative morpheme intervenes between the relative marker and subject agreement in subject relatives, as seen in (23). Note again the identity of the augment of the head noun and the relative marker.

(23) i-zikenge i-ta-zi-bungaki o kalasi *Dzamba*
5AUG-5slate 5REL-NEG-5SA-lost at school
'the slate which was lost at school' (Bokamba 1976)

As in Bemba, Dzamba also displays AAEs. In (24b) one can see that the relative morpheme and the AAE morpheme are morphologically distinct. Both are identical and are identical to the augment vowel of the relativized NP.

[17] See Diercks (2009) for an account of anti-agreement in Lubukusu in a similar spirit to the present account. Unlike Bemba, Lubukusu has full CV initial prefixes.

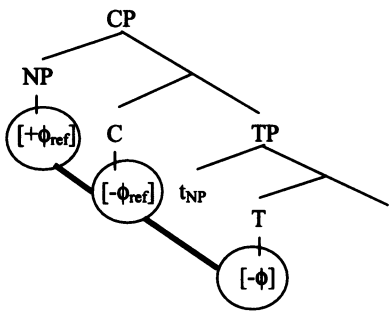
[18] The idea that a relativized NP and relative complementizer may agree in referentiality is not new. As an anonymous reviewer reminded me, Choueri (2002) discusses correlations between definite and indefinite relativized noun phrases and the types of relative complementizers that occur with them in Lebanese Arabic.

(24) a. O-moto a-kpa:ki i-mundondo. *Dzamba*
1AUG-1person 3SG-took AUG-jug
'The person took the jug.'

b. o-moto ó-ta-ò-kpa:ki i-mundondo
1AUG-1person 1REL-NEG-AAE-took AUG-jug
'the person who didn't take the jug' (Bokamba 1976)

The facts strongly suggest that AAEs in Bantu involve a replacement of the canonical subject-verb agreement morpheme with the vowel of the relative complementizer.[19] Under the present account, this identity relation is captured if it is taken to reflect a C-T Agree relation that underlies AAEs.[20] Specifically, in a way to be refined below, I take the phi-features of C, valued by the relativized NP, to enter an Agree relation with the subject-related phi-features in T. I make the traditional assumption that the latter consists of the features [person], [num], and [class].[21]

(25)



[19]This 'replacement' is also strongly supported by the fact that first and second person singular pronouns, when relativized, also trigger AAEs. These facts are discussed in Sect. 3.2.2 below.

[20]The phonological correlation is not absolute. In Kinande, e.g., the AAE morpheme and the initial vowel of the relative marker (and relativized NP) are not identical. This should not be taken as contrary evidence, however, since the present account does not rule out the fact that two sets of identical phi-features could be spelled out in different ways (much as a set of subject-related phi-features may be spelled out differently than object-related ones). I take such cases to be instances of contextual allomorphy.

(i) o-mukali oyo u-anzire Kambale
AUG-woman that AAE-likes Kambale
'the/a woman that likes Kambale' (Schneider-Zioga 2007)

[21]As a reviewer points out, this approach requires that the phi-features in T remain 'active' and therefore able to be (re-)valued by the phi-features in C even though they have already been valued by the inherent phi-features of the NP subject. While not uncontroversial, this assumption is unproblematic as long as one does not assume that phi-features become inactive for further checking once they have been valued. For instance, Henderson (2006, 2011) assumes a notion of 'Dynamic Locality,' proposing that a probe may enter into several different Agree relations in the course of a derivation, with the most local relation being determined only at the end just before Spell-Out. It is this relation that serves as the source of the final value of the probe, despite any other Agree relations established earlier in the derivation. Note, however, that whatever the mechanics of this revaluation, this assumption is not a license for rampant revaluation of feature values in the derivation since revaluation here is a last resort operation induced by a strong chain violation.

The fact that the form of the AAE morpheme co-varies with the form of the relative marker (and thus with the form of the augment of the relativized NP) suggests that the present account of AAEs in terms of a C-T Agree relation is on the right track. However, (25) raises interesting technical questions. Namely, how do the Agree relations in (25) work mechanically? While the [class] and [number] features in C and T would seem to be compatible for Match/Agree relationship being proposed, there is a clash between the feature [ref] in C and [person] in T. On the surface at least it would seem that these two features are incompatible.[22] Furthermore, it is not clear yet how this account is capable of capturing the fact that Bantu AAEs are limited to singular subjects of noun class 1. I explore this below.

3.2.2 Phi in C and phi in T

Though I have argued above that AAEs arise from an Agree relation between phi-features in C (associated with the relative complementizer) and phi-features in T (associated with subject-verb agreement), we have also seen that these two sets of phi-features are not identical, conflicting in that phi in C inflects for the feature [ref], while phi in T inflects for the feature [person] (while both may inflect for [class] and [number]). In this subsection, I further illustrate this contrast and argue that, despite the difference, these two sets of phi-features are fully compatible and able to enter into an Agree relation.

First, it is important to point out that phi in C may express class and number distinctions, in addition to the referential feature value. For Bantu, this can be seen mostly easily in non-subject relatives. Unlike in subject relatives, non-subject relatives typically display agreement with the relativized NP in [class] and [number] as well as in [ref]. In the Bemba example in (26), for instance, the relative marker expresses [ref] agreement with the relativized NP through its augment vowel while the remainder of the relative marker expresses agreement with the class and number of the relativized NP (class 3, a singular class).

(26) i-buku i-lyo a-ba-lumendo ba-ka-belenga *Bemba*
AUG-3book AUG-3REL AUG-CL1.PL-boy 3PL-FUT-read
'the book that the boys will read'

Phi in C and phi in T thus have in common their ability to express class/number distinctions. They differ, however, in their ability to express traditional person distinctions. Evidence for this comes from cleft constructions with personal pronouns. As Kinyalolo (1991:36) demonstrates, when non-third person personal pronouns are relativized, person distinctions disappear: all singular personal pronouns trigger AAEs while plural personal pronouns trigger the regular third person plural agreement[23]:

[22]There is further evidence that [person] in T is affected by AAEs in contexts where first and second person pronouns are extracted. I present such data below in (27) for KiLega and (36, 37) for Bemba.

[23]Based on these data, Kinyalolo (1991) in fact explicitly argues that the anti-agreement phenomenon (which he terms 'wh agreement') uniquely involves the feature [person], proposing that AAEs (what he terms *u*-AGR) are underspecified for person. The generalization (27) demonstrates also holds for Bemba and Swahili.

(27) a. ...kikongolo ang-ine ú-a-kit-il-e bubo (*n-akitile)
...7stupid as-me AAE-ASP-do-APPL-FV 14that 1SG-done
'...as stupid as I who have done that.'
b. ...bikongolo anga biswe b-a-kit-il-e bubo (*tu-akitile)
...8stupid as us 3PL-ASP-do-APPL-FV 14that 1PL-done
'...as stupid as we who have done that.'

This supports the idea that phi in C lacks traditional [person] values, able to display values for [ref], [class] and [number] only. The set of phi-features involved in and C and T thus seems to include the following:

(28) Phi in C: [ref], [class], [number]
Phi in T: [person], [class], [number]

Of course, the mere complementary distribution of the features [ref] and [person] suggests exploring the idea that these two features may simply be different labels for the same feature. Support for this idea is found in Longobardi (2005, 2008).

Longobardi (2005) develops a general theory of nominal reference, based upon systematic variation in DP structures across languages. His conclusions include a mapping theory for nominal expressions, consisting of the following principle and condition:

(29) a. *Denotation Hypothesis:* Individuals are denoted in D.
b. *Licensing Condition:* Arguments denote individuals.
(Longobardi 2005:32)

Among other things, this theory derives Stowell's (1991) assertion that D is required for argumenthood. Furthermore, on this theory it is the feature content of D that derives the sort of individual the argument denotes. As Longobardi details, there are two possibilities: constants and variables. The former have a "fixed referential value denoting one and only one entity (kind or object)" while the latter "are bound by (coindexed with) an operator and range over a set of entities (kinds...or objects)" (Longobardi 2005:33).

Developing this line of thinking, Longobardi (2008) posits that the feature responsible for the individual-denoting properties of arguments is the feature [person]. Observing that the head D is universally the locus of expressing person features in personal pronouns, he hypothesizes that the D category minimally consists of the person feature:

(30) D is the Person head. (Longobardi 2008)

The conclusion in (30) leads to a revision of the Denotation Hypothesis from Longobardi (2005) in (29a) above:

(31) *Denotation Hypothesis (revised)*: Individuals are denoted through the Person feature.

The conclusion that the D head, responsible for argumenthood and the individual-denoting properties of nominal expressions, is equivalent (minimally) to the [person] feature provides a plausible way of connecting the [ref] and [person] features in (28).

In this system, nominals that are arguments always inflect for [person]. In personal pronouns, of course, this is expressed as traditional person distinctions between participants (speaker, hearer, etc.). However, [person] is also expressed through referential function, even with non-pronominal third person nominals. This is due to the fact that any referential NP must have a selecting D head, and that head must consist, minimally, of the feature [person].

Returning to the present account, if it is the case that [ref] and [person] are simply labels that reflect different possible values for the same feature, the facts we have examined suggest that phi in C and phi in T are sensitive to different values of this feature (which, for clarity, I will call [person], following Longobardi). Specifically, phi in C is sensitive only to the referential values for [person]; that is, [person] in C can only express whether or not the agreed-with goal is referential or not. It is not sensitive to the speaker/hearer distinctions that differentiate traditional first, second, and third person distinctions. Phi in T, however, is sensitive to the latter distinctions and can express those values.

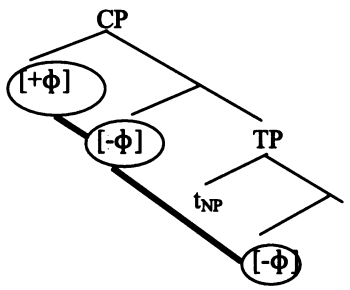
Within an AAE context, the C-T Agree relation results in phi in T gaining the range of [person] sensitivities of phi in C. Phi in T thus loses the ability to make traditional first, second and third person distinctions. Rather, it can only express the referential values for the feature [person] (which would seem to be simply +/− referential).

It is important to note that I am not claiming, as Ouhalla (2005), Henderson (2009), and Carstens (2008) have claimed, that AAEs uniquely target the feature [person].[24] Rather, the C-T Agree relation affects all of the phi-features in C and T. It merely

[24]Carstens (2008) argues that AAEs in Bantu arise due to the fact that [person] and [operator] are alternative values for the same feature, both located in D within DPs. AAEs on this view are simply alternative agreement forms, sensitive to this distinction. Thus, when a subject is an operator (as in extraction contexts like relatives or questions), agreement is with [operator], [gender], [number] rather than [person], [gender], [number]. On this view, AAE and non-AAE contexts do not differ in the mechanics of Agree, only in the values that the [person] receives. Examining AAEs in Berber and attempting to derive lexical categories computationally from phi-features, Ouhalla (2005) argues that the feature [person] defines the verbal category while the feature [class] defines the nominal category (the feature [number] being category neutral). Ouhalla argues that in AAEs, the verb lacks a [person] feature, instead having a [class] feature. Thus, verb forms in AAE contexts are not really verbs at all, but nominals. This accounts for their participial nature in Berber and some other languages. From an empirical standpoint, neither account is fully satisfactory. Since AAEs are merely operator agreement in Carstens' analysis, it is not clear how it can account for locality effects that typically accompany AAEs, such as the fact that extraction of a subject operator from an embedded clause does not induce AAEs on the embedded verb in many languages, including Bantu languages such as Bemba. As for Ouhalla, the conclusion that AAEs always result in a nominal category seems too strong. While in Berber and some other languages the verb appears as a participle in AAE contexts, this is not true in Bantu languages. Other than the agreement difference in third singular human nouns, verb forms in AAE contexts may exactly resemble their non-AAE counterparts, able to carry overt marking for tense, aspect, and object marking. Note that the present approach in some way refines and combines these proposals. Like Carstens, the present approach argues for alternative values of the feature [person]; however, I take the relevant distinction to be between the values of the feature [person] in the nominal and verbal domains. Thus, this account also has something in common with Ouhalla's proposal that in AAE contexts a verbal feature is replaced by a nominal one. However, unlike Ouhalla, I assume this is limited to phi-feature values and does not necessarily result in a change in lexical category (though this is not, in principle, ruled out if all empirical issues could be worked out).

appears that [person] is uniquely affected due to the fact that other features ([class] and [number]) receive the same values from an NP whether they are in C or in T.[25]

(32)



AGREE ——

[ϕ] = [pers], [class], [num]

The explanation offered here also fits well with recent Berber facts discussed by Ouhalla (2005). While Ouhalla (1993) argued that AAEs involved the suppression of phi-features generally, Ouhalla (2005) shows that the total lack of agreement sometimes displayed in AAE contexts is a language-specific quirk of morphology. While the Tarafit Berber variety discussed in Ouhalla (1993) indeed shows lack of agreement in AAE contexts, Ouhalla (2005) shows that AAEs differ in other Berber varieties. In Tashlhit and Tamazight Berber, number marking is preserved in AAE contexts while in Ouargli and Tahaggart, both number and gender are preserved (Ouhalla 2005:664, fn. 5 and references therein). In all varieties, however, person agreement is suppressed. The data below is from Tamazight Berber:

(33) irgazn (lli) ffegh-n-in *Tamazight Berber*
men COMP left-PART-PL
'the men who left' (Boukhris 1998:262; cited in Ouhalla 2005:676)

The Berber facts are important since they provide a framework for understanding why AAEs differ in form across languages. After all, if a C-T Agree relationship that results in a differently valued [person] feature of T indeed underlies all AAEs, why do AAEs surface in such a different way in Bantu than in, say, Turkish or Trentino? The Berber facts suggest that the answer can be found in the specifics of a language's verbal morphological paradigm and how its [person] features are spelled out in relation to other agreement features.[26] This insight turns out to provide a crucial testing

[25] An interesting question arises about why the [person] feature in C and in T should be differently sensitive to [person] values on the NP. Presumably this has to do with the different functions of the CP and TP domains. While the latter is typically taken to be concerned with inflectional properties of the clause, the former is concerned with 'referential' properties of the clause, such as clause typing and discourse-linked information (see, for example, Grohmann's 2000 discussion of prolific domains).

[26] Another consequence of this view is that languages without an agreement paradigm that crucially depends upon [person] distinctions might show no AAEs at all, even if a C-T Agree relation is involved in subject extraction. English could be a candidate for such a language. Though, as a reviewer points out, this might seem to raise the question of falsifiability; the present account could easily be proven misguided. For example, a language that expresses (i) phi-features in C in extraction contexts, (ii) traditional person distinctions in subject-verb agreement, and (iii) no AAEs would be a significant challenge to the present account.

ground for the account presented here, especially within the framework of Distributed Morphology.[27] I explore this for Bantu below.

4 Predictions in a DM framework

If we are to build on the insight that cross-linguistic differences in AAE expressions are due to the details of a language's system of expressing morphological agreement, a particular view of morphology must be adopted. In this section, I adopt the realizational framework known as Distributed Morphology (DM; Halle and Marantz 1993, 1994). Within DM, the syntactic and morphological components of the grammar are essentially collapsed, in that both are taken to manipulate, in constrained ways, abstract features only. It is only after these manipulations are complete that phonological material is added to the derivation. This is accomplished by disjunctively ordered sets of lexical insertion rules. Such rules insert phonological strings (referred to as Vocabulary Items) into terminal nodes based upon environmental factors, such as the presence of particular morphosyntactic features. For example, the subject agreement morpheme for first person plural subjects in Bemba is /tu-/. We might therefore assume a lexical insertion rule that inserts this morpheme at the subject agreement node when the features [1] and [pl] are present in the terminal node that realizes the subject agreement morpheme.[28]

(34) /tu-/ ↔ [1], [pl]

Two important principles govern the application of such rules, however. The first is the notion that lexical insertion rules may be underspecified. Given the rule in (34), for example, and the fact that there are only two first person subject agreement morphemes, it is not necessary to fully specify the rule for the first person singular morpheme /n-/. Rather, we need only specify the person feature:

(35) /n-/ ↔ [1]

The other crucial idea is the Subset Principle. This ensures that in case the environment is met for more than one rule to apply, the most highly specific rule is the one that wins.[29] Thus, for example, if the subject agreement node in a Bemba structure has the features [1] and [pl], the rule in (34) rather than the rule in (35) will apply, even though the conditions for both rules are met by this structure.

[27] A reviewer points out that the present account is not, strictly speaking, a testing ground for Distributed Morphology, and I make no attempt to contrast the present account with other frameworks. However, I wish to point out that the DM framework does add to the elegance of the account since it provides a framework within which morpho-phonological rules specific to the AAE context are not required. Rather, the general rules that account for the distribution of the augment and regular agreement prefixes also provide the distribution of the AAE marker.

[28] I assume that insertion of subject agreement morphemes takes place at a dissociated node inserted and adjoined to T after Spell-Out and before vocabulary insertion, a standard assumption in DM (see Harley and Noyer 1999).

[29] Crucially, the Vocabulary Insertion rule may not specify any features that are not present in the target of insertion. They must be a subset of the features in the terminal node the rule is targeting for insertion.

In DM, such underspecified, disjunctively ordered sets of lexical insertion rules are used to account for paradigms, as well as the syncretism they often contain. If, for example, the number feature were deleted in the syntax or morphology component (for whatever reason), then in the presence of the feature [1], the rule in (35) would apply in both the singular and plural cases. Because (35) is underspecified for number, it becomes the default in such a case.

This system provides an interesting testing ground for the present analysis. If indeed AAEs result from replacing the [1], [2], [3] values of the feature [person] with the more general value [ref] in the syntax, then the AAE context paradigm and the regular subject agreement paradigm should result from the same set of lexical insertion rules. The differences should follow automatically from the way the same rules apply to the differently valued features for [person] present in AAE and non-AAE contexts. Therefore, if such a set of underspecified lexical insertion rules can be constructed, this will support the present account (as well as the DM view of morphology). I do this for Bemba below:

First, recall that with third person class 1 NPs and with first and second person pronouns, person distinctions are not distinguished in the AAE context. Rather, all such singular subjects display the AAE morpheme /u-/ while all such plural subjects display the third person plural marker /ba-/. I show this below for Bemba:

(36) a. Ni-ne **u-u**-ka-belenga ibuku.
COP-1SG **REL-AAE**-FUT-read 5book
'It is I who will read the book.'

b. Ni-we **u-u**-kabelenga ibuku.
COP-2SG REL-AAE-FUT-read 5book
'It is you who will read the book.'

(37) a. Ni-fwe **a-ba**-ka-belenga ibuku.
COP-1PL REL-3PL-FUT-read 5book
'It is we who will read the book.'

b. Ni-mwe **a-ba**-ka-belenga ibuku.
COP-2PL REL-3PL-FUT-read 5book
'It is you all who will read the book.'

The fact that all plural subjects occur with the third person plural subject marker would seem to be a case of a 'retreat to the general case,' often accounted for in DM by a rule of impoverishment, a post-syntactic rule that may delete features before vocabulary insertion. In this case, however, the impoverishment is effected not by an ad hoc rule at Morphological Structure, but in the syntax as the C-T Agree relation removes traditional person values from T before Spell-Out. Thus, this paradigm is partially accounted for if rules are underspecified for the singular number feature and if the third person plural morpheme is underspecified for person, as in the list below:

(38) /tu-/ ↔ [1], [pl]
/n-/ ↔ [1]
/mu/ ↔ [2], [pl]
/u/ ↔ [2]

/a/ ↔ [3]
/ba/ ↔ [pl]

Because in AAE contexts the {1, 2, 3} values for the feature [person] will not be present in T (due to agreement with C), none of the rules of (38) can apply except for the rule for /ba/. The latter can only apply in the presence of a [pl] feature. Thus, in all AAE contexts with a plural subject, /ba-/ is the only rule in (38) that can apply. This explains the behavior of /ba-/ as the default plural agreement marker in plural AAE contexts.

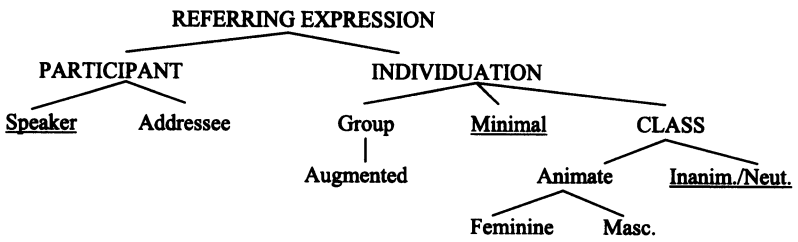
In the case of a singular class 1 subject in AAE contexts, none of the rules in (38) can apply. That is because all of these rules refer either to [pl] or to a {1, 2, 3} value for [person]. In an AAE context involving a singular class 1 subject, T will have none of these feature values. Rather, it will have the [ref] value for person (in addition to values for number and class features). Recall the generalization that the anti-agreement morpheme is identical in shape to the class 1 augment. I propose that this is due to the fact that in AAE contexts, the rule that supplies the class 1 augment applies to the features in T, rather than the /a/ rule in (38). The list in (39) provides the set of rules for the insertion of the augment. Note that these rules take the various forms of the augment to be instances of conditioned allomorphy (see Halle and Marantz 1993). Though all are inserted based upon the presence of the same single feature value ([ref]), the form inserted depends upon the class and number features of the noun class marker or agreement marker to which it will be attached. Note also that I take the class 1 singular augment to be the default, lacking any secondary conditions for insertion.

(39) /i-/ ↔ [ref] / { __ [class 7]; [class 3, pl]; [class 5]}
/a-/ ↔ [ref] / { __ [class 5, pl]; [class 11, pl]; [pl]}
/u-/ ↔ [ref]

In AAE contexts, then, traditional feature values for person will be replaced with the feature [ref]. In the case of singular third person class 1 subjects, the /a-/ rule of (38) cannot apply. However, the final rule of (39) can apply and will supply the /u-/ exponent to T just as it supplied the same exponent to C and the augment head (presumably D or a related terminal node) to the relativized subject in SpecCP. Thus, the rules in (38) and (39), together with the arguments above for C-T agreement, explain why /a-/ is replaced with /u-/ in AAE contexts.

A potential problem arises in the case of class 1 plural subjects, however. Note that in these cases, the subject agreement node will be specified as [ref], [pl]. In that case, either the /a-/ rule from (39) (which has as one of its conditions the context {__ [pl]}) or the final rule in (38) (the rule for /ba-/ insertion) could potentially apply. On the surface, it doesn't seem like the Subset Principle is helpful here since each rule matches the input in one distinct feature. It seems we must stipulate that the [pl] feature is more highly specified than the [ref]-valued [person] feature in order to make things work. Fortunately, there is independent support for this conclusion. Examining the nature of phi-features in pronominal paradigms, Harley and Ritter (2002) argue for a universal hierarchy of phi-features in which some features are dependent upon the presence of others, capturing implicational relationships. The hierarchy Harley and Ritter argue for appears below:

(40)

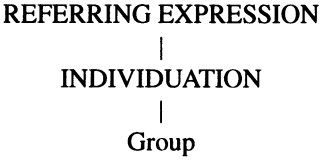


In the tree in (40), the traditional person feature distinctions are distinguished via the features of the PARTICIPANT node and below. First person is captured by the presence of the [speaker] feature; second person by the [addressee] feature; and third person by the absence of the PARTICIPANT node altogether. First, let me point out that the sets of lexical insertion rules proposed above in (38) are technically incompatible with this geometry. That is because the rules in (38) require direct reference to the [3] value for the [person] feature, impossible if [3] is simply the absence of a feature node. I take this to be an important point, and one that supports other claims in the literature that reference to third person is necessary in certain morphological paradigms (see Nevins 2007), but which is relatively minor to the present discussion.[30] More important is the idea that features are hierarchically ordered and the presence of some features implies the presence of others.

For the Bantu case, I assume that the traditional {1, 2, 3} feature values for the feature [person] are dependent upon the more basic feature value [ref], an idea generally compatible with Harley and Ritter's hierarchy. For concreteness, I take [ref] to be the value assigned to [person] when no PARTICIPANT node is present. [ref] is thus represented in the hierarchy by the bare node REFERRING EXPRESSION with no other nodes or features implied. Along with Harley and Ritter, I assume that the feature value [pl] is represented in their hierarchy by the presence of the INDIVIDUATION node and its dependent feature [Group]. Given these assumptions, the feature trees for singular and plural class 1 agreement nodes will look like those in (41). We can see here that the feature value [pl] requires more specification (the presence of more nodes) than the feature value [ref] does.

(41) a. [ref] feature tree: REFERRING EXPRESSION

b. [pl] feature tree:



Note that the representation in (41a) is contained within the representation in (41b). Given these representations, the ordering of the /ba-/ insertion rule in (38) over the relevant /u-/ insertion rule in (39) follows from the Subset Principle as the very presence

[30] Presumably, reference to third person would require that the PARTICIPANT node have a sister node under the REF node that would specify third person. I do not have space here to fully explore this possibility. Assuming such a node, however, the rules in VI rules above could be revised to refer to these features rather than the features [1], [2], [3] as they do.

of a [pl] feature implies the presence of a [ref] feature (see Harley 1994, Sect. 3.3.2 for a similar argument).

The lexical insertion rules proposed so far thus account for the behavior of class 1 nouns and pronouns in subject extraction contexts, as well as the identity of the AAE morpheme with the relative and augment vowels. It does not, however, account for why AAEs are limited to class 1 nouns and do not occur with third person nouns from other noun classes. This fact can easily be captured, however, if the lexical insertion rules for the subject agreement morphemes for these classes do not reference the feature [person] at all. Such a set of rules is easily constructed around the necessary feature values for [class] and [number] alone. I do this for Bemba below. Just as with class 1 nouns, I take the [pl] value to be the marked case and [sg] values to be underspecified. The difference between the rules for class 1 and these rules is that rules for class 1 agreement reference the feature [person] while rules for other classes reference the feature [class]

(42)

/u-/ ↔ [class 3]	/i-/ ↔ [class 3], [plural]
/li-/ ↔ [class 5]	/y'a-/ ↔ [class 5], [plural]
/ci-/ ↔ [class 7]	/fi-/ ↔ [class 7], [plural]
/i-/ ↔ [class 9]	/shi-/ ↔ [class 9], [plural]
/lu-/ ↔ [class 11]	/ka-/ ↔ [class 11], [plural]
/bu-/ ↔ [class 13]	/ku-/ ↔ [class 13], [plural]

It should now be obvious why AAEs do not show up with nouns that are not class 1. Since AAEs are the result of a change in the value of the [person] feature and since the rules in (42) do not reference the [person] feature, their application will be unaffected by the change. All we need to do is point out that all of the rules in (42) are more highly specified than either the /ba-/ insertion rule from (38) or the rules in (39) (which only reference the feature value [ref] directly). This is because all of these rules reference (values of) the feature [class]. Referring again to Harley and Ritter's hierarchy in (40), any class value will be dependent upon the class node, which is itself dependent upon the individuation node. Class is therefore more highly specified than number, the latter, we have argued, itself being more highly specified than the [ref] value for the feature [person]. Given this, the Subset Principle alone captures the fact that the rules in (42) must apply before the /ba-/ rule from (38) or any of the rules in (39) in AAE contexts.

5 Conclusions

In this paper, I have argued that agreement correlations in Bantu subject extraction offer strong evidence that an agreement operation between C and T underlies AAEs. I have further argued that the locality of AAEs may be epiphenomenal, following from standard minimality and intervention constraints on the Agree operation rather than from locality restrictions on movement or binding. I have also shown that Bantu offers strong evidence that AAEs uniquely affect the feature [person], in confluence with recent work by Ouhalla (2005), Henderson (2009), and Carstens (2008). However, I have argued that this is only apparent. AAEs result from general phi-feature

agreement between C and T. The values for the feature [person] are uniquely affected because the values of this feature allowed by C and T differ. Finally, the present account, if accurate, supports Longobardi's view that [person] is a referential feature with differing values in the inflectional and nominal domains, as well as the system of underspecified lexical insertion rules taken to account for paradigm in Distributed Morphology.

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