

# The Prosody and Syntax of Focus in Chitumbuka\*

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This paper presents a sketch of the prosodic, syntactic and morphological means of expressing focus in Chitumbuka, an underdescribed Bantu language of Malawi. The chief prosodic correlate of focus is boundary narrowing – rephrasing conditioned by focus – which is used not only to signal in situ focus but also in syntactic and morphological focus constructions. Of theoretical importance is the fact that rephrasing does not lend culminative prominence to the focused constituent. Although Chitumbuka has culminative sentential stress, its position remains fixed at the right edge of the clause, independent of the position of focus. This makes Chitumbuka a challenge for theories of focus prosody which claim that the focused constituent must have culminative sentential prominence.

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## 1 Introduction

Much recent work on the interaction of prosody and focus has assumed that there is a necessary cross-linguistic correlation between main sentence stress and focus. The constraint in (1) which formalizes this requirement is cited from Samek-Lodovici (2005: 697), but similar principles can be found in work like Gussenhoven (1984, 1996, 1999), Reinhart (1995), Selkirk (1984, 1995, 2004), Rooth (1992, 1996), Szendrői (2003), Truckenbrodt (1995):

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(1) STRESS-FOCUS (SF):

For any  $XP_f$  and  $YP$  in the focus domain of  $XP_f$ ,  $XP_f$  is prosodically more prominent than  $YP$ .

This principle is mainly supported by European stress languages where cues for stress – like culminative pitch movement and duration – co-occur on the syllable with main sentential stress, lending it unambiguous salience in the Intonational Phrase (roughly equivalent to a sentence (Truckenbrodt 1995)). Relatively little work has been done on the prosody of focus in languages where focused constituents condition non-culminative prosody, and culminative prosody is independent of focus.

In this paper, I discuss the prosody of three different focus constructions in Chitumbuka, a Bantu language spoken in Malawi: *in situ* focus, *ex situ* focus and focus related morphemes. I argue that Chitumbuka shows that the STRESS-FOCUS constraint, in its strong form, does not hold cross-linguistically. The paper is organized as follows. After presenting some background in Chitumbuka tone in section 2, I will show in section 3 that phonological rephrasing – unaccompanied by culminative sentential prosody – is the most consistent correlate of focus. Although the two syntactic positions favored for *ex situ* focus – sentence-initial and immediately after the verb (IAV) – are ones that prosody highlights, focus does not necessarily correlate with culminative prominence in either position. I will show in section 4 that focus-related morphemes, rather than the constituent they place in focus, are made salient by phonological rephrasing, creating a further mismatch between prosody and focus.

The overall conclusion I will draw is that while culminative prosodies play some role in defining the syntactic positions favored for focus, neither pitch nor sentential stress nor rephrasing provide the unambiguous syntagmatic cues to focus in Chitumbuka that are defined by the STRESS-FOCUS constraint.

## 2 Background on Chitumbuka tone

Chitumbuka (Bantu N20) is one of the three major languages of Malawi (with Chichewa and Yao). The data presented comes from my fieldwork on the language. (There is no grammar as far as I know.) The sketch of Chitumbuka tone presented in this section provides the background information needed to follow the discussion of the prosody of focus in the remainder of the paper.

## 2.1 Words in isolation

As shown by the data in (2) and (3), there are no lexical or grammatical tonal contrasts in Chitumbuka. The penult of every word in isolation is lengthened and bears a falling tone:

(2) No tonal contrasts in nouns

<i>Singular</i>	<i>Gloss</i>	<i>Plural</i>
múu-nthu	‘person’	[β]áa-nthu
m-líimi	‘farmer’	[β]a-líimi
m-zíinga	‘bee hive’	mi-zíinga
m-síika	‘market’	mi-síika
khúuni	‘tree’	ma-kúuni
báanja	‘family’	ma-báanja
ci-páaso	‘fruit’	vi-páaso
ci-ndíindi	‘secret’	vi-ndíindi
nyáama	‘meat, animal’	nyáama
mbúuzi	‘goat’	mbúuzi

(3) No tonal contrasts in verbs or verb paradigms

(a)	ku-líima	‘to farm’	líima!	‘farm!’
	ti-ku-líima	‘we farm’	ti-ku-líima yáaye	‘we do not farm’
	ti-ka-líima	‘we farmed’	ti-ka-líima yáaye	‘we did not farm’
	t-angu-líima	‘we recently farmed’		
	n-a-[β]a-limíira	‘I have farmed for them’		
	[β]-a-líima	‘they have farmed’		
	wa-zamu-líima	‘s/he will farm’	wa-zamu-limilíira	‘s/he will weed’
(b)	ku-zéenga	‘to build’	zéenga!	‘build!’
	ti-ku-zéenga	‘we build’		
	nyúumba yi-ku-zengéeka	‘the house is being built’		
	[β]a-ka-zéenga	‘they built’		
	[β]a-ka-ku-zengéera	‘they built for you sg.’		
	[β]a-ka-mu-zengeráa-ni	‘they built for you pl.’		
	n-a-zéenga	‘I have built’		
	wa-zamu-zéenga	‘s/he will build’		
	[β]a-zamu-zengeráana	‘they will build for each other’		

To put these Chitumbuka prosodic patterns into a wider perspective, penult lengthening (especially phrase-penult) associated with stress is very common cross-Bantu (see, e.g., Doke 1954; Downing, to appear; Philippson 1998). It is also very common cross-Bantu for the High tone of a word to be attracted to the

penult (see, e.g., Kisseberth & Odden 2003; Philippson 1998). And it is attested (though it is not clear how widespread this is) for other languages of the region (roughly, northern Lake Malawi) to have what have been called restricted or predictable tone systems: all words must have a High tone (see Odden 1988, 1999; Schadeberg 1973 for discussion).

In sum, the word-level tone system of Chitumbuka has many defining properties of a pitch-accent language (Downing 2003, to appear; Hyman 1977; Odden 1999): *obligatoriness* and *culminativity*: every word has one and only one High tone; *positional restrictions*: only the penult can bear a High tone; and *tone-stress interaction*: the High tone aligns with the stressed penult.<sup>1</sup> As we shall see in the next sections, however, there is no evidence for tonal accent at the phrase or utterance level.

## 2.2 *Prosody at the phrase and utterance level*

Words have the isolation pronunciation in (2) and (3) only when they are final in the Phonological Phrase. Evidence for the Phonological Phrase is that phrase-medial words undergo prosodic reduction processes: there is no penult lengthening, and the tone on the penult is a (fleeting) level High. As shown in (4), the entire clause does not form a single Phonological Phrase, rather each of the major constituents of the clause – the subject NP and the maximal VP – forms a single, separate phrase:

- (4)
- |     |   |                            |
|-----|---|----------------------------|
| (a) | (nyúumba) (i-ku-wonéeka)                              | ‘The house is visible.’    |
|     | 9-house      9-TAM-be visible                         |                            |
| (b) | (ti-ku-phíka síima)                                   | ‘We are cooking porridge.’ |
|     | we-TAM-cook porridge                                  |                            |
| (c) | ([β]-áana)      ([β]a-ku-[β]a-vwíra      [β]a-bwéezi) |                            |
|     | 2-child      2-TAM-2.OM-help      2-friend            |                            |
|     | ‘The children help the friends.’                      |                            |

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<sup>1</sup> For these reasons Kisseberth & Odden (2003) classify Chitumbuka as a stress language. However, as work like Hellmuth (2006) argues, it is typologically unusual for stress languages to have a single tone melody associated with the accented syllable and for every lexical word to be accentable. This makes Chitumbuka’s pitch system more tone-like than stress-like.

- (d) ([β]a-liimi) ([β]a-lúta) ku-múunda)  
 2-farmer 2-go LOC-fields  
 ‘The farmers have gone to the fields.’
- (e) (ti-ka-wóna mu-nkhúngu ku-msiika).  
 we-TAM-see 1-thief LOC-market  
 ‘We saw a thief at the market.’
- (f) (mwanakáazi) (wa-ku-sonéra mu-nyákhe láaya).  
 1-woman 1-TAM-sew for 1-her [friend] dress  
 ‘The woman is sewing a dress for her friend.’

Clauses are parsed into Intonational Phrases, the level in the Prosodic Hierarchy which immediately dominates the Phonological Phrase (see, e.g., Selkirk 1984; Truckenbrodt 1995). Two types of prosody signal Intonational Phrase (I) boundaries. First, there is extra-lengthening on the penult vowel of an I-final Phonological Phrase. Also, downdrift/downstep has the result that the initial High tone in the Intonational Phrase has the culminative pitch, while each successive High tone is realized at a lower pitch. As a result, there are two positions of culminative prosodic prominence within the Intonational Phrase:<sup>2</sup> sentence-initial pitch prominence, due to downstep, and sentence-final ‘stress,’ due to extra penult lengthening. (This extra lengthening is traditionally interpreted as sentential stress in Bantu languages (Doke 1954).)

### 3 Syntax and prosody of focus

#### 3.1 *In situ focus*

In many stress languages, like English or Italian, focused elements can be made prominent *in situ*, by assigning them culminative sentential accent. This observation – the basis of the STRESS-FOCUS constraint (1) – is illustrated in (5):

- (5) Sentence-final stress and focus (Samek-Lodovici 2005: 688)
- (a) English: [John has LAUGHED.]<sub>f</sub> Context: What happened?  
 (b) Italian: [Gianni ha RISO.]<sub>f</sub> Context: What happened?

As shown in (6), if the subject is focused stress moves in English and the focused element remains *in situ*. In Italian, the subject is right-dislocated, as shown by work like Zubizarreta (1998) and Samek-Lodovici (2005), and stress remains ‘*in situ*’:<sup>3</sup>

<sup>2</sup> See Downing et al. (2005) for discussion of identical culminative prosody in Chichewa.

<sup>3</sup> See Szendrői (2003) for discussion of stress-motivated focus movement in Hungarian.

- (6) Subject focus (Samek-Lodovici 2005: 688)  
 (a) English: JOHN<sub>f</sub> has laughed. Context: Who has laughed?  
 (b) Italian: Ha riso GIANNI<sub>f</sub>. Context: Who has laughed?  
*Has laughed John.*

In Chitumbuka, *Wh*-words and the answers to *Wh*-questions – both assumed to be in focus – can occur in situ. (This section concentrates on focus in statements; section 4 takes up the prosody of *Wh*-morphemes.) As shown in (7), there is no special prosody for a subject NP focused in situ.

- (7) *Questioning the subject*  
 Q (Njáani) (wa-ku-bwatísya máji ya mpúunga)?  
 Who 1-TAM-boil water for rice?  
 Who is boiling water for rice?  
 A (Mwanalúume) (wa-ku-bwatísya máji ya mpúunga).  
 A man is boiling water for rice.

However, as shown in (8), in situ focus within the VP does trigger special prosody. Recall from (4), above, that under wide focus the entire VP forms a single Phonological Phrase. In contrast, a focused object NP is obligatorily followed by a phonological phrase boundary, and any following element is noticeably downstepped.<sup>4</sup> A verb cannot be focused in situ, rather one must use the focus morpheme *wáaka* ‘only’ discussed in section 4.1.2, below.

- (8) *Questioning the object* (‘!’ indicates noticeable downstep.)  
 Q (Namachéero) (mu-zamu-limiliráa-chi)?  
 Tomorrow you - TAM- weed – what  
 ‘What are you weeding tomorrow?’  
 A (Ti-zamu-limilirá ngóoma) ! (namachéero).  
 ‘We will weed MAIZE tomorrow.’

What is important prosodically is that we do not find the equivalent of culminative sentence accent assigned to the focused constituent. The highest pitch is consistently on the first High tone of the Intonational Phrase, while the longest vowel is the Intonational Phrase-penult. Neither position necessarily correlates with focus. Instead, what Hyman (1999) calls ‘boundary narrowing’ is used to highlight the in situ focused element within the VP: the focused element

<sup>4</sup> In all the data, small caps are used to help the reader quickly identify the constituent in focus. They do not indicate that the highlighted words have the equivalent of main stress.

must be followed by a phrase boundary.<sup>5</sup> While boundary narrowing is accompanied by distinctive prosody – lengthening of the phrase penult vowel and post-focus lowering (downstep) – this prosody does not lend culminative prominence to the focused element. This result confirms proposals by Downing (2003), Féry (2001), Hayes & Lahiri (1991), Ladd (1996) and Samek-Lodovici (2005) that phrasing, rather than accent, is the more universal cue to focus, as culminative prominence does not consistently correlate with focus; phrasing does.

### **3.2 *Syntax and prosody of ex situ focus***

Word order in Bantu languages is canonically (S) V (O) (see, e.g., Heine 1976, Bearth 2003). The inflected Verb is the only obligatory element of an utterance. When Subject and Object NPs are present, the subject (agent) canonically precedes the verb, while the object NP(s) and/or other complements follow the verb. If there is more than one object, the Indirect Object precedes the Direct Object.

In Chitumbuka – as in many Bantu languages – the basic SVO word order is flexible, with information structure one factor favoring alternative word orders.<sup>6</sup> There are two preferred positions for *ex situ* focus constituents to occur in Chitumbuka: sentence-initial (9) and immediate post-verbal (10), (11).

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<sup>5</sup> ‘Boundary narrowing’ is found in other Bantu languages, like Chichewa (Kanerva 1990; Truckenbrodt 1995, 1999; Downing et al. 2005), Haya (Byarushengo et al. 1976, Downing 2002) and Xhosa (Jokweni 1995; Downing 2002, 2003). See Hock (1998) and Selkirk & Shen (1990) for discussion of post-focus lowering in Indo-European languages and Chinese, respectively.

<sup>6</sup> See, e.g., Bearth (2003) for a recent overview of the influence of information structure on syntax in Bantu languages.

The Chitumbuka data illustrating *ex situ* focus were elicited using two strategies. Asking a *Wh*-question, considered a traditional test for focus (Kanerva 1990), as *Wh*-morphemes have inherent focus, and the answers have new information focus. The second strategy was to ask the consultant if alternative word orders were possible, and, if so, what context they would be used in. All contexts indicated in square brackets are the ones provided by the language consultant.

(9) *Sentence-initial focus*

- (a) (ma-búuku) ([β]a-ka-pása      [β]-áana)  
 6-book            2-TAM-give            2-child

‘They gave the children BOOKS.’

[Answers, ‘What did they give to the children?’]

- (b) (Pa-mu-páanda) (zi-ka-dúka      mbúuzi).  
 LOC-3- wall            10-TAM-jump            10-goat

‘THE GOATS jumped OVER THE WALL.’

[And something else jumped over something else.]

- (c) Q (Namachéero) (mu-zamu-limiliráa-chi)?  
 Tomorrow            you - TAM - weed – what

‘What are you weeding tomorrow?’

- A (Ngóoma) (ti-zamu-limilíra      namachéero).  
 Maize            we - TAM - weed      tomorrow

‘We will weed maize tomorrow.’

[Maize is being contrasted with some other possible crop.]

- (d) (kwa [β]a-léendo) ([β]a-ka-wonésya      mínda yáawo).  
 to      2-visitor            2-TAM- show            fields their

‘TO THE VISITORS they showed THEIR FIELDS.’

[Context: 2 sets of people were to be shown the fields, but only the visitors were shown the fields and the other people were shown something else.]

(10) *Post-verbal focus*

(a)

- Q (Kási [β]a-léendo) (ku-Lilóongwe) ([β]a-ku-lúta      namachээрò)?<sup>7</sup>  
 Q    2-visitor            Loc- Lilongwe            2-TAM-leave            tomorrow

‘Are the visitors leaving for LILONGWE tomorrow?’

- A (Yáaye)(namachéero) ([β]a-ku-lúta      kuZóomba).  
 ‘No,      tomorrow      they are leaving for ZOMBA.’

- (b) (Njáani) (wa-ka-zi-yeyéra      ku-nyúumba)      (m-bohóole)?  
 Who      1-TAM-10.OM-carry      LOC-house            10-potato

‘Who carried them TO THE HOUSE, the potatoes?’

<sup>7</sup> Yes-no questions (and sometimes *Wh*-questions) begin with a question morpheme, *kási*, and have a falling-rising tone pattern over the final two syllables.

(11) ‘They gave children books.’

- (a) ([β]-áana) ([β]a-ka-pása ma-búuku)  
 2-child 2-TAM- give 6-book  
 [Answers, ‘What did they give to the children?’]

OR

- (b) ([β]a-ka- pása [β]-áana) ! (ma-búuku).  
 2-TAM- give 2-child 6-book  
 [Context: CHILDREN, not elders, got books.]

OR

- (c) ([β]a-ka-pása ma-búuku) ! ([β]-áana).  
 2-TAM- give 6-book 2-child  
 ‘They gave BOOKS [not something else] to the children.’

The question arises whether the two syntactic focus positions can lead to ambiguity. If an NP precedes and follows the verb, how can one tell which is in focus? The answer is that only the context can tell you which NP is in focus.<sup>8</sup> This is shown by (12), identical to (9d), where we see that the same utterance is appropriate both in a context where the sentence-initial NP is contrastive (9d), and in a context where only the postverbal NP is contrastive (12). As we can see, there is no prosodic or syntactic distinction between the two utterances.

- (12) (kwa [β]a-léendo) ([β]a-ka-wonésya mínda yáawo).  
 to 2-visitor 2-TAM-show fields their  
 ‘To the visitors they showed THEIR FIELDS.’

[Context: Several things to be shown the visitors, in this case they were shown the fields.]

As the alert reader will have noticed, a further source of ambiguity is that the syntactic focus positions are also the canonical positions for the subject (sentence-initial) and the object (immediate postverbal). While it is true that in a pro-drop language like Chitumbuka an overt subject NP only occurs if it is discourse new or salient, and an overt object is also often discourse new (Morimoto 2000), the overlap between canonical and focus positions emphasizes that syntax does not single out the focus constituent.

Before concluding this section, I would like to highlight an interesting morpho-syntactic property of the ex situ focus data. Mchombo (2004), Bresnan & Mchombo (1987) have argued that flexible word order is tolerated in Bantu

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<sup>8</sup> Ambiguity in scope of focus is not unique to Chitumbuka. See Gussenhoven (1999), for example, for recent discussion of ambiguities in determining scope of focus from culminative accent placement in English.

languages because an obligatory Object Prefix, agreeing and co-occurring with a dislocated Object NP, helps keep track of the grammatical role of NPs when they are not in their canonical position. However, as shown in data like (12), for example, the Object Prefix is not required in Chitumbuka when the Object NP occurs *ex situ*.<sup>9</sup> When the Object Prefix and Object NP co-occur, my consultant says the best translation is a definite reading for the Object NP:

(13) Object prefix (underlined> and definiteness

- (a) (n-khu-wóna ma-kúuni). 'I see trees.'  
 vs. (n-khu-ya-wóna ma-kúuni). 'I see the trees.'  
 (b) (ku-wóna phiíri)? 'Do you see a mountain?'  
 vs. (ku-li-wóna phiíri)? 'Do you see the mountain?'

Mchombo (2004) and Mchombo & Morimoto (2003) have argued further that an obligatory Object Prefix is what licenses more unusual forms of non-canonical word order, like discontinuous constituents. However, even in sentences with discontinuous constituents volunteered by my Chitumbuka language consultant, no Object Prefix is required. As in the other data in this section, the motivation for discontinuous realization of the constituent appears to be to use sentence-initial and postverbal position to indicate differences in discourse prominence.<sup>10</sup>

(14) 'S/he cannot carry the big bundle of firewood.'

- (a) (wa-nga-nyamúla yáaye) (mzíwu u-kúlu wa-nkhúuni).  
 1-TAM carry not 3-bundle 3-big of-firewood

OR

- (b) (mzíwu wa-nkhúuni) (wa-nga-nyamúla yáaye) (u-kúulu).  
 3-bundle of firewood 1-TAM carry not 3-big  
 [S/he can carry firewood, yes, but not a big one.]

(15) 'We broke the farmer's old hoe.'

- (a) (ti-ka-phyóla jémbe li-dála la-mulíimi).  
 We-TAM-broke 5- hoe 5-old of farmer

OR

- (b) (jémbe la mulíimi) (ti-ka-phyóla lidála)  
 5-hoe of farmer we-TAM-broke 5-old  
 [The farmer has several hoes; it is the old one that we broke.]

<sup>9</sup> See Bearth (2003) for discussion of other Bantu languages which do not require an OP when the object is dislocated.

<sup>10</sup> In (14), note that the inherently focused negative morpheme, *yáaye*, is followed by a Phonological Phrase break. We return to this point in section 4.

To sum up this section, the Chitumbuka data confirm work like Morimoto (2000) showing that sentence-initial and post-verbal positions are, cross-linguistically, typical ones for focus. Prosodically, there are no differences between *ex situ* focus and *in situ* focus. We continue to find boundary narrowing – a focused element within the VP must be followed by a phrase boundary – and postfocal lowering – a postfocal element in the VP is strikingly downstepped. Because there are two positions of syntactic prominence and no culminative sentential prosody correlates with focus, many sentences have ambiguous focus out of context.

### 3.3 *Clefts and right dislocation*

For the sake of completeness, I present in this section data illustrating two other non-canonical word orders which have an effect on information structure in Chitumbuka: clefting and right dislocation.

Clefting – signaled by the clefting morpheme ‘*ni*’ – is an additional *ex situ* focus strategy.<sup>11</sup> Clefting emphasizes that the NP in the cleft is being chosen from a known list of possibilities; it cannot present new information (unlike the simple sentence-initial focus position illustrated in the previous section). That is, clefting has the identificational focus function which É. Kiss (1998) argues is often expressed by clefts. As shown in (16b), ‘which X’ questions – but not their answers – require clefts, in my data.

(16)

(a)

Q (Ni njáani) (wa-ku-bwatísya máji ya mpúunga)?  
CLEFT who 1-TAM-boil water for rice?  
‘WHO is boiling water for rice?’

A (Ni mwanalúume) (wa-ku-bwatísya máji ya mpúunga).  
‘The man [not someone else previously mentioned] is boiling water for rice.’

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<sup>11</sup> I did not systematically elicit clefts, and so the generalizations here are based on only a few examples. More work obviously needs to be done on this topic. The non-clefted version of (16a) is given in (7), above.

(b)

Q (Ni mu-lóngá úuli) (wa-ka-[β]ejáa-mo)?  
CLEFT 3-river which 1-TAM-fish-in  
 ‘Which river did he fish in?’

A (wa-ka-[β]éja mu-mulóngá wa pa-fúpi na mzíinda).  
1-TAM-fish in river of close to town  
 ‘He fished in the river close to town.’

In contrast to the other non-canonical word orders discussed in this section, right-dislocated constituents do not fulfill a contrastive or emphasizing function. The data in (17), repeated from (11), above, illustrates this point. The immediate postverbal NP is in focus, while the downstepped, post-focal constituent is out of focus:

(17) ‘They gave children books.’

(a) ([β]a-ka-pása [β]-áana) ! (ma-búuku)  
2-TAM-give 2-child 6-books.  
 ‘They gave CHILDREN [not someone else] books.’

OR

(b) ([β]a-ka-pása ma-búuku) ! ([β]-áana)  
2-TAM-give 6-books 2-child  
 ‘They gave BOOKS [not something else] to the children.’

There is, then, a striking parallel between discourse prominence and pitch prominence. Sentence-initial position – where pitch prominence is highest – is favored for elements with high discourse prominence. Downstepped sentence-final position – where pitch prominence is lowest – is a favored position for elements with low discourse prominence.

### 3.4 *Prosodic phrasing and focus*

#### 3.4.1 *Discussion*

To conclude this section, let us return to our central questions: How well does Chitumbuka focus phrasing satisfy the STRESS-FOCUS constraint (1)? Does the focused constituent have the highest prosodic prominence in its domain? As we have seen, focus position does not consistently correlate with positions of culminative prominence. The two positions of prosodic prominence – sentence initial pitch prominence and sentence penult lengthening – remain fixed. They do not shift to the focused constituent, as in English.

However, if we take another look at the phrasal prosody discussed in this section, we can see that syntactic position and prosody together often conspire to give some prosodic prominence to the focused element in an utterance. Sentence-initial focus position is passively highlighted, as it is the position of culminative pitch, due to downstep after each High tone within the Intonational Phrase. Post-verbal focus position is also passively highlighted, as the post-verbal NP is often the final word of the sentence, receiving sentence stress. Further, any postfocus element in the VP is significantly downstepped, lending the focused element non-culminative pitch prominence. In both focus positions, the Phonological Phrase break which follows the focused constituent lends it phrasal stress in the form of phrase penult lengthening. In sum, the Chitumbuka in situ and ex situ focus prosody data discussed so far provide evidence for the weaker version of the STRESS-FOCUS constraint in (1) proposed by Samek-Lodovici (2005): focus constituents must have *some* prosodic prominence.

### 3.4.2 OT analysis

The formal OT analysis developed in this section makes these observations explicit. The Alignment constraints in (18a-c) – adapted from work by Truckenbrodt (1995, 1999) – define the correlation between syntactic and phonological phrasing. Constraints (18b,c) optimize a match between a syntactic XP and a Phonological Phrase, while high-ranked ALIGNFOCUS (18a) optimizes ‘boundary narrowing’ by requiring a Phonological Phrase break following a focused element, lending a degree of stress to the focused element. The constraints in (18e, f) define the two culminative prominences in the Intonational Phrase (I): the I-penult bears main stress (18e), while I-initial position bears the highest pitch (18f). As these two constraints are never violated, they are high-ranked. STRESS-FOCUS (18c), in contrast, is low-ranked in Chitumbuka – in contrast to languages like English and Italian – as it is frequently violated.

(18)

*Alignment constraints (Truckenbrodt 1995, 1999; Selkirk 2000; Samek-Lodovici 2005)*

(a) ALIGNFOC: AlignR(Foc, P)

Align the Right edge of a focused element with the right edge of P.

(b) WRAP XP: Each lexically-headed XP is contained in a (single) P.

(That is, XP – including a verb and all its complements – is coextensive with P[honological phrase].)

(c) ALIGNR(XP, P): Align the right edge of XP with the right edge of a P[honological phrase].



satisfied maximally: the entire VP, not each of XP complement to the verb, is optimally parsed into a single Phonological Phrase.)<sup>12</sup> The second candidate is non-optimal, as the focused NP is not at the right edge of a Phonological Phrase, and receives no prominence.

Notice in the tableau that STRESS-FOCUS (SF) is systematically violated, as the focused element is not in I-final position – the position of sentential stress – in either of the optimal candidates. Due to high-ranked ALIGNFOCUS, it is phonological rephrasing, with phrasal stress as a side effect, which is the consistent prosodic correlate of focus. Finally, note that fronting the focused element, as in (20c), not only improves the phrasing (by satisfying WRAP), it also gives the focused element extra prominence, as its High tone has the highest pitch in the Intonational Phrase. As work like Féry (2001), Szendrői (2003) and Samek-Lodovici (2005) shows, movement is motivated in other languages as a way of improving the prosodic phrasing and/or salience of a focused constituent.

#### 4 Focus related morphemes

The final section of the paper is concerned with one final focus construction in Chitumbuka, namely, morphemes which have inherent focus or association with focus, like those illustrated in (21):

(21)

*Inherent focus: wh-enclitic*

- (a) ([β]-analúume) ([β]a-ku-zengáa-*chi*)?  
2-man 2-TAM-build-what  
'What did the men build?'

*Focus related morpheme*

- (b) (Ku-limiliráa-*so*) (ngóomá)?  
You/TAM-weed-also maize  
'Are you also weeding the maize?'

These morphemes are of theoretical interest, as recent work on the prosody of focus like Rooth (1992), Selkirk (2004) and Truckenbrodt (1995, 1999) leads us to expect that the focused argument of a focus-related morpheme should be made prominent either phonologically, by having the same focus prosody as other focus constructions; or morphologically, by adjacency of the focusing

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<sup>12</sup> The optimal candidates in (20) obviously violate syntactic constraints, omitted here, as the verbal complements are not in their canonical order – given in the input – in either candidate. See work like Samek-Lodovici (2005) for discussion of what syntactic constraints might be involved.

morpheme and its argument. For example, in English, sentential accent marks all types of focus, including focus on the italicized argument of ‘also’ in (22c):

(22)

- (a) Where are you going to eat dinner on Friday?  
We are going to *an Italian restaurant* for dinner on Friday.
- (b) We are going to an *Italian* restaurant, not a *Thai* restaurant.
- (c) We are also going to an Italian restaurant on *Saturday* night.

What I will show is that focus particles in Chitumbuka do not conform to this proposal, as the position of the particle and/or prosody do not always highlight the focused argument. This makes them problematic even for a version of STRESS-FOCUS (1), expanded to allow focus morphology to lend culminative prominence to a focused constituent.

#### 4.1 *The data*

Chitumbuka has two types of focus-related morphemes: verbal enclitics and free morphemes. As we shall see in the next section, both types of focus morphemes – but not their arguments – consistently trigger boundary narrowing (Hyman 1999): the phonological rephrasing which correlates with the distribution of long vowels and falling contour tones illustrated in the preceding section.

##### 4.1.1 *Wh-verbal enclitics*

The data in (23) – (24) shows that *Wh*-particles and words in Chitumbuka are always followed by a phonological phrase break, whether they are final in their VP – where a break would be expected – or not. Notice, this is different from English, where *Wh*-words, when fronted, are not made phonologically prominent through sentential stress, the usual prosodic cue to focus in English. Only the answers to *Wh*-questions must have sentential stress in English.

(23)

*-chi*: object interrogative enclitic ‘what?’

(a) ([β]analúume) ([β]a-ku-zengáa-*chi*)?

OR ([β]-analúume) ([β]a-ku-zénga *víichi*)?

2-man                      2-TAM-build-what

‘What did the men build?’

(b) ([β]a-ku-chitáa-*chi*) (na-*chi*-páaso)?

2-TAM -do-what              with-7-fruit

OR (*chi*-páaso) ([β]a-ku-chíta      ná-cho *víichi*)?

7 - fruit      2-TAM-do              with-7 what

‘What are they doing with the fruit?’

(24)

*-nkhu*: ‘where?’

(a) ([β]a-liimi) ([β]a-lutáa-*nkhu*)? OR ([β]a-liimi) ([β]a-lúta *kóochi*)?

2-farmers      2-TAM-go-where

‘Where did the farmers go?’

(b) (mu-liimi) (wa-ka-yeyáa-*nkhu*) (ngóoma)?

1-farmer      1-TAM-carry-where      maize

OR (mu-liimi) (wa-ka-yéya *kóochi*) (ngóoma)?

‘Where did the farmer carry the maize?’

Note that other *Wh*-question morphemes – like *njáani* ‘who’ – cannot be realized as *Wh*-enclitic particles; they only have full word variants:

(25)

(a) (ku-múunda) (kw-a-lúta      *njáani*)?

LOC-fields      LOC-TAM-went      who

‘Who went to the fields?’

(b) ([β]-áana) ( [β]a-ku-vwíra      *njáani*)?

2-child              2-TAM-help              who

‘Who did the children help?’

(c) ((Ni) *njáani*)(wa-ku-vwíra      [β]-áana)?

(CLEFT) who      1-TAM-help              2-child

‘Who is helping the children?’

The association-with-focus verbal enclitic, *-so* ‘also; again’ follows the same pattern. It attaches only to verbs and is followed by a phonological phrase boundary. Notice, the verb is not always the argument of this clitic even though it is always the host, as shown in (26b). Further, boundary narrowing is

consistently triggered by the clitic, not by its argument – the constituent in focus. This leads to ambiguity about what is in focus, as shown in (28b), where either the verb or the object could be the argument of *-so*.

(26)

(a) (n-khu-limilíra ma-púuno).

I-TAM-weed 6- tomatoes

‘I am weeding tomatoes.’

(b) (Ku-limiliráa-so) (ngóomá)?

You/TAM-weed-also maize

‘Are you also weeding the maize?’

(27) ([ ]-áana) ([ ]a-ku-séka péerá)? (Yáaye) ([ ]a-kw-imbáa-so).

2-child 2-TAM-laugh only

No 2-TAM-sing-also

‘Do the children laugh only?’

‘No, they also sing.’

(28)

(a) (ngáanga) (yi-ku-vwíra msambízi).

9/doctor 9-TAM-help teacher

‘The doctor is helping a teacher.’

(b) (ngáanga) (yi-ku-vwiráa-so) (msambízi).

9/ doctor 9-TAM-help-also teacher

‘The doctor is also helping a teacher.’

(29) ([ ]a-mbwéengu) ([ ]a-ku-lyáa-so) (ma-gwáfya m-ma-kúuni).

2-monkey

2-TAM-eat-again

6- guavas

in- 6-trees

‘The monkeys are eating again the guavas in the trees.’

#### 4.1.2 Free focus morphemes, ‘only’ and ‘not’

The data below show that the free focus morphemes – unlike the enclitics – are immediately adjacent to, and follow, their argument (i.e., the constituent they place in focus).<sup>13</sup> Like the enclitics, they are consistently followed by a phrase break, while the focused argument has no special prosody.

<sup>13</sup> When *yáaye* follows a verb, as in (30c), it ambiguously negates either the verb alone or the entire predicate. When it follows a verb complement, it negates only the complement.

(30) Chitumbuka focus particles

*yáaye* ‘not’

(a) ([β]a-ku-zénga sukúlu *yáaye*) (kwéni nyúumba).

2-TAM-build school not rather house  
‘They are not building a school, rather a house.’

(b) (tu-ku-phikíra [β]-ána *yáaye*) (kwéni [β]a-léendo).

we-TAM-cook for 2-child not rather 2-visitor  
‘We are not cooking for the children, rather the visitors.’

(c) (m-bwéengu)(wa-ka- lísyá *yáaye*)(mwáana).

1-monkey 1-TAM-make cry not child  
‘The monkey did not make the child cry.’

*péera, wáaka* ‘only’

(d) ([β]a-léndo *péera*)( [β]a-ka-[ β]onésya pamúzi páawo)

2-visitor only 2-TAM-show homes their  
‘They showed their homes only to the visitors.’

(e) Q (Kási mbúuzi) (zi-ka-kwéra pa-mu-pàándâ)?

Q 10- goat 10-TAM-climb LOC-3-fence  
‘Did the goats CLIMB over the fence?’

A (Yáaye) (mbúuzi) (zi-ka-dúka *wáaka*) (pa-mu-páanda).

no 10-goat 10-TAM-jump only LOC-3-wall  
‘No, the goats JUMPED over the fence.’

To sum up this section, syntactically, free focus-related morphemes are always adjacent to their argument. However, enclitics attach only to the verb – most plausibly because it is the head of the VP – even though this is not the position that would fall out from either syntax or discourse function. Prosodically, both types of focus morpheme are systematically followed by a phonological phrase break, even if they themselves are not in focus.

## 4.2 Discussion

Work by Rooth (1992) on focus-related morphemes has argued that they are morphologically and phonologically uninteresting. The focused argument of these morphemes should be made prominent either phonologically, by having the same focus prosody as other focus constructions, like Q/A pairs and in situ contrastive focus; or morphologically, by adjacency of the focusing morpheme and its argument. The proposal that all focus constructions – including focus-

related morphemes – should have the same prosody is also at least implicit in phonological theories of focus prosody, like Selkirk (2004) and Truckenbrodt (1995, 1999), and it is also implicit in the STRESS-FOCUS constraint (1).

The Chitumbuka data clearly raises problems for these proposals, as the focus argument of enclitics is not always made prominent by either phonology or morphology. Free focus morphemes are adjacent to their arguments. However, data like (28b) shows that *-so* is cliticized to the verb even if the complement is focused. As a result, this particle does not make its focused argument morphologically prominent. A further problem is that the phonological phrasing found with focus-related morphemes does not always match the phonological phrasing found in other focus constructions, as work like Rooth (1992) and Truckenbrodt (1995, 1999) predicts. As we saw in the preceding section, phonological rephrasing is the most consistent cue to focus on answers to *Wh*-questions that fall within the VP: the focus constituent is always followed by a Phonological Phrase break. In contrast, it is the focus-related morphemes themselves which trigger phonological rephrasing. Their focused arguments are not consistently highlighted by any special prosody.

To sum up this section, the phonological rephrasing found with focusing morphemes is specific to these morphemes, not generalized from focus constructions which lack a focusing morpheme. It is the focus morpheme – not necessarily the focused argument – that triggers boundary narrowing. This result contradicts Rooth's (1992) proposal that the phonology of focusing morphemes should match the phonology of other focus constructions. Rather, it confirms the findings of Lahiri & Fitzpatrick-Cole (1999) for Bengali, who show that focus particles in that language have a distinct prosody from in situ focus constructions. The verbal enclitic *-so* 'also' presents an additional problem. It contradicts Rooth's (1992) claim that either phonology or morphology should consistently highlight the argument of a focusing morpheme.

### 4.3 *OT analysis*

As we have seen in the preceding section, boundary narrowing is the most consistent correlate of focus in Chitumbuka, and it is also triggered by the focus-related morphemes. We can more clearly see the interaction of syntax, morphology and phrasing in highlighting focus-related morphemes by extending the OT analysis developed in section 3.4.2, above, for ex situ focus to the focus-related morphemes. To account for the special properties of the focus-related morphemes, we need two additional alignment constraints – (31a) and (31b), high-ranked, as shown in (31c):

(31)

(a) ALIGN-FM: AlignR(FM; P)

Each focus-related morpheme (FM) is right-aligned with a P[Phonological Phrase]-boundary.

(b) \*ALIGNL: \*AlignL(FM, P)

A focus-related morpheme (FM) cannot be separated from its host or focused argument by a P-boundary; that is, it is prosodically dependent on its ‘host’ or focused argument.

(c) ALIGN-FM, \*ALIGNL, HI (18e), DOWNSTEP (18f) >> ALIGNFOCUS (18a) >> WRAPXP (18b) >> ALIGNXP(18c) >> SF (18d)

The constraints in (31) must be ranked above ALIGN-FOCUS (18a). This accounts for the generalization that it is the focusing morpheme – not its argument – which is consistently followed by a Phonological Phrase boundary.

The tableau in (32) shows how these constraints optimize the correct phrasing for sentences with a free focus-related morpheme, like (30c), repeated below:<sup>14</sup>

(30c) (mbwéengu)(wa-ka- lísyá yáaye)(mwáana).  
 ‘The monkey did not make the child cry.’

(32)

/mbwéngu wa-ka-lísyá <sub>F</sub> yáaye mwána /	ALIGN-FM	*ALIGNL	ALIGN-FOCUS	WRAP	ALIGN-XP	SF
☞ a. (mbwéngu)(wa-ka- lísyá <sub>F</sub> yáaye) (mwáana) <div style="text-align: center;"> <span style="margin-right: 100px;">x</span> <span style="margin-right: 50px;">x</span> <span style="margin-right: 50px;">x</span> <span style="margin-right: 50px;">x</span> </div>			*	*		*
b. (mbwéngu) (wa-ka-lísyá <sub>F</sub> yáaye mwáana) <div style="text-align: center;"> <span style="margin-right: 100px;">x</span> <span style="margin-right: 50px;">x</span> <span style="margin-right: 50px;">x</span> </div>	*!		*			*
c. (mbwéngu) (wa-ka-líisyá <sub>F</sub> ) (yáaye) (mwáana) <div style="text-align: center;"> <span style="margin-right: 50px;">x</span> </div>		*!		*		*

<sup>14</sup> In this section, the constraints HI and DOWNSTEP are omitted, as they are never violated by an optimal candidate. The ‘x’ and bold font in the tableaux indicate stress and highest pitch, respectively, as in the tableau in the preceding section.

The first candidate is optimal, as the right edge of the focusing morpheme *yáaye* is aligned with a Phonological Phrase and immediately follows its focus argument, satisfying ALIGN-FM and \*ALIGNL, respectively. Candidate (32b) satisfies the default Phonological Phrasing constraints, but is non-optimal as it violates two high-ranked focus phrasing constraints. Candidate (32c) is non-optimal, as the focusing morpheme is not included in the same Phonological Phrase as the focused constituent which defines its position in the sentence.

This tableau highlights the contradictions embodied in the focus-related morphemes. They make a focused constituent prominent by their position: immediately adjacent to the focused constituent. However, they attract the usual focus prosody – boundary narrowing – away from their focused argument. (Notice that the optimal candidate (32a) violates ALIGNFOCUS (18a).) As a result, the focused constituent itself is not stressed at all in this construction.

A final tableau makes explicit the prosody-focus mismatches incurred by the enclitic *-so*, illustrated in data like (28b), repeated below:

(28b) (ngáanga) (yi-ku-vwiráa-so) (msambíizi).

The doctor is also helping a teacher.

(33)

/ ngáanga yi-ku-vwiráa-so msambíizi /	ALIGN-FM	*ALIGNL	ALIGN-FOC	WRAP	ALIGN-XP	SF
☞ a. (ngáanga) (yi-ku-vwiráa-so) (msambíizi)			?	*		?
b. (ngáanga) (yi-ku-vwiráa-so msambíizi)	*!		?			?

The first candidate is optimal, as the right edge of the focusing morpheme *-so* is aligned with a Phonological Phrase (P-phrase), satisfying all of the high-ranked alignment constraints. Candidate (33b) satisfies the default Phonological Phrasing constraints (WRAP and ALIGN-XP), but is non-optimal as the focusing morpheme is not followed by a P-phrase boundary, violating ALIGNFM.

The question marks in the tableau emphasize that the phrasing in (33a) is optimal whether the verb is in focus – and so ALIGNFOCUS is actively satisfied – or the verbal complement is in focus – and so ALIGNFOCUS and SF are passively

satisfied, as a result of also satisfying ALIGNXP. Neither the position of the focus-related morpheme nor the prosody unambiguously highlights what is in focus, since *-so* requires a verb as its host whether it places the verb or a complement in focus.

## **5 Conclusion**

To sum up, I have shown that Chitumbuka uses a combination of prosodic, morphological and syntactic means to highlight focused constituents. Prosodically, a Phonological Phrase (P-phrase) boundary follows a focused constituent or focus-related morpheme. Syntactically, focused constituents tend to occur in sentence-initial position or immediately after the verb, where they are highlighted by rephrasing and, potentially, other prosody. Focus-related morphemes also trigger phonological rephrasing. As we have seen, while focused morphemes or focused constituents often come to be in a position (P-phrase-final) to receive phrasal stress, they are seldom in a position – sentence-final – where they would have sentential prominence. This result challenges the claim embodied in the strong form of the STRESS-FOCUS constraint in (1), that cross-linguistically the focused constituent should have prosodic (or morphological) prominence in the sentential domain. And it confirms work like that of Downing (2003), Ladd (1996), de Swart & de Hoop (2000), and Samek-Lodovici (2005) which shows that focus prosody often lends relative prominence, rather than culminative prominence, to focused constituents.

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