

Stress-Focus Mismatches in Chichewa

LAURA J. DOWNING, ZAS (Berlin)
downing@zas.gwz-berlin.de

1 Introduction

Samek-Lodovici (2005, 2006) – like most work on the prosody-focus interface (see, e.g., Frota 2000; Gussenhoven 1984, 1996, 1999; Roberts 1998; Rooth 1992, 1996; Reinhart 1995; Selkirk 1984, 1995, 2004, Szendrői 2003, Truckenbrodt 1995, 2007; Zubizarreta 1998) –

argues that focused elements universally satisfy the STRESS-FOCUS constraint, a **harmonically high-ranked constraint requiring them to have sentence-level culminative stress**:

(1) STRESS-FOCUS (Samek-Lodovici 2005: 697):

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

Samek-Lodovici (2005) recognizes that Kanerva's (1990) study of focus prosody in Chichewa provides an exception to this claim,

- focused elements in that language (in the data in Kanerva 1990) **bear only phrasal stress, not sentential stress**.

To account for Chichewa, Samek-Lodovici (2005) proposes a weaker version of the STRESS-FOCUS constraint – still harmonically high-ranked – which requires

- focused elements to have the same degree of stress as non-focused Phonological Phrase heads in the sentential domain. This assumes (incorrectly) that Chichewa does not have sentential stress.

In this talk,

- I show that even this weaker version of the STRESS-FOCUS constraint does not account for Chichewa focus prosody, as focused elements in Chichewa are not necessarily assigned either sentential stress or phrasal stress.

The argument is developed as follows:

- in section 2, I provide more background on the kind of data that motivate the STRESS-FOCUS constraint and the Chichewa data that motivate Samek-Lodovici's proposed weaker version;
- in section 3, I present data that is problematic for this weaker version,
 - both data from Kanerva (1990),
 - and the results of an ongoing study of Chichewa focus prosody – undertaken with the collaboration of Al Mtenje of the University of Malawi and Bernd Pompino-Marschall of Humboldt University.
- in section 4, I present a new OT analysis of Chichewa focus prosody which accounts for the complete range of data.

2 Motivating the STRESS-FOCUS constraint

In many European languages, the correlation between the position of sentential stress and the position of focus is uncontroversial.

As Samek-Lodovici (2005) persuasively demonstrates,

- formalizing the STRESS-FOCUS correlation as a constraint that can interact with both syntactic and prosodic constraints
- provides an elegant analysis of why sentence stress and focus align in both Italian and English,
- even though the languages use different means to achieve this alignment.

In both English and Italian ‘normal’ sentence stress is sentence-final:

(2) Sentence-final stress and focus (Samek-Lodovici 2005: 688)

- (a) English: [John has LAUGHED.]_f Context: What happened?
(b) Italian: [Gianni ha RISO.]_f Context: What happened?

If the subject (canonically sentence-initial in both languages) is narrowly focused,

- stress moves in English,
- while the subject moves to the position of sentence stress in Italian.

(3) Subject focus (Samek-Lodovici 2005: 688)

- (a) English: JOHN_f has laughed. Context: Who has laughed?
(b) Italian: Ha riso GIANNI_f. Context: Who has laughed?
Has laughed John.

Samek-Lodovici’s (2005) account of these facts:

- Both English and Italian satisfy the STRESS-FOCUS constraint.
- Italian allows (even requires in some cases) syntactic movement to satisfy the correlation, as the position of sentential stress is relatively rigid.
- English requires sentential stress to move, as syntactic position is relatively rigid.
- OT’s principle of factorial typologies allows this difference to be formalized through the relative ranking of constraints on syntactic movement and prosodic prominence assignment.¹

As Samek-Lodovici (2005, 2006) notes,

- Kanerva’s (1990) study of Chichewa focus prosody shows this language is problematic for the STRESS-FOCUS constraint in (1).
 - While focus triggers prosodic rephrasing, as shown in (4b), below,
 - focused elements at XP edges have the same degree of stress as other Phonological Phrase heads.
 - They do not bear sentential stress.
- Note that penult lengthening is considered the phonetic correlate of stress in Chichewa (as in many other Bantu languages).

¹ See Zubizarreta (1998) and Szendrői (2003) for further discussion of stress-based movement in Romance and Hungarian, respectively. And see Van Valin (1999) for discussion of a similar typology defined through the interaction of the relative rigidity of syntactic versus focus structure.

(4) Broad vs. narrow focus in Chichewa (Kanerva 1990: 98, fig. (101a)); ‘]’ indicates an XP edge

(a) *broad focus on the VP*

(A-na-ményá nyumbá] ndí mw-áálá.]]
 s/he-TAM-hit CL9. house with CL3-rock
 ‘S/he hit a house with a rock.’

(b) *narrow focus on first VP complement*

(A-na-ményá nyuúmbá_F] (ndí mw-áálá.]]
 ‘S/he hit a HOUSE with a rock.’

OT constraints are, in principle, freely rankable (see, e.g., Prince & Smolensky 2004).

The most straightforward way to fit Chichewa into a factorial typology would be to propose:

- the STRESS-FOCUS constraint can be low enough ranked in some languages as to have no effect on the grammar.

Indeed, Zerbian’s (2006) detailed analysis of focus in Northern Sotho takes up this possibility, to account for languages where:

- focus has *no* effect on the prosody: e.g., Wolof (Rialland & Robert 2001) and Gur languages discussed in Schwartz (2009),
- including languages with fixed sentential stress at the right edge of a clause but, unlike in Italian, focused elements do not move to this position: e.g., Northern Sotho (Zerbian 2006) and Thompson River Salish (Koch 2008).
 - We will see that Chichewa also fits into this set.

However, Samek-Lodovici (2005, 2006), like most of the authors cited above, maintains that:

- All languages satisfy the STRESS-FOCUS constraint in some form.
- In OT terms this constraint has a fixed (harmonic) ranking high enough for its effects to be felt in all languages.

To account for Chichewa, then, Samek-Lodovici (2005, 2006) proposes:

- Chichewa does not have culminative focus prosody because it does not have culminative sentential prosody.
- Each Phonological Phrase head in Chichewa projects its headedness to the next level to satisfy the following constraint:

(5) STRESSXP_{All} (Samek-Lodovici 2005: 737):

A lexically headed XP must contain phrasal stress across all layers of the prosodic hierarchy.

This constraint is satisfied, if the heads of all of the Phonological Phrases – focused or not – have the same level of metrical prominence at the Intonation Phrase level:

(6) Samek-Lodovici (2005: 737, T25)

(anaméenyá nyuúmba_F) (ndí mwáála)
 (x) (x) Phonological Phrase
 (x) (x) Intonation Phrase

The representation in (6) allows Chichewa to satisfy a weaker form of the constraint in (1):

(7) Weak version of the STRESS-FOCUS constraint (Samek-Lodovici 2005: 738; 2006: fig. (16))

Focus receives the highest prosodic prominence but can share it with other items where necessary [i.e., to satisfy (5)].

A focused element in Chichewa satisfies this weaker version of the STRESS-FOCUS constraint,

- if no other element than the focus has greater prosodic prominence than the focused element does.
- No other element can have greater prominence, in this analysis, as that would incur a violation of STRESSXP_{All} (5).

I demonstrate in section 3 that this analysis does not fit Chichewa sentential prosody:

- There is, in fact, culminative sentential stress in Chichewa, although the representation in (6) claims there is none. (Kanerva 1990; Downing et al. 2004)
- Moreover, within Phonological Phrases (and XPs) the position of prosodic prominence is fixed and does not necessarily match the position of the element in focus. (Downing 2008)

In the next section, I sketch:

- the basic phonological phrasing algorithm for Chichewa;
- problematic mismatches between stress and focus.

3 Focus, phrasing and stress in Chichewa

3.1 Basic phonological phrasing algorithm for Chichewa

Two main factors condition phonological phrasing in Chichewa simple sentences:

- syntax and focus.

(See, e.g., Bresnan & Mchombo (1987), Bresnan & Kanerva (1989), Kanerva (1990), Mchombo (2004) and Downing et al. (2004).)

The two main cues to the Phonological Phrase in Chichewa are:

- phrase-penult lengthening and
- tonal alternations conditioned by the position of a word in the Phonological Phrase (Kanerva 1990; Downing et al. (2004)).²

Effect of syntax on phrasing:

- Subject DPs and (other) topicalized or vP/CP-external DPs are in a distinct syntactic and Phonological Phrase from the vP.
- The vP forms its own Phonological Phrase:

² See work like Hyman & Mtenje (1999), Mtenje (1986, 1987), Moto (1989), Myers (1996, 1998, 1999a, b), Myers & Carleton (1996) for detailed analyses of tone in Chichewa, including some discussion of the dialectal variation in tone realization mentioned in this talk.

(8) Prosodic phrasing is indicated with parentheses; ‘]’ indicates XP edges

(a) (Subj) (VP) – Kanerva (1990: 102, fig (112))

(fíisi] (a-na-dyá ’m-káango])

CL1.hyena 1SUBJ-TAM-eat CL3-lion

‘The hyena ate the lion.’

(b) (Subj) (VP) (Top) – (Kanerva 1990: 107, fig (123b))

(mwaána]) (a-na-’m-pézá kú-dáambo]) (gaálu])

CL1.child 1SUBJ-TAM-1OBJ-find LOC-swamp CL1.dog

‘The child found it at the swamp, the dog.’

(c) (Top) (VP) (Subj) – (Kanerva 1990: 102, fig (110c))

(a-leenje]) (zi-ná-wá-luuma]) (njúuchi])

CL2-hunter 10SUBJ-TAM-2OBJ-bite CL10.bees

‘The hunters, they bit them, the bees [did].’

Effect of focus:

We *do not* find a phrase break after the first XP complement when the entire vP is in broad focus, as we can see in the data in (9):

(9) Prosodic phrasing is indicated with parentheses; ‘]’ indicates XP edges

(a) (VP) (Kanerva 1990: 98, fig. (101a))

(A-na-ményá nyumbá] ndí mw-áálá.])

s/he-TAM-hit CL9.house with CL3-rock

‘S/he hit a house with a rock.’

(b) (Subj) (VP) Kanerva (1990: 103, fig (114b))

(mwaána]) (a-na-pézá galú] kú-dáambo.])

CL1.child 1SUBJ-TAM-find CL1.dog LOC-swamp

‘The child found the dog at the swamp.’

(c) (Subj)(VP) Kanerva (1990: 103, fig. (114a))

(mfúumu]) (i-na-pátsá mwana] zóóváala.])

CL9.chief 9SUBJ-TAM-give CL1.child CL10.clothes

‘The chief gave the child clothes.’

Focused elements within the vP condition what Hyman (1999) has termed “boundary narrowing”:

- A Phonological Phrase boundary must follow the focused element.
- Each subsequent XP constituent of the vP is parsed into a separate Phonological Phrase:

(10) Examples of boundary narrowing under focus (Kanerva 1990: 98-101)

(a) *broad focus on the vP*

(a-na-góná m-nyumbá yá Mávúuto.])

They-TAM-sleep in-CL9.house CL9.of Mavuto.

‘They slept in Mavuto’s house.’

cf.

(b) *V focus with particle –ngo ‘only’*

(a-naá-ngo-góona_F) (m-nyumbá yá Mávúuto.])

They-TAM-ONLY-sleep in-CL9.house CL9.of Mavuto.

‘They only SLEPT in Mavuto’s house [not danced].’

cf. (9a), above:

(c) *narrow focus on first vP complement*

(A-na-ményá nyuumbá_F]) (ndí mw-áálá.])

‘S/he hit a HOUSE with a rock.’

(11) Focus and phrasing (Downing & Mtenje 2008)

(a) *broad focus*

(M-fúumu) (i-ná-pátsa mw-aná zóóváala).
CL9-chief 9SUBJ-TAM-give CL1-child CL10.clothes
'The chief gave the child clothes.'

cf. – narrow focus

(b) Q (A-ná-pátsa ndaání) (zóóváala)?
1SUBJ-TAM-give who CL10.clothes
'Who did he give clothes to?'

(c) A (A-ná-pátsa mw-aáná_F) (zóóváala).
'S/he gave the CHILD clothes.'

(d) *broad focus*

(A-ná-pézá galú ku-dáambo).
2SUBJ-TAM-find CL1.dog LOC-swamp
'They found the dog in the swamp.'

cf. – narrow focus

(e) Q (A-ná-pézá chiyáani) (ku-dáambo)?
2SUBJ-TAM-find what LOC-swamp
'What did they find in the swamp?'

(f) A (A-ná-pézá gaálú_F) (ku-dáambo).
'They found the DOG in the swamp.'

(g) *contrastive focus in a relative clause (in square brackets)*

Q- (Mu-ná-kúmana nd'-[á-lendó a-méné á-ná-patsá m-fúumu_F] (m-pháatso])?
you pl.-TAM-meet with-CL2-visitor 2-REL 2SUBJ-TAM-give CL9-chief CL10-gift
'Did you meet [the visitors who gave the CHIEF gifts]?'

A- (ti-ná-kúmana nd'-[á-lendó [a-méné á-ná-patsá Mavútoo_F] (m-pháatso])
we-TAM-meet with-CL2-visitor 2-REL 2SUBJ-TAM-give Mavuto CL10-gift
'No, we met [the visitors who gave MAVUTO gifts.]'

To sum up,

- boundary narrowing under focus does attract phrasal stress to a focused word.
- phrasal stress in a focused Phonological Phrase is realized identically – through phrase penult lengthening – as in a non-focused Phonological Phrase.
 - This satisfies STRESS-XP_{All} (5)
- Weaker version of the STRESS-FOCUS constraint (7) is satisfied – based on this data.

3.2 *Mismatches between stress and focus*

3.2.1 *Sentential stress in Chichewa*

Following Samek-Lodovici, we make the standard assumption that the domain of focus for *Wh*-questions and their answers is the entire sentence (prosodically, the Intonation Phrase).

Kanerva (1990: chapter 5) provides evidence that Phonological Phrases in Chichewa are grouped into Intonation Phrases (IPs), the next higher constituent in the Prosodic Hierarchy (Nespor & Vogel 1986, Selkirk 1986).

IPs have the prosodic correlates illustrated in (12).

- the lengthy quote beneath this example explains the transcription conventions which Kanerva (1990) uses and provides additional information about the prosody:

(12) Intonational Phrases (Kanerva 1990: 140)

(a-na-pátsá mwaána_F) (njiínga)↘ | (ósatí mfúumu) ↘
S/he-TAM-give child bicycle not chief
S/he gave the *child* a bicycle, not the chief.

“Both IPs in [(12)] end in low falling contours and show IP-final lengthening; **in particular, the IP-penultimate syllable in *njiínga* is noticeably longer than the penultimate syllable in *mwaána*, which is lengthened only at the [Phonological Phrase] level [...].** Tonal catathesis occurs twice in the first IP, not only within the first [phonological phrase], but also between it and the second [phonological phrase]. No catathesis, however, occurs between the IPs; in fact, the High tones of the second IP are all higher pitched than those in *njiínga* and even *mwaána*.”

IP prosody:

- First, High tones in successive Phonological Phrases within the Intonation Phrase are realized at a progressively lower pitch due to downstep (also called declination or catathesis).
- Secondly, **the Intonation Phrase is the domain of sentential stress assignment**, realized as extra lengthening of the IP-penult syllable.

Note that the word under focus in the first IP (*mwaána* ‘child’) does not receive any form of culminative prosodic prominence within the IP:

- It does not bear sentential stress (that is, culminative penult lengthening), as it is not IP final.
- It also does not have culminative pitch, as it is not IP initial.
- In sum, Kanerva (1990) shows that stress and pitch single out opposite edges of the IP for culminative prominence, and these prominent positions do not change under focus.

Since the positions of sentential prominence are fixed and do not match the position of focus,

- Kanerva’s description shows that Chichewa violates the strong version of the STRESS-FOCUS PRINCIPLE (1).
- Chichewa also violates the weaker version of the STRESS-FOCUS constraint (7)
 - because Kanerva’s description shows that Chichewa violates STRESSXP_{ALL} (5).

No sentence-level prosody associated with focus is identified by Kanerva (1990). Downing et al. (2004, 2005) and Myers (1996) essentially confirm these results.

Indeed, based on Kanerva’s (1990) work,

Chichewa is widely cited as a language where phrasing, rather than prosodic prominence, is the main correlate of focus:

- see, e.g., Féry (2001), Gussenhoven (2004), Hayes & Lahiri (1991), Hyman (1999), Kenstowicz & Sohn (1997), Ladd (1996), and Selkirk (2004) for discussion and examples of other languages where phrasing, not stress, correlates with focus.

3.2.2 Stress-focus mismatches

Focus internal to DPs, PPs and VPs shows even more striking mismatches between phrase penult lengthening and focus.

In the data so far, where entire VP-internal XPs are in focus, often the XP consists of a single word.

- In all of these cases, almost necessarily, phrasal prominence occurs in the position of focus.

If we turn to cases in our own data where there is focus within an XP – but not necessarily on the word at the right edge of the XP – what we find is:

- 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.
- Phrasal prominence falls consistently on the phrase penult syllable.
 - Even if the focused word is not at the right edge of its XP.

These points are illustrated by the data in (13) through (15), below (Downing 2008; field notes).

- In these examples, contrastive focus is clearly on the word towards the left edge of the prosodic phrase,
- but **phrasal prominence (penult lengthening) is assigned to the non-focused word** which occurs at the right prosodic and syntactic phrase boundary:

(13) parentheses indicate Phonological Phrases, ‘]’ indicates XP edge

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

(Mw-aána]) (a-ná-nyámulira dengu] bambo_F wókálaamba])
 CL1-child 1SUBJ-TAM-carry for CL5.basket CL1.man 1.old
 (kapená máí_F wókálaamba])?
 or CL1.woman 1.old

A- (A-ná-nyámulira dengu] bambo_F wókálaamba])

1SUBJ-TAM-carry for CL5.basket CL1.man 1.old
 (ósatí máí_F wókálaamba]).
 not CL1.woman 1.old

‘She carried the basket for the old *man*, not the old *woman*.’

(14)

Q (M-fúmú] i-ná-mánga nyumbá] mkatí_F mwá-muudzi])

CL9-chief 9SUBJ-TAM-build CL10.house inside LOC-3.village
 (kapená kunjá_F kwá-muudzi])?
 or outside LOC-3.village

‘Did the chief build houses *inside* the village or *outside* the village?’

A (M-fúmú] i-ná-mánga nyumbá] mkatí_F mwá-muudzi])

CL9-chief 9SUBJ-TAM-build CL10.house inside LOC-3.village
 (ósatí kunjá_F kwá-muudzi]).
 not outside LOC-3.village

‘The chief built houses *inside* the village not *outside* the village.’

(15)

Q [Did the visitors *find* or *lose* a dog in the swamp?]

A (A-lendó] a-ná-péza_F gaálú]) (ku dáambo]).

CL2-visitor 2SUBJ-TAM-find CL1.dog LOC-swamp

‘The visitors *found* a dog in the swamp.’

Similar phrasing and prominence assignment for similar data is found in:

- other Bantu languages like Swahili (Geitlinger & Waldburger 1999), Tumbuka and Zulu (Downing 2008),
- also, Italian (Ladd 1996, Swerts et al. 2002), NB Basque (Hualde et al. 2002: 551), Egyptian Arabic (Hellmuth 2006: 123-129) and other languages surveyed in Cruttenden (2006).

Within certain XPs, then, it is apparently not uncommon, cross-linguistically, to find that:

- the prosodic cues to focus do not match the position of focus
- when the focused element is not at an XP edge.

To sum up,

- Neither the strong nor the weak version of the STRESS-FOCUS constraint proposed by Samek-Lodovici (2005) accounts for Chichewa focus prosody – **if the constraint is harmonically (universally) high-ranked.**
- While focus phrasing often does lend phrase level stress to a focused word,
 - Culminative sentential stress is fixed at the right IntP-edge and does not necessarily correlate with the focused Phonological Phrase.
 - Phonological Phrase stress is fixed at the right PhonPh-edge and does not necessarily correlate with the focused word within the Phrase.

4 A new analysis of the stress-focus correlation in Chichewa

To resolve these problems, I propose a new approach to Chichewa focus prosody:

- Following Zerbian (2006), STRESS-FOCUS must be a violable constraint,
 - outranked by constraints assigning stress to the right edge of IntP and PhonPh:

(16)

(a) ALIGNR(INTP, HEAD) (HI):

Sentential stress is assigned to the head of the rightmost Phonological Phrase parsed by an Intonation Phrase.

(b) ALIGNR(PHONP, HEAD) (HP):

Phrasal stress is assigned to the rightmost Phonological Word parsed by a Phonological Phrase.

Because STRESS-FOCUS is violable, focus-conditioned phrasing must be mediated by a constraint right-aligning Phonological Phrases with XPs containing focused elements:

(17) FOCUS-XP (Downing & Mtenje 2008)

Align the right edge of each minimal focus XP (i.e., XP containing a focused element) with the right edge of a PhP (Phonological Phrase).

This constraint is violated if an XP containing a focused element and a Phonological Phrase are misaligned: either no phrase break at the right focused XP edge OR a break within the XP.

As demonstrated by Kanerva (1990), Truckenbrodt (1995, 1999, 2007), Selkirk (2000) and Downing & Mtenje (2008),

- this Focus phrasing constraint must outrank the constraints defining phrasing under broad focus:

(18)

(a) ALIGNR[PHONPH, PHASE] (ALIGNR-PHONPH) (Downing & Mtenje 2008):

Align the right edge of every Phonological Phrase (PhonPh) with the right edge of a phase (vP/CP).

(b) ALIGNR(XP, PHONPH) (Truckenbrodt 1995, 1999):

Align the right edge of each XP with the right edge of a PhonPh.

(19) Constraint ranking:

ALIGNR(INTP, HEAD), ALIGNR(PHONP, HEAD), FOCUS-XP >> STRESS-FOCUS (1),
ALIGNR-PHONPH >> ALIGNR(XP, PP)

Tableaux exemplifying the analysis:

(20) Analysis of broad focus on the vP– (9a)

(A-na-ményá nyumbá] ndí mwáála.]

s/he-TAM-hit CL9. house with CL3-rock

‘S/he hit a house with a rock.’

[_{vP} anaményá [nyumbá] [ndí mwáála]]	HI, HP	FOCUS- XP	STRESS- FOCUS	ALIGNR- PHONPH	ALIGN XP
☞ (a) x x ([_{vP} anaményá [nyumbá] [ndí mwáála]])					*
(b) x x ([_{vP} anaményá [nyuúmba])([ndí mwáála]])				*!	

While candidate (a) violates ALIGNXP, it remains optimal, as ALIGNR-PHONPH (18) optimizes aligning the right edge of every Phonological Phrase within the phasal domain with the right edge of vP, if no element within the vP is focused. Stress is also consistent with broad focus. Candidate (b) is non-optimal, as it violates ALIGNR-PHONPH: the leftmost Phonological Phrase is not right-aligned with a vP.

(21) Analysis of narrow focus on the first vP complement – (10c)

(A-na-ményá nyuúmba_F) (ndí mw-áálá.)
 s/he-TAM-hit CL9. house with CL3-rock
 ‘S/he hit a HOUSE with a rock.’

[_{vP} anaményá [nyumbá] [ndí mwáála]]	HI, HP	FOCUS- XP	STRESS- FOCUS	ALIGNR- PHONPH	ALIGN XP
(a) x x ([_{vP} anaményá [nyumbá] [ndí mwáála]])		*!	*		*
☞ (b) x x ([_{vP} anaményá [nyuúmba])([ndí mwáála])			*	*	
(c) x x ([_{vP} anaményá [nyuúmba])([ndí mwáála])	*! (HI)			*	

Candidate (b) is optimal when the first complement is focused within the VP: a phrase break follows the focused complement and the following XP is parsed into a separate Phonological Phrase. Candidate (a) is non-optimal, as the focused element is not at the right edge of its Phonological Phrase. Candidate (c) is non-optimal, as the focused element has been assigned sentential stress, in violation of ALIGNR(INTP, HEAD) (HI) (16a).

(22) Analysis of narrow focus on an XP head – (15)

Q [Did the visitors *find* or *lose* a dog in the swamp?]
 A (A-lendó] a-ná-péza_F gaálú) (ku dáambo).
 CL2-visitor 2SUBJ-TAM-find CL1.dog LOC-swamp
 ‘The visitors *found* a dog in the swamp.’

...[_{vP} [_{VP} a-ná-péza _F [gaálú]] [ku dáambo]]	HI, HP	FOCUS- XP	STRESS- FOCUS	ALIGNR- PHONPH	ALIGN XP
(a) x x ([_{vP} [_{VP} a-ná-péza _F [gaálú]] [ku dáambo]])		*!	*		*
☞ (b) x x ([_{vP} [_{VP} a-ná-péza _F [gaálú]]])([ku dáambo])			*	*	
(c) x x ([_{vP} [_{VP} a-ná-péza _F [gaálú]]])([ku dáambo])	*! (HP)			*	

Candidate (b) is optimal, as there is a Phonological Phrase break at the right edge of the minimal XP containing the focused verb. The verb cannot be stressed, though, as it is not at the right edge of that XP. Candidate (a) is non-optimal, as the focused element is not at the right edge of its Phonological Phrase. Candidate (c) is non-optimal, as the focused element has been assigned sentential stress, in violation of ALIGNR(PHONPH, HEAD) (HP) (16b).

5 Conclusion

To sum up,

- Work on focus prosody in Chichewa adds, then, to a body of cross-linguistic research demonstrating that the strong version of the STRESS-FOCUS constraint (1) cannot be maintained as an inviolable principle.
- The analysis incorporating the weaker version of the STRESS-FOCUS constraint proposed in Samek-Lodovici (2005, 2006) to account for Chichewa is also contradicted by the facts of Chichewa focus prosody.

I suggest instead, following work like Zerbian (2006) and Elordieta (2007), that:

- the STRESS-FOCUS constraint – like most OT constraints – must be able to be ranked low enough to define a factorial typology,
- which includes languages like Chichewa with culminative sentential prosody, but no culminative, obligatory focus prosody.

References

- Bresnan, Joan & Jonni Kanerva. 1989. Locative inversion in Chichewa: a case study of factorization in grammar. *Linguistic Inquiry* 20, 1-50.
- Bresnan, Joan & Sam Mchombo. 1987. Topic, pronoun and agreement in Chichewa. *Language* 63, 741-782.
- Cheng, Lisa & Laura J. Downing. in press. Where's the topic in Zulu? In Helen de Hoop & Geertje van Bergen (eds.), *Special issue on Topics Cross-linguistically, The Linguistic Review* 26, 2/3 [2009].
- Cruttenden, Alan. 2006. The de-accenting of old information: a cognitive universal? In Giuliano Bernini & Marcia L. Schwartz (eds.), *The Pragmatic Organization of Discourse in the Languages of Europe*. Berlin: Mouton de Gruyter, 311-356.
- Downing, Laura J. 2008. Focus and prominence in Chichewa, Chitumbuka and Durban Zulu. *ZAS Papers in Linguistics* 49, 47-65.
- Downing, Laura J., Al Mtenje. 2008. Un-WRAP-ing prosodic phrasing in Chichewa. Paper presented at PSI2, ZAS, Berlin, 13-14 June 2008. [under review for the proceedings volume]
- Downing, Laura J., Al Mtenje & Bernd Pompino-Marschall. 2004. Prosody and information structure in Chichewa. *ZAS Papers in Linguistics* 37, 167-186.
- Downing, Laura J., Al Mtenje & Bernd Pompino-Marschall. 2005. Non-accentual prosodic cues to focus in a tone language: the case of Ntcheu Chichewa. Paper presented at BeST, Leiden University, 16-18 June 2005.
- Elordieta, Gorka. 2007. A constraint-based analysis of the intonational realization of focus in Northern Bizkaian Basque. In Tomas Riad & Carlos Gussenhoven (eds.), *Tones and Tunes*, vol. 1, 201-234. Berlin: Mouton de Gruyter.
- Féry, C. 2001. Focus and phrasing in French. In C. Féry & W. Sternefeld (eds.), *Audiatu Vox Sapientiae: A Festschrift for A. v. Stechow*. Berlin: Akademie Verlag, 153-181.
- Frota, Sonia. 2000. *Prosody and Focus in European Portuguese*. New York: Garland.
- Geitlinger, K. & D. Waldburger. 1999. Intonation in Swahili. *Brücken und Grenzen: Werkschau Afrikastudien* 2. Münster: LIT Verlag, 419-434.
- Gussenhoven, Carlos. 1983. Testing the Reality of Focus Domains. *Language and Speech* 26: 61-80.
- Gussenhoven, Carlos. 1984. *On the Grammar and Semantics of Sentence Accents*. Dordrecht: Foris.
- Gussenhoven, Carlos. 1996. Sentence accents and argument structure. In I.M. Roca, ed. *Thematic Structure: Its Role in Grammar*. Berlin: Foris, 79-106.
- Gussenhoven, Carlos. 1999. On the limits of Focus Projection in English. In Peter Bosch & Rob van der Sandt (eds.), *Focus: Linguistic, Cognitive, and Computational Perspectives*. Cambridge: Cambridge University Press, 43-55.
- Gussenhoven, Carlos. 2004. *The Phonology of Tone and Intonation*. Cambridge: Cambridge University Press.

- Hayes, Bruce & Aditi Lahiri. 1991. Bengali Intonational Phonology. *NLLT* 9, 47-96.
- Hellmuth, S. 2006. *Intonational pitch accent distribution in Egyptian Arabic*. Ph.D. dissertation, SOAS.
- Hualde, José I., Gorka Elordieta, Iñaki Gaminde & Rajka Smiljanić. 2002. From pitch accent to stress accent in Basque. In Carlos Gussenhoven & Natasha Warner (eds.), *Laboratory Phonology 7*. Berlin: Mouton de Gruyter, 547-584.
- Hyman, Larry M. 1999. The Interaction between Focus and Tone in Bantu. In: Georges Rebuschi & Laurie Tuller (eds.). *The Grammar of Focus*, 151-177. Amsterdam: John Benjamins.
- Hyman, Larry M. & Al Mtenje. 1999. Prosodic Morphology and tone: the case of Chichewa. In René Kager, Harry van der Hulst and Wim Zonneveld, (eds.). *The Prosody-Morphology Interface*. Cambridge: Cambridge University Press, 90-133.
- Kanerva, Jonni M. 1990. *Focus and Phrasing in Chichewa Phonology*. New York: Garland.
- Kenstowicz, Michael & Hyang-Sook Sohn. 1997. Phrasing and focus in Northern Kyungsang Korean. *MIT Working Papers in Linguistics* 30, 25-47.
- Kisseberth, Charles W. & David Odden. 2003. Tone. In Derek Nurse & Gérard Philippon (eds.), *The Bantu Languages*. London: Routledge, 59-70.
- Koch, Karsten. 2008. *Intonation and Focus in Thompson River Salish*. Ph.D. dissertation, University of British Columbia.
- Ladd, D. Robert. 1996. *Intonational Phonology*. Cambridge: Cambridge University Press.
- Mchombo, Sam. 2004. *The Syntax of Chichewa*. Cambridge: Cambridge University Press.
- Moto, Francis. 1989. *Phonology of the Bantu Lexicon*. Ph.D. dissertation, University College London.
- Mtenje, Al. 1986. *Issues in the Nonlinear Phonology of Chichewa*. Ph.D. dissertation, University College London.
- Mtenje, Al. 1987. Tone shift principles in the Chichewa verb: a case for a tone lexicon. *Lingua* 72, 169-209.
- Myers, Scott. 1996. Boundary tones and the phonetic implementation of tone in Chichewa. *SAL* 25, 29-60.
- Myers, Scott. 1998. Surface underspecification of tone in Chichewa. *Phonology* 15, 367-391.
- Myers, Scott. 1999a. Downdrift and pitch range in Chichewa intonation. *Proceedings of ICPH99*, 1981-1984.
- Myers, Scott. 1999b. Tone association and f_0 timing in Chichewa. *SAL* 28, 215-239.
- Myers, Scott & Troi Carleton. 1996. Tonal transfer in Chichewa. *Phonology* 13, 39-72.
- Nespor, Marina & Irene Vogel. 1986. *Prosodic Phonology*. Dordrecht: Foris.
- Prince, Alan & Paul Smolensky. 2004. *Optimality Theory: Constraint Interaction in Generative Grammar*. Malden, MA: Blackwell.
- Reinhart, Tanya. 1995. Interface strategies. *OTS Working Papers in Theoretical Linguistics* 02-001, Utrecht: OTS, Utrecht University.
- Rialland, Annie & Stéphane Robert. 2001. The Intonational system of Wolof. *Linguistics* 39, 893-939.
- Roberts, Craige. 1998. Focus, the flow of information, and universal grammar. *The Limits of Syntax, Syntax and Semantics* 29, 109-160. Academic Press.
- Rooth, Mats. 1992. A theory of focus interpretation. *Natural Language Semantics*: 75-116.
- Rooth, Mats. 1996. Focus. In S. Lappin (ed.), *Handbook of Contemporary Semantic Theory*. Oxford: Blackwell, 271-297.
- Samek-Lodovici, Vieri. 2005. Prosody-syntax interaction in the expression of focus. *NLLT* 23, 687-755.
- Samek-Lodovici, Vieri. 2006. Absence of stress culmination and prosodic phrasing. In Eric Bakovic, Junko Ito, and John McCarthy, (eds.), *Wondering at the Natural Fecundity of Things: Essays in Honor of Alan Prince*. eScholarship Repository, University of California, <http://repositories.cdlib.org/lrc/prince/>
- Schwartz, Anne. 2009. Tonal focus reflections in Buli and some Gur relatives. *Lingua* 119, 950-972.
- Selkirk, Elisabeth O. 1984. *Phonology and Syntax: The Relation between Sound and Structure*. Cambridge, Mass.: The MIT Press.
- Selkirk, Elisabeth O. 1995. Sentence prosody: intonation, stress and phrasing. In John A. Goldsmith, (ed.). *The Handbook of Phonological Theory*. Cambridge, Mass.: Blackwell, 550-569.

- Selkirk, Elisabeth O. 2004. Bengali intonation revisited. In Chungmin Lee, Matthew Gordon & Daniel Büring (eds.), *Topic and Focus: A Cross-Linguistic Perspective*. Dordrecht: Kluwer, 217-246.
- Swerts, M., E. Kraemer & C. Avesani. 2002. Prosodic marking of information status in Dutch and Italian: a comparative analysis. *Journal of Phonetics* 30, 629-654.
- Szendroï, K. 2003. A stress-based approach to the syntax of Hungarian focus. *The Linguistic Review* 20, 37-78.
- Truckenbrodt, Hubert. 1995. Phonological Phrases: Their Relation to Syntax, Focus, and Prominence. Ph.D. dissertation, MIT.
- Truckenbrodt, Hubert. 1999. On the relation between syntactic phrases and phonological phrases. *LI* 30, 219-255.
- Truckenbrodt, Hubert. 2007. The syntax-phonology interface. In Paul de Lacy (ed.), *The Cambridge Handbook of Phonology*. Cambridge: Cambridge University Press, 435-456.
- Van Valin, Robert D., Jr. 1999. A typology of the interaction of focus structure and syntax. In E. Raxilina & J. Testelec (eds.), *Typology and Linguistic Theory: From Description to Explanation*. Moscow: Languages of Russian Culture, 511-524.
- Zerbian, Sabine. 2006. *Expression of Information Structure in the Bantu Language Northern Sotho*. ZASPiL 45.
- Zubizarreta, Maria Luisa. 1998. *Prosody, Focus and Word Order*. Cambridge, MA: MIT Press.