

Focus prosody divorced from stress and intonation in Chichewa, Chitumbuka and Durban Zulu*

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ABSTRACT

It is commonly asserted that, cross-linguistically, there is a necessary correlation between the position of sentence stress (or prominence) and focus. In this paper, I present data from three different Southern Bantu languages and show that, while all have sentence stress (or prominence), the position of prominence is inflexible. It does not move to highlight a focused word or phrase. While word order is flexible, focused elements do not necessarily move to the position of sentence prominence. As a result, culminative prosodic prominence does not correlate with focus in these languages. Instead, the main prosodic cue to focus is prosodic (re-) phrasing. As the prosodic correlates of rephrasing are non-culminative, they are not equivalent to sentence stress or accent.

The interest of these results for the typology of intonation is that they illustrate that intonation can play a limited role in some languages and that, notably, intonation (anchored to stress prominence) does not universally highlight focused information in the way we might expect from European stress languages.

Keywords: Bantu languages, focus, prosodic phrasing, culminative prominence.

1. INTRODUCTION

Much work on the interaction of prosody and focus claims that there is a necessary correlation between the position of main sentence stress (or accent) and focus. (See, for example, Reinhart [27]; Samek-Lodovici [30]; Selkirk [31, 32, 33]; Rooth [28, 29]; Szendrői [35]; Truckenbrodt [36, 37]). This work proposes, relatively uncontroversially, that sentence accent is conditioned both by syntactic factors and also by semantic ones, primarily focus (Bruce [3], Gussenhoven [13, 14, 15] and many others). It also makes the strong claim that focused constituents, as inherent prosodic heads, must have culminative prosodic prominence: i.e., sentence-

level prominence or stress. A recent formalization of this principle is given below:

(1) PROMINENCE-FOCUS (Samek-Lodovici [30]: 697)

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

However, as other work like Ladd [24] and Hayes & Lahiri [16] has pointed out, the Prominence-Focus correlation (1) is mainly supported by European word stress languages where cues for sentence accent – like culminative pitch movement and duration – co-occur on the head syllable of focused constituents, lending it unambiguous sentence-level prosodic prominence. A more universal cue to focus, they argue, is prosodic (re-)phrasing: narrow focused constituents trigger different prosodic phrasing from broad focused constituents. Sentence accent is a cue to prosodic phrasing, not directly to focus, in this approach, and is only a potential cue - not one found in every language.

In this paper, I discuss three Bantu languages – Chichewa, Durban Zulu and Chitumbuka – and show that in all three languages, prosodic phrasing is conditioned by both syntax and, to some extent, focus. All three languages also have phrasal prominence: the phrase-penult syllable is lengthened, and the penult syllable of the utterance receives extra lengthening. The last word in a focus-conditioned prosodic phrase does, then, receive phrasal prominence. This makes these languages relevant for investigating the question of whether prosodic prominence or phrasing is the primary correlate of focus.

I argue that stress (prominence) is not the primary correlate, as we find systematic mismatches between prominence and focus. Sentence prominence – realized as extra penult lengthening – remains fixed on the final word of an utterance. It is not attracted to the prosodic phrase containing a focused constituent. Within prosodic

phrases, it is also the last word of the phrase, not necessarily the one in narrow focus, which realizes phrasal prominence. In Chitumbuka, a productive focus particle – the equivalent of English *also* – attracts phrasal prominence to its verbal host, not necessarily to the word it places in focus.

The conclusion I argue for is that re-phrasing, not stress or prosodic prominence, is the main prosodic correlate of focus in these languages.

2. PROSODIC PHRASING AND PHRASAL PROMINENCE

This section first presents the prosodic phrasing algorithms for the three languages, in turn. In sec. 2.2, the prosodic correlates of the prosodic phrasing – notably, those defining phrasal prominence – are discussed in more detail.

2.1. Prosodic phrasing algorithms

Chichewa and Chitumbuka are two of the three major languages of Malawi (Yao is the third). Durban Zulu is a dialect of one of South Africa's official languages. In all three languages, both syntax and focus play a role in determining the prosodic phrasing. And in all three languages, lengthening of the phrase penult syllable is the easiest to identify – and most consistent – correlate of prosodic phrasing. (Parentheses in the data indicate prosodic phrasing.) Indeed, as Hayes & MacEachern [17] note, (near-)final lengthening is an important cue to phrase boundaries in music and poetry, as well as in spoken language. There are parametric differences in phrasing, though, as different syntactic constituents define neutral prosodic phrasing in the three languages. Focus also plays a different role in each language.

2.1.1. Durban Zulu prosodic phrasing

Durban Zulu prosodic phrasing is almost identical to that of Xhosa, as analyzed by Jokweni [21]. In Xhosa, Jokweni shows that prosodic phrases are coextensive with the entire sentence in a neutral or broad focus context. Work with Lisa Cheng (in collaboration with Meritta Xaba) on Durban Zulu (Cheng & Downing [4, 5]), very closely related to Xhosa, shows the same wide prosodic phrasing under broad focus. As shown in (2), a prosodic phrase break is consistently found at the right edge of CP (roughly, a clause):

(2) Durban Zulu neutral phrasing

(a) The teacher read to the parents a letter.

[_{CP} (úm-fúndísi ú-fúndel-ê: ábá-zal' ín-cwa:di)].
1-teacher 1-read to-TAM 2-parent 9-letter

(b) We believe that the children are playing outside.

[_{CP} (Si-khólwa [_{CP} úkúth' ábá-ntwána bá-dlalá
we-believe that 2-child 2-play
phá:ndle)]].
outside

(c) The children are bothering the old woman.

[_{CP} (ízin-gáne zi-hlúph' ís-álúkwa:zi)].
10-child 10-bother 7-old woman

(d) The man who is wearing a hat saw the visitors.

[_{CP} [_{CP} (Ín-dod' é-gqoke ísí-gqo:ko)]
9-man REL9-wear 7-hat
í-bon-é ízi-vaká:shi)].
9-see-TAM 8-visitor

(e) The teacher who found the ring will get a reward.

[_{CP} [_{CP} (úm-fúnd' ísi ó-thól-é:
1-teacher REL1-find-TAM
ín-dánda:tho)] ú-zo-thóla úm-klóme:lo)].
9-ring 1-Fut-get 3-reward

(f) We like the hat the man is wearing.

[_{CP} (si-thánd' [_{CP} ísí-gqok' ín-dod'
we-like 6-hat 9-man
é-si-gqok-ilê:-yo)]].
REL9-OM6-wear-TAM-Rel

Focus conditions prosodic phrasing only indirectly. Focused verb complements must occur in the *Immediately After the Verb* (IAV) position; a prosodic phrase break separates them from any other postverbal complements. This is shown in (3a, b, c). Clefts are also obligatorily set off by a prosodic phrase break, as shown in (3d, e). Cheng & Downing [5] argue that these phrasings are consistent with the general phrasing algorithm that requires a prosodic phrase break at the right edge of CP, as the right edge of a cleft and the right edge of the IAV position correspond to the right edge of CP.

(3) Durban Zulu WH-Qs and Qs

(a)

Q-What did the visitors buy for their families?

ízi-vaká:shi) zí-yí-thengel-ê:-ni)
10-visitors 10SM-OM4-buy for-TAM-what
ímí-ndeni yâ:zo)?
4-families 4.their

A-The visitors bought clothing for their families.
 ízí-vakáshí bá-yí-thèngel-é ízí-ngu:bo)
 10-visitors 2SM-OM4-buy for-TAM 10-clothes
 ímí-ndeni yâ:zo).
 4-families 4.their

(b)

Q What did the teacher give to the winner?
 úm-fúndís' ú-m-nik-ê:-ni) ó-wín-i:le)?
 1-teacher 1-OM1-give-TAM-Q Rel1-win-TAM

A The teacher gave a medal to the winner.

úm-fúndí:sí) ú-m-nikez-é: í-méndlè:la)
 1-teacher 1-OM1-give-TAM5-medal
 ó-wín-i:le).
 Rel1-win-TAM

(c)

Q Who is Siphó cooking the chicken for?
 Ú-si:pho) ú-yí-phékéla ba:ni) ín-ku:khu)?
 1-Siphó 1-OM9-cook for who 9-chicken

A Siphó is cooking the chicken for the visitors.

Ú-sípho ú-yí-phékél' ízí-vakâ:sh')
 1-Siphó 1-OM9-cook for 10-visitor
 ín-ku:khu).
 9-chicken

(di) *clefted subject*, [Answers 'Who found the ring that you lost?']

It is the teacher who found the ring that I lost.

(um-fúndí:sí) (ó-thól-é: ín-dándatho
 Cop1-teacher REL1-find-TAM 9-ring
 e-bí-ngi-láhléké:le).
 REL-TAM-I-lost

(dii) *subject relative*

The teacher who found the ring will get a reward.

(úm-fúndí:sí ó-thól-é: ín-dánda:tho)
 1-teacher REL1-find-TAM 9-ring
 ú-zo-thóla úm-klóme:lo).
 1-Fut-get 3-reward

(ei) *clefted subject* [Answers, 'Who is playing at school?']

It is the children who are playing at school.

(Abá-ntwa:n') (abá-dlal' é-sí-kóle:-ni).
 COP2-child REL2-play Loc-7- school-Loc

(eii) *subject relative*

The children who are playing at the school live near the school.

(Ábá-ntwán' ábá-dlal' é-sí-kóle:-ni)
 2-child REL2-play Loc-7-school-Loc
 bá-hlál' édúzáne nésí-kó:le).
 2-play near to7-school

To sum up, in Zulu, prosodic phrase breaks are syntactically conditioned by the right edge of CP. Focus plays an indirect role in conditioning

prosodic phrasing, as clefts and the IAV focus position arguably are at the right edge of a CP, and so condition a prosodic phrase break.

2.1.2. Chichewa prosodic phrasing

As Kanerva's [23] detailed study of prosodic phrasing in Chichewa shows, under neutral phrasing a smaller syntactic constituent than in Zulu – roughly, XP rather than CP – conditions prosodic phrase breaks. The subject NP, VP (verb and all its complements, when none are modified) and a Topic phrase are the three syntactic subconstituents of the clause in Kanerva's analysis. Each of these is parsed into its own prosodic phrase, as shown below:

(4) Chichewa neutral phrasing (Kanerva [23])

(a) The hyena bought a hat in San Francisco yesterday.

(fiisi) (a-na-gúlá chi-péwá ku-San Franciscó
 1.hyena 1-TAM-buy 7-hat Loc-San Franciso
 dzuulo)
 yesterday

(b) The children slept at Mavuto's house.

(aána) (a-na-góná m-nyumbá yá mávúuto)
 2.child 2-TAM-sleep Loc-9.house 9.of Mavuto

(c) He hit the house with a rock.

(a-na-ményá nyumbá ndí mw-áála)
 1-TAM-hit 9.house with 3-rock

Downing et al.'s [10] study of prosodic phrasing in a different dialect of Chichewa (the Ntcheu dialect) confirms these patterns.

Unlike Durban Zulu, Chichewa allows in situ focus of verb complements (Kanerva [23]; Downing et al. [10]). As shown in (5) and (6) below from Downing et al. [10], a prosodic phrase boundary obligatorily follows a constituent in focus, leading to what Hyman [20] calls 'boundary narrowing'. VP-final focused constituents are also preceded by a prosodic phrase boundary in the dialect of Chichewa illustrated in (5d). (This phrasing is not found in the dialect investigated by Kanerva [23].) Non-focused VP complements following the focus are each parsed into a separate prosodic phrase. The upward pointing arrows in the data below are meant to indicate that the register of the entire preceding prosodic phrase, the one containing the focused element, is raised. (See sec. 4.2, below, for discussion of focus-related register raising in this variety of Chichewa):

- (5) Focus and phrasing in Ntcheu Chichewa
- (a) S/he hit the house with a rock.
a-ná-ménya nyumbá ndí mw-áálá.
s/he-TAM-hit 9.house with 3-rock
- (b) [neutral declarative – same as (4c), above]
(A-ná-ménya nyumbá ndí mw-áálá).
- (c) [Answers the question: ‘S/he hit the house with what?’]
(A-ná-ménya nyuumbá) (ndí mw-áálá) ↑.
- (d) [Answers the question: ‘What did s/he hit with the rock?’]
(A-ná-ménya nyuumbá) ↑ (ndí mw-áálá).
- (e) [Answers the question: ‘What did s/he do to the house with a rock?’]
(A-ná-ménya) ↑ (nyuumbá) (ndí mwáálá).
- (6) The chief gave the child clothes.
- (a) [neutral declarative]
(M-fúumu) (i-ná-pátsa mw-aná z-óóváala).
9-chief 9-TAM-give 1-child 10-clothes
- (b) [Answers the question: ‘What did they give to the child?’; placing answer in IAV gives it more emphasis]
(A-ná-’m-patsa zóóváala) ↑ (mwaáná).
- (c) [Answers the question: ‘Who did they give clothes to?’]
(A-ná-pátsa mwaáná) ↑ (zóóváala).
- (d) [Answers the question: ‘They gave the child what?’]
(A-ná-pátsa mwaáná) (zóóváala) ↑.

To sum up, in Chichewa, prosodic phrase breaks are syntactically conditioned by the major constituents of the clause: Subject, VP and Topic. Focus plays a direct role in conditioning prosodic phrasing: constituents within VP can be focused in situ and then must be followed by a prosodic phrase break.

2.1.3. Chitumbuka prosodic phrasing

Chitumbuka is the least well studied of these three languages. There is no thesis-length work on prosodic phrasing or even a grammar of the language. The facts presented here are based on my own fieldwork in Malawi. (See Downing [8] for a preliminary sketch of the syntax and prosody of focus in this language.)

Neutral prosodic phrasing in Chitumbuka is conditioned by the right edge of DP (a noun phrase). Like in Chichewa, this means that Subject NPs and Topics are phrased separately. In contrast to Chichewa, the entire VP does not form a single

prosodic phrase unless the VP is very short. Instead, the verb plus first complement form a single phrase, while following complements are often phrased separately. That is, the neutral phrasing of VPs in Chitumbuka is essentially identical to the focus-induced phrasings of the VP shown in (5) and (6). (Compare (7g) with (5d)):

- (7) Chitumbuka neutral phrasing
- (a) (ti-ku-phika síima)
we-TAM-cook 9.porridge
‘We are cooking porridge.’
- (b) ([β]-áana ([β]a-ku-[β]a-vwira [β]a-bwéezi)
2-child 2-TAM-2.OM-help 2-friend
‘The children help the friends.’
- (c) (ti-ka-wona mu-nkhúngu ku-msíika).
we-TAM-see 1-thief LOC-market
‘We saw a thief at the market.’
- (d) ([β]-anakáazi) ([β]a-ka-sona vy-akuvwara
2-woman 2-TAM-sew 8-clothes
vya mu-kwâ:ti.)
8.of 1-bride
‘The women sewed clothes for the bride.’
- (e) (m-nyamâ:ta) (wa-ka-timba nyû:mba) (na
1-boy 1-TAM-hit 9.house with
lí:bwe).
5.rock
‘The boy hit the house with a rock.’

Because the prosodic phrases are already very short, there is little opportunity for focus to have an influence. However, we do find the following focus-conditioned prosodic re-phrasings. As shown in (8) and (9), the answer to a Wh-question and a Wh-question particle are followed by an obligatory prosodic phrase break; whereas comparable VPs with no items in focus can variably be parsed into a single prosodic phrase. This can be seen by comparing (8a) with the answer in (8b):

- (8) Wh-Qs on verb complements and Answers
- (a) The woman washes clothes for the children.
[neutral reading]
([β]a-mâ:ma) ([β]a-ku-chápa vy-akuvwára
2P-woman 2P-TAM-wash 8-clothes
vya [β]-â:na).
8.of 2-child
- (b)
Q- Who does the woman wash clothes for?
(Kâ:si), ([β]a-mâ:ma [β]a-ku-chapíra njâ:ni)
Q 2P-woman 2P-TAM-wash for 1.who
(vy-akuvwâ:ra)?
8-clothes

A- The woman washes clothes for the children.
 ([β]a-mâ:ma) ([β]a-ku-chapíra [β]-â:na)
 2P-woman 2P-TAM-wash for 2-child
 (vy-akuvwâ:ra).
 8-clothes

(9)

Q- Who did you buy the green mangoes for at the shop?

(U-ka-mu-gulira njâ:ni)
 1-TAM-1.OM-buy for 1.who
 (mango ya [β]î:si) (ku-gorosâ:ri)?
 9.mango 9.of unripe LOC-grocery

A- I bought green mangoes for my friend at the shop.

(N-kha-mu-gulira mu-nyâ:ne)
 I-TAM-1.OM-buy for 1-my friend
 (mango ya [β]î:si) (ku-gorosâ:ri).
 9.mango 9.of unripe Loc-grocery

A prosodic phrase break is also required following certain association with focus morphemes – *pera* ‘only’; *-so* ‘also’; *yaye* ‘no; not’:

(10) Focus morphemes (Downing [8])

(a) *pera* ‘only’

To the visitors only, they showed their homes.

([β]a-léndo *péera*) ([β]a-ka-[β]onésya
 2-visitor only 2-TAM-show
 pamúzi páawo)
 homes their

(b) *-so* ‘also’

Are you also weeding the *maize*?

(Ku-limilirâ:*-so*) (ngoómâ:)?
 You/TAM-weed-also 9.maize

(c) *yaye* ‘no; not’

The monkey did not make the child *cry*.

(m-bwéengu)(wa-ka- lísya *yáaye*)(mw-áana).
 1-monkey 1-TAM-make cry not 1-child

To sum up, in Chitumbuka, prosodic phrase breaks are syntactically conditioned by noun phrase edges, though an entire VP can be parsed into a single prosodic phrase, especially if it is short. Focus also plays a direct role in conditioning prosodic phrasing. Constituents within VP can be focused in situ and then must be followed by a prosodic phrase break. Focus particles must also be followed by a prosodic phrase break.

2.2. Phrasal prominence assignment

As we have seen, in all three languages, prosodic phrasing is conditioned by focus, at least

indirectly. In all three languages, the prosodic phrase is also the domain for assignment of phrasal prominence, defined as lengthening of phrase-penult syllables. Indeed, duration is a common cross-linguistic correlate of stress prominence, as noted in work like Hyman [19] and Odden [26]. Penult lengthening has been characterized as the equivalent of (phrasal) stress prominence in work on Bantu languages since Doke [6]; Downing [9] provides a recent survey of Bantu languages with this form of stress prominence. Although this has not been shown (it is unclear how to transcribe it), the penult syllable of the sentence-final prosodic phrase receives extra lengthening. It is this culminative length on the sentence-penult syllable which we can consider the equivalent of sentence-level prominence in these languages.

Turning now to the question of whether these three Bantu languages support the Prominence-Focus correlation in (1), we do find that focused constituents often have a prosodic phrase boundary at their right edge. This means that they are in the position to receive phrasal prominence and, when they are also sentence-final, sentence prominence. As Selkirk [32, 33] argues, however, the Prominence-Focus hypothesis claims that phrasing is derived from the position of (stress) prominence which in turn is predictable from focus. In these languages, I show that we find the opposite direction of influence. The position of prominence placement is derived from phrasing, as has been assumed in presenting the data. And the position of neither phrasal nor sentential prominence is necessarily predictable from the position of focus.

3. MISMATCHES BETWEEN PROMINENCE AND FOCUS

In this section I argue that the following mismatches between prominence and focus in Chichewa, Durban Zulu and Chitumbuka show that phrasing, rather than prominence, is the primary correlate of focus. First, sentence stress (or sentential prominence) – realized as extra penult lengthening – remains fixed on the final word of an utterance. It is not attracted to the prosodic phrase containing a focused constituent. Further, within prosodic phrases, it is the last word of the phrase, not necessarily the one in narrow focus, which realizes phrasal prominence. Finally, in Chitumbuka, a productive focus particle, *-so* – the equivalent of English *also* – attracts phrasal

prominence to its verbal host, not directly to the word it places in focus.

3.1.1. Fixed sentence level prominence

The Prominence-Focus correlation in (1), repeated below, requires focused constituents, as heads of the Intonational Phrase, to have the highest degree of prosodic prominence within their domain:

(1) PROMINENCE-FOCUS (Samek-Lodovici [30]: 697):

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

In all three of these languages, though, the highest degree of prosodic prominence (i.e., vowel lengthening) in the sentence is fixed on the penult syllable of the final prosodic phrase in the sentence. As noted in work like Kanerva [23] and Downing et al. [10], the sentence-penult syllable is significantly longer than sentence medial penults in Chichewa. Informal phonetic studies of Durban Zulu and Chitumbuka show the same pattern. As a result, focused elements would only have sentential prominence if they happen to be sentence final. That is, the final constituent in a sentence is always the most prosodically prominent, if we use duration as a consistent correlate of prominence, whether it contains the focused constituent or not.

This clearly violates the Prominence-Focus correlation. This principle is satisfied if stress/prominence is flexible, as in English and other Germanic languages, and can move to the focused position. It is also satisfied if word order is flexible, as in Italian and Hungarian (Samek-Lodovici [30], Szendroï [35], Zubizaretta [40]), so that focused words can move to the stressed position. The Prominence-Focus correlation is also satisfied by languages like French (Beysade et al. [2], Féry [11]) which compress pitch in post focal constituents, lending focused constituents passive prominence. None of these possibilities is realized in these Bantu languages. While focused constituents often receive phrasal prominence, they do not consistently receive sentence prominence, even if the scope of focus is the sentence.

3.1.2. Fixed phrasal prominence within XPs

In the above data, where entire XPs are in focus, often the XP consists of a single word. In all of

these cases, almost necessarily, phrasal prominence occurs in a position that is consistent with scope of focus. If we turn to cases where there is focus within an XP – but not necessarily on the word at the right edge of the XP – what we find is that prosodic phrase boundaries always fall at the right edge of the XP containing the focused word, not at the right edge of the focused element. Further, phrasal prominence falls consistently on the phrase penult syllable. This does not change if the focused word is not at the right edge of its XP.

These points are illustrated by the following data from Chitumbuka (Downing field notes). In these examples, contrastive focus is clearly on the word towards the left edge of the prosodic phrase, but phrasal prominence is assigned to the non-focused word which occurs at the right prosodic and syntactic phrase boundary:

(11) Chitumbuka

(a)

Q- Did the child carry the basket for an old *man* or an old *woman*?

(Mw-â:ná) (wa-ka-yeyera chi-tê:te)

1-child 1-TAM-carry for 7-basket

(dada mu-chekû:rû:) (panyákhe

1.man 1-old or

mw-anakazi mu-chekû:ru)?

1-woman 1-old

A- The child carried the basket for an old *man*.

(Mw-â:na) (wa-ka-mu-yeyera chi-tê:té)

1-child 1-TAM-1.OM-carry for 7-basket

(dada mu-chekû:ru).

1.man 1-old

(b)

Q- Is he building the new houses *in* the village or *outside* the village?

(Kâ:sî, wa-ku-zenga nyumba zî:-pyá)

Q 1-TAM-build 10.house 10-new

(mu-kati mwa-mû:zî:) (pa-nyákhe ku-walo

Loc -in Loc-village or Loc-outside

kwa-mû:zi)?

Loc-village

A- He is building *some* new houses *in* the village (and) *some* *outside*.

(Wa-ku-zenga nyumba zi-nyákhe mu-kati

1-TAM-build 10.house 10-some Loc-in

mwa-mû:zî) (zi-nyákhe ku-wâ:lo).

Loc-village 10-some Loc-outside

Similar phrasing and prominence assignment for similar data is found in Durban Zulu and Chichewa

(Downing field notes), as well as in Swahili (Geitlinger & Waldburger [12]). In these languages, the generalization is the same: prosodic phrasing respects XP constituent edges, and phrasal prominence remains fixed on the phrase penultimate syllable. Neither phrasing nor prominence highlight a pre-final focused element within the phrase. Interestingly, the Bantu pattern reported here has parallels in Italian (Ladd [24], Swerts et al. [34]) and Egyptian Arabic (Hellmuth [18]). Within certain XPs, then, it is apparently not uncommon to find that the position of phrasal prominence is not required to match the position of focus.

3.1.3. Chitumbuka focus particle –so

In English, where the Prominence-Focus principle (1) is consistently respected, sentential prominence marks all types of focus, including focus on the italicized argument of association-with-focus particles like ‘also’:

- (12)
 [Where are you going to eat dinner on Friday?]
 (a) 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.

However, analogous focus particles in Chitumbuka, a Bantu language spoken in Malawi, do not follow this pattern, as the position of the particle and/or prosody do not always highlight the focused argument. The association-with-focus verbal enclitic, *-so* ‘also; again’ illustrates the problem most clearly. As shown in (13) - (16), it attaches only to verbs, and it is followed by a prosodic phrase boundary.

Notice in this data that the verb is not always the argument of this clitic even though it is always the host. Further, a prosodic phrase boundary consistently follows the clitic, not its argument – the constituent in focus. This leads to potential ambiguity about what is in focus. For example, in (15b), the subject, the verb, the verb phrase or the object could be interpreted as the argument of *-so* without the context in (15a) to disambiguate:

- (13)
 (a) I am weeding tomatoes.
 (n-khu-limilíra ma-púuno).
 I-TAM-weed 6- tomatoes
 (b) Are you weeding also the maize?
 Ku-limilirá-*so* ngòómâ:?
 You-weed-also 9.maize
- (14) The friend who killed the snake also brought father to the hospital.
 (Mu-nya[β]o uyo wa-ka-yi-koma n-jô:ka)
 1-friend 1.REL 1-TAM-9.OM-kill 9-snake
 (ndiyo wa-k-izáa-*so*) (na β]a-dada
 is.who 1-TAM-bring-also with 2P-father
 [β]-â:[β]o) (ku-chi-patâ:la).
 2P-their Loc-7-hospital
- (15)
 Q- Is it only the doctor who helps the teacher?
 (Ni [β]a-dokotala péera) (a[β]o
 COP 2P-doctor only 2P.REL
 [β]a-ku-vwira [β]a-sambiizi)?
 2P-TAM-help 2P-teacher
 A- No, the chief also helps the teacher.
 (Yâ:yí), ([β]a-fû:mu) [β]a-ku-vwiráa-*so*)
 no 2P-chief 2P-TAM-help-also
 ([β]a-sambiizi).
 2P-teacher
- (16)
 Q- Are you going to Lilongwe today?
 (Kâ:si), (mu-ku-luta ku-Lilóongwe)
 Q you-TAM-go Loc-Lilongwe
 (mw-ahúunóo)?
 today
 A- Yes, and I am also going to Salima.
 (Ê:nya), (n-khu-lutáa-*so*) (ku-Salíima).
 yes I-TAM-go-also Loc-Salima

Work by Rooth [28] on focus-related morphemes has argued that focus particles like *-so* should be morphologically and prosodically uninteresting. The focused argument of these morphemes should be made prominent either prosodically, by having the same focus prosody as other focus constructions, like Q/A pairs and in situ contrastive focus, or morphologically, through the 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 implicit in phonological theories of

focus prosody which assume the PROMINENCE-FOCUS principle in (1).

The Chitumbuka data clearly raises problems for these proposals, as the focus argument of the focusing enclitic is not always made prominent by either phonology or morphology. Data like (15b) shows that *-so* is cliticized to the verb even if the subject is focused. As a result, this particle does not make its focused argument morphologically prominent by being morpho-syntactically adjacent to it. Phonologically, it is the focus-related morphemes themselves which trigger prosodic rephrasing. Their focused arguments are not highlighted by any special prosody.

4. INTONATION AND PROMINENCE

So far, we have not mentioned intonational properties of these languages, and, indeed, intonation does not play a striking role in signaling focus or other aspects of information structure. However, it does play some role, and this will be briefly sketched in this section. First, I show that, in Chitumbuka and Chichewa, an intonational melody which anchors to the prominent syllable signals yes/no questions. Then I show that register raising of the focused phrase is found in some varieties of Chichewa.

4.1. Intonation of Yes/No questions

In both Chichewa and Chitumbuka, Yes-No Qs have an Intonational rise-fall (or fall-fall) melody over the final two syllables of the question, and the overall pitch is higher. (In Zulu, there is no special prosody associated with questions.) As we see, the intonational melody anchors to a prominent syllable:

(17) Chitumbuka (Downing field notes)

(a) Did the goats jump over the wall?

Kási, mbû:zi zi-ka-duka pa-chi-phùúphâ?

Q 10.goats 10-TAM-jump Loc-7- wall

(b) Did the monkey make the child cry?

Kási, mbwê:ngu [β]a-ka-lilisya mw-àánâ?

Q, 1.monkey 1-TAM-make cry 1-child

(18) Chichewa (Downing field notes)

(a) Did the dog make the child laugh?

Kódí, gaálu a-ná-seketsa mw-àánâ?

Q 1.dog 1-TAM-make laugh 1-child?

(b) Are the boys feeding the pigs?

Kódí, a-nyamáàta a-ku-dyétsa nkhuúmbâ?

Q 2-boys 2-TAM-feed 10.pigs

(c) Does the teacher farm maize?

Kódí m-phunziitsi á-ma-líma chí-màángâ?

Q 1-teacher 1-TAM-farm 7-maize

These intonation patterns are found elsewhere in Bantu languages. Ashton [1] shows that Swahili yes-no questions are marked by a rise-fall melody over the last two syllables. An overall raised pitch for yes/no questions is found in Northern Sotho (Zerbian [39]) and Jita (Downing [7]). Indeed, as Yip [38] shows, it is fairly common for tone languages to use boundary tones or an overall raising of pitch register to mark questions. Lexical tone does not preclude the intonational use of pitch. It is rather surprising, then, that Chichewa and Chitumbuka do not indicate focus by use of sentential pitch prominence as intonational melody (and register) are manipulated to distinguish statements from questions.

4.2. Focus register raising in Chichewa

Although Chichewa does not use sentential register raising to indicate focus, Downing et al. [10] have shown that, at least in some varieties of Chichewa, phrasal register raising accompanies focus. (Myers [25] also notes the occurrence of focus register raising in Chichewa, but unfortunately provides no phonetic details.) To briefly summarize their findings, focus leads to systematic raising of f_0 within the Phonological Phrase containing the focused element. As shown by the mean maximal pitch values for data set (5), given in (19), even though the pitch of High tone sequences in the prosodic phrase containing the narrowly focused element (underlined) is significantly higher (bolded) than when the same constituent is not focused, downstep is not reset by focus raising. High tones undergo declination across the Intonational Phrase in all the data.

(19) Mean maximal pitch values for the Phonological Words in (5b, c, d, e)ⁱ - (Downing et al. [10])

	a-ná-mé(e)ny-a	nyu(ú)mbá	p: [ms]	N	ndi-mwáálá
(5b)	147.6 (3.96)	113.7 (2.96)	-	-	110.9 (3.18)
(5c)	144.0 (7.29)	115.2 (5.07)	193.2 (32,23)	2	120.0 (6.02)*
(5d)	154.1 (8.71)	134.4 (15.22)**	252.7 (52.43)	5	109.6 (3.63)
(5e)	179.0 (11.9)**	109.9 (4.21)	-	-	101.2 (1.37)

Further, it is not just the register of the focused element which is raised. Rather, the register of all the High tones in the prosodic phrase containing the focused element is raised, while maintaining a pattern of declination between High-toned sequences within the prosodic phrase (and throughout the utterance). As a result, we can see that the focused element does not have the highest pitch in its phrase (or in the sentence), unless it is also sentence- or phrase-initial.

To sum up this section, while prosodic re-phrasing is the most consistent correlate of in situ focus in Chichewa, some speakers also raise the pitch register of the prosodic phrase containing the focused element, but not in a way that lends it culminative sentential prominence.

5. CONCLUSION

To conclude, let us return to the questions that we started off with. First, do Chichewa, Durban Zulu and Chitumbuka have sentence prominence? As we have seen, yes, they do all have culminative sentence prominence, realized as significant lengthening of the sentence-penult syllable. Secondly, does sentence prominence correlate with focus? No, as we have seen, in these languages sentence prominence is fixed at the end of the sentence, but focus can occur in an earlier prosodic phrase. Nor does focus register raising, found in some varieties of Chichewa, give culminative pitch prominence to the focused element. Finally, does phrasal prominence correlate with focus? No, for two reasons. As we have seen, phrasal prominence is fixed on the phrase-penult syllable. The focused word need not be in a position in the phrase where it can receive phrasal prominence. Further, focus particles in Chitumbuka highlight their host, not necessarily their arguments.

In short, these are languages where re-phrasing is the main prosodic cue to focus and add to the body of work showing that re-phrasing is an important cross-linguistic cue to focus (Hyman [20], Ladd [24], Jun [22], Hayes & Lahiri [16]). Sentence prominence is conditioned only by syntax, and plays the important demarcative function of identifying sentence edges.

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ⁱ Bolding highlights the significantly raised f_0 -values (in Hz; and their sd in parentheses) of the Prosodic Words under focus (underlined) as revealed by Scheffé post hoc tests for an ANOVA over pitch maxima split by Phonological Word (**: $p < .01$; *: $p < .05$). Bold cell borders indicate Phonological Phrasing. The duration in ms of pauses is given in column 'p:.'; the 'N' column indicates the number of repetitions out of 5 containing a pause at that position.