

## **The Labeling Algorithm and Kirundi Inversion Structures**

### **Abstract:**

Moro (2009) proposes that Italian inversion structures provide evidence for one of the predictions of the Labeling algorithm (LA, Chomsky 2013, 2015). This is that in structures in which labeling is ambiguous, one of the constituents must be moved to a higher position, instantiated in Italian inversion as an intermediate focus position. However, Italian provides little independent evidence for movement to such a position and the evidence it does provide is limited to symmetrical structures containing two DPs. In this paper, I argue that Kirundi Object-Verb-Subject (OVS) inversion structures and transitive expletive constructions (TECs) (Ura 1996, Ndayiragije 1999), provide more direct evidence for the type of movement that Moro proposes for Italian. Because of a confluence of Kirundi idiosyncrasies, Kirundi shows unambiguously that when the external argument does not move to Spec, TP, it cannot stay in Spec, vP. Importantly, this ban on remaining in Spec, vP cannot be accounted for by appealing to relativized minimality (Rizzi 1990). Kirundi thus instantiates a key prediction of the LA.

**Keywords:** Inversion, Labeling Algorithm, MOVE, MERGE, Minimal Search, Minimality

## The Labeling Algorithm and Kirundi Inversion Structures

### 1 Introduction and aims<sup>1</sup>

The Labeling Algorithm (LA) as outlined in Chomsky (2013, 2015) and Epstein, Kitahara & Seely (2014) (and its predecessors in different guises) propose that the label of a newly formed structure is not added *ad hoc* but rather calculated using a rigid algorithm from the elements being merged in the computational system.<sup>2</sup> It is assumed that all structures that are to be interpreted must have a label by the time they leave narrow syntax (where labeling is determined) and enters the conceptual-intentional interface (where structures are interpreted). If some structure enters the C-I interface without a label, it simply cannot be interpreted and thus will fail. This means that if an instance of MERGE for whatever reason cannot be labeled immediately, the label must be resolved by the time the structure is transferred to the interfaces.

While Chomsky proposed an earlier version of the LA (Chomsky 2008) and other variations currently exist like Cecchetto & Donati (2010, 2015), we will follow the version in Chomsky (2013, 2015) and Epstein, Kitahara and Seely (2014). The following outlines the principles of the LA adopted in this paper.

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<sup>1</sup> Abbreviations: 1, 2, 3 – person, ACC – accusative, AUG – augment marker, CJ – conjoint marker, DP<sub>ea</sub> – external argument, F – focus marker, DP<sub>ia</sub> – internal argument, IMPRF – imperfective, IMPRS – impersonal construction, INF – infinitive, LOC – locative, NOM – nominative, P – plural, PERF – perfective, PRS – present, PST – past, S – singular

<sup>2</sup> See also Collins (2002) for arguments in favor of rejecting X'-theory labels.

- (1) Labeling algorithm
- a. Suppose  $SO = \{X, YP\}$ , then  $X$  is the label.
  - b. Suppose  $SO = \{XP, YP\}$ , labeling is ambiguous and this can be resolved in two ways.
    - i) Make only one head visible, eg.  $XP$ , to remove the ambiguity.
    - ii) If  $XP$  and  $YP$  share features, the label becomes the shared features.

When a head is merged with a phrase, for example, in the case of a verb with its internal argument, labeling is straightforward.

- (2) Merge  $(DP_{ia}, V) \rightarrow \{DP_{ia}, V\}$

In (2), the label of the resulting structure is whatever the label of the head,  $V$ , is.

However, when a phrase is merged with a phrase, for example, when an external argument is merged in Spec,  $vP$ , labeling is not so straightforward.

- (3) Merge  $(DP_{ea}, v') \rightarrow \{DP_{ea}, v'\}$  \*No Label

Given that the external argument and  $v'$  are non-heads, i.e. phrases, a labeling ambiguity results and has to be resolved. Chomsky (2013) proposes that the movement of  $DP_{ea}$  to Spec, TP is a result of label resolution. This movement has two results. First,  $DP_{ea}$  in its internal merged position becomes invisible given that MINIMAL SEARCH at this point does not see the entire  $DP_{ea}$  chain. This allows  $v'$  to become the label of the structure in (3).<sup>3</sup>

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<sup>3</sup> A reviewer asks why it must be the  $DP_{ea}$  and not  $v'$  that moves especially since Moro (2000) allows the movement of either phrase in a symmetrical small clause structure to raise. I address this issue in section 4 where I suggest that the absence/ presence of phi features may be responsible for this.

Second, merging  $DP_{ea}$  in Spec, TP results in feature unification as both  $DP_{ea}$  and  $T'$  have phi features.<sup>4</sup> These shared phi features become the label of TP.<sup>5</sup>

Moro (2009) explores an interesting implication of the LA (based on older formulations of the LA but still relevant in the version assumed here) in the domain of Italian copular structures.

- (4)      \*pro    è      [una foto del muro]    [la causa della rivolta]  
             pro    is      a picture of the wall    the cause of the riot

Moro (2009: 17) observes that a copular clause with a pro expletive with neutral intonation is ungrammatical. However, focus intonation can ameliorate this ungrammaticality as shown in Moro (2009: 18).

- (5)    a.    pro    è      [UNA FOTO DEL MURO]    [la causa della rivolta]  
             pro    is      a picture of the wall                      the cause of the riot  
       b.    pro    è      [LA CAUSA DELLA RIVOLTA] [una foto del muro ]  
             pro    is      the cause of the riot                      a picture of the wall

In (5a), *a picture on the wall* is focused and in (5b), *the cause of the riot* is focused. Moro (2009) proposes that the contrast between (4) and (5) shows that the problem with (4) is

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<sup>4</sup>  $T'$  inherits the phi features from T.

<sup>5</sup> I assume that names and pronouns are both phrases following Longobardi (1994) and Chomsky (2013) and thus behave like any regular DP for the purpose of the LA. In addition, I assume that adjuncts are due to pair-merge, an operation which is invisible to the core phrase structure building operation (Chomsky 2004: 117-118). As such, adjuncts do not interfere with labeling. Also see Epstein, Kitahara & Seely (2012) and Oseki (2015) for an alternate reason for why adjuncts may be invisible to the LA in general.

that the small clause cannot be labeled given that both constituents remain within the symmetrical small clause structure. According to Moro (2009), focus makes the structures grammatical because the focused element has actually moved out of the small clause to a Spec, FocP at the edge of the small clause. This makes the moved phrase invisible within the small clause thus allowing the small clause to be labeled. In addition, given that the moved phrase and Foc' both have focus features, feature unification is possible and FocP can also be labeled. Thus, the sentences in (5) do not have any labeling issues, unlike (4). Italian, thus, serves as direct support for the LA.

One problem with Moro's argumentation is that a skeptic can point out that it is not entirely clear if the focused element has indeed moved out of the small clause given that the word order when movement has taken place and the word order when movement has not taken place are identical. There is also no additional morphology that could identify such a movement either. However, even if one is convinced by Moro's argument, one could be wary that Moro (2009) is relevant only for symmetrical structures containing two DPs as in Moro (2000).<sup>6</sup> If something like the LA does exist in narrow syntax, we should be able to find evidence for it even in cases of inversion from structures which contain additional functional heads.

In this paper, my aim is to show that Kirundi provides more direct evidence for the fulfilment of Moro's prediction. In OVS inversion structures and TECS, (Ura 1996, Ndayiragije 1999, Morimoto 2009), both structures in which the external argument does

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<sup>6</sup> Ott (2011) argues for the LA using German structures which are also argued to be symmetrical.

not move to Spec, TP, the external argument cannot stay in Spec, vP. It must be moved to an intermediate Spec, FocP. The Kirundi data is important for two reasons: 1) this short movement is not string vacuous in Kirundi (unlike Italian) because of the peculiarity that the intermediate FocP has a rightward specifier, and 2) the standard assumption that this short movement of the external argument is due to Relativized Minimality (RM) (eg. Ndayiragije 1999) can be shown to be untenable. This short movement, thus, receives a simple explanation from the LA as outlined by Moro (2009). If the external argument does not move to this intermediate focus position, labeling will remain ambiguous and the structure will fail to be interpreted at the CI interface. It is thus argued that Kirundi provides further independent support for the LA.

The outline of the paper is as follows. In section 2, I discuss the main Kirundi data and motivate the following generalization: when the external argument in Kirundi does not move to Spec, TP, it nonetheless cannot remain in Spec, vP. This is argued to follow from the LA. We will see this generalization supported by OVS inversion and TECs. In section 3, I discuss Relativized Minimality and argue why it cannot account for the generalization in Kirundi. Part of the argument here will consist of an idea adopted from Mikkelsen (2004) wherein movement to Spec, TP in inversion is motivated by topic features. In section 4, I discuss some implications of the paper and then, conclude.

## **2 Kirundi data**

In this section, I first outline the basic facts of Kirundi which includes a discussion of focus constructions in this language. Here, following Ndayiragije (1999), I argue that Kirundi has a low FocP with a rightward specifier. This will form the basis for the

motivation of the generalization that external arguments in Kirundi cannot stay in Spec, vP. I then argue that this directly follows from the LA.

## 2.1 The basic facts

Kirundi is an SVO language and shows subject agreement. The bulk of the data and initial analysis is from Ndayiragije (1999).

- |     |                       |                        |        |     |
|-----|-----------------------|------------------------|--------|-----|
| (6) | Abâna                 | ba-á- <i>ra</i> -nyôye | amatá. | SVO |
|     | children              | 3P-PST-F-drink:PERF    | milk   |     |
|     | ‘Children drank milk’ |                        |        |     |

(6) illustrates a typical SVO clause with subject agreement. The *ra* marker glossed as F is an essential part of such sentences. Ndayiragije (1999) argues that this is an anti-focus marker, which explains why this marker is not possible when there is wh-word or a focused constituent in the sentence.

- |     |    |                                       |                           |       |            |
|-----|----|---------------------------------------|---------------------------|-------|------------|
| (7) | a. | Abâna                                 | ba-á-(* <i>ra</i> )-nyôye | iki?  | Wh-object  |
|     |    | children                              | 3P-PST-F-drink:PERF       | what  |            |
|     |    | ‘What did the children drink?’        |                           |       |            |
|     | b. | Abâna                                 | ba-á-(* <i>ra</i> )-nyôye | amatá | Foc-Object |
|     |    | children                              | 3P-PST-F-drink:PERF       | milk  |            |
|     |    | ‘The children drank milk (not water)’ |                           |       |            |

Thus, (7a) with a wh-word and (7b) with a focused object both do not allow the *ra* marker. According to Ndayiragije (1999), a null focus head is in complementary distribution with the anti-focus *ra* which is why the sentences in (7) are not possible with

*ra*.<sup>7</sup> On the other hand, van der Wal (2013) proposes that *ra* is the default spell out form of the low Foc head when it does not find a focused phrase. Nshemezimana & Bostoen (2017) recently argue against Ndayiragije's characterization and claim that *ra* should be thought of as an event focus marker because it is obligatory when the whole sentence is focused or when just the predicate in a clause is focused.

Although there are disparate views on what *ra* does in a clause, it appears to be unanimously held that this affix is incompatible with constituent focus, i.e. when just an object or subject is focused. As such, I will continue assuming with Ndayiragije (1999) that when *ra* is absent, there is a null focus head in this position. Ndayiragije (1999) also discusses a number of evidence that this focus phrase is *low* in Kirundi. I will not discuss them all here but will just mention one which has to do with the ordering of affixes on the verb. Given the Mirror Principle (Baker 1985), I assume that  $V \rightarrow T$  movement results in *V* collecting prefixes as it moves to *T*. Note that in this case, the *ra* affix occurs lower than *T* in (6) which means that the *ra* head must be lower than *T*. From this, assuming that the null focus head is in the same position as the *ra* affix in focused contexts, the Foc head must be in a low position as well. Thus, it appears safe to assume that Kirundi does have a low FocP whose specifier hosts focused constituents.<sup>8</sup>

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<sup>7</sup> Traditionally, this *ra* was analyzed as a disjoint marker and the null morpheme as the conjoint marker (Meeusen 1959). Nshemezimana & Bostoen (2017) argue that this distinction is not relevant for Kirundi.

<sup>8</sup> Other evidence for a low FocP comes from scope possibilities from the interaction of negation and numerals (Ndayiragije 1999: 409) and wh-extraction asymmetries (Ndayiragije 1999: 428). A low FocP has been proposed several times before for independent reasons in Malayalam (Jayaseelan 1999), Italian



One of the important idiosyncrasies of Kirundi and its low FocP is the fact that the specifier of this focus phrase has a rightward specifier when all other phrases in the language appear to have leftward specifiers typical of SVO languages. The evidence for a rightward Spec, FocP in Kirundi comes from Ndayiragije (1999: 411).

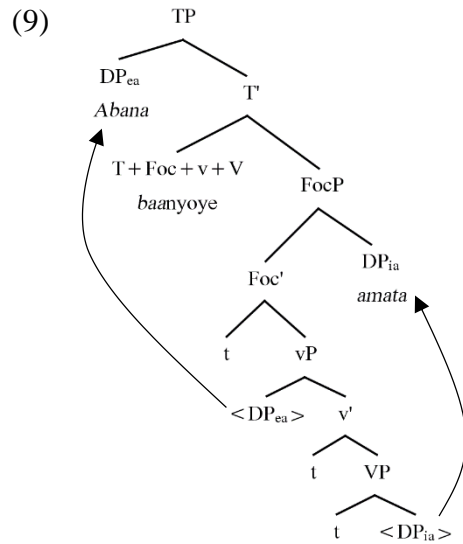
- (8) a. Yohani a-á-*ra*-oó-geje (\*néézá) imiduga (néézá).  
 John 3S-PST-F-wash:PERF well cars well  
 ‘John washed cars well.’
- b. Yohani a-á-oó-geje (néézá) imiduga (néézá).  
 John 3S-PST-wash:PERF well cars well  
 i) ‘John washed cars well (not badly).’ (DP<sub>ia</sub>-ADV order)  
 ii) ‘John washed cars well (not trucks).’ (ADV-DP<sub>ia</sub> order)

(8a) shows a sentence without constituent focus. Here, *ra* is required and there is a strict order between the post-verbal elements. The adverb must follow the direct object which indicates that the adverb right-adjoins to vP. In (8b), there is no *ra* which indicates that there is a focused constituent in this sentence. Since the subject occurs pre-verbally, the focused constituent must be either the object or the adverb. Interestingly, either order between the DP<sub>ia</sub> and adverb is possible but the rightmost phrase must have focus interpretation. Assuming that the focused phrase is in Spec, FocP, the facts in (8b) are not compatible with a FocP with a left specifier. If this was the case, we expect the inner

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(Belletti (2001, 2004), Makhuwa (Van der Wal 2006), and Xhosa (Carstens & Mletshe 2015). Although see Buell (2007) and Cheng & Downing (2012) who argue against a low FocP in Zulu.

most post-verbal phrase in (8b) to be focused. Given that it is not, the data is clear indication of a low FocP with a rightward specifier.<sup>9</sup> The following shows the structure for (7b) which has a focused direct object, based on the discussion so far.



In (9), *t* shows the traces of head movement. Constituent movement is shown with arrows. In this structure, the external argument is moved from Spec, vP to Spec, TP. The focused internal argument is moved from the complement of V position to the *rightward* specifier of the low FocP. Later, I will show that unlike in Italian, the movement of the external argument to Spec, FocP is not string vacuous precisely because of its rightward specifier. We now have now laid the groundwork necessary to see an unnoticed generalization about external arguments in Kirundi.

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<sup>9</sup> A reviewer asks if it is possible to retain a leftward specifier for the low FocP but with remnant movement of vP. I address alternative analyses utilizing such remnant movement in section 4 but ultimately rule it out.

## 2.2 The possible positions of Kirundi external arguments

In this section, I will set about motivating the following generalization.

- (10) A Kirundi external argument that does not move to Spec, TP, cannot remain in Spec, vP.

I will first describe Kirundi OVS inversion and then turn to transitive expletive constructions (TECs).

### 2.2.1 OVS Inversion

So far, we have seen only object and adverb focus. Kirundi also allows OVS inversion where the object occurs pre-verbally and the subject occurs post-verbally. Consider the following.

- |      |    |                                      |                          |          |     |
|------|----|--------------------------------------|--------------------------|----------|-----|
| (11) | a. | Abâna                                | ba-á- <i>ra</i> -nyôye   | amatá.   | SVO |
|      |    | children                             | 3P-PST-F-drink:PERF      | milk     |     |
|      |    | 'Children drank milk'                |                          |          |     |
|      | b. | Amatá                                | y-á-(* <i>ra</i> )-nyôye | abâna.   | OVS |
|      |    | milk                                 | 3S-PST-F-drink:PERF      | children |     |
|      |    | 'Children (not parents) drank milk.' |                          |          |     |

(11a) shows the canonical SOV clause and (11b) shows OVS inversion. The agreement morphology is strongly indicative that *amata* 'milk' has been promoted to a structural

subject in (11b).<sup>10</sup> Nonetheless, Ndayiragije (1999) shows that OVS structures are not passives. The passive shows the passive affix *u* and allows the verb affix *ra*. In OVS structures like (11b), the *u* and *ra* affixes are obligatorily absent (See Ndayiragije 1999: 412). This obligatory absence of *ra* indicates that the post-verbal subject must be focused in OVS inversion structures.

This and the set of facts we will see in this section are compatible with two possible analyses. The first is the more standard explanation adopted by Ndayiragije (1999) whereby the object can only move to Spec, TP if the intervening subject in Spec, vP moves to an A'-position. This is a typical Relativized Minimality (RM) configuration (Rizzi 1990). However, it is important to keep in mind that the obligatory focusing of the external argument in OVS inversion is also compatible with the prediction that the LA makes. Recall that in the LA, an external argument is argued to move from Spec, vP to Spec, TP because remaining in Spec, vP leads to a labeling failure (See (3) and surrounding discussion). What this means is that in OVS inversion, where it is the object that has moved to Spec, TP, the external argument is stranded in Spec, vP. The DP<sub>ea</sub> remaining in this position leads to a labeling failure. This is why OVS inversion requires obligatory external argument focus. In addition, since the focus head and the external

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<sup>10</sup> While I have assumed that this raised object is in Spec, TP, this is a controversial position. Morimoto (2000, 2009) and Henderson (2006) argue that the position in which agreement takes place is not in Spec, TP but rather a periphery position, eg. Spec, TopP. Regardless of which of these positions are correct, they show that in these inversion structures, the external argument has remained low.

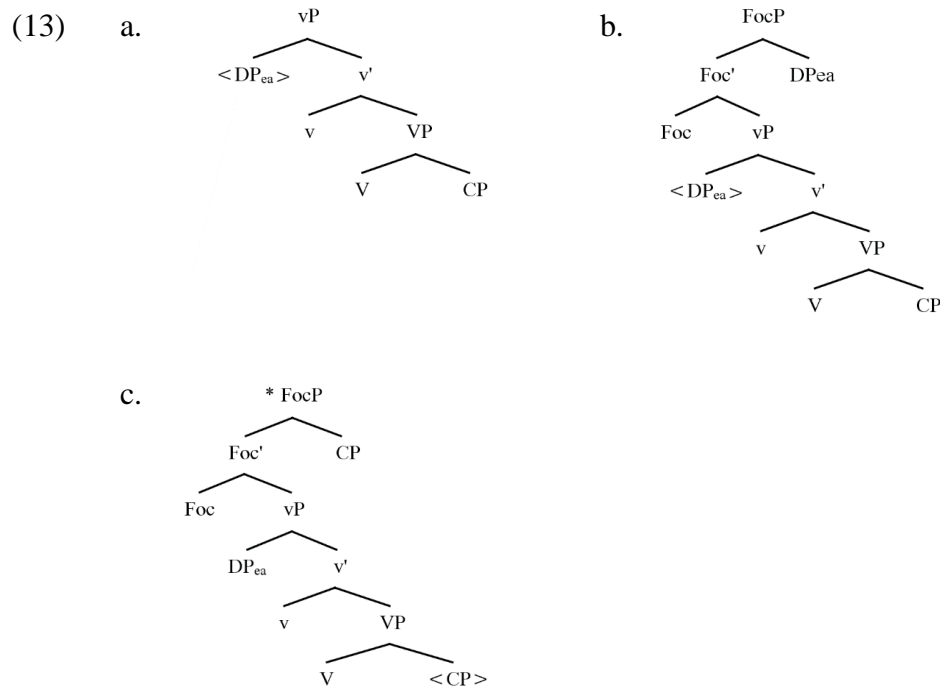
argument have focus features, FocP can be labeled with their shared features. See Section 3.2 for more discussion of this aspect of the analysis. While the data seen in this subsection is compatible with both approaches, subsequent sub-sections will argue that the LA-based analysis of (11b) is the empirically more adequate one.

For now, I will outline all of the data that further instantiates the generalization in (10) in the OVS context. Consider the following data.

- (12) a. Yohani<sub>i</sub>            a-á-ra-emeye            [<sub>CP</sub> PRO<sub>i</sub> kugura  
John            3S-PST-F-accept:PERF            INF.buy that  
iyo modoka].  
that car  
'John agreed to buy that car.'
- b. [iyo modoka]<sub>j</sub>            i-á-emeye            [<sub>CP</sub> PRO<sub>i</sub> kugura t<sub>j</sub>]  
that car            3S-PST-accept:PERF            INF.buy  
Yohani<sub>i</sub>.  
John  
'John (not Peter) agreed to buy that car.'
- c. \*[iyo modoka]<sub>j</sub>            i-á-emeye            Yohani<sub>i</sub> [<sub>CP</sub> PRO<sub>i</sub>  
that car            3S-PST-accept:PERF John  
kugura t<sub>j</sub>]  
INF.buy  
'John agreed to buy that car.'

(12a) shows the canonical SVO order where the verb complement is a CP. (12b) and

(12c) show that when an object within the embedded CP is moved to the matrix Spec, TP, the order between the embedded remnant CP and the DP<sub>ea</sub> must be CP-DP<sub>ea</sub> as in (12b) but not DP<sub>ea</sub>-CP as in (12c). The ungrammaticality of (12c) shows that DP<sub>ea</sub> cannot remain in situ in Spec, vP but must move to Spec, FocP. The relevant structures of the respective sentences are shown below.<sup>11</sup>



In (13a), Spec, vP only has an unpronounced copy of DP<sub>ea</sub> as it has moved to Spec, TP and vP can be labeled. In (13b), the same holds except the DP<sub>ea</sub> has moved to Spec, FocP. Notice that, unlike in Italian, the movement of the DP<sub>ea</sub> to Spec, FocP is not string vacuous because of the rightward specifier of FocP. Thus, the problem in (13c) must be

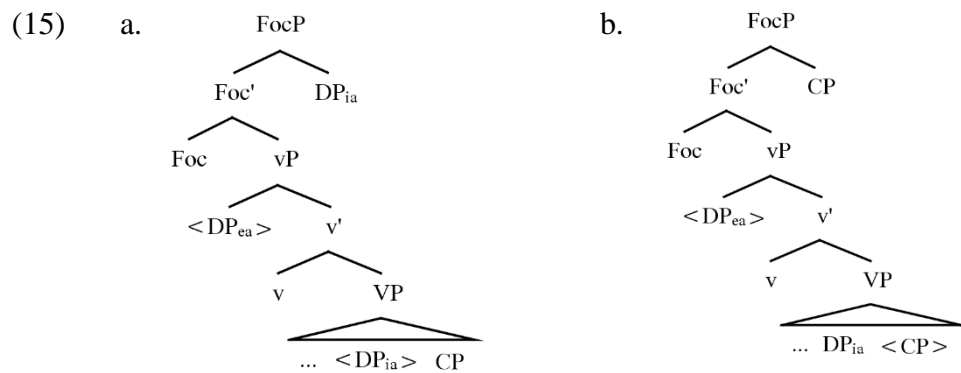
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<sup>11</sup> In the rest of the structures we see in this paper, I only produce the relevant structure which is up to the low FocP.

that DP<sub>ea</sub> has remained in Spec, vP. Compare this to an uninverted structure from Ndayiragije (1999: 411) where DP<sub>ea</sub> occurs in Spec, TP.

- (14) a. pro tu-á-rungitse [<sub>CP</sub> PRO<sub>i</sub> kuryâma] abâna.  
 1P-PST-send:PERF INF.sleep children  
 ‘We sent to sleep children (not adults).’
- b. pro tu-á-rungitse abâna<sub>i</sub> [<sub>CP</sub> PRO<sub>i</sub> kuryâma].  
 1P-PST-send:PERF children INF.sleep  
 ‘We sent children to sleep (not to play).’

(14a) shows a non-inverted structure with a post-verbal CP and DP<sub>ia</sub>. These structures have a focused post-verbal constituent (due to the absence of *ra*), and here, either the CP or the DP<sub>ia</sub> can be focused corresponding to either order between CP and DP<sub>ia</sub>. Crucially, the phrase that is outermost is the one that is focused. The relevant structures of these sentences are below.



(15) corresponds to the sentences in (14). The difference between the two is that in (a), DP<sub>ia</sub> has moved to Spec, FocP and in (b), the CP has moved to Spec, FocP. Crucially, in both these sentences, DP<sub>ea</sub> has moved to Spec, TP which means that vP can be labeled.

Note that (14) also shows that there does not need to be surface c-command between a controller and the PRO in the CP. In (14b), the infinitival CP is in the Spec, FocP which is higher than the controller  $DP_{ia}$  which remains within the VP and the control relation remains possible. This indicates that (12c) cannot be ruled out as due to a lack of c-command between  $DP_{ea}$  and the PRO it controls. The comparison between (12) and (14) thus strongly suggests that the problem with (12c) is that the  $DP_{ea}$  is in Spec, vP.

One may wonder if the problem with (12c) is that the  $DP_{ia}$  is extracted from a CP that itself has moved to Spec, FocP, an instance of criterial freezing (Rizzi 2006). But the following data shows that even when the CP does not contain a trace, the same general pattern obtains.

- (16) Yohani a-á-ra-zanye inka<sub>i</sub> [<sub>CP</sub> PRO<sub>i</sub> kurisha].  
 John 3S-PST-F-bring:PERF cows INF-graze  
 ‘John brought cows to graze.’

(16) shows a sentence with  $DP_{ea}$  in Spec, TP and a  $DP_{ia}$  and a CP infinitive (Ndayiragije 1999: 426). We can now see that focusing either the  $DP_{ia}$  or the CP is possible.

- (17) a. Yohani a-á-zanye [<sub>CP</sub> PRO<sub>i</sub> kurisha] inka<sub>i</sub>.  
 John 3S-PST-bring:PERF INF-graze cows  
 ‘John brought cows (not goats) to graze.’  
 b. Yohani a-á-zanye inka<sub>i</sub> [<sub>CP</sub> PRO<sub>i</sub> kurisha]  
 John 3P-PST-bring:PERF cows INF-graze  
 ‘John brought cows to graze (not to sleep).’

In both sentences, *ra* must be absent but in (17a), the  $DP_{ia}$  has been moved to Spec, FocP

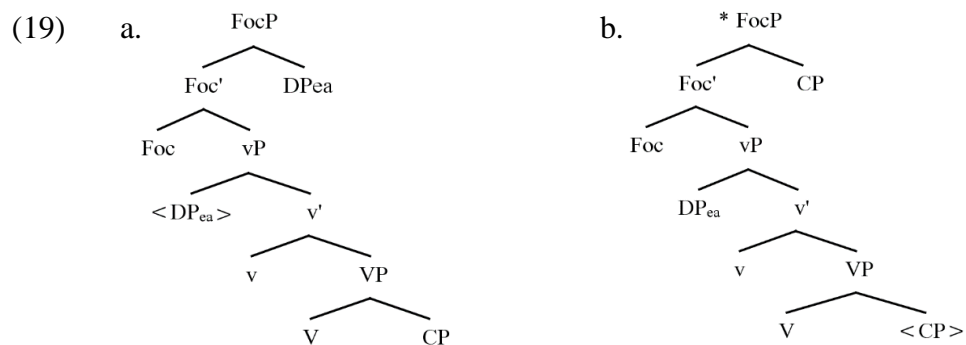


and in (17b), the CP has been moved to Spec, FocP. The relevant structures for these two sentences is identical to what is shown in (14), so I will not repeat them. The important thing to note is that the DP<sub>ea</sub> has moved to Spec, TP thus allowing vP to be labeled.

It is also possible to form a corresponding OVS inversion from (17) but there is an asymmetry.

- (18) a. Inka<sub>i</sub> zi-á-zanye [CP PRO<sub>i</sub> kurisha] Yohani.  
 cows 3P-PST-bring:PERF INF-graze John  
 ‘John (not Peter) brought cows to graze.’
- b. \*Inka<sub>i</sub> zi-á-zanye Yohani [CP PRO<sub>i</sub> kurisha]  
 cows 3P-PST-bring:PERF John INF-graze  
 ‘John (not Peter) brought cows to graze.’

(18a) shows that when the DP<sub>ia</sub> is moved to Spec, TP, the DP<sub>ea</sub> can be focused. (18b) shows that with DP<sub>ia</sub> in Spec, TP, the CP cannot be focused. First note that this is the same type of asymmetry we saw in (12c). However, this asymmetry cannot be ruled out as due to criterial freezing because the fronted DP<sub>ia</sub> is not extracted from within the CP. Thus, the problem with (18b) must be that the DP<sub>ea</sub> is stranded in Spec, vP. The relevant structures for (18) are produced below.



In (19a), which corresponds to (18a), the  $DP_{ea}$  has moved to Spec, FocP. However in (19b), which corresponds to (18b), the CP has moved to Spec, FocP, thus forcing  $DP_{ea}$  to remain in Spec, vP.<sup>12</sup>

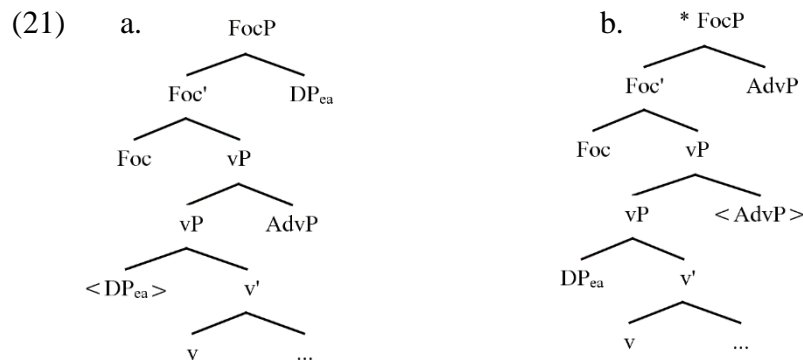
Further evidence that indicates that  $DP_{ea}$  must move to the internal Spec, FocP position in OVS inversion comes from adverb placement (Ndayiragije 1999: 416). In (8), we saw that when the external argument is in Spec, TP, either the direct object or an adverb can be focused. This corresponds to an absence of *ra* and a difference in word order. However, in OVS inversion which also has an adverb, the  $DP_{ea}$  must be final.

- (20) Imiduga      yi-á-oó-geje      (néezá)      Yohani      (\*néezá)  
          cars                    3P-PST-wash:PERF      well      John      well  
          ‘John (not Peter) washed cars well.’

The ban on a focused adverb in OVS inversion also follows from the fact that the  $DP_{ea}$  which is not in Spec, TP must be in the low Spec, FocP. This is shown below.

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<sup>12</sup> The ungrammaticality of (12c) and (18b) also gives us another language particular property of Kirundi. It appears that Kirundi has no other Focus (or Topic) position at the periphery of vP that could possibly host  $DP_{ea}$ . There is only one Spec, FocP position TP-internally and once this position is occupied with some phrase, there is no other such position for  $DP_{ea}$  to move to where a shared label can be given by the LA. This is in contrast to, perhaps Italian, for which Belletti (2001) argues that there is a clause internal Topic phrase as well as a clause internal FocP.



In (21a), the AdvP- $DP_{ea}$  word order obtains and here the  $DP_{ea}$  is in Spec, FocP. In (21b), the word order is  $DP_{ea}$ -AdvP which means that  $DP_{ea}$  is stranded in Spec, vP. This leads to ungrammaticality.

So far, we have seen that in inversion contexts, the Kirundi  $DP_{ea}$  cannot remain in Spec, vP. Thus, I will take (10) to be established. As mentioned above, this can be due to a RM effect or due to the LA. In the LA account I propose, the external argument must move to Spec, FocP in cases of OVS inversion because leaving the external argument in Spec, vP leads to a labeling failure.<sup>13</sup> In the alternate RM account, moving the object to Spec, TP in OVS inversion requires moving the external argument to an A'-position, in this case, a low Spec, FocP. We will now move on to see one piece of evidence in favor of the LA analysis and against the RM alternate, Kirundi TECs.

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<sup>13</sup> A reviewer asks why Kirundi does not resolve the labeling ambiguity at the vP level by moving  $v'$  to a higher position. Recall that in the SO  $\{DP_{ea}, v'\}$ , movement of either to a higher position will resolve the labeling ambiguity at the vP level. In section 4, I discuss this alternative characterization of the OVS order in more detail and show that this alternative runs into several empirical problems not encountered by the proposed analysis.

## 2.2.2 TECs

In this sub-section, I argue that the Kirundi TEC also illustrates (10). When a DP<sub>ea</sub> does not move to Spec, TP, it nonetheless cannot remain in Spec, vP. While the OVS inversion facts support either a RM account or the proposed LA account, the TEC facts unambiguously support the LA account. Consider the following from Ndayiragije (1999: 435).

- (22) pro<sub>exp</sub> ha-á-nyoye amatá abâna. Exp-VOS  
 LOC-PST-drink:PERF milk children

‘Children (not parents) drank milk.’

(22) shows a TEC where there is no overt element in Spec, TP but where the external and internal arguments both occur post-verbally.<sup>14</sup> In addition, the agreement morphology on the verb is a locative marker and not associated with either argument of the verb. Van der

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<sup>14</sup> It should be noted that Nshemezimana & Bostoen (2017: 404) claim that that expletive constructions (or what they call the impersonal *ha* construction) in Kirundi are more commonly formed with intransitive verbs rather than transitive verbs. But this does not detract from the point being made above that even in such constructions, the external argument cannot remain in situ in Spec, vP as there is clear evidence for this even with expletive constructions formed with a verb without a direct object.

- a) ha-á-Ø-kómaang-a [a-ba-gabo gusa]<sub>FOC</sub>  
 IMPRS-rem.PST-CJ-beat.the.ground-IMPRF aug-2-man only

‘Men only beat the ground (to gather termites).’ (*IragiNdanga*, traditional culture, 2000s)

(a) is an expletive construction without a direct object and even in this case, the external argument must be obligatorily focused. Also note the absence of the *ra* affix on the verb.

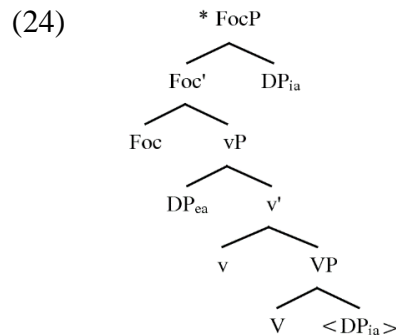
Wal (2008: ftnt 14) proposes that this is a default agreement form in the absence of any argument in Spec, TP. Following Ndayiragije (1999), I assume that Spec, TP has a null expletive in these constructions.

Note that Kirundi TECs are constructions where the external argument has not moved to Spec, TP, but there is no movement of a lower argument to Spec, TP. We have also seen that in OVS inversion, both RM and the LA could, based on the data we discussed, explain why the external argument cannot remain in Spec, vP. However, these theories make very different predictions about the position of the external argument in TECs. If short movement of the external argument to Spec, FocP in OVS inversion is due to the LA, this means that the external argument must be in Spec, FocP even in the TEC. This will have two empirical consequences. First, Kirundi TECs cannot allow the *-ra-* suffix (as otherwise such constructions will allow a neutral reading which cannot be possible if the external argument is necessarily focused) and second, this means that the Exp-VSO order should not be possible (as this means that it is the internal argument that is in Spec, FocP and the DP<sub>ea</sub> is stuck in Spec, vP causing a vP labeling failure). RM, however, makes no prediction about the TEC. Given that no lower argument is moving to Spec, TP, the external argument need not move to Spec, FocP to circumvent a minimality violation. As such, this account predicts that in TECs, 1) *ra* can occur with no constituent being focused, and 2) the internal, as opposed to the external argument, can also be focused. The data supports the LA.

- (23) a. \*pro<sub>exp</sub> ha-á-**ra**-nyoye amatá abâna. Exp-VOS  
 LOC-PST-F-drink:PERF milk children

- b. \* $pro_{exp}$  ha-á-nyoye abâna amatá. Exp-VSO  
 LOC-PST-drink:PERF children milk

(23a) shows that TECs do not allow the -ra- marking on the verb just like OVS structures. In addition, the Exp-VSO order in (23b) is ungrammatical. The illicit structure is shown below.



In (24), the representation of (23b), the internal argument moves to Spec, FocP, leaving the external argument stranded in Spec, vP. This is what leads to a labeling failure.

Minimality has no explanation for this fact, but the LA does. In fact, the LA provides a uniform explanation for the ungrammaticality of all the constructions in which the  $DP_{ea}$  is stranded in Spec, vP. This includes not just the TEC which we have just seen but also all the OVS inversion contexts that we saw above. If correct, this means that these constructions are ungrammatical because the external argument remains in Spec, vP which leads to a labeling failure.<sup>15</sup>

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<sup>15</sup> A uniform account for OVS structures and TECs is also preferable because of the number of similarities between them. See Ndayiragije (1999: 435) for a discussion of their similarities.

One could imagine preserving the minimality account for the ungrammatical OVS sentences and attempt to explain (23) away independently. This is what Ndayiragije (1999) attempts. For him, the TECs in (23) are ungrammatical because of the distinction between MERGE and MOVE. Unlike Chomsky's original formulation, however, Ndayiragije proposes that it is actually MERGE that is costlier than (a version of) MOVE (similar to Shima 2000). Ndayiragije argues that if there is a phrase that is merged in Spec, vP, it must be moved to Spec, TP. In this case, expletive-insertion is disallowed. This is because Spec, vP is the closest A-position to Spec, TP and movement from here to Spec, TP is an instance of SHORTEST MOVE which is less costly than MERGE. According to him, this is what rules out (23). On the other hand, in (22), an expletive can be optionally merged because the alternative is moving the DP<sub>1a</sub> (which is not in Spec, vP) to Spec, TP.<sup>16</sup> Since this is not an instance of SHORTEST MOVE, neither movement of the direct object to Spec, TP nor insertion of an expletive in Spec, TP is costlier than the other and both are allowed. Making a formal distinction between MERGE and MOVE has since fallen out of favor<sup>17</sup> and as such Ndayiragije's account of the ungrammaticality of (23) cannot be maintained. On the other hand, the LA account proposed here provides a

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<sup>16</sup> In this case, DP<sub>ea</sub> is already in Spec, FocP, an A'-position and cannot be moved to Spec, TP, an A-position. This would be an example of improper movement, disallowed under most assumptions.

<sup>17</sup> See Epstein et al who argue that existential sentences in English which were first used by Chomsky to argue for a distinction between MOVE and MERGE can be explained without appealing to such a distinction.

uniform explanation for both the OVS constructions and TECs both of which exhibit the generalization in (10).<sup>18</sup>

### 3 Relativized Minimality and OVS inversion

In this section, I take a closer look at OVS inversion particularly with respect to the idea that RM can potentially explain why the external argument cannot remain in Spec, vP when it does not move to Spec, FocP. Following Mikkelsen (2004), I claim that the fronted element in OVS inversion is necessarily a topic and I formalize this, following Mikkelsen (2004) with an optional topic feature on T.<sup>19</sup> This is also in line with recent proposals that the A/ A'-distinction is not as clear cut as usually assumed. For example, Erlewine (2017) argues that Toba Batak has a node that is a hybrid C/T node, having properties of a clause periphery head and a clause internal head. Thus, the proposal here for a T head that also has discourse properties is not without precedent. The implication

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<sup>18</sup> The Kirundi data is reminiscent of Alexiadou & Agnostopolou's (2001) *Subject In-Situ* generalization that states that either of the internal or external argument must vacate the VP but both cannot remain. While the Kirundi facts are compatible with this generalization, their generalization still does not capture that fact that it must be the external argument that leaves the VP in TECs, not the internal argument.

<sup>19</sup> Note that there is no inherent contradiction between what is proposed here and cartographic approaches (Rizzi 1997). The key difference is in the fact that Spec, TP seems to be reserved for topics that can also have shared phi features. We can see this in the fact that, in Kirundi, adverbs cannot be moved to Spec, TP to form inversions. (Ndayiragije 1999: 41 (eg 39b)). In contrast, a TopP position in the left periphery does not have a phi feature restriction. Thus, it is possible to maintain the proposal here alongside cartographic approaches.



of such an analysis for an RM account is dire. If the direct object moves to Spec, TP because it has topic features, features that the external argument lacks, then this movement will not induce a RM violation when the external argument is skipped. What this means is that RM will not be able to explain why the external argument must move to Spec, FocP in OVS inversion. Thus, the obligatory short movement of the external argument in OVS inversion provides unambiguous support for the LA after all.

### 3.1 Topic features in OVS inversion

It is standardly accepted that A'-movement can skip over arguments in A-positions, English *wh*-movement being a canonical case. Mikkelsen (2004) uses this idea in her account of specificational clauses (Higgins 1973) which she analyses as involving predicate inversion (Moro 1997, Den Dikken 2006 a.o).

- (25) a. John is the doctor.                      Predicational copular clause  
       b. The doctor is John.                      Specificational copular clause

(25b) shows the specificational clause which is argued to have inversion of a predicate from a small clause over the external argument.<sup>20</sup> Thus (25b) has the following derivation.

- (26) [TP The doctor<sub>i</sub> is [SC John t<sub>i</sub>]]

In (26), the predicate *the doctor* is argued to move out of the asymmetrical small clause to Spec, TP. This should be a RM violation given that *John* is in the specifier of the small

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<sup>20</sup> See Heycock & Kroch (1999) for an analysis of specificational clauses that does not involve inversion.

clause. Mikkelsen argues that such a violation is not seen because the predicate *the doctor*, but not *John*, has topic features which T needs to check. This means that movement of *the doctor* over *John* does not violate RM after all. Following Mikkelsen, I propose that the internal argument that moves to Spec, TP in Kirundi OVS inversion also does so to check a topic feature that T has.<sup>21</sup>

That the fronted phrase in Kirundi OVS constructions is a topic is also supported empirically and indeed, the topic-hood of the fronted O appears to be an uncontroversial assumption in the Bantu literature. In fact, this is one of the reasons why several authors have proposed that the internal argument moves to a topic position in the clause periphery in OVS inversion (Henderson 2006, Morimoto 2009 a.o). If agreement in Kirundi takes place not in Spec, TP but in Spec, TopP as these authors claim, then there will be no RM violation in the first place when the internal argument moves to Spec, TopP over the external argument in Spec, vP in the first place.

Most recently, Marten & van der Wal (2014: 331), in their analysis of inversion structures in Bantu claim that the fronted phrase in reversal constructions 'provides the background of the assertion'. Kimenyi (1980) and Whaley (1996) also argues the same for OVS constructions in Kinyarwanda which is a mutually intelligible language with no significant syntactic differences with Kirundi (Zorc & Nibagwire 2007). The same claim about the fronted object in Kirundi OVS constructions is found in Morimoto (2000, 2006,

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<sup>21</sup> Note that in this analysis, we do not need multiple Spec,vPs (eg Ura 1996) or domain extension (Bailyn 2004) to explain why movement of DP<sub>ia</sub> over DP<sub>ea</sub> to Spec,TP does not incur a minimality violation.

2009). One telling piece of evidence that this is indeed the correct characterization of the fronted phrase in OVS structures is its ability to function in only certain types of question-answer pairs, a diagnostic often used to identify topics (Polinsky & Potsdam 2001, Mikkelsen 2004). Consider the following reproduced from above.

- (27) a. Abâna            ba-á-*ra*-nyôye            amata.            SVO  
          children        3P-PST-F-drink:PERF        milk  
          ‘Children drank milk.’
- b. Amata            y-á-(\**ra*)-nyôye            abâna.            OVS  
          milk                3S-PST-F-drink:PERF        children  
          ‘Children (not parents) drank milk.’

Ernest Nshemezimana (p.c.) notes that (27a) (an SVO construction) is a possible answer to a question ‘What did the children do?’ or ‘What happened?’. On the other hand, (27b) (an OVS construction) is a possible answer to only the following questions: ‘Who drank the milk?’ or ‘Is it you who drank the milk?’ In other words, (27b) is only a possible answer to a question where the fronted phrase is discourse familiar. A final piece of evidence that indicates that the fronted phrase is a topic comes from definiteness readings. Yukiko Morimoto (p.c) says that her informant (Juvenal Ndayiragije) prefers a definite interpretation for the inverted object in an OVS structure whereas such a preference is absent in the corresponding SVO sentence. This falls in line with what we

expect if the fronted phrase is a Topic.<sup>22</sup> Given these considerations, it is safe to assume that the fronted phrase in Kirundi OVS must have topic features.<sup>23</sup>

This together with Mikkelsen's theory indicates that the movement of the internal argument to Spec, TP in OVS inversion is motivated by the fact that Spec, TP has a topic feature to check. If this is right, then this means that in OVS inversion, all that is required for object movement to take place without an RM violation is for the external argument to not have any topic features. However, what we find in Kirundi OVS inversion is that

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<sup>22</sup> However, the lack of an absolute requirement that the fronted phrase in an OVS be definite cannot be taken as evidence against the claim that the fronted phrase in a OVS is a topic as indefinites can be topics. This is seen in the *as-for* topic construction in English (Reinhart 1981) shown in (a).

a) As for milk, my children can guzzle tons at a time.

Here, note that the generic meaning of *milk* can be a topic. Thus, the Kirundi data in (27b) should not be taken as indicating that the fronted phrase, which may be indefinite, is a non-topic. Another diagnostic for topichood found in Polinsky & Potsdam (2001), that a topic in Tsez cannot be a reflexive, is not applicable to Kirundi as Kirundi uses a verbal prefix to express reflexivity (Zorc & Nibagwire 2007: 278).

<sup>23</sup> Bailyn (2004) argues that inversion in Russian occurs purely to satisfy the EPP.

a.	Oleg	razbil	okno	b.	okno	razbil	Oleg
	Oleg-NOM	broke	window-ACC		window-ACC	broke	Oleg-NOM
	'Oleg broke a/the window'						

(a) shows the canonical order and (b) shows an inverted order where the accusative marked direct object occurs pre-verbally. However, Erechko (2003) notes that (b) is also associated with a special discourse context where the fronted element is interpreted as the topic. This indicates that Russian inversion can also be reconciled with the claim that inversion is motivated by topic features.

the external argument has obligatory focus features. Thus, I conclude that the RM analysis does not explain the obligatory short movement of the external argument to Spec, FocP even in OVS inversion after all. The LA, in contrast, does. The external argument has obligatory focus features because this is the only alternative that Kirundi has for ensuring that the external argument in OVS inversion does not remain in Spec, vP. Remaining in Spec, vP leads to a labeling failure which is ruled out by interface conditions.

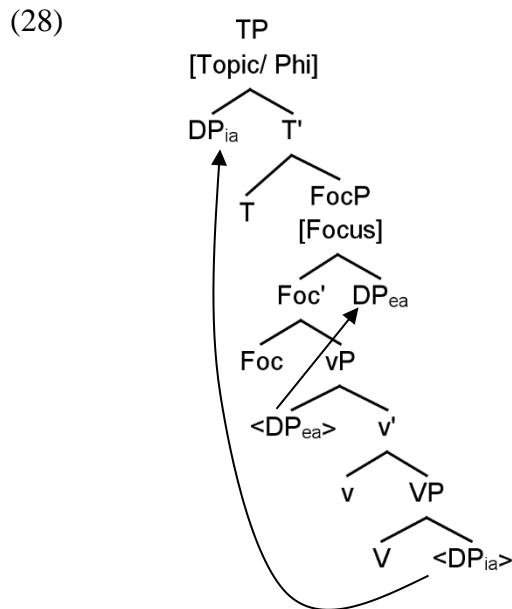
### 3.2 The role of topic and focus features in labeling<sup>24</sup>

So far, I have argued that the movement of DP<sub>ea</sub> from Spec, vP to Spec, TP in OVS constructions and TECs is a result of a labeling conflict. While this does resolve the labeling issue at the vP level in line with LA, I have not mentioned how the structures to which DP<sub>ea</sub> and DP<sub>ia</sub> move in these constructions are labeled. The LA provides a straightforward way by which these structures can be labeled.<sup>25</sup> Recall that in OVS inversion, the DP<sub>ia</sub> is obligatorily a topic and the DP<sub>ea</sub> is obligatorily a focus. As such, I claim that it is the presence of these features that facilitate feature sharing and thus labeling of the structure to which they move. These are shown below schematically.

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<sup>24</sup> This section was added due to the questions/ comments of two anonymous reviewers. I thank them for raising this important aspect of the proposed analysis.

<sup>25</sup> See Chomsky (2013) and his analysis of wh-movement wherein wh features on a fronted wh-word unifies with C which also has wh features. The analysis here for Kirundi essentially borrows this account.



As mentioned above, in such sentences, the  $DP_{ia}$  moves to Spec, TP where shared topic/phi features become the label. However, the  $DP_{ea}$  also has to move to a clause internal Spec, FocP. This enables  $vP$  labeling as  $DP_{ea}$  is invisible to the LA at this point. In addition, labeling of FocP is also possible through the shared focus features.

Note that this LA based analysis of Kirundi inversion accounts for why  $DP_{ea}$  is obligatorily focused in OVS constructions and TECs. Assuming that Kirundi only has a Foc head low enough to host  $DP_{ea}$  that is otherwise stranded in Spec,  $vP$  in OVS inversion and TECs, the only way for  $DP_{ea}$  to share a feature with this Foc head is if  $DP_{ea}$  has focus features itself.<sup>26</sup> Along the same lines, in OVS inversion, the inverted  $DP_{ia}$  must

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<sup>26</sup> The difference between OVS inversion and TECs arguably boils down to whether T has the topic features that together with a topic  $DP_{ia}$ , can become the shared feature label of TP. If it does,  $DP_{ia}$  can move

have topic features that can serve as the shared feature label of the label of TP with a T that also has topic features.

### 3.3 Summary

In this sub-section, I summarize the findings and generalizations discussed in this paper. The main generalization is that in Kirundi OVS inversion and TECs, there is a ban on the external argument staying in Spec, vP. This is seen from the following schemas.

- (29) DP<sub>ia</sub> in Spec, TP (OVS)
- a. [TP DP<sub>ia</sub> [FocP DP<sub>ea</sub> [vP <DP<sub>ea</sub>> ... <DP<sub>ia</sub>> ]]
- b. \*[TP DP<sub>ia</sub> [FocP (XP) [vP DP<sub>ea</sub> ... <DP<sub>ia</sub>> ]]
- (30) EXPL<sub>pro</sub> in Spec, TP (TEC)
- a. [TP EXPL<sub>pro</sub> [FocP DP<sub>ea</sub> [vP <DP<sub>ea</sub>> ... DP<sub>ia</sub> ]]
- b. \*[TP EXPL<sub>pro</sub> [FocP DP<sub>ia</sub> [vP DP<sub>ea</sub> ... <DP<sub>ia</sub>> ]]

In (29), the OVS inversion construction, DP<sub>ia</sub> moves to Spec, TP. In this case, the DP<sub>ea</sub> must move to Spec, FocP. Thus, (29a) is grammatical but (29b) is not. In (30), the TEC, an expletive pro is in Spec, TP. Likewise, the DP<sub>ea</sub> must move to Spec, FocP as well. Thus, (30a) is grammatical but (30b) is not. The LA provides a straightforward, uniform account for these facts. If DP<sub>ea</sub> stays in Spec, vP, the vP cannot be labeled. Ndayiragije (1999) (and most others) characterize the facts in a different way.

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to Spec, TP and an OVS construction is formed. If it does not, then DP<sub>ia</sub> (which may or may not have Top features) must remain in situ and a TEC is formed.

- (31)  $DP_{ea}$  in Spec, FocP
- a. [TP  $DP_{ia}$  [FocP  $DP_{ea}$  [vP < $DP_{ea}$ > ... < $DP_{ia}$ > ]]
- b. [TP EXPL<sub>pro</sub> [FocP  $DP_{ea}$  [vP < $DP_{ea}$ > ...  $DP_{ia}$  ]]
- (32)  $DP_{ia}$  in Spec, FocP
- a. [TP  $DP_{ea}$  [FocP  $DP_{ia}$  [vP < $DP_{ea}$ > ... < $DP_{ia}$ > ]]
- b. \*[TP EXPL<sub>pro</sub> [FocP  $DP_{ia}$  [vP  $DP_{ea}$  ... < $DP_{ia}$ > ]]

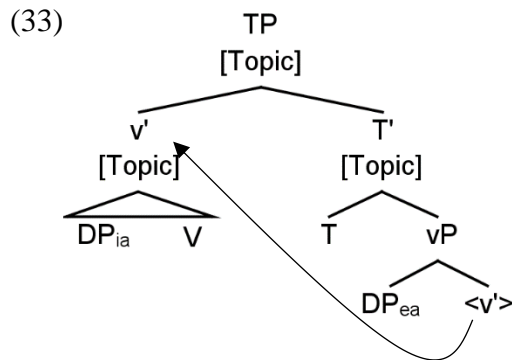
In (31),  $DP_{ea}$  has moved to Spec, FocP. Two options accompany this move. Either the  $DP_{ia}$  can be moved to Spec, TP to form OVS inversion as shown in (31a), or the  $DP_{ia}$  can stay in situ to form a TEC as shown in (31b). In (32), it is the  $DP_{ia}$  that has moved to a low FocP. In this case,  $DP_{ea}$  must move to Spec, TP as shown in (32a).  $DP_{ea}$  cannot stay in situ as shown in (32b). Characterizing the facts this way has two problems. The first problem is that this does not explain why a  $DP_{ea}$  must move to Spec, FocP in order to allow  $DP_{ia}$  to move to Spec, TP. Recall that there is no minimality violation caused by the movement of  $DP_{ia}$  over the  $DP_{ea}$  since T is looking for a DP with topic features. The other problem with characterizing the facts this way is that the ungrammaticality of (32b) is mysterious. Why is  $DP_{ea}$  forced to move to Spec, FocP when there is a pro expletive in Spec, TP? This remains a puzzle.

I conclude that the LA provides a straightforward explanation for why Kirundi external arguments cannot remain in Spec, vP when they do not move to Spec, TP in OVS inversion and TECs. Without short movement of the external argument to Spec, FocP, vP cannot be labeled which leads to a labeling failure.



#### 4 An alternative analysis of OVS order

In my analysis, I have argued that OVS order is realized through  $DP_{ia}$  movement to Spec, TP and  $DP_{ea}$  movement to a low Spec, FocP which circumvents a labeling failure at the vP node. A reviewer suggests an alternative analysis of this OVS order. In this alternative, OVS order is a result of  $v'$  moving to Spec, TP as shown below.



In this analysis, the  $v'$  which has topic features moves to Spec, TP. Since T also has topic features, these shared features become the label of the TP node.  $DP_{ea}$  is interpreted as focused because  $v'$  and its contents are interpreted as given. Under this analysis,  $DP_{ea}$  remains in situ in Spec, vP but there is no labeling conflict at the vP level. This is because  $DP_{ea}$  is now the only visible node under vP and as such the phi features of the external argument become the label of the vP node. This is an attractive solution because this follows from the principles of the LA. Recall that the vP node has a labeling conflict because  $DP_{ea}$  and  $v'$  are both non-heads which do not share any features. This means that the vP label can be labeled only if either the  $DP_{ea}$  or  $v'$  moves. In Kirundi, SVO order and OVS order could then be attributed to these two movement possibilities. When  $DP_{ea}$  moves, we get SVO order but when  $v'$  moves, we get OVS order. As a reviewer notes, the derivation in (33) also obeys antisymmetry (Kayne 1991) as there is no rightward

movement required in the derivation. However, this alternative analysis of the OVS order does not stand up to scrutiny.

There are a number of facts that argue against the claim that  $v'$  occupies Spec, TP in OVS order. First, recall that OVS order realizes agreement with the fronted object.

The following data is reproduced from (11b) and (18a).

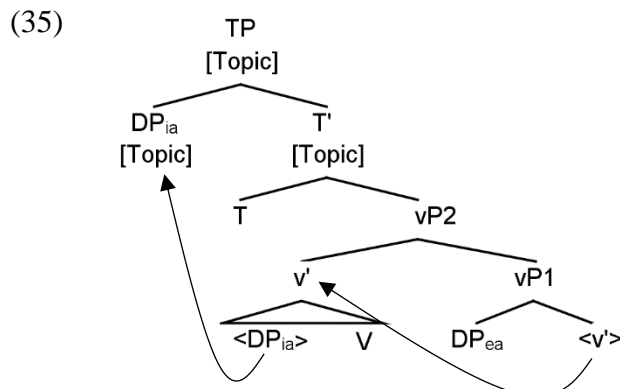
- (34) a. Amatá y-á-nyôye abâna.  
 milk 3S-PST-drink:PERF children  
 'Children (not parents) drank milk.'
- b. Inka<sub>i</sub> zi-á-zanye [<sub>CP</sub> PRO<sub>i</sub> kurisha] Yohani.  
 cows 3P-PST-bring:PERF INF-graze John  
 'John (not Peter) brought cows to graze.'

(34a) and (34b) show a fronted singular DP<sub>ia</sub> and a plural DP<sub>ia</sub> respectively. Note that the verb exhibits number agreement suggesting that what is in Spec, TP is just the DP<sub>ia</sub> and not  $v'$  as a whole.

Second, the canonical transitive clause in Kirundi has an SVO order which means that the VP internal order is head first. If the  $v'$  is fronted to form the subject-final order as shown in (33), we expect to see VOS order, not OVS order. This issue is seen more clearly in the (34b). The regular order of this clause is DP<sub>ea</sub>-V-DP<sub>ia</sub>-CP meaning that the VP internal order is V-DP<sub>ia</sub>-CP. If it is the  $v'$  that is fronted in (34b), we expect to see the same order before the DP<sub>ea</sub> too. But the CP and DP<sub>ia</sub> both flank the V which is not expected if the  $v'$  as a whole is in Spec, TP.

Third, the order of verb morphology also argues against the claim that the lexical verb could be in a  $v'$  which itself is in Spec, TP. Consider the order of the verbal morphology in (34). The tense and agreement morphology appear as prefixes. If we assume the Mirror Principle (Baker 1985), then structurally we expect the verbs in (34) to be lower than at least T. If the verb is in a  $v'$  that is itself in Spec, TP, then there is a conflict between the expected order of verbal morphology and the order that is actually seen.<sup>27</sup> Thus, there seems to be a strong case that can be made against the derivation in (33) for the OVS order.

One could then posit a derivation like the following which could work around the issues raised above.

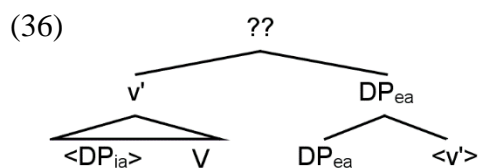



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<sup>27</sup> This third objection can be neutralized if there is V to v to T movement prior to the movement of  $v'$  to Spec, TP. However, the first two objections remain. Even if V evacuates  $v'$  prior to movement of  $v'$  to Spec, TP, we would still not expect T to agree with just the  $DP_{ia}$ . We would also expect to see all the constituents within the  $v'$  to precede the V, which is not the case as shown in (34b).

In this derivation,  $v'$  again leaves the  $vP$  and  $DP_{ea}$  remains in situ. This allows the  $vP1$  to be labeled with the phi features of  $DP_{ea}$ . However, in this derivation  $v'$  merges to an intermediate position, say to  $vP1$  to form  $vP2$ . The  $DP_{ia}$  within  $v'$ , then moves to Spec, TP. The shared topic features of  $DP_{ia}$  and T can then serve as the label of TP. This gets us the required word order, accounts for the fact that agreement with  $DP_{ia}$  is exhibited and explains why tense and agreement are realized as verb prefixes.

Apart from being quite an ad hoc solution, this derivation also has, what I believe, a serious issue. In this analysis,  $v'$  leaves  $vP1$  because  $v'$  and  $DP_{ea}$  do not have any shared features. However, if  $v'$  does merge to  $vP1$  as shown in (35), then we end up with the same labeling problem. This is because the label of  $vP1$  is the phi features of  $DP_{ea}$  and the nodes that determine the label of  $vP2$  are thus again  $v'$  and  $DP_{ea}$ . The relevant portion of (35) is shown below with the actual node labels of  $vP1$ .



The  $v'$  moves out of the original  $vP$  node (which is labeled  $DP_{ea}$ , or more accurately, is labeled with the phi features of  $DP_{ea}$ ) but adjoining as shown replicates the labeling problem that arose in the original  $vP$ . One could propose that  $v'$  does not adjoin to  $vP1$  but rather to a position which is between T and  $vP$ . This could potentially avoid replicating the labeling issue but it is not clear what this intermediate position could be.

Given these considerations, I conclude that the alternative characterization of OVS order discussed in this section cannot be correct. In my proposal,  $DP_{ia}$  moves to

Spec, TP and the shared topic and phi features of  $DP_{ia}$  and T becomes the label of TP.  $v'$  remains within  $DP_{ea}$  which requires  $DP_{ea}$  to move the specifier of a low FocP.

Note that this raises an important question that has to be answered: why can't  $v'$  move to Spec, TP? After all, in Moro (2000, 2009), the small clause structure is argued to allow either phrase to move to a higher Spec, TP. However, in the  $vP$  domain, it appears that in languages like English and Kirundi (and in effect, a vast number of languages exhibiting the EPP effect) it is only ever the  $DP_{ea}$  that moves to Spec, TP but not the  $v'$ . The problem is greater in inversion structures like that in English and Kirundi. If T's topic features are an important ingredient in how inversion can be made possible as argued by Mikkelsen (2004) for English and this paper for Kirundi, then a  $v'$  which could have topic features would be expected to move to Spec, TP to form this type of inversion as well. However, as we have just seen, this is not possible.

This is a problem also noticed by Chomsky (2013) and as far as I can tell, remains a problem for the LA. In what follows, I propose a tentative solution for this problem. When we compare Moro's small clauses where either phrase can raise and the  $vP$  where only the DP can raise, there is one major difference. In Moro's small clauses, both phrases are DPs whereas in the  $vP$ , only the external argument is one. I propose that one way to account for why  $v'$  cannot raise to Spec, TP is to require that the shared feature label of TP includes phi features. If this is indeed the case, then any phrase that moves to Spec, TP must be one that has phi-features. DPs clearly do and as such either phrase in a

Moro-type small clause can be raised to Spec, TP. However, this implies that the v' in a vP does not have phi-features which is why it cannot raise to Spec, TP.<sup>28</sup>

There is one empirical argument that can be made in support of a view like this. Note that in Kirundi, there does appear to be a requirement that the inverted element in inversion structures be a phrase that can bear phi-features. As such, adverbs which do not have such features cannot be fronted.

- (37) a. Yohani a-á-ra-tambutse buhorobuhoro.  
 John 3S-PST-F-walk:PERF slowly  
 'John walked slowly.'
- b. \*Buhorobuhoro bu-á-tambutse Yohani.  
 slowly 3S-PST-walk:PERF John
- c. Ni buhorobuhoro Yohani a-á-tambutse.  
 be slowly John 3S-PST-walk:PERF  
 'It was slowly that John walked.' (Ndayiragije 1999: 421)

(37a) shows an intransitive clause with a post-verbal adverb. (37b) shows that this adverb cannot be fronted in an inversion structure. This follows if the adverb does not have phi features which means that the TP label will not have phi features as part of its label. (37c) shows that such adverbs can have a discourse feature like 'focus' and such the ungrammaticality of (37b) is unlikely to be due to the adverb not having topic features. If

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<sup>28</sup> Admittedly, we have to appeal to somewhat ad hoc feature distinctions, a problem that is often encountered in theories based on feature-checking as well.

v' too is like an adverb in not having phi features, the inability of v' to raise to Spec, TP also follows. This is one suggestion that may explain why v' does not appear to be able to raise to Spec, TP when otherwise the LA predicts that such a movement should be possible. I will have to leave to future work a more extensive investigation of how the LA may be reconciled with this movement asymmetry seen in the vP domain.

## 5 Implications and Conclusion

In this paper, I have provided a novel argument for the Labeling Algorithm as outlined in Chomsky (2013, 2015) and Epstein, Kitahara and Seely (2014) using inversion structures, specifically, those in Kirundi. The novel empirical generalization that is explained in this paper is the following: why is it that when the  $DP_{ea}$  is not moved to Spec, TP, it cannot remain in Spec, vP but must move to Spec, FocP? We saw two constructions in which this generalization is exemplified: in OVS inversion, and TECs. I propose a uniform explanation for both these constructions by arguing that this follows from the main principles of the LA. Leaving the  $DP_{ea}$  in situ leads to a labeling failure at the level of the vP. A minimality based account was shown to not be able to account for all the Kirundi facts.

It is important to note that the facts in Kirundi inversion should not be expected to be observed in every language that has inversion. The ability to observe the short movement of the  $DP_{ea}$  in Kirundi inversion is a result of a number of Kirundi idiosyncrasies that conspire to exhibit such movement. The first is the availability of an inversion operation whereby it can be demonstrated that the low  $DP_{ea}$  does not move to Spec, TP at any point in the derivation. In Kirundi, this is established through agreement

on T in inversion contexts. The second idiosyncrasy has to do with the fact that Kirundi has a low FocP with a rightward specifier. Why this specifier is rightward remains a mystery.<sup>29</sup> But this fact allows us to observe string non-vacuous short movement of the  $DP_{ea}$  in OVS inversion and TECs. This movement, thus, provides direct, observable evidence that the  $DP_{ea}$  cannot remain in Spec, vP when it does not move to Spec, TP. Another idiosyncrasy has to do with the fact that Kirundi has only a single low FocP position. This means that once the Spec, FocP is occupied with a phrase, no other phrase can also be in a similar position. This is why we can observe the fact that having a low  $DP_{ea}$  and a focused ADV is not possible in Kirundi. If there were multiple low FocP positions, this would not be expected. Finally, it is not possible for v in Kirundi to host focus features itself, instead Kirundi requires focused phrases to move to a Spec, FocP. If v could host focus features, we would expect to see a focused  $DP_{ea}$  to be able to remain in Spec, vP. This last property of Kirundi leaves open the possibility that there could be languages with OVS inversion with v that can be specified for focus features. In such languages, we would not expect to see  $DP_{ea}$  move even when it does not move to Spec, TP. But we would expect the  $DP_{ea}$  in such contexts to be obligatorily associated with a focused reading.

One of the promising implications of the arguments here is that the LA is a positive step towards the elimination of concepts such as the EPP and the MERGE/ MOVE

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<sup>29</sup> Although note that adjunction of a low adverb in neutral contexts to vP is also obligatorily rightward (see (8a)) which may be indicative of a more general property of Kirundi.



distinction. Under the proposed analysis, there is no need to appeal to the MERGE/ MOVE distinction in Kirundi since the LA can provide a uniform analysis for OVS constructions and TECs. In addition, the movement of  $DP_{ea}$  from Spec, vP to Spec, TP (traditionally analyzed as an EPP-triggered movement) falls out from the predictions of the LA. Given the somewhat stipulative nature of the EPP, the elimination of the EPP as a theoretical construct is a positive step.

Feature checking has been traditionally used to motivate MERGE. Whether or not all cases which have appealed to the presence of feature checking as a movement trigger can be reduced to the LA remains an open question. While internal merge to Topic and Focus positions in Kirundi seem amenable to such an analysis, it appears that some aspects of this theory, as seen in the discussion in section 4, are still susceptible to the postulation of somewhat ad hoc feature distinctions. For the LA to find a place as a mainstay of syntactic theory, the status of such features in the theory has to be addressed in a much more significant way than has been possible here. But the hope is that promising lines of inquiry have been opened in the exploration of these questions.

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### References

- Alexiadou, A., & Anagnostopoulou, E. 2001. The subject in situ generalization, and the role of Case in driving computations. *Linguistic Inquiry* 32, 193–231
- Bailyn, John Frederick. 2004. Generalized Inversion. *Natural Language and Linguistic Theory* 22: 1- 49.
- Baker, Mark. 1985. The Mirror Principle and Morphosyntactic Explanation. *Linguistic Inquiry* 16: 373 – 415.
- Belletti, Adriana. 2001. Inversion as Focalization. in *Subject Inversion in Romance and the Theory of Universal Grammar*. (ed) Aafke CJ Hulh and J-Y Pollock. 60 - 90.
- Belletti, Adriana. 2004. Aspects of the Low IP Area. in *The Structure of CP and IP*. ed Rizzi Luigi. Oxford University Press.
- Buell, Leston. 2007. Semantic and formal locatives: implications for the Bantu locative inversion typology. *SOAS Working Papers in Linguistics* 15, 105-120.
- Carstens, Vicki & Loyiso Mletshe. 2015. Radical defectivity: implications of Xhosa expletive constructions. *Linguistic Inquiry* 46.2:187-242

- Cecchetto, Carlo & Caterina Donati. 2010. On Labeling: Principle C and Head Movement. in *Syntax* 13: 3, 241 -278.
- Cecchetto, Carlo & Caterina Donati. 2015. *(Re)labeling*. MIT Press.
- Cheng, L. L.-S. & L. J. Downing. 2012. Against FocusP: arguments from Zulu. In I. Kucerova and A. Neeleman (eds.) *Information Structure. Contrasts and Positions*. Cambridge: Cambridge University Press, 247-266.
- Chomsky, Noam. 2008. On phases. In *Foundational issues in linguistic theory: Essays in honor of Jean-Roger Vergnaud*, ed. by Robert Freidin, Carlos P. Otero, and Maria Luisa Zubizarreta, 133–166. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2013. Problems of projection. *Lingua* 130:33–49.
- Chomsky, Noam. 2015. Problems of projection: Extensions. In Elisa Di Domenico, Cornelia Hamann & Simona Matteini (eds.), *Structures, Strategies and Beyond: Studies in Honour of Adriana Belletti*, 1–16. Amsterdam: John Benjamins.
- Collins, Chris. 2002. Eliminating Labels. In *Derivation and Explanation in the Minimalist Program*, eds. Samuel David Epstein & Daniel Seely, 42–64. Oxford: Blackwell.
- Den Dikken, Marcel. 2006. *Relators and Linkers The syntax of predication, predicate inversion and copulas*. Linguistic Inquiry Monographs. MIT Press.
- Epstein, Samuel David, Hisatsugu Kitahara, and T. Daniel Seely. 2012. Structure building that can't be. In *Ways of Structure Building*, eds. by Myriam Uribe-Etxebarria & Vidal Valmala, 253-270. Oxford: Oxford University Press.
- Epstein, Samuel David, Hisatsugu Kitahara, and T. Daniel Seely. 2014. Labeling by

- Minimal Search: Implications for Successive-Cyclic A-Movement and the Conception of the Postulate "Phase". *Linguistic Inquiry* 45:463-481.
- Erechko, Anna. 2003. On subject-verb inversion in Russian. in *Proceedings of ConSOLE XI*. (eds) Marjo van Koppen, Joanna Sio & Mark de Vos .
- Erlewine, Michael. 2017. Extraction and Locality in Toba Batak. Talk given at GLOW 40. Leiden University. Holland.
- Henderson, B. 2006. *The syntax and typology of Bantu relative clauses*. Ph.D. dissertation, University of Illinois Urbana-Champaign.
- Heycock, Caroline and Anthony Kroch. 1999. Pseudocleft connectedness: Implications for the LF interface level. *Linguistic Inquiry* 30:365-397.
- Higgins, Francis Roger. 1973. The pseudo-cleft construction in English. Doctoral dissertation, MIT, Cambridge, Mass.
- Jayaseelan. K.A. 1999. A Focus Phrase above vP. *Proceedings of the 2nd Asian GLOW Colloquium*, 195-212. Nanzan University.
- Kimenyi, Alexandre. 1980. *A relational grammar of Kinyarwanda*. Berkeley, CA: University of California Press.
- Longobardi, Giuseppe. 1994. Reference and proper names. *Linguistic Inquiry* 25: 609-665.
- Marten, Lutz & Jenneke van der Wal. 2014. A Typology of Bantu Subject Inversion. *Linguistic Variation* 14: 2, 318 - 368.
- Massam, Diane. 1985. Case theory and the projection principle. Ph.D. dissertation, MIT, Cambridge, MA

- Massam, Diane. 2001. On the status of subject in Niuean. In: Davies, W., Dubinsky, S. (Eds.), *Objects and Other Subjects*. Kluwer, Dordrecht.
- Meeussen, Achiel Emiel. 1959. *Essai de grammaire rundi*. Tervuren: Musée royal de l'Afrique centrale.
- Mikkelsen, L. 2004. Specifying who: On the structure, meaning, and use of specificational copular clauses. Ph.D. dissertation, University of California, Santa Cruz.
- Morimoto, Yukiko. 2000. *Discourse configurationality in Bantu morphosyntax*. Stanford, CA: Stanford University PhD dissertation.
- Morimoto, Yukiko. 2006. Agreement properties and word order in comparative Bantu. In Laura Downing, Sabine Zerbian & Lutz Marten (eds.), *Papers in Bantu grammar and description*. *ZASPiL* 43. 161-187.
- Morimoto, Yukiko. 2009. From topic to subject marking: Implications for a typology of subject marking. In *Differential Subject Marking*. (eds) de Hoop, Helen and Peter de Swart. Springer.
- Moro, Andrea. 1997. *The Raising of Predicates*, Cambridge, Cambridge University Press.
- Moro, Andrea. 2000. *Dynamic antisymmetry*, Linguistic Inquiry Monographs vol 38. Cambridge, MA: MIT Press.
- Moro, Andrea. 2009. Rethinking Symmetry: A Note on labeling and the EPP. *Snippets* 19.
- Ndayiragije, Juvénal. 1999. Checking economy. *Linguistic Inquiry* 30, 399–444.
- Nshemezimana, E. & Bostoen, K. 2017. The conjoint/disjoint alternation in Kirundi: A

- case for its abolition. In van der Wal J & Hyman LM (eds.) *The conjoint/disjoint alternation in Bantu*: 390-425. Berlin, New York, De Gruyter.
- Oseki, Yohei. 2015. Eliminating Pair-Merge. *Proceedings of West Coast Conference on Formal Linguistics 32*, eds. Ulrike Steindl, et al., 303-312.
- Ott, Dennis C. 2011. Local Instability. *The Syntax of Split Topics*. PhD Dissertation, Harvard University
- Polinsky, M. & E. Potsdam. 2001. Long-distance agreement and topic in Tsez. *Natural Language & Linguistic Theory* 19:583–646.
- Rizzi, Luigi. 1990. *Relativized Minimality*. Cambridge. MIT Press
- Rizzi, Luigi. 2006. On the Form of Chains: Criterial Positions and ECP Effects. In L. Cheng & N. Corver (eds.), *Wh-Movement: Moving on*. Cambridge, MA: MIT Press, 97-133.
- Shima, Etsuro. 2000. A Preference for Move over Merge. *Linguistic Inquiry* 31 (2): 375-385.
- Ura, Hiroyuki. 1996. *Multiple feature-checking: A theory of grammatical function splitting*. Doctoral dissertation, MIT, Cambridge, Mass.
- Van der Wal, Jenneke. 2008. Agreement inthetic sentences in Bantu and Romance. In Cécile De Cat & Katherine Demuth (eds.), *The Bantu-Romance connection. A comparative investigation of verbal agreement, DPs and information structure*, 323-350. Amsterdam: John Benjamins.
- Van der Wal. 2013. *Head-marked term focus*. Handout of talk at FoCoS workshop. Universität Tübingen.

- Whaley, L. 1996. Kinyarwanda topics and object-subject reversal. in *Proceedings of the 12<sup>th</sup> eastern states conference on linguistics*, ed. Marek Przedziecki and Lindsay Whaley. Cornell University.
- Zorc, David & Louise Nibagwire. 2007. *Kinyarwanda and Kirundi Comparative Grammar*. Dunwoody Press.