

# MULTIPLE AGREEMENT AND INVERSION IN BANTU

*Brent Henderson*

*Abstract.* Carstens (2001) argues that multiple agreement constructions in Bantu arise through raising of the subject through each verb's specifier. This paper argues against this account, providing evidence from relative inversion that subjects move directly from their base position to their final position with no intermediate stops. It is argued that these facts are consistent with a Multiple Agree analysis in which agreement on participle verbs is parasitic on the  $\phi$ -features of their selecting auxiliary verbs. Carstens's arguments against Chomsky's (2000, 2001) system of  $\phi$ -complete Case checking are also discussed and a new argument against Chomsky's system is presented that demands  $\phi$  and Case feature checking relations be divorced. Data come from Swahili and Kirundi.

## 1. Introduction

The present work builds on the work of Carstens (2001) as well as Henderson (to appear) in examining the syntax of compound tense (CT) structures in Bantu.<sup>1</sup> Like many languages, Bantu languages express some tense and aspect relations via a sequence of verbs, including one or more auxiliary verbs followed by a lexical verb. However, while in many languages participle verbs display an agreement pattern distinct from that on the auxiliary, in some Bantu languages each of the verbs in such constructions carries full agreement with the subject of the clause, including person, gender, and number.<sup>2</sup> Two examples from Swahili, taken from Carstens 2001, illustrate this property.<sup>3</sup>

- (1) Juma a-li-kuwa a-me-pika chakula. Swahili  
Juma 3SG-PST-be 3SG-PERF-cook food  
'Juma had cooked food.'

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<sup>1</sup> The analysis for Bantu CT structures presented here substantially revises that put forth in Henderson, to appear, in which multiple agreement facts were taken to reflect purely morphological rather than syntactic relations. I take the present account to be superior on both conceptual and empirical grounds.

<sup>2</sup> I take noun class agreement to be equivalent to gender.

<sup>3</sup> In all examples numbers are used to indicate the noun class of nominals as well as coindexation with agreeing morphemes. Other abbreviations: REL = relative complementizer; AGR = subject agreement; IMP = imperfect aspect; PERF = perfect aspect; PST = past tense marker; PROG = progressive marker; NEG = negative marker; HAB = habitual aspect marker.

- (2) (Mimi) ni-li-kuwa ni-ngali ni-ki-fanya kazi. Swahili  
 (I) 1SG-PST-be 1SG-still 1SG-PERF-do work  
 'I am still working.'

Carstens's (2001) analysis of CT structures like those in (1) and (2), based on Carstens and Kinyalolo 1989, is that CT structures are raising constructions. Under this view, the subject originates in Spec,vP and enters an Agree relation with each verbal head and raises to its specifier in a cyclic manner until it reaches its final position in Spec,TP. This raising analysis is presented in (3) for the example in (1). Unpronounced copies of the subject appear in brackets <>:

- (3) Raising analysis:
- 
- [TP<sub>1</sub> Juma alikuwa [TP<sub>2</sub> <Juma> amepika [vP <Juma> chakula
- 'Juma had cooked the food.'

The analysis in (3) is consistent with the well-known generalization that Bantu languages require a spec-head configuration for agreement (Kinyalolo 1991, Baker 2002, among others).<sup>4</sup> However, as Carstens discusses, the derivation in (3) is problematic for any theory of feature checking that allows the case features of subjects to be checked as a reflex of the checking of agreement features, an assumption adopted by Chomsky (2000, 2001). If indeed case checking occurred as a side effect of  $\phi$ -feature valuation, the case of the subject should be checked in the lowest structural Agree relation in (3)—namely, that between the subject and the head Asp. Assuming that arguments need unchecked case to be “active” for further syntactic operations, however, this cannot be the case in (3) since after valuing the  $\phi$ -features of Asp, the subject must go on to value the  $\phi$ -features of T and undergo movement to Spec,TP.

In Chomsky 2000, 2001, the problem of the asymmetry between multiple agreement relations with a single argument was circumvented by the claim that an argument's case is checked only when it values a  $\phi$ -complete set of checking features. This system of “ $\phi$ -complete case checking” accounts for the strong crosslinguistic generalization that auxiliary verbs carry more

<sup>4</sup> Carstens (2001, 2005) as well as Baker (2002) interpret the spec-head generalization for Bantu as an EPP requirement on  $\phi$ -features in these languages. Thus, while  $\phi$ -features are checked via a probe-goal Agree relation, this relation always results in a spec-head relation.

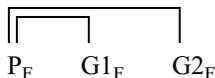
complete agreement than participles, the latter often lacking person features. However, Carstens points out that Swahili does not share this asymmetry, having  $\phi$ -complete agreement on every head in the CT sequence. Appeal to  $\phi$ -complete case checking is therefore insufficient. In place of such a system, Carstens suggests that  $\phi$ -feature and case feature checking must be formally divorced in the syntax. She advocates returning to a more traditional idea: that certain functional heads are simply inherently endowed with the ability to check certain cases. T checks nominative case on subjects, for instance, just by virtue of have a nominative case checking property.

Note that Carstens's arguments against Chomsky's case-checking system rely on her analysis of CT structures as raising constructions. Specifically, they rely on there being independent Agree relations between the subject and each verbal head in the CT sequence. In this paper, I argue that this approach is incorrect, and instead develop a multiple Agree approach (Hiraiwa 2001, 2005) to CT structures in which only the topmost verb in a CT sequence enters a syntactic Agree relation with the subject NP and agreement on lower verbs in the sequence is parasitic on the value of the agreement features of the auxiliary. Though this analysis removes Carstens's argument against Chomsky's case checking system, I provide independent evidence that suggests that  $\phi$ -feature checking and case feature checking must indeed be formally divorced.

## 2. Multiple Agreement and Multiple Agree

Hiraiwa (2001, 2005) argues that the usual assumption of a one-to-one correlation between probes and goals in syntactic relations is an unnecessary stipulation. Rather, he proposes that probes enter a syntactic relation with all of the potential goals in their c-command domain simultaneously. In simple terms, given a probe P and two c-commanded goals G1 and G2 with matching feature [F], P enters Agree relations with both G1 and G2. I adopt the assumption of one-to-many probe-goal relations throughout this paper.

### (4) Multiple Agree:

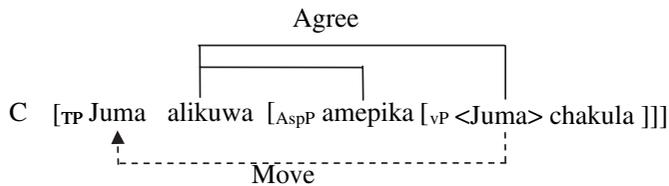


In addition to removing this restriction on Agree, I also follow Hiraiwa (2005) as well as Chomsky (2005) in assuming that the features of T are active as a probe only when T is selected by C. Although the mechanics behind this stipulation are not well understood, the literature abounds with claims that CT selection plays a crucial role in case checking and/or agreement. Here this assumption is crucial in applying the Multiple Agree approach to Bantu CT structures because it allows the claim that the  $\phi$ -features of lower verbal heads

in the CT sequence do not act as probes in the derivation. It is only the features of T, activated by T's selection by C, that probe for potential goals. Nevertheless, the  $\phi$ -features in lower verbs are present and unvalued. The fact that they are present means they will be detected as potential goals by the probing  $\phi$ -features of T. The fact that they are unvalued means they must receive a value, assuming that unvalued features are uninterpretable and therefore disallowed at the interfaces.

In (5), when C selects T the resulting probe enters an Agree relation with Asp as well as with the subject since both have  $\phi$ -features. However, only the valued features of the subject have the potential to value the unvalued  $\phi$ -features of T. Once this checking operation takes place, the now-valued  $\phi$ -features of T value the  $\phi$ -features of the participle verb in Asp. In other words, agreement on the participle verbs is not agreement at all in the traditional sense, but rather an instance of concord—a relation between two elements of the same type, in this case verbal heads.

(5) Multiple Agree analysis:



‘Juma had cooked the food.’

Both the analysis in (5) and the raising analysis in (3) account for the agreement facts of Bantu CT structures. However, there is one important difference that allows for testable predictions. Assuming that EPP movement must be parasitic on some syntactic relation, only the raising analysis allows for subjects to move cyclically through the specifier of each verbal head in the CT sequence. In the multiple Agree analysis, this is not possible since the subject only has a syntactic relation with the highest verbal head. Therefore, the subject moves directly from its base position to Spec,TP and cannot pass through Spec,Asp. If the multiple Agree approach is on the right track, there should be evidence that no trace of the subject exists in Spec,Asp. I offer two arguments based on such evidence in the following section.

### 3. No Movement through Spec, Asp

In this section I offer two arguments that the subject in Bantu CT structures does not pass through Spec,Asp on its way to Spec,TP. Both arguments are based on data from relative clauses.

## 3.1 Adjacency with Inversion

Many Bantu languages, including Swahili, require inversion in nonsubject relative clauses. When the object of (6a) is relativized as in (6b), inversion of the subject and verb must take place.

- (6) a. Juma a-li-pika chakula leo. Swahili  
 Juma 3SG-PST-cook food today  
 'Juma cooked food today.'
- b. chakula a-li-cho-pika Juma leo Swahili  
 7food 3SG-PST-REL-cook Juma today  
 'the food that Juma cooked today'
- c. \*chakula Juma a-li-cho-pika leo

Inversion is standardly assumed to involve T-to-C movement over a subject. This would seem to be the case in Swahili as well when we consider that subject-verb agreement is standardly taken to be a property of T and agreement in Bantu is assumed to require a spec-head relation. Indeed, in their discussion of inversion in a variety of Bantu languages, Demuth and Harford (1999) make this exact argument for Swahili, concluding that T-to-C movement is the source of inversion in examples like (6b).

Accepting that this is the case, if each verb in a CT sequence has a distinct relation with the subject as in the raising analysis, we expect only the highest verb, the one in T, to invert in relative contexts. But this turns out to be impossible. Rather, the entire verb complex must invert. The subject may not intervene between the two verbs:

- (7) a. chakula a-li-cho-kuwa a-me-pika Juma leo Swahili  
 7food 3SG-PST-7REL-be 3SG-PERF-cook Juma today  
 'the food which Juma had cooked today'
- b. \*chakula a-li-cho-kuwa Juma a-me-pika leo

Of course, the facts in (7) cannot be taken as direct evidence against the raising analysis since it is unclear exactly how the required adjacency between the verbs in (7a) should be derived. An analysis in which all of the verbal heads in the sequence are adjoined under a single  $X^0$  undergoing T-to-C movement is problematic given that each verb in the sequence carries tense or aspect marking, full agreement, and separate prosodic properties such as primary stress marking. Alternative accounts must be sought.

The problem of how inversion occurs in Swahili relatives is actually more general, extending even to simple inversion cases like that in (6b) above. Since Barrett-Keach 1986, it has been noted that tense markers in Swahili head independent projections in the syntax, undergoing head movement independently of the verb root. Though I have no room to examine them here, the arguments for this position are compelling and have been discussed by several

authors (see Ngonyani 1999; Henderson 2003). In relatives like (6b), the tense marker moves to C and the verb stem remains lower in the clause, heading a mood phrase (Myers 1998). The two syntactically independent parts of the verb only form a cohesive phonological unit by undergoing merger at PF.

- (8) [CP chakula a-li-cho [TP  $t_T$  [MoodP pika [vP...]]] Swahili  
 NPreI T - C v-Mood  
 7food 3SG-PST-7REL- cook  
 ‘the food that she/he cooked’

While the analysis in (8) is standard for this type of Swahili relative clause, previous work has not discussed the position of the subject in this derivation. Accepting the argument from Demuth and Harford (1999) that subjects do raise to Spec,TP in these relatives, a problem arises with (8) when it comes to PF Merger. As (9) illustrates, the subject intervenes between the two parts of the verb.

- (9) [CP chakula ali cho [TP Juma  $t_T$  [AspP pika [vP...]]] Swahili

The independent analyses of Barrett-Keach (1986) and Demuth and Harford (1999) lead to the problem in (9). Fortunately, there is a solution that accounts for the facts and allows us to keep both of these well-motivated analyses. Several authors have suggested that given the copy theory of movement, there are certain circumstances in which a moved element may be pronounced in a position lower than the one to which it has raised. Bobaljik (1995) as well as Bošković (2001) argue that instances of this “pronounce lower copy” are permitted only when independent requirements of the morphology or phonology require it. For instance, Bobaljik proposes that an object that has undergone object shift may be pronounced in its original position if pronunciation in its raised position would prevent an in-situ verb and its inflectional features in T from merging post-Spell-Out. I propose that the structure in (9) is analogous to this situation. Swahili has a morphophonological requirement that the tense marker and its affixes join with the verb stem at PF. In (9), this cannot be accomplished due to the intervention of the subject. The grammar overcomes this difficulty by allowing a lower copy of the subject to be pronounced—namely, the one in its base position in Spec,vP:

- (10) [CP chakula ali cho [TP <Juma>  $t_T$  [AspP pika [vP Juma...]]]

If this reasoning is sound, the same analysis can hold in CT structures. That is, pronounce lower copy can explain the inversion facts in CT structures just as it does in relatives with single verbs. Note, however, that if the raising analysis is on the right track, we expect that the lower copy of the subject that gets pronounced should be the copy of the subject in Spec,Asp given that this is the highest copy of the subject whose pronunciation will not be ruled out

by the morphophonology. In other words, under the raising analysis, we expect (11).

- (11) \*<sub>[CP chakula ali-cho</sub> <sub>[TP <Juma></sub> <sub>t<sub>T</sub></sub> <sub>[AUXP kuwa</sub> <sub>[AspP Juma amepika</sub> <sub>[vP <Juma>...]</sub>

We have already seen, however, that this is impossible. Rather, the subject must be pronounced following all of the verbs in the CT sequence. In other words, the lower copy of the subject that gets pronounced must be the one in Spec,vP. I propose that the reason this copy of the subject must be pronounced is because it is in fact the only copy present in the derivation other than the one in Spec,TP. In other words, the copy of the subject in Spec,Asp can never be pronounced because it is not present. Rather, (12) is the proper representation for CT structures with relative inversion. Although this is inconsistent with the raising analysis, it is expected under the multiple Agree analysis outlined in section 2.

- (12) <sub>[CP chakula ali-cho</sub> <sub>[TP <Juma></sub> <sub>t<sub>T</sub></sub> <sub>[XP kuwa</sub> <sub>[AspP amepika</sub> <sub>[vP Juma ...]</sub>

To conclude, given the analysis of Swahili relative inversion adopted above, the facts of relative inversion with CT structures provide evidence that the subject does not move through Spec,AspP on its way to Spec,TP. I take this as evidence against the raising analysis and in favor of the multiple Agree analysis.

### 3.2 Relative Agreement in Central Bantu

Another argument against the raising analysis comes from Central Bantu languages such as Kirundi. Like Swahili, relatives in Kirundi also require inversion. Unlike in Swahili, however, in Kirundi an inverted verb must agree with the relativized NP rather than with the subject (Ndayiragije 1999, p.c.). This “relative agreement” is common in Central Bantu languages (see Bokamba 1976, Kinyalolo 1991, Carstens 2005, Henderson 2006, among others).

- (13) a. abana      ba-á-somye                      ibitabo                      Kirundi  
          children    3PL-PST-read.PERF                      8books  
          ‘children read books.’
- b. ibitabo      bi-á-somye                      abana                      Kirundi  
          8books      8AGR-PST-read.PERF                      children  
          ‘the books that the children read’

Some accounts, such as Demuth and Harford 1999, have taken the agreement facts in (13b) to result from a subject-only extraction condition in languages like Kirundi, arguing that relativized NPs must move through Spec,TP on their way to their final landing site. Carstens (2005) also argues that operators move

through Spec,TP on their way to Spec,CP in such constructions, based on the idea that a subject raising to Spec,TP would intervene in an Agree relation between the  $\phi$ -features of C and the relative operator. In Henderson 2006, I argue against both approaches on empirical and conceptual grounds. Empirically, Demuth and Harford's account fails to capture the correlation that all languages which allow relative agreement structures like (13b) also allow similar structures in main clauses in which a nonsubject topic is fronted and triggers morphological subject-verb agreement. An example can be seen in (14) (from Ndayiragije 1999).

- (14) Ibitabo bi-á-guze Petero. Kirundi  
 8books 8AGR-PST-buy Peter  
 'The books, Peter bought them.'

Under Demuth and Harford's account, this correlation is mysterious since there is no logical connection between the availability of main clause structures such as (14) and the subject-only condition on extraction.

Carstens (2005) approach, on the other hand, has the potential to derive this correlation. In her account, the  $\phi$ -features on T must raise a relativized NP to Spec,TP before the  $\phi$ -features on C can enter a relationship with it. Raising the subject to Spec,TP instead would cause an intervention effect between the  $\phi$ -features of C and the relative operator NP, preventing relativization from taking place. However, this account does not seem capable of explaining why relative agreement structures like those in (13b) do not occur in all Bantu languages that have agreeing relative complementizers, nor why main clause OVS structures like (14) are not available across Bantu. Swahili and Zulu, for instance, never allow agreement with a relativized or topicalized NP, though they do have agreement complementizers.<sup>5</sup>

Theoretically speaking, both accounts require the awkward claim that an instance of A' movement (Spec,TP to Spec,CP) depends upon the prior operation of an instance of A-movement (Spec,vP to Spec,TP). They also seem to run counter to a rather strong crosslinguistic generalization that subjects are more difficult to extract than nonsubjects. Richards (2001) discusses a variety of evidence from many languages illustrating this fact (see Boeckx 2003 for an organization of the data emphasizing the point). However, if the accounts above are on the right track, then Bantu languages like Kirundi actually prefer to extract elements out of the subject position. While this conclusion is not impossible, it is certainly suspect.

Rather than assuming operators move through Spec,TP, Henderson (2006) takes the approach that languages like Kirundi simply have an A' syntax for subjects, arguing that subjects, operators, and topics all undergo A'-movement

<sup>5</sup> Barrett-Keach (1985) claims that Swahili does allow such structures, however no Swahili speaker I have consulted allows them, and Keach (p.c.) recalls that the examples in her work were the judgments of a single speaker.

to Spec,CP in these languages. Spec,TP is not an available position. Rather, the features relevant for subject-verb agreement are taken to be in C. This accounts for why subjects in relative clauses like (13b) must remain in situ in Spec,vP: since the Spec,CP position is required for the relative operator, the subject cannot raise.<sup>6,7</sup>

- (15) [CP ibitabo bi-a-somyé [TP t<sub>T</sub> [vP abana t<sub>v</sub>...<ibitabo>]]]
- ↑-----↓  
A'-movement

The account in (15) accounts for the fact that all languages allowing relative structures like (13b) also allow main clause counterparts like (14). It also provides a simple way to differentiate Bantu languages that allow relative agreement structures from those which do not: languages without these structures have an A-movement syntax for subjects, raising subjects to Spec,TP. They therefore do not require subjects to remain in situ when a non-subject is relativized, nor do they require agreement with fronted NPs since the  $\phi$ -features relevant for subject-verb agreement are in T and not C in these languages. Finally this approach does not require that A'-extraction be parasitic on A-movement to Spec,TP.

Accepting this pure A'-movement view of things, note that Kirundi, like Swahili, also has CT structures with multiple agreement. In (16), taken from Ndayiragije 1999, both verbs agree with the subject, just as in Swahili.

- (16) abana ba-a-riko ba-soma igitabo Kirundi  
 children 3PL-PST-be 3PL-read.IMP book  
 'the children were reading a book'

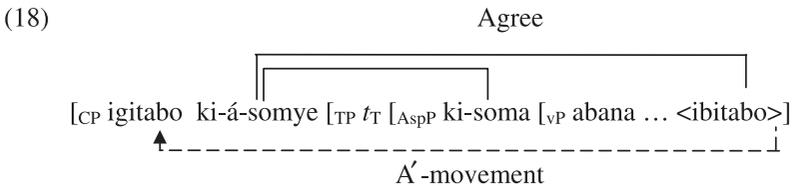
In relative clauses with inversion, we find not only the strict adjacency requirement between verbs as seen for Swahili, but also that every verb in the sequence must agree with the relativized NP. Agreement of either verb with the subject is impossible:

- (17) a. igitabo ki-á-riko ki-soma abana Kirundi  
 7book 7AGR-PST-be 7AGR-read.IMP children  
 'the book that children were reading'
- b. \*igitabo ki-á-riko abana ba-soma  
 c. \*igitabo ki-á-riko abana ki-soma  
 d. \*igitabo ki-á-riko ba-soma abana

<sup>6</sup> I assume that the verb moves to C in such structures.

<sup>7</sup> The details of the analysis in (15) encounter a locality problem since the subject is closer to the probing  $\phi$ -feature of C than the relative operator. Henderson (2006) employs a somewhat novel understanding of the Agree relation to obviate this difficulty. These details are irrelevant here.

Under the raising analysis, the facts in (17) require that each verb enter an Agree relationship with the relativized NP and that the latter undergo cyclic A-movement through each verb's specifier until it reaches SpecTP. From there it can undergo A'-movement to Spec,CP. As argued in Henderson 2006 and briefly discussed above, however, this A-movement based account of relative agreement is empirically and theoretically undesirable. On the other hand, if we take the pure A'-movement approach, the relative operator will have no opportunity to enter spec-head relations with lower verbs in the CT sequence since these are not A'-positions. Since these relations are crucial for the raising analysis, I conclude that if the pure A' approach is correct, the raising analysis cannot be. On the other hand, a pure A' approach to relative agreement is entirely consistent with the multiple Agree approach to CT structures advocated here. In (18) the  $\phi$ -features of C enter an Agree relation with both the participle verb as well as with the relativized NP. The  $\phi$ -features of C are valued by the latter and in turn value the  $\phi$ -features of the participle. Then the relativized NP undergoes A'-movement directly to Spec,CP.



I conclude that CT structures are not derived via raising and that agreement on all but the highest verb in a CT sequence does not require a spec-head relation with the subject.

#### 4. Implications for Case Checking

In section 3 I provided arguments against the raising analysis of Bantu CT structures and in favor of a multiple Agree approach. Recall that Carstens's (2001) argument against Chomsky's system of  $\phi$ -complete case checking rested on the assumption that each verb in the CT sequences enters an Agree relation with the subject. This assumption is abandoned in the multiple Agree approach in which the only Agree relationship involving the subject is between the latter and the topmost auxiliary verb in the CT sequence. A decision in favor of the multiple Agree approach thus removes Carstens's argument, making it possible to maintain the idea that case is checked as a reflex of  $\phi$ -feature valuation. Indeed, this is the position of Chomsky (2005) where it is claimed that agreement features on participle verbs ("T without tense") should be taken as mere morphological elements without significance for syntactic computation.

However, I have provided some independent evidence that case checking as a side effect of agreement valuation cannot be maintained. Recall the facts of relative agreement found in languages like Kirundi. In these constructions the verb agrees with a relative operator and not with the subject, which must be postverbal. Furthermore, the subject must be overt and in languages like Kilega the subject must precede other material within the VP. This suggests that the subject is indeed in-situ in Spec,vP as argued by Kinyalolo (1991) and not in an adjoined position.<sup>8</sup> The following data are from Kinyalolo 1991.

- (19) Maku ta-má-ku-sol-ágá mutu wéneéné. Kilega  
6beer NEG-6AGR-PROG-drink-HAB person alone  
'Beer is not usually drunk by a person alone.'

There thus seems to be no reason to think postverbal subjects in these constructions do not receive nominative case. Assuming this is the case, it must be that this case checking takes place without the aid of  $\phi$ -feature checking since there is no evidence that the subject in these constructions agrees with any element in the clause. This suggests that case checking and  $\phi$ -feature valuation are distinct syntactic operations in the grammar.<sup>9</sup>

## 5. Conclusion

In this paper, I have argued against the raising analysis of Bantu compound tense structures and in favor of an approach in which the value of agreement features on lower auxiliaries and participle verbs is parasitic on the value of the agreement features of the highest auxiliary. The latter is the only verb to enter a true Agree relation with an argument in such structures. Although adopting this approach removes the multiple agreement argument against Chomsky's system of  $\phi$ -complete case checking, I offered independent evidence that suggests agreement and case checking must be formally divorced in the syntax.

Although the multiple Agree approach for Bantu CT structures seems to be on the right track, the Bantu languages are not the only languages with such structures that display multiple agreement, and it is not clear that the present analysis can be extended to all of those cases. However, the present account suggests that a multiple Agree approach should be considered alongside a raising approach when it comes to accounting for multiple agreement phenomena.

<sup>8</sup> In Kirundi, unlike Kilega, the subject typically follows VP-internal material. Ndayiragije (1999) argues this is the result of rightward movement to the specifier of a focus projection (cf. Henderson 2006).

<sup>9</sup> This is also the position of Henderson (2006), who argues that nominative case is checked by a relation between the subject and C/T even though the  $\phi$ -features of C/T are checked by a distinct argument.

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Brent Henderson  
University of Florida  
Linguistics Program  
P.O. Box 115454  
Gainesville, FL 32611  
USA

bhendrsn@ufl.edu

### Appendix: Two Sources for Inversion in Bantu

As illustrated in this paper, both Swahili and Kirundi display inversion in relative clauses:

- (20) chakula a-li-cho-pika Juma Swahili  
7food 3SG-PAST-REL-cook Juma  
'the food that Juma cooked'
- (21) ibitabo bi-á-somye abana Kirundi  
8books 8AGR-PST-read.PERF children  
'the books that the children read'

In section 3 I argued that inversion in Swahili is an instance of pronounce lower copy. That is, the subject actually raises to Spec,TP in Swahili, but is pronounced in Spec,vP. On the other hand, for the Kirundi case in (21) I followed Kinyalolo (1991) in assuming that inversion occurs because the subject never raises out of vP, remaining in situ. Thus while the subject in both (20) and (21) is pronounced in the same position at PF (Spec,vP), they occupy different position in syntax and at LF (Spec,TP for Swahili, Spec,vP for Kirundi). This is also the conclusion of Demuth and Harford (1999).

If this analysis is correct, we should find semantic reflexes of this LF difference. In this appendix, I present two such differences.

**Old versus New Information**

Though a unified formalization has never been proposed, it is a well-documented fact that postverbal or VP-internal material in Bantu languages receives a new information or focus interpretation (Givón 1972; Bokamba 1976, 1979; Bresnan & Mchombo 1987; Machobane 1995; Demuth & Mmusi 1997). On the other hand, preverbal elements such as subjects tend to be interpreted as old information and function as topics.

If the analysis above is on the right track, we should see this difference in the way that subjects are interpreted in pre- and postverbal positions in Kirundi. This prediction is borne out. In addition to the relative clauses with relative agreement such as that in (21), Kirundi also allows noninverted relatives in which agreement is with the subject. In the latter, the subject may function as old information as seen in (22a). However, in OVS relatives the subject is obligatorily interpreted as new information or as a focused element as indicated in the gloss in (22b). (22b) would be an appropriate response an echo question such as ‘the books that who read?’ or to correct a statement such as ‘the books that the parents read.’

- (22) a. ibitabo abana ba-á-somye Kirundi  
 8books children 3PL-PST-read.PERF  
 ‘the books that the children read’
- b. ibitabo bi-á-somye abana Kirundi  
 8books 8AGR-PST-read.PERF 2children  
 ‘the books that *the children* [not the parents] read’

In variation between Swahili relatives with inversion and those without, on the other hand, we do not expect to see this interpretative difference between pre- and postverbal subjects since I have claimed that the subject in Swahili raises to Spec,TP even in inverted relatives. This prediction is also borne out. Swahili also allows non-inverted relatives. Unlike in Kirundi, the subject in both the noninverted and inverted relatives has the same interpretation. In fact, the two structures in (23) have complete semantic equivalence:

- (23) a. kitabu ambacho mwanfunzi a-li-soma Swahili  
 7book 7REL 1student 3SG-PST-read  
 ‘the book that the student read’
- b. kitabu a-li-cho-soma mwanfunzi Swahili  
 7book 3SG-PST-7REL-read 1student  
 ‘the book that the student read’

The interpretation facts thus bear out the analysis from section 3 that though both Kirundi and Swahili display inversion, in the latter it is merely a phonological effect which does not affect semantic interpretation.

**Scope Interpretation**

I have claimed that inverted subjects in Swahili raise to Spec,TP whereas in Kirundi they remain within the vP. If this is the case, we expect to see a difference in scope interpretation in case these subjects contain quantifiers. In particular, subjects in Kirundi that remain within the vP should have narrow scope under negation, whereas those in Swahili, which have raised to Spec,TP, should have wide scope over negation.<sup>10</sup> This prediction is borne out. The subject in (24a) cannot receive wide scope, and the subject in (24b) cannot receive narrow scope.<sup>11</sup>

- |      |    |         |                   |         |       |   |
|------|----|---------|-------------------|---------|-------|---|
| (24) | a. | igitabo | nti-gi-á-somye    | umuntu  | numwe | Kirundi                                 |
|      |    | 7book   | NEG-7AGR-PST-read | 1person | 1one  |   |
|      |    |         |                   |         |       | 'the book that not one person read'     |
|      |    |         |                   |         |       | *'the book that one person didn't read' |
|      | b. | kitabu  | a-si-cho-soma     | mtu     | mmoja | Swahili                                 |
|      |    | 7book   | 3SG-NEG-7REL-read | 1person | 1one  |   |
|      |    |         |                   |         |       | 'the book that one person didn't read'  |
|      |    |         |                   |         |       | *'the book that not one person read'    |

These facts substantiate the claim that subjects in Kirundi and Swahili occupy different LF positions.

<sup>10</sup> Thanks to Kyle Johnson for pointing me toward this argument.

<sup>11</sup> The Swahili relative employed in (24b) is the so-called tenseless relative. The prefixes or infixed relative, employed throughout the rest of this paper, cannot be negated. See Ngonyani 1999 and Henderson 2003 for details.