

In defence of head movement: evidence from Bantu*

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1. Introduction

In current versions of the Minimalist Program, the idea that syntactic objects can undergo movement transformations is considered the "null hypothesis" (Chomsky 2005: 12). Syntactic structures are built by the recursive operation Merge, which combines two syntactic objects X and Y to form a new object. Internal Merge ("movement") takes place if a copy of Y is also a term of X. If Y is a phrase, internal Merge may have an effect on the output at the CI-interface by determining semantic relations having to do with scope and information structure.

However, as is well-known, it is not uncontroversial that internal Merge can also apply if Y is a head. The main problem with head movement is its landing site: since head movement targets head positions, it violates the Extension Condition, which requires that Merge always applies at the root of a tree. Furthermore, the higher copy of a head movement chain does not c-command its lower copy. While various technical ways to solve this problem have been suggested (see e.g. Bobaljik & Brown 1997; Harley 2004; Matushansky 2006), an increasing number of authors assume instead that head movement does not belong to the core domain of narrow syntax (e.g. Chomsky 1995, 2001; Boeckx & Stjepanovic 2001; Platzack this volume), and some have proposed alternative analyses to account for those grammatical phenomena that were previously explained in terms of head movement (Koopman & Szabolcsi 2000; Mahajan 2003; Müller 2004).

In this paper, I approach the topic of head movement diagnostics in the context of the debate about the status of head movement in grammar. By focusing on data from one particular language group (Bantu), I discuss several empirical phenomena that have traditionally been analysed in terms of head movement, and I examine how alternative theories handle these data.¹ My study will therefore be based on a selective review of various theories that have been proposed in the literature on Bantu grammar. With respect to "diagnosing" head movement, my goal is modest: I want to demonstrate that there are constructions in Bantu that are not merely consistent with, but actually provide support for, a head movement analysis, because their properties cannot be

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¹ The data presented in this paper are from Zulu (South Africa), Shona (Zimbabwe) and Kinyarwanda (Rwanda). In the glosses, I mark Bantu noun classes and agreement through numbers, following Meinhof's (1906) numbering system of Proto-Bantu. Morphemes are glossed as follows: APPL = applicative; ASP = aspect; CAUS = causative; DEM = demonstrative pronoun; DIS = disjoint verb form; EXPL = expletive; FUT = future tense; FV = final vowel; HAB = habitual; LOC = locative marker; NEG = negation; OM = object marker; PASS = passive; PAST = past tense; PRES = present tense; REDUP = reduplication; REL = relative marker; SG = singular; SM = subject marker. I have occasionally adjusted the glosses of examples that I adopted from the literature to my system. I have not marked the examples for tone, unless tone marking was part of an original example.

straightforwardly explained by alternative theories that do not assume head movement. The two constructions which I investigate in some detail are verb movement in Shona relative clauses and object marking in Kinyarwanda double object constructions.

In section 2, I compare the assumption that verb movement in Bantu is head movement to an alternative approach, which is based on the idea that verbs can also move as remnant phrases. I argue that subject-verb inversion in object relative clauses in Shona raises empirical problems for such an analysis, because in these constructions, the morphologically complex verb moves as one constituent. In a theory based on remnant movement, such a constituent can only be created if evacuation movement into the left periphery of the relative clause is assumed. However, I demonstrate that there is no empirical evidence for this sort of movement in Shona.

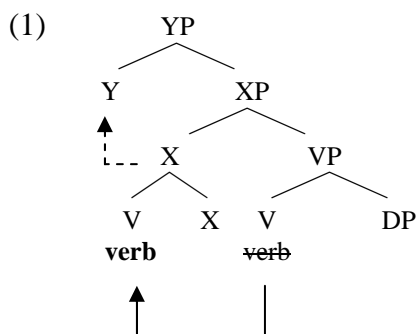
In section 3, I discuss a particular type of verbal affix in Bantu which is known as the object marker. I first show that object markers in Kinyarwanda locative double object constructions, in contrast to lexical DPs, do not create syntactic intervention effects. I interpret this as evidence that the object marker is adjoined to the verbal head. However, I also show that object marking itself is constrained by locality conditions, which suggests that it involves syntactic movement. I conclude that a head movement analysis of object marking, which treats these markers as incorporated pronouns, is superior to theories which regard object markers as non-incorporated syntactic phrases or as agreement markers.

Finally, in section 4, I conclude with some general head movement diagnostics that can be established on the basis of the discussion of the Bantu data.

2. Verb movement in Bantu

2.1 Verb movement as head movement

Perhaps the cross-linguistically most widely discussed examples of head movement are those which involve (successive-cyclic) movement of the verb out of the VP to some higher head position(s) in the clause. The categories X and Y in (1) can be regarded as cover terms for a larger set of syntactic categories above VP which provide landing sites for verb movement:



The idea that verbs move out of the VP is adopted in most generative studies of Bantu languages. For example, one aspect of Bantu grammar which is elegantly explained by verb movement is the V-S word order of expletive constructions such as (2b) and (3b), which are found in many Bantu languages:

- (2) a. UJohn u-ya-hamb-a. [Zulu]
 John1a SM1a-DIS-go-FV
 'John is walking/leaving.'

b. Ku-hamb-a uJohn.
 EXPL17-go-Fv John1a
 Lit. 'There is John walking.'

- (3) a. Umwáana a-ra-som-a. [Kinyarwanda; Kimenyi 1980: 206]
 child1 SM1-PRES-read-Fv
 'The child is reading.'
 b. Ha-ra-som-a umwáana.
 EXPL16-PRES-read-Fv child1
 'It's the child who is reading.'

The canonical word order in Bantu is S-V-O, and the subjects in the (a)-examples indeed appear preverbally. In (2b) and (3b), however, the subjects follow their verbs. This word order difference is correlated with a difference in agreement. While the verbs in (2a) and (3a) show noun class agreement with their subjects, the verbs in the (b)-examples do not agree with the postverbal DP and are instead modified with an invariant expletive marker.

The V-S word order of the expletive construction follows from a simple head movement analysis in combination with the VP-internal-subject hypothesis, according to which subjects originate in [Spec, V] (or [Spec, v]). In (2b) and (3b), the subject has remained inside its base position, while the verb has undergone head movement to a position above the subject. The S-V-O word order in (2a) and (3a) is then derived if the subject moves to the specifier of a functional projection above the final landing site of the verb, an operation which according to many researchers is a necessary condition for subject agreement in Bantu (see e.g. Baker 2008; Buell 2005; Carstens 2005; Demuth & Harford 1999; Van der Wal 2009; Zerbian 2006).² Since the subjects in (2b) and (3b) have not moved, they do not agree with the verb.

An analysis of the V-S word order in (2b) and (3b) based on head movement of the verb and the VP-internal subject hypothesis also makes the right predictions regarding the scope relations between negation and indefinite subject DPs. Whereas the preverbal subject in (4a) cannot be interpreted in the scope of negation, negation takes wide scope over the postverbal subject in (4b):

- (4) a. Abafundi aba-mnyama a-ba-fik-anga. [Zulu]
 student2 REL2-black NEG-SM2-arrive-NEG.PAST
 'The black students did not arrive.' DP > Neg
 b. A-ku-fik-anga abafundi aba-mnyama.
 NEG-EXPL17-arrive-NEG.PAST student2 REL2-black
 'No black students arrived.' Neg > DP

The negative prefix in (4) can be analysed as the head of a NegP-projection above VP whose specifier is filled with a null negative operator. If it is assumed that the verbs in (4a) and (4b) have combined with this prefix via head movement to Neg, then the analysis sketched above correctly predicts the scope relations in (4) on the basis of the respective c-command relations between the negative operator and the subject DPs.

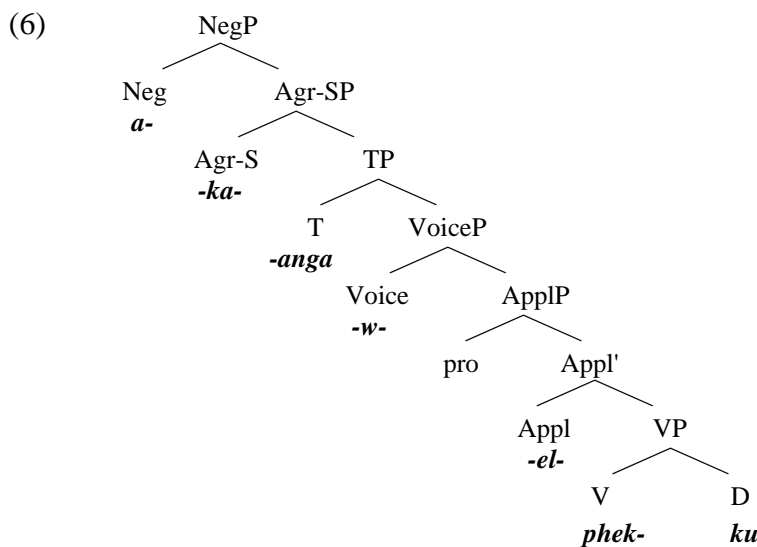
The latter point illustrates another grammatical process which has been argued to involve verb movement in Bantu, namely syntactic word formation. If one assumes that the heads of the various syntactic projections above VP are overtly realized by derivational and inflectional affixes in Bantu, then the morphological structure of the

² Alternatively, it has been suggested that subjects in Bantu do not move to specifiers, but are dislocated adjuncts (see e.g. Kinyalolo 1991; Baker 2003).

Bantu verb can be analysed in terms of head movement. For example, if the subject agreement marker *ba-* in (4a) is associated with a functional category Agr-S, and the suffix *-anga* with Tns, then the complex Zulu verb *a-ba-fik-anga* in (4a) can be derived through successive-cyclic verb movement to Neg via Tns and Agr-S. In each head position, the verb picks up the relevant affix; the fully inflected verb is represented by the complex Neg-head. Morphologically more complex verb forms such as (5) can be derived along the same lines; they just require more structure above VP:

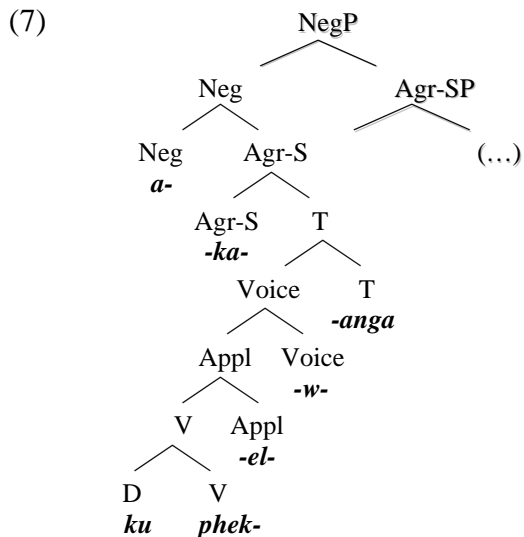
- (5) A-ka-ku-phek-el-w-anga. [Zulu]
 NEG-SM1-OM15-cook-APPL-PASS-NEG.PAST
 'It was not cooked for him.' (lit.: 'He was it not cooked-for.')

The syntactic structure in (6) provides a possible basis for the derivation of the morphologically complex verb in (5):³



Given (6), the derivation of the verb in (5) proceeds as follows: first, the object marker *ku*, which in (6) is analysed as originating as the sister of the verb, moves and left-adjoins to the verb. (I return to the analysis of object marking in Bantu in section 3.) The complex verbal head *-kuphek-* then undergoes successive-cyclical head movement up to the highest Neg-head. This movement operation involves both left-adjunction (to Appl, to Voice and to T) and right-adjunction (to Agr-S and Neg). The morphosyntactic structure of the highest complex head Neg is shown in (7):

³ There are alternative representations for some of the affixes that occur in (5) (cf. e.g. Baker's (1988) treatment of applicative markers as incorporated prepositions, or Buell's (2005) analysis of object clitics as agreement markers). (6) presents only one of several possible ways in which a morphologically complex verb such as the one in (5) can be derived via head movement.



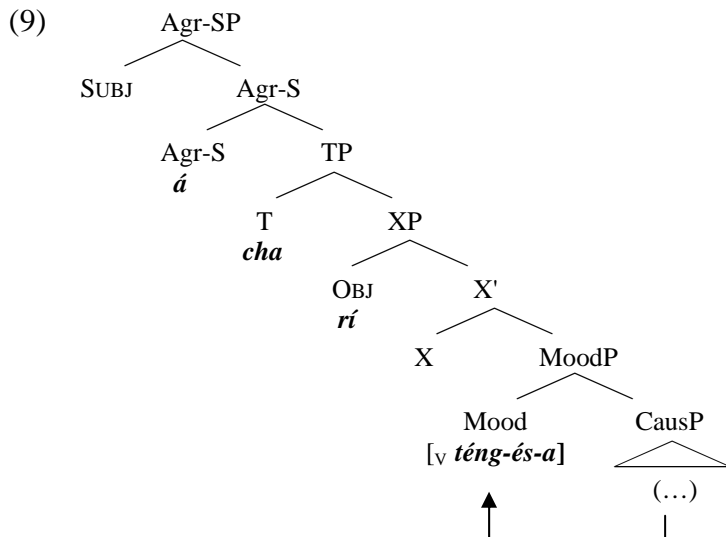
The derivation illustrated by (6) and (7) has some interesting consequences. First, the view that verbal affixes in Bantu are associated with syntactic heads implies that the final landing site of subject movement in S-V-O constructions is quite high in the structure, since the subject must always c-command the highest functional head which hosts an affix (Neg in (6)). Second, the view that morphologically complex verbs in Bantu are represented as syntactically complex heads implies that the final landing site of verb movement in V-S expletive constructions such as (4b) is the same as in S-V-O constructions, namely the head position associated with the "outmost" verbal affix.

In sum, the morphological properties of verbs as well as the V-S word order of expletive constructions in Bantu are consistent with the idea that verbs undergo head movement. According to the view illustrated in (6) and (7), an inflected verb in Bantu always corresponds to a syntactically complex head which includes the verb stem and all affixes. However, as I discuss below, this view has been challenged in recent years.

2.2 Clausal words and remnant movement

Traditional head movement analyses of Bantu word formation in the style of Baker (1988) assume that heads can adjoin both to the left (for suffixes) and to the right (for prefixes) of other heads (see e.g. Kinyalolo 1991, and the representation in (7) above). However, since Kayne's (1994) seminal work, right-adjunction has fallen out of favor with those linguists who adopt the Linear Correspondence Axiom as a standard conceptual guide to syntactic derivations. For example, Julien's (2002) comprehensive study of syntactic word formation is based on the assumption that head movement can only be *left*-adjunction, which means that a head created by verb movement can only include the verb and a suffix. Crucially, Julien argues that in Bantu, prefixes do not form complex syntactic heads with the verb stem. Rather, a word made up of a verb stem and various prefixes is distributed across larger syntactic structures in her analysis. The tree diagram in (9), adopted in slightly modified form from Julien (2002: 196), represents the morphological structure of the Shona verb in (8):

- (8) Á-cha-rí-téng-és-a. [Shona; Myers 1990: 116]
 SM1-FUT-OM5-buy-CAUS-FV
 'He will sell it.'

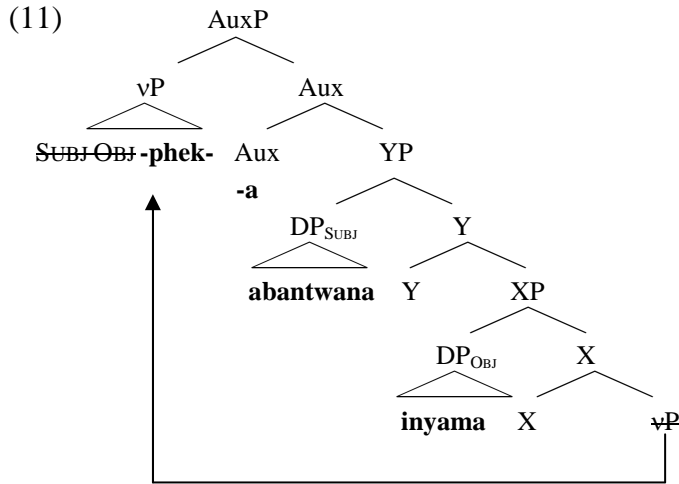


In (9), the head of the functional category Mood hosts the complex verb stem *téng-és-a*, which according to Julien (2002) has been derived via successive-cyclic head movement of the verb to Mood via Caus. Since head movement is left-adjunction, the causative and the mood marker are attached as suffixes; the verb stem is a syntactically complex head. However, the verbal word in (9) also exhibits three prefixes. While the subject marker occupies the head of the Agr-SP (= FinP in Julien's analysis), the tense prefix is located in T. The object marker, which Julien (2002) analyses as a phrase, is located in the specifier of an inflectional category X between Mood and T. Importantly, (9) does not represent the verb stem and these prefixes as a complex head. Rather, Julien treats the combination of prefixes and the verb as a purely phonological process which creates a phonological word on the basis of the linear order of affixes determined by the syntax. Syntactically, the word corresponding to the inflected verb in (9) is spread across the whole clause structure; the order prefix > verb simply follows from the fact that syntactic structures in Shona are uniformly right-branching. In the remainder of this paper, I refer to this idea as the "clausal word"-approach. It has been adopted by various authors working on Bantu grammar (see e.g. Buell 2005; Muriungi 2008; Van der Wal 2009).

Although head movement still forms an integral part of Julien's (2002) syntactic word formation-theory, her clausal word approach provides the basis for an analysis of verb movement in Bantu which does away with head movement altogether. If the verb in Bantu does not have to be represented as a syntactically complex head, then it is also possible to move the verb as a phrase and nevertheless integrate it into the morphologically complex word. Instead of the verb moving as a head, it could be assumed that what moves is always a phrase XP which includes the verb. Importantly, in order to ensure that phrasal verb movement does not pied-pipe non-verbal material, this approach requires that all other XP-internal elements (arguments of the verb; adjuncts etc.) first evacuate the XP to create a remnant. Thereafter, the verb (= the remnant XP) can move as a phrase to a position in which it precedes its suffixes and follows its prefixes (cf. Koopman & Szabolcsi 2000; Mahajan 2003).

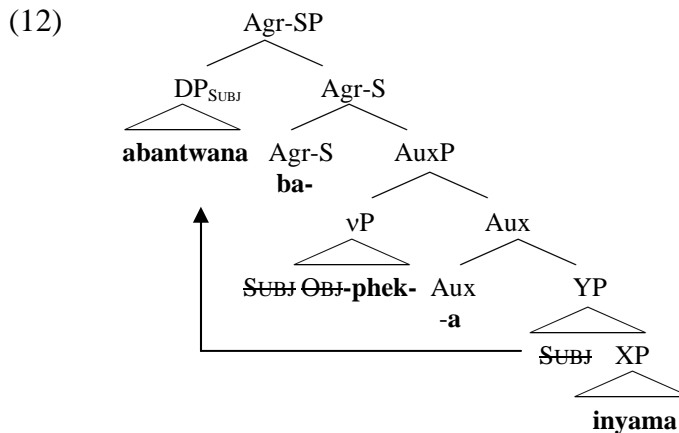
Let me illustrate the phrasal movement-approach by means of the Zulu example in (10). According to the analysis presented in Buell (2005: 22-3), the formation of the complex verb *ba-phek-a* involves remnant vP-movement:

- (10) Abantwana ba-phek-a inyama. [Zulu]
 child2 SM2-cook-FV meat9
 'The children are cooking the meat.'



As shown in (11), subjects and objects originate inside vP in Buell's analysis, but must evacuate this phrase and move to the specifier positions of two functional projections X and Y which are located above vP. Crucially, the remnant vP, which now includes only the verb, moves to the specifier of another functional category above YP which Buell labels AuxP. Buell (2005) assumes that the head of AuxP is the so-called "final vowel", a verb-final suffix which is linked to a variety of different functions in Bantu, such as aspect, polarity, tense etc. (Note that Aux is equivalent to the category Mood in Julien's (2002) analysis shown in (9).) By moving the remnant vP into [Spec, Aux], the verb stem ends up in a position linearly preceding this suffix.

The next steps, which derive the S-V-O word order in (10), are exactly as in Julien's analysis. Agr-S, and potentially Tns and other functional categories, are merged with AuxP, and movement of the subject to the specifier of Agr-SP derives the S-V-O word order (see Buell 2005: 23):



According to (12), the complex verb *ba-phek-a* in (10) consists of inflectional affixes in their base position and a moved remnant vP; it is a clausal word whose morphological parts are spread across the whole Agr-SP. Prefixation is captured through right-branching structures; suffixation is derived by remnant phrasal movement of the verb.

Importantly, the derivations in (11) and (12) show that the data discussed in section 2.1 can in principle be explained without head movement. Affixation, although still captured by syntactic processes, does not require head movement operations. Expletive constructions can be derived as in (11): the subject evacuates the vP and thereby creates a remnant which subsequently moves to a position above the subject, deriving the V-S

word order.⁴ This means that neither the syntactic nor the morphological properties of Bantu discussed in section 2.1 can be interpreted as clear diagnostics for head movement. In order to show that internal Merge can apply to heads in Bantu, one therefore needs to identify constructions whose properties cannot straightforwardly be explained by the alternative analyses sketched in (9) and (12). I discuss such a construction in the next section.

2.3 Object relative clauses in Shona

Consider the following object relative clause constructions from Shona ([S]):

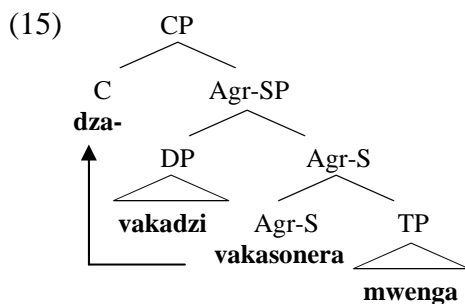
- (13) *mbatya* [*dza*-va-ka-son-er-a vakadzi mwenga] [S]
 clothes10 REL10-SM2-PAST-sew-APPL-FV woman2 bride1
 'the clothes which the women sewed for the bride' [Demuth & Harford 1999: 42]

- (14) *mwana* [*a*-a-ka-teng-er-a Langa kiti] [S]
 child1 REL1-SM1-PAST-cook-APPL-FV Langa1 cat9
 'the child for whom Langa bought a cat'

In Shona, as well as in some other Bantu languages (such as e.g. Kihung'an, Dzamba and Lingala), the verb appears in clause-initial position in object relatives (cf. Demuth & Harford 1999; Givón 1972; Henderson 2007). The relative clauses in (13) and (14) are based on double object (applicative) constructions in which one object has been relativized. The fact that the subject precedes the other object inside the relative clause demonstrates that the verb-initial word order is not derived by subject extraposition.

Notice that the verbs in the examples in (13) and (14) agree with the postverbal subjects. As discussed in the previous sections, subject agreement is typically associated with VP-external subjects in Bantu. This suggests that the subjects in (13) and (14) are located in the specifier of an agreement category such as Agr-S and that the verb in these constructions has moved to an even higher head position from where it precedes the subject.

An analysis along these lines is suggested in Demuth & Harford (1999). They treat the italicized relative markers in the examples in (13) and (14) as prosodically weak complementizers located in C; the subjects in these examples are located in [Spec, Agr-S] (their [Spec, I]). In Demuth & Harford's (1999) analysis, the word order in (13) and (14) is derived by moving the complex inflected verb from Agr-S to C, where it combines with the relative complementizer. (15) illustrates the derivation of (13):



⁴ Note that in Shona and Zulu, as well as in other Southern Bantu languages, transitive expletive constructions with V-S-O word order are marked, and even judged as outright impossible by many speakers.

This analysis derives the word order of (13) without any head movement. However, it comes at the expense of having to postulate a number of additional functional categories and movement steps in order to "prepare" the Agr-SP for remnant movement. It seems fair to conclude that, unless these categories and movement steps can be independently motivated, a head movement analysis fares better than the clausal word/remnant movement approach in terms of conceptual elegance.

Proponents of the remnant movement analysis could respond to this criticism with an attempt to motivate the derivation in (17) in terms of Rizzi's (1997) "cartographic" approach to the C-system. Rizzi postulates a number of functional categories in the left periphery which provide landing sites for topic- and focus-driven A-bar movement. On the basis of Rizzi's approach, the evacuation movement steps in (17) could be regarded as instances of topic left dislocation, an operation which is frequently attested in many Bantu languages, including Shona:⁶

- (18) Vana ndi-no-va-farir-a. [S]
 child2 1stSG-HAB-OM2-like-FV
 'The children, I like (them).'

The object in (18) has been dislocated to the left of the subject. It could therefore be argued that object movement to [Spec, Z] shown in (17) is an instance of left dislocation. However, there is an important difference between left dislocation as shown in (18), and object movement in (17). (18) shows that object left dislocation in Shona requires an object marker to be attached to the verb stem. Without this marker, left dislocation is impossible:

- (19) *Vana ndi-no-farir-a. [S]
 child2 1stSG-HAB-like-FV

However, the verbs in the relative clauses in (13) and (14) do not have an object marker. This shows that the evacuation movement in (17) is not an instance of "regular" left dislocation.

One could perhaps rescue the dislocation-analysis by suggesting that leftward movement of objects in relative clauses is a different type of dislocation, one which does not require the presence of an object marker. However, there is evidence that suggests that the objects in the Shona examples in (13) and (14) have not undergone any kind of dislocation. To see this, consider the scope properties of indefinite DPs in Shona. While an indefinite object in Shona can be interpreted in the scope of a universally quantified subject, (20), indefinite subject DPs obligatorily take wide scope, (21) (see Ferch 2009):

- (20) Mukadzi woga-woga a-ka-tsvod-a murume. [S]
 woman1 every1-REDUP SM1-PAST-kiss-FV man1
 'Every woman kissed a man.' $\forall > \exists; \exists > \forall$
- (21) Mukadzi a-ka-tsvod-a murume woga-woga. [S]
 woman1 SM1-PAST-kiss-FV man1 every1-REDUP
 'A woman kissed every man.' $\exists > \forall; * \forall > \exists$

⁶ For detailed discussion of left dislocation in Bantu, see e.g. Bresnan & Mchombo (1987) for Chichewa; Baker (2003) for Kinande; Zeller (2009) for Zulu.

According to Ferch (2009), subjects in Shona obligatorily take wide scope because they are obligatorily interpreted as specific. Importantly, as is well-known, dislocated phrases also receive specific interpretations (Baker 2003).⁷ But if dislocated DPs are always specific, and if specific indefinites always take wide scope, then the remnant movement analysis in (17) predicts that an indefinite object DP inside an object relative clause in Shona will always take wide scope over a universally quantified subject. However, this prediction is not borne out:

- (22) mbatya [dza-a-ka-tsvod-er-a mukadzi woga-woga murume] [S]
 clothes REL10-SM1-PAST-kiss-APPL-FV woman1 every-REDUP man1
 'the clothes for which every woman kissed a man' $\forall > \exists; \exists > \forall$

The fact that (22) allows for a reading in which the subject has scope over the indefinite object DP shows that objects in Shona relative clauses are not obligatorily interpreted as specific. But with a non-specific reading, the object DP in (22) cannot be dislocated. This means that the wide scope reading of the subject in (22) cannot be derived by the remnant movement analysis shown in (17), which requires leftward movement of the object.

One may still object to this conclusion by pointing out that the problem only arises from the assumption that A-bar movement into the left periphery always gives rise to particular semantic effects. Once this assumption is abandoned, the problem raised by the non-specific interpretation of the object in (22) disappears. However, there are also syntactic problems that arise from a remnant movement analysis. To see this, notice first that the Shona data discussed in Ferch (2009), as well as data from many other Bantu languages, suggest that the scope of negation in Bantu is determined by the surface configuration (see e.g. the Zulu data in (4) in section 2.1). This is further illustrated by the Shona examples in (23) and (24):

- (23) Ha-a-bik-i chinhu (nhasi). [S]
 NEG-SM1-cook-FV anything7 today
 'She doesn't cook anything (today).'

- (24) a. ??Chinhu ha-a-chi-bik-i (nhasi). [S]
 (any)thing7 NEG-SM1-OM7-cook-FV today
 b. ??Ha-a-chi-bik-i (nhasi) chinhu.
 NEG-SM1-OM7-cook-FV today (any)thing7

In (23), the indefinite DP *chinhu*, 'thing', is c-commanded by the negative operator associated with the functional category Neg and consequently is interpreted non-specifically as a negative polarity item (NPI) ('anything'). In the examples in (24), however, the DP is (left or right)-dislocated. As a result, it is no longer in the scope of negation, and consequently, the NPI-interpretation is highly marked, or even unavailable.⁸ But now consider the object relative clause in (25):

⁷ The obligatory wide scope reading of indefinite subjects has also been observed for Kinande by Baker (2003), who interprets this as support for his claim that preverbal subjects in Bantu are dislocated adjuncts.

⁸ Interestingly, when asked about the acceptability of (24a), one of my Shona informants offered (i) as a way to improve left dislocation of *chinhu*. Crucially, however, in her example, the left-dislocated object is modified with a demonstrative and is therefore interpreted as specific:

- (i) Chinhu ichi ha-a-chi-bik-i. [S]
 thing7 DEM7 NEG-SM1-OM7-cook-FV
 'This thing, she doesn't cook.'

- (25) murume [a-a-singa-bik-ir-i mukadzi chinhu] [S]
 man1 REL1-SM1-NEG-cook-APPL-FV woman1 anything7
 'the man for whom the woman doesn't cook anything'

According to the remnant movement analysis depicted in (17), movement of the complex verb *a-singa-bik-ir-i* in (25) is movement of the whole Agr-SP. But importantly, Agr-SP dominates NegP in (25) (cf. Ferch 2009).⁹ This follows because the subject agreement marker in this example precedes the negative marker; according to the clausal word-approach, this order of prefixes implies that Agr-S c-commands Neg. Importantly, this means that, once the remnant Agr-SP has moved into the left periphery, no copy of the negative operator in [Spec, Neg] c-commands the dislocated object DP *chinhu*. As a result, one would expect the non-specific reading of the DP *chinhu* in (25) to be as marked as in the examples in (24). Importantly, however, the NPI-reading of *chinhu* is the most natural interpretation in (25). This means that a remnant movement account of (25) would not only have to stipulate that non-specific objects can be dislocated, it would also have to assume that a negative operator can take scope over a DP which is outside its c-command domain in the overt syntax. Therefore, data such as (25) also add syntactic complications to the remnant movement analysis depicted in (17).¹⁰

In sum, the objective of this section has been to defend a head movement analysis for Shona subject-verb inversion by exposing some of the problems that arise for alternative accounts which attempt to eliminate head movement from grammar. The dilemma with the remnant movement approach is that it does not represent the morphologically complex verb in Bantu as a constituent. Therefore, verb movement requires that other material first vacates the phrasal constituent which is about to be moved as a remnant. From a minimalist perspective, the problem with this type of analysis is not so much the proliferation of functional categories that are required for evacuation movement, but the lack of any independent motivation for this movement, which does not seem to show any of the semantic effects typically associated with left dislocation. In contrast, in order to derive the V-S word order of Shona relative clauses, head movement theories only need to postulate one syntactic operation, namely movement of the morphologically complex verb, which is represented as a syntactically complex head.

3. Object marking in Bantu

3.1 Possible analyses of object marking

(26) and (27) provide examples of the process of object marking in Kinyarwanda and Zulu:

⁹ Shona has three types of negative prefixes, one which precedes and two which follow the subject marker (Ferch 2009). Ferch (2009) captures this fact through the assumption that Shona has two NegP-projections, one above and one below Agr-SP.

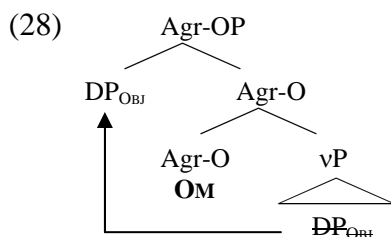
¹⁰ Proponents of a remnant movement analysis could claim that the marked nature of (24a) and (24b) is not due to dislocation, but instead results from the presence of the object markers. However, since it is not possible to construct object dislocation examples without using object markers in Shona (cf. (19) above), this line of reasoning makes the syntactic implications of the remnant movement analysis virtually untestable.

- (26) *Y-a-ki-mu-ba-he-er-eye.* [Kinyarwanda; Kimenyi 1980: 197]
 SM1-PAST-OM7-OM1-OM2-give-APPL-ASP
 'He gave it to him for them.'
- (27) U-Nomathemba *u-yi-theng-il-e* imoto. [Zulu]
 Nomathemba1a SM1a-OM9-buy-DIS-PAST car9
 'Nomathemba bought (it), the car.'

The italicized prefixes in the examples in (26) and (27) are known as *object markers*, *object clitics*, or *object concords*. The Kinyarwanda example in (26) demonstrates that object markers that appear without corresponding lexical object DPs are interpreted as pronouns. As (27) shows, Zulu is a language in which object markers can co-occur with agreeing postverbal DPs; in some languages (e.g. in Swahili, Ruwund and Sambia) the object marker is even *required* with certain objects (usually animate or specific DPs). Furthermore, Bantu languages differ with respect to the possible number of object markers that can appear as part of the verb stem. While a language such as Kinyarwanda allows up to four objects to be realized as object markers, the number of object markers in a language such as Zulu is restricted to one.¹¹

One major question that arises when attempting a theoretical analysis of object marking is whether the object marker is a pronoun and represents the thematic argument of the verb directly, or whether it is an agreement marker which signals the presence of a thematic object (a lexical DP or a null pronoun). It is possible, even likely, that this question receives different answers for different Bantu languages. For example, it seems plausible that in Bantu languages where certain objects obligatorily trigger object marking, the phenomenon is best accounted for in terms of agreement. In contrast, a pronoun-analysis may be better suited to explain the possibility of multiple occurrences of object markers in some languages (cf. Woolford 1995). It has also been suggested that object markers may be ambiguous and function as both agreement markers and as pronouns in the same language (Woolford 2000, 2001).

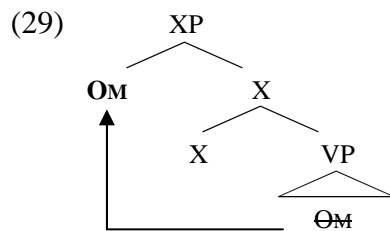
A different, but related, question concerns the structural representation of the object marker. One option would be to treat object marking as a purely lexical/morphological process. Given this assumption, the verb stem would already include the object marker when it enters the syntax. This lexical analysis of object marking is more commonly found in studies based on non-generative frameworks, such as e.g. in Bresnan & Mchombo's (1987) LFG-analysis of Chichewa. In contrast, if word formation in Bantu is seen as a syntactic process, then the object marker must be represented as a syntactically independent element. This view can be realized in various ways. As an agreement marker, the object marker would spell out the head of an (object) agreement projection whose specifier is occupied by the thematic object DP. This analysis, which has been advocated by e.g. Woolford (2000, 2001) for KiRimi and Ruwund (see also Buell (2005) for Zulu) is illustrated in (28):



¹¹ For detailed discussion of further cross-linguistic differences regarding object marking in Bantu, see e.g. Bresnan & Moshi (1990), Henderson (2007) and Marten & Kula (2008).

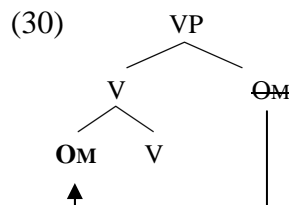
The object marker occurs whenever a thematic object DP moves to [Spec, Agr-O]; it is prefixed to the verb stem when the verb moves to Agr-O (or to a position adjacent to it). Note that in order to explain the pronominal reading of object markers in examples such as (26), in which there is no lexical object DP, proponents of the analysis in (28) would have to postulate the existence of phonetically null object pronouns (object *pros*) in Bantu, which move to (possibly multiple) [Spec, Agr-O] positions.

Alternatively, the object marker itself could be analysed as a pronoun which originates in the regular thematic object position inside the VP. In Julien's (2002: 196ff.) analysis of Shona, the pronominal object marker is analysed as a phrase which moves to the specifier of a functional category X (compare (9) in section 2.2):



Recall that according to Julien's clausal word approach, no further operation is required in (29) in order to incorporate the object marker into the verbal morphology. Since specifiers are on the left of their heads, the object marker in (29) will function as a prefix to a verb stem in its c-command domain.

Another alternative is to assume that object markers are pronominal objects which combine with the verb via head movement (see e.g. Zeller 2006, 2009 for Kinyarwanda and Zulu, and (6) and (7) in section 2.1 above):



In the next section, I discuss object marking in locative double object constructions in the Bantu language Kinyarwanda and suggest that it provides evidence for the head movement analysis in (30).

3.2 Head movement in Kinyarwanda locative constructions

The properties of object marking in Kinyarwanda ([K]) suggest that object markers in this language are pronouns, and not agreement markers. Recall that Kinyarwanda allows the occurrence of multiple object markers on the verb, a property which has been interpreted as evidence that (at least some of) these markers are pronominal (see Woolford 1995, 2000; Baker 2008). This conclusion is supported by data such as (31), which show that an object marker and a postverbal lexical object DP cannot co-occur in Kinyarwanda:¹²

¹² Object markers in Kinyarwanda can appear with coreferential objects when the latter are left-dislocated (see Zeller 2006). Examples such as (31b) are only possible when the object is clearly extraposed, in which case there is a heavy intonational break between the verb and the object.

- (31) a. Umuhiinzi a-ra-*bi*-sarur-a. [K; Ngoboka 2005: 53]
 farmer1 SM1-PRES-OM8-harvest-FV
 'The farmer is harvesting them.'
- b. *Umuhiinzi a-ra-*bi*-sarur-a ibishyiimbo.
 farmer1 SM1-PRES-OM8-harvest-FV beans8
 'The farmer is harvesting the beans.'

If object markers were heads of agreement projections, one would have to stipulate that [Spec, Agr-O] can only be filled with a null pronoun, and not with a lexical object, which amounts to the strange assumption that object agreement markers in Kinyarwanda cannot agree with overt objects. The ungrammaticality of (31b) therefore challenges an agreement-analysis of object markers in Kinyarwanda along the lines of (28) above.

Finally, Baker (2008: 98, note 25) proposes that the status of object markers in a particular Bantu language can be tested by examining the behavior of passivized double object constructions. According to Baker, a verb in a non-active voice is not expected to be able to trigger object agreement. Therefore, when one object of a double object construction has become the subject of a passive, and the remaining object can still be realized as an object marker, then the object marker must be a pronoun. Crucially, it is possible in Kinyarwanda to passivize one object of a double object construction and realize the other as an object marker (see also example (35) below):

- (32) Umuheha w-a-yi-nyw-eesh-ej-w-e n'abanyarwaanda. [K]
 straw3 SM3-PAST-OM9-drink-APPL-ASP-PASS-ASP by Rwandans2.
 Lit.: 'The straw was it drunk with by the Rwandans.'

(32) is an instrumental applicative in which the indirect object (the instrument) has been passivized. The theme is realized as an object marker. Following Baker, I interpret the grammaticality of (32) as further evidence that object markers in Kinyarwanda are pronouns, and not agreement markers.

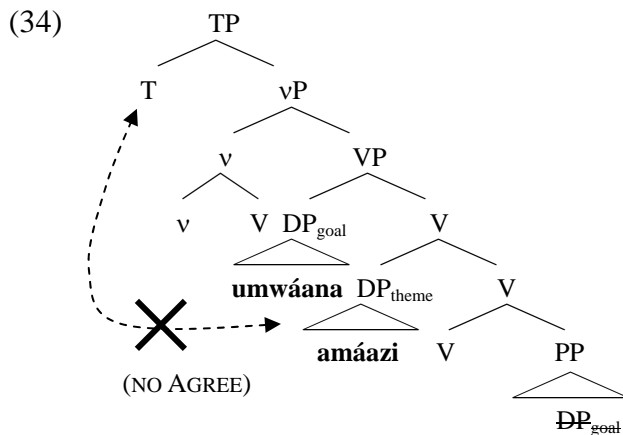
Given their pronominal status, one way of analysing object markers in Kinyarwanda would be along the lines of Julien's (2002) proposal, according to which pronominal object markers, like ordinary object-DPs, are phrases and located in specifier positions (see (29)). However, I want to argue now that a structure such as the one proposed by Julien cannot be adopted for object markers in Kinyarwanda double object locative constructions. My argument is based on an important syntactic difference between a locative construction with an object marker and a locative construction with the corresponding lexical DP, a difference that I suggest follows because the object marker is part of a syntactically complex head.

The example in (33) demonstrates that goal (indirect object) DPs produce syntactic intervention effects in Kinyarwanda locatives (McGinnis 2001; Zeller 2006: 285).¹³

¹³ Bantu languages differ with respect to passivisation in double object constructions. So-called "symmetrical" Bantu languages (such as e.g. Zulu and Kitharaka) allow either object to be passivized. In contrast, "asymmetrical" languages (e.g. Swahili, Chimwiini, Chichewa) usually only allow passivisation of the first or "primary" object (see Bresnan & Moshi 1990; Woolford 1995). The question of (a)symmetry may also depend on what sort of double object construction is used in a particular language. For example, Kinyarwanda is a symmetrical Bantu language with respect to most double object constructions, but, as (33) shows, it is asymmetrical in locative double object constructions.

- (33) a. Umwáana y-a-ménn-w-e-hó amáazi n'úmubooyi. [K]
 child SM1-PAST-pour-PASS-ASP-LOC water6 by cook1
 Lit.: 'The child was poured water on by the cook.'
- b. *Amáazi y-a-ménn-w-e-hó umwáana n'úmubooyi.
 water6 SM6-PAST-pour-PASS-ASP-LOC child1 by cook1
 'The water was poured on the child by the cook.'

(33a) shows that in ditransitive locative constructions, the goal argument DP can be passivized. In contrast, the theme argument cannot undergo passivisation in the presence of the indirect object DP, (33b). One explanation for this asymmetry is based on the idea that grammatical operations such as the passive are constrained by locality principles. Locality entails that the uninterpretable feature of an attracting head can only enter an agreement relation with a matching feature of the *closest* XP in its domain (cf. Chomsky 2000: 122). Since closeness is defined in terms of c-command, it follows that the functional head that attracts the internal argument in a passive cannot enter an agreement relation with the theme argument and attract it to move to its specifier if there is an indirect object which asymmetrically c-commands the theme (in (34) and below, I represent the attracting head as T):



(34) is the syntactic representation of Kinyarwanda locative constructions proposed in Zeller (2006). There I provide evidence that the indirect object DP of ditransitive locatives in Kinyarwanda is base-generated as the goal argument of a preposition (which cliticizes to the verb as the locative suffix *-hó*), but moves to a second specifier of VP above the theme DP. Therefore, when T is merged with vP, the indirect object goal DP asymmetrically c-commands the DP in the lower [Spec, V] and consequently blocks passivisation of the theme argument.

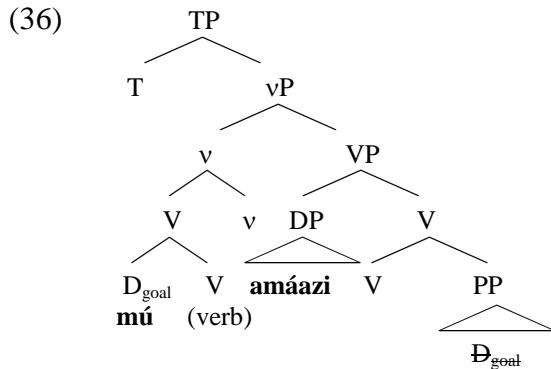
Importantly, however, the intervention effect disappears in (35):

- (35) Amáazi y-a-mú-menn-w-e-hó n'úmubooyi. [K; Zeller 2006: 289]
 water6 SM6-PAST-OM1-pour-PASS-ASP-LOC by cook1
 'The water was poured on him/her by the cook.'

(35) shows that passivisation of the theme becomes possible when the goal argument is an object marker. This demonstrates that object markers, in contrast to lexical DPs, do not block the agreement relation between T and the lower object necessary for passivisation.

The absence of a locality violation in (35) does not follow from an analysis such as Julien's (2002), in which the indirect object marker is represented as a phrase located in a specifier position between T and the VP. As a specifier, the object marker would still

c-command the lower object, and passivisation of the theme DP in (35) would be expected to be blocked. In contrast, the grammaticality of (35) follows if it is assumed that the object marker forms a complex head with the verb:



(36) is again based on the analysis in Zeller (2006), according to which the goal object marker undergoes head movement and incorporates into the verb directly from its base position inside the PP.¹⁴ Therefore, no copy of the indirect object intervenes between T and the theme DP in (36). Instead, the locative object marker and the verb (stem) form a complex head which has moved to v. Importantly, due to its status as an incorporated head, the indirect object marker does *not* c-command the theme in (36) (cf. Chomsky 2000: 117). It therefore does not intervene between T and the theme DP and thus does not block passivisation.¹⁵

Notice that analyses which treat the object marker as an agreement morpheme also fail to explain the contrast between (33b) and (35). As an object agreement morpheme, the object marker in (35) would be licensed by an object *pro* in its specifier (see (28) above). But since Agr-O is located below T, the *pro*-DP would also c-command the theme DP, and theme passivisation in (35) would therefore still be predicted to be impossible.

The contrast between (33b) and (35) provides evidence that object markers in Kinyarwanda form complex heads with their verb stems. In order to complete the argument that object marking involves head movement, it remains to be shown that the complex verb that includes the object marker in (35) is indeed formed by syntactic movement, and not simply assembled in the morphology. Crucial evidence for a syntactic derivation is provided by the fact that object marking itself is subject to locality constraints. (37) demonstrates that a direct object DP cannot be realized as an object marker if an indirect object DP is present:

¹⁴ Note that movement of the goal clitic across the (copy of the) intervening P-head violates the Head Movement Constraint (HMC) (Travis 1984). I discuss the HMC, and possible violations with clitic movement, in section 4.

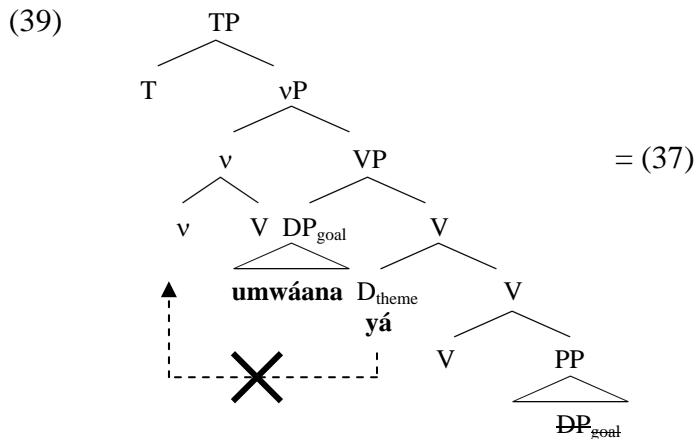
¹⁵ It is important to point out that, although the discussion is based on the analysis suggested in Zeller (2006), the argument does not depend on any of its specific details. The absence of the intervention effect in (35) would also follow from an alternative analysis, which assumes that indirect objects are base-generated above direct objects (see e.g. McGinnis 2001). According to the latter type of analysis, the copy of the indirect object marker would still c-command the theme after incorporation, but crucially, copies of moved elements do not count as interveners in terms of locality (cf. Chomsky 2000), and the grammaticality of (35) would still be correctly predicted (cf. Anagnostopoulou's (2003) analysis of comparable contrasts attested in passives in Greek double object constructions). The crucial point is that passivisation of the theme DP is contingent on incorporation of the indirect object, but the precise syntactic position of the indirect object prior to incorporation is immaterial for an explanation of this fact in terms of locality.

- (37) *Umubooyi y-a-yá-menn-ye-hó umwáana. [K; Zeller 2006: 286]
 cook1 SM1-PAST-OM6-pour-ASP-LOC child1
 'The cook poured it on the child.'

The ungrammaticality of (37) suggests that object marking is a syntactic process akin to the passive. Just as passivisation of the theme is blocked in (33b), object marking of the theme is impossible in the presence of an indirect object DP. That it is indeed the goal DP which blocks object marking in (37) is shown by the grammaticality of (38). In (38), object marking of the theme is possible because the indirect object is also realized as an object marker (-mu-):¹⁶

- (38) Umubooyi y-a-yá-mu-menn-ye-hó. [K; Zeller 2006: 289]
 cook1 SM1-PAST-OM6-OM1-pour-ASP-LOC
 'The cook poured it on him/her.'

The contrast between (37) and (38) clearly resembles the contrast between (33b) and (35) and consequently can be explained if object marking, like passivisation, is a feature-driven movement process which is constrained by locality. Following Matushansky (2006), I assume that head movement is driven by uninterpretable categorial features of the attracting head. Specifically, I suggest that a theme object marker incorporates into the light verb *v* after the verb has moved to *v*, and that this movement step is triggered by an (optional) uninterpretable D-feature of the attracting head *v*. Crucially, this explains why the direct object clitic in (37) cannot incorporate into *v*: although its categorial D-feature matches the D-feature of *v*, the D-feature of the indirect object DP, which c-commands the direct object, counts as a closer goal. This means that head movement of the direct object clitic will not be allowed to take place when the indirect object is a lexical DP located in a position between *v* and the object clitic:¹⁷

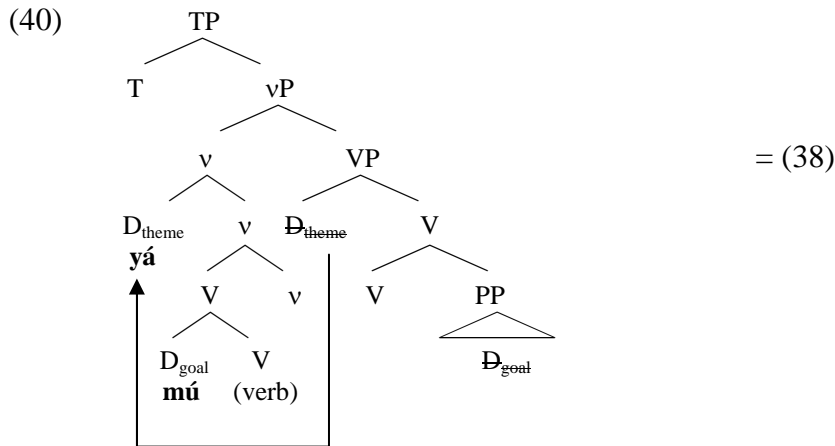


However, the situation changes when the goal is also an object marker and as such adjoined to the verb stem. Since its D-feature no longer intervenes between *v* and the

¹⁶ Similar data have also been reported for other Bantu languages. For example, in ditransitive constructions in Ruwund (Nash 1992), Chimwiini (Nakamura 1997) and Sambia (Riedel 2007), otherwise illicit object marking of the direct object becomes possible when the indirect object is also realized as an object marker.

¹⁷ Notice that the D-feature of *v* can also attract a lexical object DP (in which case it is equivalent to an EPP-feature). The object DP then undergoes object shift and moves to [Spec, *v*] (see Ura (1996) for the idea that objects in Bantu undergo object shift).

direct object, *v* can now attract the direct object marker. For the same reason that passivisation of the theme is possible in (35), object marking of the theme is possible in (38): the incorporated indirect object is not in a position from which it would block the necessary agreement relation between a feature of the direct object and the attracting feature of a functional head:¹⁸



To summarize the results of this section: On the one hand, object markers in Kinyarwanda locatives differ syntactically from lexical DPs in that they do not create intervention effects (see (35) and (38)). An analysis which treats them as incorporated pronouns explains this situation. On the other hand, object marking is constrained by the same locality principle which also governs other agreement relations and movement operations in syntax (compare (33b) and (37)). This suggests that incorporation of the object marker is a syntactic movement process. Taken together, these two observations lead to the conclusion that in Kinyarwanda locative constructions, the verb stem which includes the object marker is derived syntactically via head movement.

4. Conclusion: diagnosing head movement

In this section, I conclude my analysis with a few general suggestions regarding the diagnosis of head movement that follow from my discussion of the Bantu data.

In section 2, I contrasted a head movement approach to verb movement in Shona with an alternative analysis based on remnant phrasal movement. One advantage of remnant movement analyses is that they avoid the conceptual problems associated with head movement that were mentioned in section 1. However, they also come with a price: remnant movement theories need to postulate *evacuation movement* of material included in the moved phrases in order to create suitable remnants. The stipulation of these additional movement operations, which often have no detectable effects, is a general conceptual weakness of remnant movement theories. Moreover, the (remnant) movement of large chunks of phrase structure changes the *c-command relations* between syntactic elements in the clause. As I demonstrated in section 2, this provides a method to compare remnant movement and head movement approaches empirically. For instance, it is possible to construct examples in which a derivation based on remnant movement does not preserve (or produce) the *c-command relations* which are required

¹⁸ In the same way that incorporation of the theme into *v* is triggered by a D-feature of *v*, I assume that incorporation of the goal clitic into the verb is triggered by a D-feature associated with *V*. When the goal is a full DP, the verb's D-feature is equivalent to an EPP-feature and triggers movement of the goal-DP into a second [Spec, V] (see (34)).

for certain scope readings. If the relevant readings are nevertheless attested in a particular construction, then this is evidence against a remnant movement analysis.¹⁹ Although this sort of argument may not exactly count as a head movement "diagnostics", it provides *ex negativo* evidence that certain movement constructions are best analysed in terms of head movement.

My discussion of object marking in Kinyarwanda in section 3 focused on the configurational properties of certain constructions before and after head movement. My argument capitalized on the fact that a head adjoined to another head does not c-command anything outside the complex head. This is how I explained that an intervention effect produced by a syntactic object disappears when the object is a clitic and as such part of a complex head. If one accepts this explanation, then the *obviation of intervention effects* through incorporation can be regarded as a diagnostic property of head movement. Another sign of head movement may be a head's *sensitivity to syntactic locality conditions*: if head movement is a syntactic operation, then it should be feature-driven and subject to the same conditions that govern the movement of phrases. One therefore expects movement of a head X to be blocked by an element Y with the same matching feature specification if Y is closer to the attractor than X. Importantly, such intervention effects are predicted to occur regardless of whether Y is itself a head or a phrase.

A remaining question is whether it is also possible to diagnose cases in which head movement has *not* applied – are there configurations that are incompatible with a head movement analysis? The condition that comes to mind is the Head Movement Constraint (HMC) (Travis 1984), which states that head movement cannot skip an intervening head position. A strict version of the HMC would rule out a head movement account for any construction in which a head X has moved into a position adjacent to a head Z by crossing an intervening head Y.

Reasons of space do not allow me to examine in much detail whether head movement always obeys the HMC. Presumably, the HMC must be relaxed at least in the case of clitic movement. In their base position, clitics are simultaneously maximal and minimal projections; they are therefore able to undergo both phrasal and head movement. But since phrasal movement is not constrained by intervening heads (unless a feature of the intervening head acts as a closer goal for the attracting head), clitics are able to skip intervening heads before they attach to their host (cf. Chomsky 1995: 249). In this regard, note that Matushansky (2006) proposes that *all* head movement operations consist of two steps, the first one syntactic (a head X moves to *the specifier of head Y*), and the second one morphological (the heads X and Y merge in the morphophonological component). Since movement of X to [Spec, Y] is in accordance with the Extension Condition, and since a head in [Spec, Y] c-commands its lower copy, Matushansky's theory solves the conceptual problems with head movement mentioned in the introduction, but moreover, it is also capable of accommodating constructions in which the HMC is violated. Obviously, HMC-violations are the exception rather than the rule – long head movement, now defined as long phrasal movement followed by morphological merger, should be available only under certain well-defined conditions. I have to leave open the question of whether long head movement is only possible with clitics, or whether other affixal or non-affixal heads may also violate the HMC (see Matushansky (2006, sec. 5.1.3) for discussion of some of the well-known cases of long head movement).²⁰

¹⁹ See, for example, Lechner (2009), who uses this methodology to construct several arguments against Müller's (2004) analysis of German verb second as remnant vP-movement.

²⁰ Muriungi (2008) shows that a syntactic word formation account based on successive-cyclic head movement cannot derive the correct order of verbal affixes in Kitharaka (a Bantu language spoken in

My aim in this chapter has been to demonstrate that the syntactic properties of certain constructions in Bantu follow straightforwardly from a head movement analysis, but raise problems for alternative theories which do not represent morphologically complex verbs as syntactically complex heads. Although conceptual arguments can inform the debate about the status of head movement in grammar, it is ultimately the close examination of empirical phenomena in natural languages that will help to establish the extent to which head movement operations should be considered an essential part of narrow syntax.

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