Against FocusP: Arguments from Zulu*

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1 Introduction

In Zulu, as in other Bantu languages (see, e.g., Bearth 2003, Heine 1976), word order in neutral 'out of the blue' contexts is canonically (S) V (IO) (DO), as illustrated in (1a-c). Locative and temporal adjuncts follow the arguments, as in (1c).[1]

(1) a. bá-níké ú-Síphó í-mà:li).
2SUBJ-give 1-Sipho 9-money
'They gave Sipho money.'
b. ú-Síph' ú-phékél' ú-Thánd' in-kû:khu).
1-Sipho 1SUBJ-cooked for 1-Thandi 9-chicken
'Sipho cooked chicken for Thandi.'
c. *u-Sipho u-phekele in-kukhu u-Thandi. *(*S V DO IO)*
'Sipho cooked chicken for Thandi.'
d. ú-Síph' ú-phék' ín-ku:khu) kwá-m' ízo:lo).
1-Sipho 1SUBJ-cooked 9-chicken 17-1sg yesterday
'Sipho cooked chicken at my place yesterday.'

Word order is often flexible, though, with information structure playing an important role in favoring alternative word orders. For example, it is well known, since the pioneering work by Hyman (1979) and Watters (1979) on Aghem, that in many Bantu languages certain focused elements must occur Immediately After the Verb (IAV) (or in the IAV "position"). In Zulu, this requirement holds with new information focus: both question words and answers corresponding to the question words must appear in IAV position. As shown in (2), *wh*-phrases are immediately adjacent to the verb. The examples in (2b) and (2cQ) show that this is not just a property of *wh*-clitics like *-ni* 'what': a temporal or instrumental *wh*-phrase like *nini* 'when' or *ngani* 'how' also precedes both the direct object and the locative phrase (cf. (1b)). Examples (2cA) and (2d) show that the answer to a *wh*-question also must occur in IAV position. (Objects displaced from their canonical postverbal position by a focused element are resumed by an object agreement prefix (bolded) on the verb):

(2) a. úm-fá:na) ú-**yí**-nikezê:*-ni)* ín-tómbazâ:ne)?
1-boy 1SUBJ-9OBJ-give-what 9-girl
'What did the boy give to the girl?'
b. ú-Síph' ú-**yí**-phékê: *nì:n'*) ín-kúkh' émzini wa:kho)?
1-Sipho 1SUBJ-9OBJ-cook when 9-chicken LOC.3.house 3.your
'When did Sipho cook chicken at your house?'

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[1] Throughout the paper, parentheses indicate prosodic phrasing, discussed in more detail below. The numbers in the glosses refer to noun agreement classes.

c. Q(u-**wa**-thwéle *ngâ:n'*) amá-tha:nga)?
You-6OBJ-carry how 6-pumpkin
'How are you carrying the pumpkins?'
A(Si-**wa**-thwéle ngó-bhasikí:d') amá-tha:nga).
We-6OBJ -carry with.1a-basket 6-pumpkin
'We are carrying the pumpkins in a basket.'

d. #A #Si-(**wa**)-thwele ama-thanga ngo-bhasikidi.
We-6OBJ -carry 6-pumpkin with.1a-basket
'We are carrying the pumpkins in a basket.'

Note that the word order illustrated in (2d) is the canonical order, grammatical in a neutral focus context, but it is ungrammatical as an answer to the question in (2c).

The IAV position on the surface may appear to provide evidence for a designated syntactic position, e.g., a focus position. In this paper, based on syntactic and prosodic evidence, we argue that the IAV position in Zulu cannot be captured by a focus position in the left-periphery (either high or low focus). We propose that focused constituents in Zulu remain in-situ. The IAV effect arises from the interaction of prosodic and interpretive components.

The analysis is developed as follows. We first provide an overview of data illustrating the prosodic and morpho-syntactic properties of IAV focus elements in Zulu. In section 3, we introduce the OT analysis of the basic prosodic phrasing algorithm for Zulu. In section 4, we provide arguments against a High and a Low Focus position. In section 5, we develop our analysis, and conclude in section 6.

2 An overview of the properties of IAV focus

In this section, we present an overview of the range of facts associated with IAV focus which our analysis will account for. The first, and most obvious fact is that focus/*wh*-elements must appear immediately after the verb, even if this means that they are in a non-canonical position (in order to satisfy the IAV requirement). We saw one example of this in (2c, d), above. The sentence in (3b), which questions the Direct Object (D.O.) in (3a), and the answer to this question, given in (3c), illustrate the same point:

(3) *Canonical order: V IO DO*
a. bá-níké ú-Síphó í-mà:li).
2SUBJ-give 1-Sipho 9-money
'They gave Sipho money.'
Non-canonical order showing obligatory IAV focus: V DO IO
b.Q bá-**m**-níké:-*ni*) ú-Sî:phó)?
2SUBJ-1OBJ-give-what 1-Sipho
'What did they give to Sipho?'
c.A bá-**m**-níké: í-ma:li) ú-Si:pho).
2SUBJ-1OBJ-give 9-money 1-Sipho
'They gave money to Sipho.'

In (3a), we see that in the canonical word order, the one which is grammatical in a neutral context, the I.O. precedes the D.O. In (3b) and (3c), however, the focused D.O. – -*ni* 'what' or the answer in (3c) – has to be in the IAV position. The focused D.O. thus precedes the I.O., which is resumed by an object agreement prefix on the verb (bolded). Note that the order in (3a) is ungrammatical as an answer to the question

in (3b); similarly, the word order in (3c) is ungrammatical in a neutral 'out of the blue' context.

The change in word order motivated by the IAV focus requirement illustrated in (3b) and (3c) is accompanied by a prosodic difference: namely, we systematically find a prosodic phrase boundary following focused IAV elements. Constituents following IAV are parsed into separate prosodic phrases. Prosodic phrasing is motivated primarily by the location of lengthened phrase penultimate vowels (transcribed V:).[2] As we can see in (2) and (3), IAV focused elements – like *wh*-phrases and answers to *wh*-questions – are systematically accompanied by penult lengthening, providing evidence for a prosodic phrase break.

While a prosodic break consistently follows the IAV element, the verb and the IAV focus elements must be in the same prosodic phrase and in the same syntactic phrase. Both of these points are highlighted by the distribution of conjoint and disjoint verb forms, a morphological distinction found in a few tenses of Zulu (Buell 2005, 2006, van der Spuy 1993). As shown in (4), a focus phrase must be preceded by a conjoint verb form, which indicates that it is prosodically and syntactically phrased with the verb (van der Spuy 1993). A disjoint verb form (*-ya-* is the disjoint prefix in this tense) is followed by a prosodic break and, as in example (4c), indicates that the verb is focused. Note that objects following a disjoint verb form are resumed with an object agreement prefix (bolded). It is ungrammatical to use the disjoint form (DJ), italicized, if the verb complement is focused, as shown in (4b):

(4) a. ú-Si:pho) ú-**yí**-phéka namuhlâ:nje) í-nya:ma). (conjoint)
1-Sipho 1SUBJ-9OBJ-cook today 9-meat
'Sipho is cooking meat *today*.'→ Context: *When is Sipho cooking meat*?

b. * ú-Sipho ú-*ya*-**yí**-phéka' namuhlánje í-nyama. (disjoint)
1-Sipho 1SUBJ-DJ-9OBJ cook today 9-meat
'Sipho is cooking meat *today*.' (same context as in (4a))

c. ú-Síph' ú-*yá*-**yí**-phé:k') í-nyama namuhlâ:nje). (disjoint)
1-Sipho 1SUBJ-DJ-9OBJ-cook 9-meat today
'Sipho *is* going to cook the meat today.'
→ Context: *Is Sipho going to cook the meat today?*

Further evidence that the verb and the focus elements must be in the same syntactic phrase comes from the fact that negative polarity items can be focused and occur in IAV. As we can see in (5) and (6), a focused NPI (*lutho, muntu*) is legitimate, showing that it is still licensed by negation:

(5) ú-Síph' áká-**m**-nik-áng-a lú:th') ú-The:mba).
1-Sipho Neg.1SUBJ-1OBJ-give-NEG-FV anything 1-Themba
'Sipho didn't give anything to Themba.'
→ Context: *I already told you what Sipho gave to Thandi, but what did Sipho give to Themba?*

[2] Vowel length is not phonemic in Zulu. Rather, it occurs predictably on the penult of prosodic phrases, and is considered a correlate of stress assignment to this position (Doke 1927). Predictable penult lengthening as a correlate of lexical or phrasal stress is, in fact, a widespread characteristic of Bantu languages. See Downing (to appear) for an overview.

(6) ú-Si:pho) áká-**lí**-ník-áng-a mu:-nt') í-bhayiséki:li).
1-Sipho Neg.1SUBJ-5OBJ-give-NEG-FV anyone 5-bicycle
'Sipho didn't give anyone the bicycle.'
a. → Context: *I already told you who Sipho gave the book to, but to whom did Sipho give the bicycle?*

The negative verb must be in a position c-commanding the focused NPI; therefore, they must be in the same syntactic constituent.

While a focused IAV element and a preceding verb must appear adjacent to each other, the prosodic separation of the IAV focused element from what follows, noted above, is mirrored in a syntactic property of sentences with a narrow focus IAV element. Note that the verbs in (3b) - (6) have an obligatory object marker (bolded) referring to the Indirect Object or Direct Object which non-canonically follows the *wh*-clitic or answer in IAV position. Work like Buell (2005, 2006) and van der Spuy (1993) demonstrates that in Zulu the presence of an object marker is associated with dislocation. As shown in (7), an object marker referring to an indirect object in non-canonical position is required when objects are left dislocated (similar to the cases in which the objects are right dislocated):[3]

(7) Q: ízi-vakâ:shi) u-**zi**-phekéla:-*ni*)?
8-visitor you-10OBJ-cook for-what
'What are you cooking for the visitors?'
A: ízi-vakáshi ngi-**zi**-phekél' í-nya:ma).
8-visitor I-10OBJ-cook for 9-meat
'I am cooking visitors some meat.'

Strikingly, the prosodic break following the IAV focus element and an object marker (OM) on the verb referring to an object DP in post-IAV position are both obligatory, even when the postverbal complements are in the canonical order (I.O. D.O.). This is illustrated in the question-answer pair in (8), providing strong evidence that the post-IAV DPs are right dislocated:

(8) Q Ú-si:pho) ú-**yí**-phékéla ba:ni) ín-ku:khu)?
1-Sipho 1SUBJ-9OBJ-cook for who 9-chicken
'Who is Sipho cooking the chicken for?'
A Ú-síph' ú-**yí**-phékél' ízí-vakâ:sh') ín-ku:khu).
1-Sipho 1SUBJ-9OBJ -cook for 8-visitor 9-chicken
'Sipho is cooking the chicken for the visitors.'

We can clearly see that a focused element in IAV is correlated with dislocating non-focused/given elements by comparing this data with data like that in (1), which shows that no object marker occurs for either D.O. or I.O. in neutral/broad focus contexts. The ungrammatical example in (9) confirms that the object marker is obligatory when the object follows a word in IAV focus. There is no simple crossing over of the focused element to IAV 'position,' rather the object is displaced out of its canonical position following the verb:

[3] See Cheng and Downing (to appear) for an analysis of the prosodic, syntactic and pragmatic differences between right- and left-dislocation.

(9) *Ba-bhak-a kanjani$_i$ isi-nkwa t$_i$? *(ungrammatical without object marking)*
2SUBJ-bake-FV how 7.bread
'How do they bake bread?'

Finally, it is important to note that there is no preverbal focus. As shown below, even canonically preverbal subjects have to be clefted under focus:

(10) Q u-bá:n') ó-thólé ín-dándatho e-bí-kú-láhléké:le)?
COP1-who REL1SUBJ-find 9-ring REL-TAM-You-lost
'Who is it who found the ring that you lost?'
A um-fúndí:si ó-thólê: índándatho e-bí-ngi-láhléké:le).
COP1-teacher REL1SUBJ-find 9-ring REL-TAM-I-lost
'It is the teacher who found the ring that I lost.'
#A - #úm-fúndí:si) ú-thólê: ín-dándatho e-bí-ngi-láhléké:le).
1-teacher 1SUBJ-find 9-ring REL-TAM-I-lost
'The teacher found the ring that I lost.' *(ungrammatical as answer to Q)*

Given the typical assumption concerning Zulu verbal structure, with the verb moving to a position (X^0) higher than the νP, the data presented in this section suggest that the verb and the IAV element are in the same minimal verb phrase.

To sum up, an analysis of IAV in Zulu must account not only for the fixed position of focused verbal complements, but also for the fact that non-focused verbal complements are prosodically and syntactically separate from a preceding IAV focused element. One can see that there could be two logical explanations for these facts. One is that IAV is a designated position that focused elements move to, the other is that non-focused elements move, leaving focused elements in IAV. Before evaluating these two possibilities in turn, we first present the basic prosodic phrasing algorithm of Zulu, to put the prosodic phrasing found with IAV focus in perspective.

3 Zulu prosodic phrasing

Cheng & Downing's (2007, to appear) work on prosodic phrasing in a range of Zulu constructions demonstrates that the right edge of νP and CP systematically correlate with prosodic phrase breaks, while the left edges of these constituents only variably condition phrase breaks. Evidence for a prosodic phrase break at the right edge of CP comes from the fact that we find a break following restrictive relative clauses and other embedded clause types – see (11c, d, e). Note in (11c, e) that we do not find a break preceding these embedded clauses. And simple subjects are often not followed by a prosodic phrase break, as we can see in (11a, b, c).

(11)
(a) [$_{CP}$ úm-fúndísi ú-fúndelê: ábá-zal' ín-cwa:di.])
1-teacher 1SUBJ-read to 2-parent 9-letter
'The teacher read to the parents a letter.'
(b) [$_{CP}$ ízin-g`áne zi-hlúph' ís-álúkwa:zi.])
10-child 10SUBJ-bother 7-old woman
'The children are bothering the old woman.'
(c) [$_{CP}$ ú-Síph' ú-fún' [$_{CP}$ úkúth' ú-Thándi á-théng' í-bhayiséki:li.]])
1-Sipho 1SUBJ-want that 1-Thandi 1SUBJ-buy 5-bicycle
'Sipho wants Thandi to buy a bicycle.'

(d) [$_{CP}$ [$_{CP}$ Ín-dod' é-gqoke ísí-gqo:ko]) í-boné ízi-vaká:shi.])
9-man REL9SUBJ-wear 7-hat 9SUBJ-see 8-visitor
'The man who is wearing a hat saw the visitors.'

(e) [$_{CP}$ si-hlek' [$_{CP}$ ín-dod' é-jáhwa ízi:-nja]])
we-laugh at 9-man 9RELSUBJ-chase.PASS by.10-dog
'We are laughing at the man who is being chased by dogs.'

Evidence for a prosodic phrase break at the right edge of νP comes from the phrasing of adjuncts. Arguments must precede locative and temporal adjuncts in a broad focus context or VP focus context, as illustrated in (12). This data also shows that locative and temporal adjuncts are separated from the preceding arguments by a prosodic phrase boundary:

(12)

a. ú-Síph' ú-phék' ín-ku:khu) kwám' ízo:lo)
1-Sipho 1SUBJ-cook 9-chicken 17-1sg yesterday
'Sipho cooked chicken at my place yesterday.' *VP focus*

→ *Context: What did Sipho do?*

b. bá-ník' ú-Síph' í-bhayiséki:li) namhlâ:nje)
2SUBJ-gave 1-Sipho 5-bicycle today
'They gave Sipho a bicycle today.' *broad focus*

Both these facts are consistent with adjoining locative and temporal adjuncts above the νP.

We account for these prosodic phrasing generalizations in Edge-based alignment theory, developed in work like Selkirk (1986, 1995a, 2000) and Truckenbrodt (1995, 1999, 2005, 2007). The basic parsing algorithm in the Edge-based theory requires one edge of a major syntactic constituent (XP or CP) to coincide with an edge of the corresponding prosodic constituent (Phonological Phrase or Intonation Phrase, respectively). We follow work like An (2007), Kratzer & Selkirk (2007), Ishihara (2007), Kahnemuyipour (2004, 2008) in proposing that prosodic phrasing can also be conditioned by phases: νP and CP. The constraints relevant for Zulu prosodic phrasing in a broad focus context, below, together optimize a strict match between the right edge of Intonation Phrases and the right edge of syntactic phases:

(13) ALIGNR[PHASE, INTPH] (ALIGNR-PHASE): Align the right edge of every phase (νP/CP) with the right edge of an Intonation Phrase (IntPh).

(14) ALIGNR[INTPH, PHASE] (ALIGNR-INTPH): Align the right edge of every Intonation Phrase (IntPh) with the right edge of a phase (νP/CP).

The analysis of broad focus phrasing is exemplified in the tableaux below. Parentheses continue to indicate prosodic phrase boundaries:

(15) Broad focus phrasing

(a) Two arguments

	ALIGNR-PHASE	ALIGNR-INTPH
☞i. S V IO DO$]_{VP}$ $]_{vP}$ $]_{CP}$)		
ii. S V IO) DO$]_{VP}$ $]_{vP}$ $]_{CP}$)		*!

(b) Argument plus Adjunct

	ALIGNR-PHASE	ALIGNR-INTPH
☞i. S V DO$]_{VP}$ $]_{vP}$) Adj$]_{IP}$ $]_{CP}$)		
ii. S V DO$]_{VP}$ $]_{vP}$ Adj$]_{IP}$ $]_{CP}$)	*!	

In tableau (15a), with two arguments following the verb in a broad focus context, it is optimal to parse both arguments with the verb in a single Intonation Phrase. Phrasing the arguments separately from each other, as in (15a.ii), violates the alignment constraint in (14): the phrase breaks are not both at a phase edge. In contrast, in sentences with an argument and an adjunct following the verb in a broad focus context, it is optimal for a phrase break to fall between the argument and the adjunct, as in candidate (15b.i). Phrasing the argument and adjunct together, as in candidate (15b.ii), violates the constraint in (13): the right edge of the vP phase is not followed by an Intonation Phrase break.

The prosodic phrasing we find in broad focus contexts has clear implications for the syntactic analysis of IAV focus in Zulu. Since a focused IAV element phrases with the verb, it must be in the same minimal vP as the verb. Since right-dislocated non-focused elements are phrased separately from IAV, they have to be outside of vP.

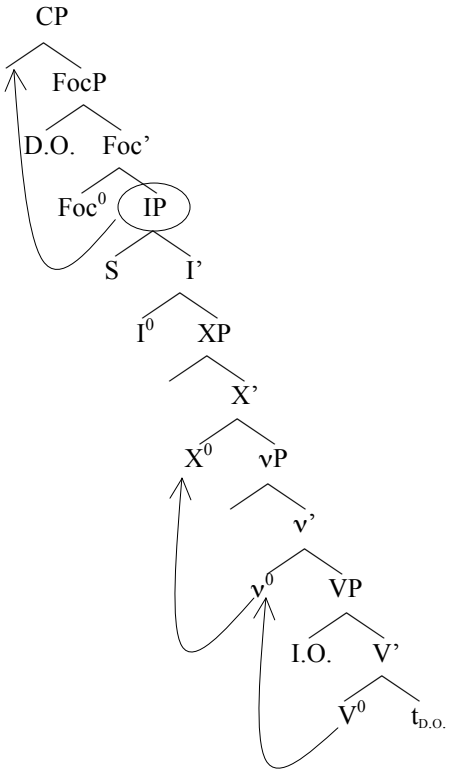
4 High and Low focus phrase

One way to account for the fact that focus elements appear in a fixed IAV 'position' is to propose that there is a particular syntactic position which the focus elements move to. In this section, we argue that this approach is unworkable for Zulu focus. We first show that a high FocusP in the left periphery cannot account for the data. We show that a low FocusP has similar problems.

4.1 High FocusP

Following Julien (2002) and Buell (2005), we assume that the verb in Zulu undergoes movement to a position between I^0 and v^0 (we label it here as X^0). This is mainly because of the fact that a verb in Zulu contains both inflectional prefixes and suffixes. The suffixes are mainly valency related, while the prefixes include tense-aspect markers as well as subject and object markers. If focus elements move to a high FocusP in the left periphery in order to satisfy IAV, remnant movement of the XP or IP has to take place. This is illustrated in (16):

(16)



This analysis faces a number of problems, however. Prosodically, it incorrectly predicts a phrase break between the verb and the focused element (IAV) because a right edge of νP separates the verb and the IAV. Syntactically, it incorrectly predicts that the verb does not c-command the focused element (IAV), so that a focused NPI should be ungrammatical (because it would be unlicensed). In addition, it incorrectly predicts that the subject can also be focused in IAV, whereas subjects must generally be focused using clefts, as shown above. Finally, it requires simultaneous movements (i.e., when one moves for focus, the non-focused element also has to move) of the focused element (to a FocusP) and of the non-focused element(s) (to a position outside of little νP), which no known syntactic theory can motivate. We conclude that IAV focus cannot be accounted for through movement to high FocusP.[4]

4.2 Low FocusP

Since Belletti (2004), many have entertained a low focus position: a focus position which is in between the IP and the νP. Sabel and Zeller (2006), Aboh (2007), Ndayiragije (1999), and van der Wal (2006) have argued for a low FocusP in different Bantu languages. Since the verb in Zulu moves to X^0, a position above the νP, if there is a low FocusP, it must be between the X^0 and the νP. Here we consider both a low Focus position with the specifier on the left under the analyses of Sabel and Zeller (2006), Aboh (2007) and van der Wal (2006), as well as a low Focus position with the specifier on the right (Ndayiragije 1999), and show that both face problems in accounting for the properties of IAV focus in Zulu.

[4] See also Samek-Lodovici (2006) for similar arguments against high FocusP to account for postverbal focus in Italian.

Low FocusP position analyses with a specifier on the right, like high FocusP position analyses, face a prosodic problem. They incorrectly predict a phrase break between the verb and the focus element (IAV) (because of right edge of νP separating the verb and the IAV).

The most serious problem with any low FocusP analysis for Zulu focused elements, though, is one we have already noted for a high FocusP analysis: namely, non-focused, given elements must also be simultaneously dislocated. We have seen this in the data from (2) to (8): a focused element in IAV entails the simultaneous dislocation of the non-focused phrase (which has to be resumed with an object agreement prefix on the verb). That is, movement of a focused element is not just a matter of crossing over a non-focused element by raising leftwards. Indeed, as Buell (2009) points out, sentences such as (17), repeated from (9), above, with the focused/*wh*-element crossing over a non-focused element, are not grammatical. Note in (17) that the object *isinkwa* 'bread' is not object-marked, showing that it has not been dislocated as required when a focused element occurs in IAV:

(17) *Ba-bhak-a kanjani$_i$ isi-nkwa t$_i$?
2SUBJ -bake-FV how 7.bread
'How do they bake bread?'

In other words, by positing movement of a focused element to the FocusP, we would also need to posit a chain-reaction type of movement of a non-focused element. At this point, we cannot think of any syntactic or semantic motivation which could drive such movement.

In short, movement of a focused element to either a high FocusP or a low FocusP cannot capture the IAV property of the focused element, or the "simultaneous" dislocation property of the non-focused element.

5 Analysis

What we propose in this section is that focused elements are not found in a particular position because they move to a designated focus position. Rather, we show that the interaction of independently-motivated constraints on the optimal syntactic and prosodic realization of focus straightforwardly motivate dislocating non-focused elements, leaving focused elements in situ, *linearly in IAV*. (See also Samek-Lodovici (2006), Buell (2009), Hyman & Polinsky (2007) and Cheng & Downing (to appear).)

5.1 Syntactic generalizations and analysis

As the first step in the analysis, recall that if one of the verbal objects (i.e., D.O. or I.O.) is focused, the non-focused one is dislocated, resumed by an object agreement prefix on the verb (bolded), and separated from the argument in focus by a prosodic phrase boundary:

(18) a. úm-fá:na ú-**yí**-nikezê:-*ni)* ín-tómbazâ:ne)?
1-boy 1SUBJ-9OBJ-give-what 9-girl
'What did the boy give to the girl?'

b. Ú-si:pho) ú-**yí**-phékéla ba:ni) ín-ku:khu)?
1-Sipho 1SUBJ-9OBJ-cook.for who 9-chicken
'Who is Sipho cooking the chicken for?'

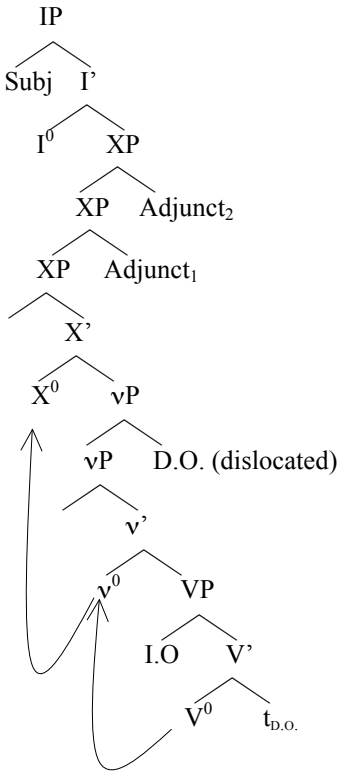
In (19a, b), we see that when an indirect object or a direct object is dislocated, it is dislocated to a position preceding the adjuncts. Dislocated arguments following the adjuncts are considered ill-formed, as can be seen by comparing the ungrammatical word orders in (20a, b) with grammatical (19a, b):

(19) a. ú-Síph' ú-**m**-phékélê:-n') ú-Thâ:ndi) émzini wakh' ízo:lo)?
1-Sipho 1SUBJ-1OBJ-cook for-what 1-Thandi LOC.3.home 3.your yesterday
'What did Sipho cook for Thandi at your house yesterday?'
b. ú-Síph' ú-**yí**-phékélé ú-Tha:nd') ín-ku:kh') ízo:lo)?
1-Sipho 1SUBJ-9OBJ-cook for 1-Thandi 9-chicken yesterday
'Sipho cooked chicken for Thandi yesterday.'
→ Context: *Who did Sipho cook chicken for yesterday?*

(20) a. *u-Sipho u-**m**-phekele-ni emzin' wakho izolo u-Thandi?
1-Sipho 1SUBJ-1OBJ-cook for-what LOC.3.home 3.your yesterday 1-Thandi
'What did Sipho cook for Thandi at your house yesterday?' (cf. (19a))
b. *u-Sipho u-**yi**-phekele u-Thandi izolo ín-kukhu.
1-Sipho 1SUBJ-9OBJ-cook for 1-Thandi yesterday 9-chicken
'Sipho cooked chicken for Thandi yesterday.' (cf. (19b))

What we propose is that the arguments are adjoined to νP when they are right-dislocated, while the adjuncts are adjoined to the XP, as shown in the structure in (21):

(21)



This syntactic analysis has several advantages. First, focused NPIs are c-commanded by the negative verb, which ends up in X^0. There is also no need for simultaneous movement of focused and non-focused elements. In addition, adjuncts do not have to be moved to accommodate their non-focused status. The IAV focused element

phrases with the preceding verb, as it is within the νP which contains the verb. However, it phrases separately from what follows, as it is separated from what follows by a νP edge. Still to be explained is why non-focused arguments have to be moved, leaving focused elements *in situ*, in IAV position. The OT analysis in the next section accounts for this.

5.2 Prosodic Generalizations and OT analysis

Let us begin by recalling the syntactic and prosodic generalizations about IAV focus constructions yet to be accounted for. First, focused element must immediately follow the verb, within minimal νP, while non-focused elements are dislocated. A phrase break must follow IAV focused element. We motivate in this section a set of OT constraints which account for these generalizations.

First, we must account for the fact that IAV focus elements are restricted to a particular syntactic domain, namely, the minimal νP. We propose that this restriction follows from a cross-linguistically well-supported requirement for phrasal prominence to fall on the Highest Phrase of the inner verbal domain. In particular, we follow closely recent phase-based approaches to the syntax of prominence like that of Kratzer & Selkirk's (2007) and Kahnemuyipour's (2004, 2008) which build on the observation, due to Cinque (1993), that prominence is realized in particular structurally-defined positions. One cannot refer to linear position alone in assigning prominence. For example, as Kahnemuyipour (2004, 2008) shows, lexical objects attract sentential stress both in SVO languages, like English, and in SOV languages, like Persian. No language apparently assigns sentential prominence in neutral contexts to either the verb or the subject, instead of a lexical object, even though these would be logical possibilities if linear order alone were relevant. The preference for assigning prominence to an object requires reference to some structural property: e.g., only the verbal domain – νP in phasal terms – licenses prominence. As Kahnemuyipour (2004, 2008) argues, reference specifically to the highest phrase in a minimal verbal domain accounts for the fact that in Persian, the leftmost element in AspP (νP) is assigned sentential prominence, as shown in (22), below, where the underlined word is the one with sentential stress:

(22) Persian sentence stress (Kahnemuyipour 2008, fig. (29))

(a) Ali [<u>xord</u>]. 'Ali ate.'
(b) Ali [<u>qazaa</u> xord]. 'Ali ate food.'
(c) Ali [<u>xub</u> qazaa xord]. 'Ali ate food well.'

And as Kratzer & Selkirk (2007) argue, reference to the highest phrase position within a minimal verbal domain also accounts for why objects are stressed (underlined) in preference to PP adjuncts in German verb-final clauses:

(23) VP-internal PPs lack stress in German in presence of direct object (Kratzer & Selkirk 2007: 107)

(a) ....dass ein Junge [<u>eine Geige</u> im Supermarkt kaufte].
'...that a boy bought <u>a violin</u> in the supermarket.'
(b) ...dass ein Junge [<u>eine Geige</u> an einen Freund schickte].
'... that a boy sent <u>a violin</u> to a friend.
(c) ... dass Maria [<u>Kinder</u> in die Schule fuhr].
... that Maria drove <u>children</u> to school.

The parallel we wish to capture, in the spirit of this work, is that phrasal prominence is defined with reference to the same structural position – the highest phrase within a minimal verbal domain – across languages, though prominence might have very different realizations or grammatical consequences in different languages. In Persian and German, sentential prominence correlates with sentential stress. In Zulu, this position correlates with *semantic* prominence at the sentential level (though it also has prosodic prominence at the phrase level). This positional requirement on the realization of prominence is one of the factors motivating IAV as the focus position. The constraint below formalizes the correlation between Highest Phrase and (semantic) prominence:

(24) HIGHEST PHRASE CONDITION (HPC), adapted Kratzer & Selkirk (2007):

Prominence [i.e., focus] is licensed within the highest phrase (HP) in the minimal XP in the νP phase. More precisely:

If prominent [focused], then in the Highest Phrase.

In the analysis of Zulu IAV focus, HPC incurs a violation whenever a constituent in narrow focus (labeled 'F') is not the Highest Phrase within the minimal XP in the νP phase.

We must also account for the fact that IAV focused elements are always followed by a prosodic phrase break. Note that this prosodic break means that IAV focused elements always have phrasal stress, realized as lengthening of the Intonation Phrase penult vowel. It has been widely observed that there is a robust cross-linguistic correlation between focus and stress.[5] The constraint in (25) is cited from Samek-Lodovici (2005: 697), and similar principles can be found in work like Selkirk (1995b, 2004), Szendroï (2003) and Truckenbrodt (1995, 2007):

(25) FOCUS-PROMINENCE CONSTRAINT (FPC; Samek-Lodovici 2005):

Focused constituents must be assigned prosodic prominence (i.e., phrasal stress).

This constraint also accounts for why non-focused elements must exit the minimal νP. It is not enough for an element with semantic prominence to also have syntactic prominence by satisfying the HPC (24). An element in focus also optimally has prosodic prominence (phrasal stress). Therefore, it must be at the right edge of the Intonation Phrase conditioned by νP, i.e., the right edge of νP. (N.B.: we are assuming a high-ranked constraint which insures that the penult of the rightmost element of the Intonation Phrase is assigned phrasal stress.) That is, the HPC and the FPC are best satisfied if the focused element is the only XP in the νP because it is then by definition the Highest Phrase, *and* it is then by definition at the right edge of νP, assigned phrasal stress. These two constraints must be high-ranked, as they are never violated when a verb complement is in narrow focus.

Movement of non-focused elements violates the constraint in (26):

[5] In most of the works cited here, it is assumed that focused elements must bear sentential stress. However, Samek-Lodovici (2005) suggests one might allow for a weaker version of the FPC, in which focused elements are required only to bear some degree of stress. It is this weaker version which is implemented in Zulu, as the sentence-penult vowel is the one which bears fixed sentential stress. IAV focused elements have the main stress only within the minimal νP domain.

(26) STAY: Don't move constituents.

That is, in an OT analysis, movement is banned if it is gratuitous, in the sense of not being motivated by higher ranked constraints. The constraints favoring IAV position of focused elements and consequent dislocation of non-focused elements in Zulu therefore must outrank STAY.

The constraints and ranking which are relevant for IAV focus in Zulu are summarized below and exemplified by the tableaux in (28) and (29). (Recall that ALIGNR-PHASE, ALIGNR-INTPH are never violated in Zulu and therefore are highly ranked):

(27) Constraint ranking: ALIGNR-PHASE, ALIGNR-INTPH, FPC, HPC >> STAY

The tableau in (28) illustrates the phrasing and syntactic structure of an indirect object in broad and narrow focus, followed by a direct object.[6] Even though the I.O. and D.O. are in the canonical word order (I.O. D.O.) under narrow focus, recall from data like (8) in section 2, above, that both the phrasing and the presence of an OM on the verb referring to the direct object show that it has been dislocated, leaving the Indirect Object as the Highest Phrase – indeed, the only phrase – within the minimal XP in the vP phase. The dislocated D.O. is adjoined to vP, the lowest eligible adjunction site. The tableau demonstrates that this structure is optimal in our analysis:

(28) - focus on the IO

Broad focus	ALIGNR-PHASE	ALIGNR-INTPH	FPC	HPC	STAY
☞a. S V IO_H DO]$_{VP}$]$_{vP}$]$_{CP}$)					
b. S V IO_H) DO]$_{VP}$]$_{vP}$]$_{CP}$)		*!			
c. S V IO_H]$_{VP}$]$_{vP}$) DO]$_{vP}$]$_{CP}$)					*!
Narrow focus on IO					
d. S V $IO_{F, H}$ DO]$_{VP}$]$_{vP}$]$_{CP}$)			*!		
e. S V $IO_{F, H}$) DO]$_{VP}$]$_{vP}$]$_{CP}$)		*!			
☞f. S V $IO_{F, H}$]$_{VP}$]$_{vP}$) DO]$_{vP}$]$_{CP}$)					*

As we can see in the narrow focus candidates (28d, e, f), candidate (28f) is optimal because it satisfies the highest-ranked constraints. The focused constituent is stressed – satisfying FPC – *and* it is the Highest Phrase in the minimal XP in the vP phase – satisfying HPC – *and* it is followed by an Intonation Phrase break – satisfying the high-ranked alignment constraints. Candidate (28e), with in situ focus, signaled only by an Intonation Phrase break, is not optimal because all Intonation Phrases must be right-aligned with phases. This is why (28e) violates the second alignment

[6] In the tableaux, parentheses indicate Intonation Phrase edges; H = highest phrase; F = narrow focus.

constraint. Candidate (28d) is not optimal, even though the focused element is in the Highest Phrase position, because it is not Intonation Phrase-final, so it is not stressed, in violation of the FPC.

As shown in Tableau (29), the same constraint grammar optimizes movement of non-focused indirect objects outside of their canonical position, leaving a focused direct object as the Highest Phrase within the minimal vP phase. Data like (2a) and (3b), above, illustrate the structure schematized in the tableau:

(29) - focus on the DO

Broad focus	ALIGNR-PHASE	ALIGNR-INTPH	FPC	HPC	STAY
☞a. S V IO_H DO]$_{VP}$]$_{vP}$]$_{CP}$)					
b. S V IO_H) DO]$_{VP}$]$_{vP}$]$_{CP}$)		*!			
c. S V IO_H]$_{VP}$]$_{vP}$) DO]$_{vP}$]$_{CP}$)					*!
d. S V DO_H]$_{VP}$]$_{vP}$) IO]$_{vP}$]$_{CP}$)					*!
Narrow focus on DO					
e. S V IO_H DO_F]$_{VP}$]$_{vP}$]$_{CP}$)				*!	
☞f. S V $DO_{F, H}$]$_{VP}$]$_{vP}$) IO]$_{vP}$]$_{CP}$)					*
g. S V IO_H]$_{VP}$]$_{vP}$) DO_F]$_{vP}$]$_{CP}$)				*!	*

As we can see in the narrow focus candidates in (29) – the broad focus candidates are the same as in (28) – candidates (29e) and (29g) are not optimal, even though the focused element is stressed (satisfying the FPC) in both, because the most prominent (focused) constituent is not the Highest Phrase. They therefore violate the HPC. Candidate (29f), where the focused element is both in the Highest Phrase and is stressed, is optimal because it satisfies all of the highest-ranked constraints.

5.3 Extending the analysis to focused adjuncts

We now turn to cases in which adjuncts are focused. The sentences below illustrate the syntactic and prosodic properties of focused adjuncts: namely, the focused adjunct is in IAV position; arguments of the verb must be dislocated (note that the object markers, bolded, are present in these sentences); a prosodic phrase boundary follows the focused adjunct:

(30) a. ú-Síph' ú-**yí**-phékê: nì:n') ín-kúkh' émzini wa:kho)?
1-Sipho 1SUBJ-9OBJ-cook when 9-chicken LOC.3.home 3.your
'When did Sipho cook chicken at your house?'

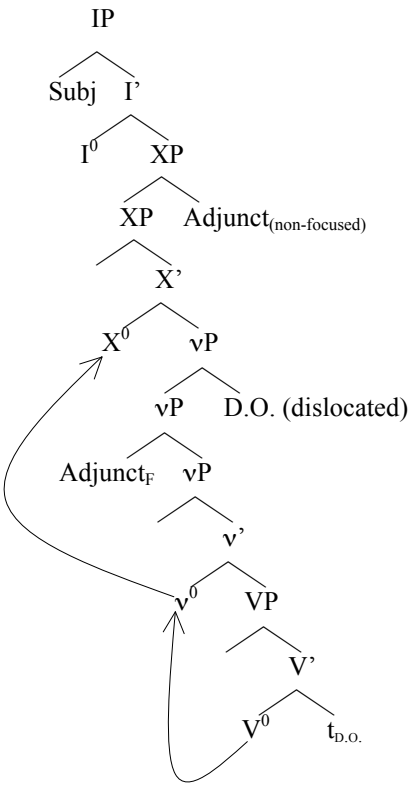
b. ú-Síph' ú-**yí**-phékê:-ph') ín-ku:kh') ízo:lo)?
1-Sipho 1SUBJ-9OBJ-cook-where 9-chicken yesterday
'Where did Sipho cook chicken yesterday?'

c. u-**wa**-thwéle ngâ:n') amá-tha:nga)?
you-6OBJ-carry how 6-pumpkin
'How are you carrying the pumpkins?'

What is puzzling in these sentences is that when adjuncts are focused, arguments of the verb also need to be dislocated (note that the object markers, bolded, are present in these sentences). If adjuncts remain adjoined to XP when focused, given HPC (24), we do not predict the arguments to move out of the VP. Recall, non-focused adjuncts are adjoined above νP.

We propose that when adjuncts are focused, they are no longer on a par with regular, optional modifiers. That is, adjuncts that are focused have a different status from other adjuncts, motivated by the fact that adjuncts are obligatory components of the predicate under focus. As a result, they are merged in a different position, i.e., they form the outer specifier of νP, with the base subject as the inner specifier of νP, as illustrated in (31). Dislocated arguments (e.g., the Direct Object in (31)) are still adjoined to νP, above the two specifiers.[7] This is shown in the structure below:

(31)



As the focused Adjunct is in the Highest Phrase within the minimal νP phase containing the adjunct, it satisfies HPC. As it is at the right edge of νP, it receives phrasal stress and satisfies the FPC.

The tableau in (32) shows that the analysis developed in the preceding section to account for the dislocation of arguments when an argument is in IAV focus extends straightforwardly to account for the prosody and syntax of Adjuncts in IAV focus, if we assume the syntactic representation in (31):

[7] In this conception of adjuncts, adjunct modifiers can merge/adjoin to the right, just like dislocated elements. However, adjuncts that are not simple modifiers are merged at the left, just like specifiers.

(32) - Adjunct focus

Broad focus	ALIGNR-PHASE	ALIGNR-INTPH	FPC	HPC	STAY
☞a. S V $DO_H]_{VP}]_{vP})$ $Adj]_{IP}]_{CP})$					
b. S V $Adj_H]_{vP})$ $DO]_{vP}]_{CP})$					*!
c. S $V]_{vP}$ $DO]_{vP})$ $Adj]_{IP}]_{CP})$					*!
Narrow focus on Adjunct					
d. S V $DO_H]_{VP}]_{vP})$ $Adj_F]_{IP}]_{CP})$				*!	
☞e. S V $Adj_{F,H}]_{vP})$ $DO]_{vP}]_{CP})$					*
f. S $V]_{vP}$ $DO_H]_{vP})$ $Adj_F]_{IP}]_{CP})$				*!	*
g. S V $Adj_{F,H})$ $DO]_{vP}]_{CP})$		*!			
h. S V $Adj_{F,H}]$ DO $]_{vP})]_{CP}$			*!	*	

Under broad focus, it is optimal for the D.O. to occur in its canonical position, within VP, and for the Adjunct to be right-adjoined to XP. As we can see from the optimal candidate (32a), this violates no constraints. However, when the Adjunct is focused, it is a specifier of vP, as shown in (31), above. That is, it is the Highest Phrase within the minimal vP when it is focused, and satisfies the HPC (24) in this position. If the focused Adjunct occurs outside of vP, it fatally violates the HPC, as shown by the losing candidates, (32d) and (32f). The D.O. must be dislocated to allow the focused Adjunct to be in a position to receive phrasal stress, satisfying the FPC (25). This can be seen by comparing the optimal candidate in (32e) with the non-optimal candidates in (32g, h).

6 Conclusion

To sum up, we have shown that IAV focus 'position' in Zulu is best accounted for by proposing that constraints on the realization of (semantic) prominence and prosodic phrasing make it optimal for non-focused/given arguments to move, leaving focused elements in situ, in IAV position. This analysis agrees with Hyman & Polinsky's (2007) analysis of Aghem in arguing against a FocusP account of IAV position. Indeed, we show that IAV focus cannot be accounted for by proposing that focused elements move to either a High or a Low designated Focus position in the syntactic representation. However, it crucially differs from Hyman & Polinsky, who propose that a focus operator in CP (or ForceP) unselectively binds the lowest XP in the clause, resulting in a focused interpretation for that XP. But this cannot explain why intervenors yield ungrammaticality; and it is only a stipulation that the IAV position (and not some other) is bound by the focus operator.

Instead, we show that IAV is the optimal locus of focus because several factors conspire in Zulu to favor this position: a preferred structural position (Highest Phrase in vP) for semantic prominence, a preferred prosody (phrasal stress) for semantic prominence, and a fixed position (phase edges) for the realization of prosodic prominence (phrasal stress). The analysis follows work like Samek-Lodovici (2005, 2006) and Szendroï (2003) in acknowledging the role of stress location in conditioning the syntax of focus. It also builds on Kratzer & Selkirk's

(2007) and Kahnemuyipour's (2004, 2008) proposal that the Highest Phrase in the minimal verbal domain is an attractor of sentential prominence (focus). The new contribution is to show that a fixed linear position – like IAV – can be favored for focus when prosodic and structural factors together – rather than a single factor alone – optimize this position. In addition, our analysis does not rely upon Spell-out domains of phases (i.e., domains which are in effect smaller than phases). Instead, it refers directly to phases; in particular, it is the mapping between syntactic phases and intonational phrases which plays a prominent role. In short, 'IAV position' is a portmanteau designation for the interaction of several factors, rather than for just one structural requirement.

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