



Chimwiini phonological phrasing revisited

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ABSTRACT

This paper revisits the topic of phonological phrasing in Chimwiini. Previous discussion of Chimwiini phrasing has been based entirely on the evidence provided by the vowel length alternations found in the language. Unfortunately, these alternations do not allow an exhaustive account of Chimwiini phrasing.

Chimwiini accent (or High tone) provides a new source of evidence. Accent falls on the final vowel in certain morphosyntactic contexts, otherwise on the penult. This accent is phrasal in nature: it is the final or penult vowel in the last word in the phrase that bears accent. Furthermore, what counts as a phrase for the purposes of accent are exactly the same phrases that are required to account for the vowel length alternations in Chimwiini.

This accentual evidence is used to verify the general principle that a phonological phrase occurs at the edge of every (lexical) maximal projection, but it also establishes that a focused element resides at the end of a phonological phrase. The accentual evidence, particularly as it is revealed in sentences involving focus, suggest that phrasing may be recursive in Chimwiini, and that both ALIGN-XP R and WRAP-XP (constraints well known in the literature) play a role in the language.

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1. Introduction

This paper will revisit the issue of phonological phrasing in Chimwiini.² We will focus principally on four aspects of phrasing in this language. The first aspect has to do with the *evidence* for phrasing in Chimwiini. In the seminal papers on Chimwiini phrasing (Kisseberth and Abasheikh, 1974 (=K&A henceforth); Selkirk, 1986), vowel-length alternations provided the sole source of evidence for how words are grouped together into phrases. However, there is an even more robust source of evidence that identifies the phrase in Chimwiini: the accentual system. We will discuss this system in some detail.³

The second aspect of phrasing that we discuss relates to Selkirk's claim that a phonological phrase is not necessarily co-terminus with a syntactic phrase. The evidence from Chimwiini that Selkirk cited bearing on this point was not in fact entirely conclusive. We now present much stronger evidence to support this essential claim of the theory.

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² This paper is based mostly on collaborative research between the authors in the period 1973–1978, augmented by two one month visits by Mohammad Imam Abasheikh to the United States in the 1980s. Beginning in 2009, the first-named author has been able to continue this research with a Chimwiini speaker living in the United States thanks to funding provided by the National Endowment for the Humanities grant #DEL PD-50009 (“Documentation of Chimwiini”, principal investigator: Prof. Brent Henderson) as part of their program ‘Documenting Endangered Languages’.

³ During the 1990s, the first-named author was focused on studying the tonal systems of Eastern and Southern Bantu languages and set aside his study of Chimwiini. In 2000–2001, however, he began the study of tape recordings of Chimwiini and was able to decipher this accentual system. Some general discussion of this system can be found in Kisseberth and Abasheikh (2004), Kisseberth (2005, 2010a). An extended discussion of relative clauses and their accentual pattern is provided in Kisseberth (2010b). *The Chimwiini Lexicon Exemplified* (Kisseberth and Abasheikh, 2004) contains hundreds and hundreds of example sentences with accent transcribed and phrasing indicated.

The third aspect revolves around the principles that determine phrasing in Chimwiini. Selkirk's original analysis, whereby the right edge of a maximal projection is aligned with the right edge of a phonological phrase (=ALIGN-XP R), turns out to be correct, but insufficient. The right edge of a phonological phrase occurs in a variety of other locations besides the right edge of a maximal projection. We discuss some of these situations. Perhaps the most significant of these other situations has to do with the effects of focus. The role of focus, of course, has been a central concern of studies in phrasing ever since Kanerva's (1990a,b) work on Chichewa and Truckenbrodt's (1999) reanalysis; other papers dealing with focus in Bantu languages include: Downing (2002, 2006), Downing et al. (2004), Hyman (1999), and Zerbian (2004). It is thus not particularly surprising that focus is important to Chimwiini phrasing.

The fourth aspect of phrasing that we explore is related to the constraint $W_{\text{RAP-XP}}$ proposed in Truckenbrodt (1995, 1999). $W_{\text{RAP-XP}}$ requires that the elements inside an XP be located inside a single phonological phrase. Truckenbrodt proposes that a language can satisfy both ALIGN-XP R and $W_{\text{RAP-XP}}$ at the same time by allowing recursive phrasing. We show that some complex facts in the Chimwiini accentual system find a solution in just this approach. These facts also contribute to a better understanding of the constraint ALIGN-FOCUS R proposed by Truckenbrodt.

This paper adopts Selkirk's (1986) proposal that certain fundamental interactions between phonology and syntax are best understood in terms of analyzing sentences exhaustively into a sequence of "phonological" (or "prosodic") phrases where the phrasing is determined by aligning the right or left edge of a phonological phrase with the right or left edge of a syntactic unit such as a (lexical) maximal projection or a (lexical) phrase head. In this "indirect-reference" model of the phonology-syntax interface, some phonological principles will operate inside such phrases or will be triggered by phonological elements being located with reference to the beginnings or ends of these phrases. We also adopt the extension of Selkirk's proposal to include interactions between phonology and other aspects of grammar besides syntax in its narrowest sense, e.g. notions of focus or discourse structure or even style. The recognition of the possibility of competition among phrasing principles naturally leads to the adoption of an Optimality-Theoretic framework (cf. Selkirk, 1995, 2000; Truckenbrodt, 1999).

Our focus in this paper is on the accentual system, and as a consequence we only briefly summarize the evidence for phrasing provided by vowel length alternations. The reader is referred to K&A and Selkirk (1986) for more extensive discussion of this evidence and its analysis.

2. Chimwiini: a brief review

Chimwiini is a Bantu language very closely related to Kiswahili; indeed, sometimes it is regarded simply as a Kiswahili dialect, but it differs from Kiswahili phonologically precisely in the matters that are the concerns of this paper (the vowel length system, the accentual system).⁴ The language has been spoken in the town of Brava in southern Somalia for centuries. The late Mohammad Imam Abasheikh estimated the number of speakers at 10,000 when we first initiated our work in 1973. Subsequently, many ethnic Somalis were relocated in Brava, and in the 1990s many of the original inhabitants of the town fled the raging civil war in Somalia, going to camps in Kenya and seeking refuge elsewhere. Today there are substantial communities in the United States (particularly in Columbus and Atlanta, each city having maybe two thousand speakers) as well as the United Kingdom (particularly in London and Manchester) and Kenya (particularly in Mombasa).⁵

In K&A we showed that in Chimwiini there are underlying contrasts between long and short vowels, as well as phonological processes that create long vowels. We also showed that long vowels may occur on the surface only in two positions: the penult or the antepenult (but in antepenult position just when the penult is short). Whenever a long vowel, whether underlying or predicted by one of the vowel lengthening principles, occurs in some other environment, it is shortened. Furthermore, we showed that the notion "penult" and "antepenult" are not with reference to the word but rather the phonological phrase.

Selkirk (1986) advanced the analysis of Chimwiini in two distinct ways. First of all, she gave an analysis that made sense out of the vowel length data from Chimwiini. Specifically, she suggested that Chimwiini has a system of "abstract stress" (abstract in the sense that there is no specific phonetic manifestation that identifies the stressed syllable, and the stress that is involved plays no role whatsoever in the intonational system of the language) where stress is assigned in accordance with the so-called Latin Stress Rule. This rule stresses the penult syllable if that syllable is "heavy" (bimoraic), otherwise it stresses the antepenult. If the phrase has only two syllables, the penult is stressed regardless of weight. The stressed syllable has no necessary phonetic correlate. It is sometimes bimoraic, but sometimes it is not. It is sometimes high-pitched (see the discussion of pitch below), but sometimes it is not. The one essential fact is this: a bimoraic (long) vowel in Chimwiini is possible only if it is located in the stressed syllable. A syllable that is not stressed cannot be long; any underlying long vowel or any predicted long vowel will surface as short if it is not stressed (It should be noted that Hayes (1986) gave a similar analysis.).

As stated above, this stress system is a phrasal system. When calculating the location of stress, one looks first for the penult syllable in the phrase, without concern for word structure at all. If the penult is short, then stress is assigned to the antepenult, again, without concern for the word structure in the phrase.

The second advance that Selkirk made with reference to Chimwiini phrasing is that she identified the following regularity: the right edges of (lexical) maximal projections are also the right edges of phonological phrases. Although this insight was initially expressed in terms of a parametric approach, we will use the Optimality Theoretic approach and identify

⁴ For discussion of Chimwiini in its Swahili context, see Nurse (1982, 1985, 1991) and Nurse and Hinnebusch (1993).

⁵ See Nurse (2010) for some discussion of the decline of Bantu languages in Somalia.

the principle involved as ALIGN-XP R. This constraint says that every right edge of a lexical maximal projection is aligned with the right edge of a phonological phrase. This principle is arguably unviolated in Chimwiini. On the basis of this principle, a sentence of the structure XP V YP ZP QP, where XP is a subject NP and YP, ZP, and QP are complements to the verb, the sentence will be phrased as follows (XP) (V YP) (ZP) (QP).

3. The limitations of the evidence provided by vowel length alternations

Evaluating the success of Selkirk's or any other theory of phrasing in Chimwiini depends of course on our knowing for certain what the phrasing of any given sentence is (so that we can then see whether the proposed theory is consistent with this phrasing). Unfortunately, the vowel length data do not *always* reveal what the phrasing of a sentence is. Let us discuss why this is so.

Recall the basic facts: a long vowel can only occur in a stressed syllable; all unstressed syllables are short. Stress is assigned by looking for the right edge of the phrase. There is one stressed syllable per phrase, and it resides either on the penult or the antepenult syllable of the phrase. Given these facts; if we know what syllables in a sentence are stressed, we know the phrasing. However, since there is no consistent surface characteristic of the stressed syllable, one cannot identify the end of a phrase by simply looking for an overtly stressed syllable. The best one can do is to infer from the vowel length facts whether a syllable is stressed or unstressed (and thus where a phrase edge occurs or does not occur).

There are two ways in which the vowel length facts can help to determine the location of stress and therefore what the phrasing of a given sentence is. First and most obviously, the presence of a long vowel in a sentence means that that this vowel is stressed and thus that the phrase edge is close at hand. For instance, if a long vowel occurs internal to a word, that word is at the end of a phrase. Thus in a sentence like [mw-áana/ oloshéle] 'the child/went', the subject noun phrase *mw-aana* has a long vowel. This means that the penult vowel of this word must be stressed. In turn, this means that *mw-aana* must stand at the end of a phrase. If a long vowel occurs at the end of a word, then we know that this word *cannot* be phrase-final (since long vowels do not occur phrase-finally). The phrase must end after the next word, as in [mw-anaa mú-le/ oloshéle] 'the tall boy/left'.⁶

There is a second way in which vowel length data can establish phrasing. If we would expect a vowel to be long (either because of its lexical representation or because of the rules creating long vowels) when the word is used in isolation, and if in a given sentence it is *not* long, then we know that the word in question is *not* phrase-final. For example, in [mw-ana úyu/ oloshéle] 'this child/left', we know that *mw-aana* in isolation has a long penult vowel. Since this length is missing in the present example, we know that *mw-ana*... is not phrase-final. This evidence tells us where there is *not* a phrase edge, but not where there is one. For instance, in the case of [mw-ana úyu/ oloshéle], the absence of length on *mw-ana*... tells us this word is not phrase-final, but it does not tell us that *uyu* is phrase-final. We can infer that *uyu* is phrase-final on the basis of the fact that the subject noun phrase in [mw-áana/ oloshéle] is phrase-final, but the existence of data allowing such inferences in some cases does not entail that such data exist in all cases. The bottom line is this: the shortening of vowels is evidence only that a word is in the same phrase as the next word.

Of course, there are sentences which contain one or more words which do not (in their isolation form) have a long vowel. For example, in the sentence [mú-ke/ pishíle] 'the woman/cooked', neither word has a long vowel in its isolation form. Thus there is no evidence as to the phrasal structure of this sentence other than the fact that we know from other examples a subject is phrased separately from its verb. Words that do not have a long vowel in their isolation form cannot themselves provide any evidence for phrasing if vowel length alternations are the only source of evidence.

The limitations of vowel length as evidence for phrasing is not, of course, uncommon. In almost every language where the phonology–syntax interface has been studied, evidence is provided only under very specific conditions and the conclusions of this restricted range of data must be projected to other sentences by analogy. In Chimwiini, however, there is a non-quantitative aspect to pronunciation that establishes the phrasing of every sentence of the language: specifically, the phenomenon of *accent* or *High tone*. Neither K&A nor Selkirk (1986) were aware of this additional evidence, and thus could not make use of it in their analyses. In the next section we introduce the facts about the accentual system. In the remainder of this paper, this accentual system is used to identify the phrasing of all the examples we discuss. In many cases, of course, vowel length facts support the analysis implied by accent.

4. The Chimwiini accentual system

In addition to the abstract stress system, there is a second prosodic subsystem in Chimwiini. We shall refer to this system as the *accentual* system (though it could just as easily be referred to as a *tonal* system).⁷ The accented syllable in Chimwiini has an entirely consistent phonetic attribute: it is characterized by high pitch (indicated throughout this paper by an acute mark above a vowel; if the vowel is bimoraic, we place the acute mark over the first vowel symbol). The accentual system is

⁶ All vowels are underlyingly short in word-final position. Their lengthening in phrase-medial position was noted as early as K&A. Extended discussion of this lengthening can be found in Kisseberth (2010a).

⁷ There are prosodic systems which are unambiguously "stress" systems, and there are prosodic systems that are unambiguously tonal systems. But we agree with Hyman (2009) that there is no categorical distinction between a tone system and a pitch–accent system. There are perhaps characteristics that we tend to think of in terms of one type of system or the other (e.g. the obligatory presence of high pitch in a Chimwiini phrase is often viewed as typically 'accent-like'). But any given language may combine such characteristics in a way that does not lead to an easy classification.

in some respects very simple: accent falls either on the penult syllable or the final syllable of a word (and if the word only has a single syllable, then the contrast does not exist and the only syllable available bears the accent). The *default* accent is penult. Final accent occurs only in certain morphological or syntactic structures (and, as it turns out, in certain intonational structures).

4.1. Final accent triggers

In this section we present a brief survey of the main contexts where final accent occurs in Chimwiini.

4.1.1. Person-marking final accent in the past and present tenses

First and second person subject verbs in the present and past tenses are characterized by final accent, whereas the very large range of third person forms (large due to the system of noun classes in Bantu) all have default accent. The examples in (1) illustrate the contrast.⁸

- (1) a. [n-jiilé] 'I ate' [Ø-jiilé] 'you (sg.) ate' [Ø-jiile] '(s)he ate'
 b. [n-someelé] 'I read' [Ø-someelé] 'you read' [Ø-soméele] '(s)he read'
 c. [m-phakujiilé] 'I dished out with' [Ø-pakujiilé] 'you dished out with'
 vs. [wa-pakujiile] 'they dished out with'
 d. [n-naa-ku-já] 'I am eating' vs. [Ø-naa-kú-ja] '(s)he is eating'
 e. [n-na-x-soomá] 'I am reading' vs. [Ø-na-x-sóoma] '(s)he is reading'
 f. [n-na-x-pakujiilá] 'I am dishing out with' [Ø-na-x-pakujiilá] 'you are dishing out with'
 vs. [wa-na-x-pakujiila] 'they are dishing out with'

The examples in (1a–c) illustrate the past tense. The past tense consists of a subject prefix (SP), which is phonologically null in the case of a second person singular or a human third person singular subject, followed by a perfective verb stem with the final vowel *-e*. The formation of the perfective stem often involves the extension *ii*, but is extremely complex and will not be explained here. An object prefix (OP) may occur before the perfect stem. Since the subject prefix in the second singular and third person human singular forms is null, accent alone distinguishes these forms if there is no overt subject present in the sentence.

The examples (1d–h) illustrate the present tense. The present tense consists of the SP followed by the present tense marker *na* followed by the infinitive prefix *ku* followed by the verb stem with the final vowel *a*. Once again, an OP may occur before the stem. As in the past tense, since the subject prefix in the second singular and human third person singular forms is null, accent alone signals which form is being used (in the absence of an overt subject).

4.1.2. Relative-clause marking final accent

A relative verb in all tenses and with all subject prefixes is marked by a final accent. The relative verb is also marked in most cases by a final *-o* vowel; the exception to this is the relative of a passive verb in all tenses and also relatives of negative tenses, where a final *-a* is employed. When the head of the relative is not the subject of the relative verb, then the particle **AG-a** (consisting of an agreement element determined by the head plus the “associative” particle *a*) occurs between the head and the subject of the relative verb (cf. (2c)). If the head is also the subject of the relative verb, then this **AG-a** link does not occur (cf. (2a)).

The examples in this paper are typically enclosed in brackets. The left bracket is necessarily the beginning of a phonological phrase, and the right bracket is necessarily the end of a phonological phrase. A slash mark inside these brackets indicate where one phrase ends and another begins. The acute sign indicates the location of the accent in each phrase. In the word-by-word gloss immediately below an example, we analyze only the verb in a morpheme-by-morpheme fashion.⁹ Slashes again indicate phrasal separation. The words inside a phrase are separated by the symbol “#” in the gloss whereas in the transcription of the sentence, words are separated by a space. The third line in the example is a translation of the sentence, but of course the translation may not be a valid English sentence. The relative verb is bold-faced in the following examples.

⁸ Throughout this paper we separate prefixes from following material by a hyphen, but we do not indicate suffixal elements. Enclitic elements are preceded by the symbol “=”. A phonologically null prefix (regularly found with first and second person singular subjects) is indicated by the symbol “Ø”. Long vowels are indicated by writing the vowel symbol twice. There are five vowels: **i u e o a**. The consonants include labials: **p b f v m w**; dentals: **t d l n**; interdental: **θ ð**; alveolars: **t d l r n** (and a borrowed retroflexed stop from Somali written as **dh**); alveopalatals: **sh j ny**; velars: **k g x gh**; and laryngeals: **h**. The uvular **q** occurs in borrowed words from Arabic or Somali, but may always be realized as **x**. There are a series of voiceless prenasalized consonants (which are aspirated, the aspiration being indicated by the letter **h**) and a series of voiced prenasalized consonants). There are a couple of instances of a velar nasal, and a voiced bilabial fricative **b** sometimes occurs as an alternate to **w** or **b**).

⁹ The following abbreviations are used in the word-by-word gloss: neg = negative prefix, imp = imperative (no subject prefix, consisting of just a stem plus final vowel), subjun = subjunctive (a prefix **na** in third person forms and a final vowel **e**), SP = subject prefix (which as mentioned above may be phonologically null), hab = habitual, past cont = past continuous or narrative past prefix **chi**, cond = conditional prefix **chi** or **ka**, pres = present tense marker **na**, fut = future tense marker **ta**, inf = infinitive prefix, which also appears as part of the structure of certain verb tenses, OP = object prefix, perf = perfect stem, pass = passive (marked in most tenses by the suffix **oow**, but in the perfect by the use of the final vowel **a**), rel = relative clause (signaled by final vowel and final accent). In the glosses, the morphemes that appear as suffixes to the verb stem are placed in parentheses immediately after the gloss of the stem.

(2) **head of the relative clause is also the subject of relative verb:**

- a. [mu-nthu Ø-**ikusi**ló/ h-a-mw-íwi/ mw-enyee n-dála]
 person #SP-be satiated(perf,rel)/neg-SP-OP-know/ possessor#hunger
 ‘the person who is satiated does not understand the hungry one’
- b. [mw-ana **nth-a-k-aandiká**]
 child#neg-SP-inf-write
 ‘the boy who did not write’

head of the relative clause is a complement of the relative verb:

- c. [mu-nthu w-a Núuru/ Ø-**m-weenó**/ Ø-oloshéle]
 the man#AG-a# Nuuru/ SP-OP-see(perf,rel)/leave(perf)
 ‘the man whom Nuuru saw left’
- d. [darsi y-aa mí/ **ni-mw-eleezó**]
 lesson#AG-a#I/SP-OP-explain(perf,rel)
 ‘the lesson that I explained to him’

adverbial relative clauses:

- h. [wé/Ø-ch-an**diká**=ni/ muxtaa mí/ **n-iiló**]
 you/ SP-past cont-write=what/when#I/SP-come(perf,rel)
 ‘what were you writing when I came?’
- i. [muxta Múusa/Ø-**ta-kuu-yó**/ n-thaa-kú-ja]
 when# Muusa/ SP-fut-inf-come(rel)/SP-fut-inf-eat
 ‘when Muusa comes I will eat’

Examination of all these examples shows that the relative verbs in these examples has final accent.

4.1.3. **ka**-conditional verb (all subjects)

One of the conditional verb forms in Chimwiini employs the prefix **ka** and in this tense there is final accent in all forms, regardless of the person or class of the subject.

- (3) a. [kaa-ni-já] ‘if you pl. had eaten’
 b. [n-kha-liindá] ‘if I had waited’
 c. [Ø-ka-soomá] ‘if you, (s)he had read’
 d. [Múusa/ Ø-ka-baashá] ‘if Muusa had lost (it)’

The prefix **ka** shows some morphophonemic variation in these data: (a) a bimoraic vowel in (3a), but otherwise a short vowel, and (b) aspiration in (3b) due to forming a prenasalized stop with the preceding nasal prefix. There is also some variation as to whether the subject prefix precedes it, as in (3b), or follows it, as in (3a). In the case of a null subject prefix, as in (3c) and (3d), one cannot be certain of the location of the prefix. However, what is consistent throughout the data, is the final accent that is triggered by this verb tense.

4.1.4. **Negative imperative**

The negative imperative verb has the shape **si-STEM-e** in the singular and **si-STEM-e=ni** in the plural. In all cases there is a final accent. (Although a final vowel such as **-e** is certainly a separate morphological element from the verb root in the examples below, throughout this paper we have opted not to show morphological divisions in the stem except in the case of enclitic elements.)

- (4) a. [si-meershé] ‘don’t turn it! (cf. [méersha] ‘turn it!’)
 b. [s-piké] ‘don’t cook!’ (cf. [píka] ‘cook!’)
 c. [si-boolé] ‘don’t steal!’ (cf. [bóola] ‘steal!’)
 d. [si-somee=ní] ‘you (pl.) don’t read!’
 e. [si-daree=ní] ‘you (pl.) don’t touch!’
 f. [si-lumee=ní] ‘you (pl.) don’t bite!’

The examples in (4a–c) illustrate the second person singular form, while (4d–f) illustrate the second person plural form (marked by the enclitic =*ni*, which has the effect of lengthening the preceding vowel). In both cases, there is a final accent. (We do not address here the issue of whether *na* should be treated as a proclitic.)

4.1.5. Conjunction-marking final accent

The conjunction *na* ‘and’ triggers final accent on its complement. We put *na* and its complement in boldface so that the reader can focus on the pertinent part of the sentence.

- (5) a. [ápo/ zamáani/ Ø-waliko sultáani/ móoyi/ **na mw-aana=w-é**]
 once/ upon a time/ SP-was#sultan/ one/ and#his child
 ‘once upon a time there was a sultan and his child’
- b. [wa-‘egeshéeza jisa súura/ na báaba/ **na mu-kee=w-é**]
 SP-welcome(perf,pass)/ way#good/ by#father/ and# his wife
 ‘they were welcomed heartily by the father and his wife’

It should be noted that there is a preposition *na* ‘by, with’ that does not induce the appearance of a final accent on its complement.

4.2. Default accent in all other cases

There are a few other lexical examples of final accent in Chimwiini (e.g. certain kinship terms, a few particles), but in most cases accent is penult. Examples of default penult accent in various word classes and verb forms are given below.

(6) nouns, adjectives, adverbs in isolation:

[chi-lóho] ‘fishing hook’	[lúti] ‘stick’
[shíingo] ‘neck’	[godóro] ‘mattress’
[m-papáayu] ‘papaya tree’	[méende] ‘cockroach’
[n-khúlu] ‘big’	[m-zéele] ‘old’
[mw-embáamba] ‘thin’	[léelo] ‘today’
[yána] ‘yesterday’	[tartiibu] ‘slowly’

verbs in a variety of “tenses”:

infinitives:

[ku-lokóta] ‘to pick up’	[k-iiza] ‘to refuse’
[x-saafíra] ‘to travel’	[x-fáanya] ‘to do’
[ku-daarána] ‘to touch one another’	[k-endeshelezánya] ‘to cause to go for e.o.’
[x-furahikíla] ‘to be pleased for’	

future:

[wé/ Ø-ta-x-píka] ‘you will cook’	[yé/ Ø-ta-x-píka] ‘(s)he will cook’
[n-t ^h a-ku-bóola] ‘I will steal it’	[yé/ Ø-ta-ku-bóola] ‘(s)he will steal it’
[n-ta-x-sóoma] ‘you (pl.) will read’	[wa-ta-x-sóoma] ‘they will read’
[wé/ Ø-ta-ku-wa-pikíla] ‘you will cook for them’	[ye/ Ø-ta-xu-pikíla] ‘(s)he’ll cook for you’

habitual:

[hu-tabíba] ‘(it) spoils’	[h-aatúka] ‘(it) bursts’
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As we noted earlier, if a word is monosyllabic, then it will be accented on its only syllable.

- (7) [nthó] ‘very’ [n-thí] ‘earth, land’ [n-sí] ‘fish’
 [mí] ‘I, me’ [wé] ‘you’ [sí] ‘we, us’

4.3. The accentual system is phrasal and not word-level

From the preceding discussion we have seen that words in isolation bear either the marked final accent or the default penult accent. But what happens when these words appear in sentences? There are situations where each (content) word in a Chimwiini sentence/clause may be accented, as the examples below illustrate:

- (8) a. [hóosi/ i-chi-gúura]
shade/ SP-cond-move
'if the shade moves'
- b. [harúusi/ ghaaíibu/ hu-fanyóowa/ ka wa-zéele/ w-a mw-aa-mú-bíi]
wedding/ often/ hab-do-pass/ at# parents/ of# young man
'the wedding ceremony often is held at (the home of) the parents of the young man'
- c. [xatí=y-o/ m-phéete/ na ma-dhmuuní=y-e/ n-fahamiilé]
'your letter/ SP-get-perf/ and# its contents/ SP-understand-perf
'I received your letter and I understood its contents'

However, it is also immediately apparent that any content word may appear without accent, as shown in (9) below.

- (9) **verb lacks accent in deference to a complement:**
- a. [ku-bíga] 'to hit', [hóoni] 'horn', but [ku-biga hóoni] 'to blow a horn'
- b. [wa-naqishéene] 'they argued with one another',
but: [Núuru/ Ø-naqishene na Múusa] 'Nuuru argued with Muusa'
- c. [Ø-ch-iingíla] 'he entered', but [Ø-ch-ingila m-uyíi=ni] 'he entered (into) the town'

nominal lacks accent in deference to a post-nominal element:

- d. [hóosi] 'shade', but [hosi y-aa mú-ti] 'shade of a tree'
- e. [natíija] 'result', but [natija y-a imtiháani] 'the result of the examination'
- f. [m-sála] 'mat', but [m-sala úje] 'that mat'

both a verb and a nominal lack accent in the same phrase:

- g. [hu-furahísha] '(it) pleases', [duníya] 'world'
but:
[naazí=y-a/ hu-furahisha duniya n-zíma]
my coconut/ hab-please#world#whole
'my coconut/ pleases the whole world' (a riddle)
- h. [Ø-ta-x-táala] 'he will take', [m-túzi] 'soup'
but:
[yé/ Ø-ta-x-tala m-tuzi úyu/ Ø-ta-kú-na]
(s)he/ SP-fut-inf-take#soup#this/ SP-fut-inf-drink
'(s)he will take this soup and drink it'

While there are often alternative pronunciations where the unaccented words in (9) could appear with accent, the fact is that the pronunciations just cited are the more common ones. We immediately face, then, an extremely important problem: exactly why does a word not have accent when it does not, and why does it have accent when it does? At one level the answer to this question turns out to be simple, but at another level there are many complexities that have to be dealt with.

Our basic hypothesis is this: when a word is accented, it is located at the end of a phonological phrase. When a word is unaccented, it is medial in a phrase. In other words, all the words in a sentence are organized into phrases, and each phrase has one and only one accented word and that word is the last one in the phrase.

4.4. Both default accent and final accent are phrasal

If accent is located only on the last word of a phrase, then it is correct to say that accent in Chimwiini is a *phrasal* phenomenon rather than a *word-level* phenomenon. It is important to stress, however, that the fact that accent is phrasal is independent of how that accent is manifested (i.e. whether it is on the penult or the final syllable of the word where it is pronounced).

The examples in (10) illustrate a range of examples where the accented word exhibits the default penultimate accent (though it is crucial to remember that if the final prosodic word is a monosyllable, then the default accent will rest on the only syllable available).

- (10) a. [wé/ olóka/ kala numba y-a máam-o]
you/ go(imp)/ live(imp)#house#AG-a#your mother'
'you, go and live in the house of your mother'
- b. [sul̩tani w-aa n̩óka/ Ø-ta-ki-sh-paa dáwa]
sultan#AG-a#snakes/ SP-fut-inf-OP-give#medicine
'the sultan of snakes will give us medicine'
- c. [sku móoyi/ Ø-enzele ma-ḍurii=ni/ ku-winda nyúnyi]
day#one/ SP-go(perf)#to the country/ inf-hunt#birds
'one day he went to the country to hunt birds'

Final accent is also phrasal. In other words, when there is a morphosyntactic element that triggers final accent, the final accent does not appear on that element if it is not phrase-final, but rather appears on the final word in the phrase containing that element. We illustrate this point for each of the major triggers of final accent.

Take the case of person-marking final accent first. We have seen in section 4.1.1 that the verb is assigned final accent if the subject is either first or second person. However, when the verb is not at the end of the phrase, then the accent is manifested not on the verb but on whatever word ends the phrase:

- (11) a. [n-jilee n̩amá] 'I ate meat', [Ø-jilee n̩amá] 'you ate meat'
vs.
[Ø-jilee n̩áma] '(s)he ate meat', [wa-jilee n̩áma] 'they ate meat'
- b. [chi-jiilé] 'we ate', but: [chi-jile ma-tuundá] 'we ate fruit'
- c. [chi-neelé] 'we drank', but [chi-nele m-aayí] 'we drank water'
- d. [ni-m-kasize siimbá/ na-ku-guruma ka ápo]
SP-OP-hear(perf)#lion/ SP-pres-inf-roar#at#there
'I heard a lion roaring in that area'

If there are multiple complements, the final accent appears at the end of each phonological phrase in the verb phrase. (The theoretical implications of this fact are taken up later, at which time examples will be provided.)

Turning now to the case of relative clauses, when the relative verb is not at the end of the phrase, then the final accent is heard not on the relative verb but on the word at the end of the phrase that contains the relative verb. (We put the relative verb and complements in boldface.)

- (12) **head noun is subject of the relative verb:**
- a. [sh-kombe **chi-vunzila na Hamadí**/ chi-waliko gháali]
cup#SP-break(perf,pass,rel)#by#Hamadi/ SP-was expensive
'the cup that was broken by Hamadi was expensive'
- b. [karka majjisi áyo/ nth-á-ku/ Ø-**jasirilo x-kodá**]
in#meeting#that/ neg-SP-be/ SP-dare(perf,rel)#inf-talk
'in that meeting there was no one who dared to talk'

head noun is a complement of the relative verb:

- c. [pesa z-aa yé/ Ø-**leselo ma-drasaa=ní**]
money#AG-a#(s)he/ SP-bring(perf,rel)#to school
'the money that (s)he brought to school'
- d. [mu-nthu w-a Jáani/ Ø-**m-pelo chi-buukú**/ Ø-íle]
man#AG-a#John/ SP-OP-give(perf,rel)#book/ SP-come(perf)
'the man whom John gave a book came'

adverbial clauses which require the verb to be in a relative form:

- e. [**n-ingilo=po m-tanaa=ní**]
SP-enter(perf,rel)=when#in the room
'when I entered the room'

- f. [mux̣ta ḷ-pépo/ ḷ-anzizo ku-vuma ka w-iingí]
 when#wind/ SP-begin(perf,rel)#inf-blow#with#much
 ‘when the wind began to blow hard’

Just as is the case in the person-marking instances of final accent, if there are multiple complements to the relative verb, the final accent appears at the end of each phonological phrase in the relative verb phrase. (The theoretical implications of this fact are taken up later, at which time examples will be provided.)

The conjunction-marking final accent is also phrasal.

- (13) a. [mw-éendo/ na sifa z-a muu-nthú]
 behavior/ and#characteristics#AG-a#man
 ‘the behavior and characteristics of a man’
- b. [ni-sh-fungile chi-sanduuxú/ na n-dani y-a chi-sanduxu ichí/ chi-walimoo ch-úwo]
 SP-OP-open(perf)#box/ and#inside#AG-a#box#this/ SP-be in#book’
 ‘I opened the box and inside this box was a book’

The final accent associated with the **ka**-conditional form is also phrasal:

- (14) a. [wé/ ka-pata m-ayi y-aa noká/ wé/ suja ku-'isha abádi]
 you/ Ø-SP-cond-get#water#AG-a#snake/ you/ would#inf-live#forever
 ‘if you got the water of the snake you would live forever’
- b. [Ø-ka-ya mw-anaa mu-lé]
 SP-cond-come#boy#tall
 ‘if the tall boy had come’

There are other languages where a prosodic pattern is expressed over a phrasal domain. One reviewer pointed out, for example, that tonal realization in Shanghai Chinese (Selkirk and Shen, 1990), is not restricted to its underlying syllable, but is realized over a domain. Hale and Selkirk (1987) discuss how a tonal melody (L)HL is assigned to each phonological phrase. But perhaps the most strikingly similar system is the Kagoshima dialect of Japanese. Kubozono (2004) shows how there are two accentual patterns in Kagoshima: final accent and penult accent, just as in Chimwiini. A significant difference is that this is a lexical contrast, and the number of words in one category is approximately the same as the number in the other category. Furthermore, Kubozono shows that when a word is compounded with another word, or when a word forms a “minimal syntactic phrase” with various particles, the accent is realized at the end of the compound or phrase according to the nature of the first word: if the first word has lexical penult accent, then the penult syllable is accented, but if it has lexical final accent, then it is the final syllable in the compound or phrase that has the accent.

5. The evidence from accent supports the Selkirkian principle ALIGN-XP R

The most critical fact concerning the phrasal nature of accent in Chimwiini is that the phrases that are required in order to explain when a word is accented and when it is unaccented are exactly the phrases that are required by alternations in vowel length. In other words, at every point, the accentual evidence leads to exactly the same conclusions about phrasing as does the vowel length evidence.

There is a difference, however, in the application of these two sources of evidence. Accent *always* reveals the phrasing transparently since each phrase has one and only one accent and it is located on the last word in the phrase and it is always phonetically observable. Vowel length alternations on the other hand, are not always conclusive as to the phrasal structure of a sentence (as discussed in section 3).

The examples already presented serve to illustrate that the accentual phrase is the same as the phrase to which “abstract stress” is assigned. But it will be useful now to show the motivation for the Selkirkian principle ALIGN-XP R. The following data provide examples illustrating the basic cases where a word is phrase-final (and thus bears an accent) and where a word is phrase-medial (and thus does not bear an accent) on the basis of ALIGN-XP R.

5.1. A subject NP is separated from its verb phrasally

According to the ALIGN-XP R principle, a phrasal break will occur after each NP. This predicts correctly that any subject NP will stand at the end of a phonological phrase. In (16), we have put the relevant subject NP in boldface.

(15) **subject NP in a main clause:**

- a. [niyaa n-jéema/ hu-ṭabúibu/ niyaa m-bóvu/ hu-xaríba]
intention#good/ hab-cure/ intention#bad/ hab-spoil
'a good intention cures, a bad intention spoils'
- b. [waawá=y-e/ chi-mw-aambíla]
his/ her father/ SP-past cont-OP-tell
'his/ her father/ told him/ her'
- c. [múu-yi/ u-na-ku-'amiríka]
town/ SP-pres-inf-grow
'the town is growing'

subject noun phrase in a non-finite clause:

- d. [Jáama/ Ø-ṭulubile Núuru/ k-oolóka]¹⁰
Jaama/ SP-ask(perf)# Nuuru/ inf-go
'Jaama asked (for) Nuuru to go'
- h. [si-na-x-súuḷa/ w-áana/ ku-barshowa aḍabḍára]
neg/ SP-pres-inf-want/ children/ inf-teach(pass)#bad manners
'I do not want the children to be taught bad manners'

subject noun in a finite complement clause:

- k. [n-faramile Jaamá/ na-oloké]
SP-advise(perf)#Jaama/ subjun-go
'I advised Jaama/ that he should go'
- l. [ni-wa-wene wa-nthu w-iingí/ wa-na-kuu-yá]¹¹
SP-OP-see(perf)#people#many/ SP-pres-inf-come
'I saw many people coming'

The data in (15) provide an abundant set of examples showing that a pre-verbal subject is phrase-final. For instance, in (15c) we know that *muu-yi* is phrase-final both because it is accented and also because it retains its long vowel. If *muuyi* formed a phrase with the verb, then accent would fall on the verb and the initial syllable of *muuyi* would be unstressed (being too far from the end of the phrase to receive stress) and thus necessarily short. In (15d), *Nuuru* forms a phrase with the main verb *ṭulubile...*, as can be seen from the fact that the verb does not have an accent and furthermore has undergone vowel shortening (cf. the isolation form *ṭulubiile*). We can see that *Nuuru* is at the end of a phrase since it bears the accent and retains its long vowel.

5.2. Any preverbal XP is at the end of a phonological phrase

ALIGN-XP R requires that the last word in any XP be in a different phrase from whatever follows. As a consequence, it predicts that any pre-verbal XP is separated phrasally from a following verb or from any other pre-verbal XP. The data in (16) show that this is true. The proposed XP is in boldface.

(16) **preposed NP:**

- a. [**I-fuungúlo**/ Ø-m-funguḷiḷe mw-aalímu/ m-láango]
key/ SP-OP-open for(perf)# teacher/ door
'the key, she opened the door for the teacher (with it)'
- b. [**I-kóombe**/ mú-ke/ Ø-m-pakuḷiḷe mw-ána/ zí-jo]
spoon/ woman/ SP-OP-dish out(perf)#child/ rice
'the spoon/ the woman/ dished out for the child/ rice (with it)'

¹⁰ In this example it is apparent that *Nuuru* is the subject of the infinitive phrase and not the object of the higher verb; if it were the object of the higher verb, then that verb would have to bear the object prefix *m* in agreement.

¹¹ Note that in this example and the next, the final accent triggered by the first person main clause verb is manifested even on the third person complement clause.

preposed locative:

- c. [numbáa=ni/ i-waliko sandúuxu/ naa mí/ ni-'i-fungiilé]
inside house/ SP-be #a box/ and #I/ SP-OP-open(perf)
'inside the house was a box and I opened it'

pre-verbal adverbs:

- d. [ináa=y-a/ ni Buluxíya/ na waawé/ waliko sułtáani/ ĵakíini/ ísa/ Ø-fiile]
my name/ is#Buluxiya/ and#my father/ SP-was#sultan/ but/ now/ SP-be dead(perf)
'my name is Buluxiya and my father was sultan, but now he is dead'

vocative

- e. [mw-aan=w-á/ n-fungulíla]
my son/ OP-reveal(imp)
'my son/ tell me what they were'

In (16a), the preposed instrumental noun **l-fuungulo** appears immediately in front of the verb (the subject of this verb is phonologically null, but the absence of a subject prefix on the verb – combined with the default penult accent triggered by the verb – indicates that the subject is a third person singular human). We can see that **l-fuungulo** is a separate phrase from the fact that it is accented and also retains its vowel length.

Sentences with multiple maximal projections in pre-verbal position are shown in (17):

- (17) a. [téena/ sku móoyi/ má-sku/ m(-)kulá=z-e/ wa-chi-weka majlísí/ wa-chi-háda...]
then/ day#one/ night/ his elder brothers/ SP-past cont-hold#meeting/ SP-past cont-say
'then one day at night his elder brother held a meeting and they said...'
- b. [Abú/ sh-kóopa/ chi-m-gafile]
Abu/ alcoholic drink/ SP-OP-miss(perf)
'Abu missed getting an alcoholic drink'
- c. [l-kóombe/ mú-ke/ Ø-m-pakułile mw-áana/ zijo]
spoon/ woman/ SP-OP-dish out for(perf)# child/ rice
'the spoon, the woman dished out rice for the child (with it)'

In (17b), the preposed noun **l-koombe** is located in front of the subject of the verb. Since it is accented, and also retains its vowel length, we know that **l-koombe** is phrase-final. If **l-koombe** formed a phrase with the subject, the pronunciation would have been ***l-kombee mú-ke**.

5.3. Any post-verbal XP is separated from a following XP

ALIGN-XP R also predicts that any XP that is a complement to the verb is separated from a following XP. We highlight the relevant complement in boldface.

- (18) a. [Ø-m-phelee **dáwa**/ x-poléla] 'he gave me medicine/ to help (me) recover'
SP-OP-give(perf)#medicine/ inf-help recover
'he gave me medicine to help me recover'
- b. [wa-m-pokeze **m-géeni**/ mi-zigó=y-e]
SP-OP-hand over(perf)#guest/ his luggage
'they gave the guest his luggage'
- c. [Ø-sh-tuluba **ka Yuusúfu**/ ku-m-ťafsiriła n-dootó=z-e]
SP-past cont-ask#of#Joseph/ inf-OP-explain# his dreams
'he asked Joseph to explain to him his dreams'
- d. [Hamádi/ mw-andikiłile **mw-áana**/ **xáti**/ ka Núuru]
Hamadi/ SP-OP-write for(perf)#child/ letter/ to#Nuuru
'Hamadi wrote a letter for the child to Nuuru'

In (18b), we know that the verb \emptyset -*m-pokeze*... is not phrase-final since it is unaccented, and the long vowel that appears is in the isolation form *m-pokeeze* has been shortened. We know that *m-geeni* is phrase-final since it bears the accent and also retains its long vowel.

5.4. Selkirk's analysis predicts no phrasal break in various critical locations

On the assumption that the only phrases are those constructed by Selkirk's ALIGN-XP R principle, then it follows that there will not be phrasal separation between two elements inside a minimal maximal projection (i.e. a maximal projection not itself containing a maximal projection). This is very often true.

(19) no break between a verb and a following verb phrase element:

verb followed by an argument:

- a. [ni-sh-fungile chi-sanduxú/ na n-dani y-a chi-sanduxu ichí/ chi-walimoo ch-úwo]
 SP-OP-open(perf)#box/ and#inside#AG-a# box#this/ SP-be in# book
 'I opened the box and inside this box was a book'

verb followed by a prepositional phrase:

- b. [Ø-oloshéle ka waawá=y-e]
 SP-go(perf)#to#his father
 'he went to his father'

verb followed by a non-argument noun:

- c. [wa-ta-m-poza m-géeni/ m-konó=w-e]
 SP-fut-OP-heal#guest/ his arm
 'they will heal the guest's arm'

verb followed by an infinitival phrase:

- d. [w-ótte/ wa-sh-pokezanya ku-vula m-áayi]
 all/ SP-past cont-take turns #inf-bail# water
 'all took turns bailing water'

In (19a), we can see that the verb *ni-sh-fungile*... is not phrase-final since it is unaccented and has shortened its long vowel (cf. the isolation form *ni-sh-fungiile*). In (19c), it is only the unaccented nature of the verb *wa-ta-m-poza*... that indicates it is not phrase-final since the isolation form of this verb does not have a long vowel.

If it is only ALIGN-XP R that assigns phrase edges, we do not expect a phrasal break between a noun and a modifier of that noun.

- (20) a. [chi-mera n-dilaa n-khúlu/ y-a múu-yi]
 SP-past cont-see#road#big/ AG-a# town
 'he looked for the main street of the town'
- b. [kodi muxtasári] 'a short speech'
 (cf. the case where the adjective does not stand in a modifier relationship with the same noun:
 [fanya koodí=z-o/ muxtasári] 'make your speech/ short')

The verb *chi-mera*... in (20a) is not phrase-final, as shown by the absence of accent and the shortening of the vowel in the root (cf. the isolation form *chi-meera*). The noun *ndila*... is also not phrase-final, as shown by the absence of accent and the word-final long vowel. Long vowels are not possible at the end of a phrase.

If ALIGN-XP R alone defines where a phrase ends, then we predict that there will be no phrase break between an adjective and a modifier of that adjective. The example in (21) follows this prediction.

- (21) [sultani w-aa noka/ chi-mw-aambíla/ kuwa xisá=ze/ ni n-dee nthó]
 sultan#AG-a#snakes/ SP-past cont-OP-tell/ that# his story/ was#long#very
 'the king of the snakes told him that his story was very long'

The adjective *n-dee*... in (21) is unaccented and has a final long vowel, establishing that it must not be phrase-final (as noted above, a phrase cannot end in a long vowel).

In (22), we see the expected (given ALIGN-XP R) absence of a phrase break after a preposition or complementizer or other particle.

- (22) a. [kamaa m-pháka/ naa m-phaná]
like#cat/ and#rat
'like a cat and a rat'
- b. [muxta núumba/ i-welo tayaarí]
when#house/ SP-be(perf-rel)#ready
'when the house was ready'
- c. [karkaa n-díla/ síimba/ chi-wa-'uza w-eenzí=w-e]
on#way/ lion/ SP-past cont-OP-ask#his companions
'on the way lion asked his companions'

We can tell in (22a) that *kamaa*... is not phrase-final by the absence of accent and the fact that it ends in a long vowel. In (22b), the only thing that shows that *muxta* is not phrase-final is the absence of accent.

The above accentual data all support the essential Selkirkian principle that a phonological phrase edge will appear at the right edge of a maximal projection. In developing her theory, Selkirk made the essential claim that phrases are not themselves syntactic phrases but rather phonological phrases that are constructed only indirectly on the basis of syntax. The next section will show how the accentual evidence supports this proposal massively.

6. The evidence for the indirect nature of the syntax-phonology interface in Chimwiini

In Selkirk's analysis, phrasing is determined by ALIGN-XP R in Chimwiini. This proposal claims that while the right edge of a phrase will coincide with the right edge of a syntactic phrase, the phonological phrase is not necessarily itself a phonological phrase.

However, the only example contained in K&A that indicated that the phonological phrase must be different from a syntactic phrase was the example [kamaa m-pháka/ na m-phaná] 'like a cat/ and a rat', where the particle *kama* and the first member of the conjoined noun phrase group together separately from the second member of the compound. This example is perhaps not entirely conclusive since one could imagine claiming that *kama* forms a prosodic word with the following noun and thus [kamaa m-pháka] would then simply be one of two conjoined words. We would argue against such an analysis on the basis of the fact that the accentual evidence fails to confirm that *kama* forms a prosodic word with what follows. Specifically, one says [kamaa mí] 'if I' rather than *[kamáa mí], which is the expected pronunciation if *kama* formed a prosodic word with the following monosyllable. So in our opinion this example does support the claim that a phonological phrase is not identical to a syntactic phrase. However, fortunately, there is much more robust evidence to support this critical claim of the indirect reference model of the phonology-syntax interface.

The conjoined structures in (23) provide much more obvious support to the mismatch between phonological phrases and syntactic phrases.

- (23) a. [Ø-jilee náma/ na rootí]
SP-eat(perf)# meat/ and#bread'
'(s)he ate meat and bread'
- b. [wa-somejele w-ána/ naa wa-ké]
SP-OP-read to(perf)#children/ and#women
'(s)he read to the children and the women'
- c. [yé/ Ø-pishilee nsí/ naa zi-jó/ yúuzi]
(s)he/ SP-cook(perf)#fish/ and#rice/ day before yesterday
'(s)he cooked fish and rice the day before yesterday'

In (23), we see that the verb groups together into a phonological phrase with the first member of the conjunct, while the second conjunct is in a different phrase. It is obvious that the verb and the first conjunct is not a syntactic phrase since the first conjunct forms a syntactic phrase with the second conjunct. Furthermore, there is no plausibility to the claim that the verb somehow forms a prosodic word with its complement. We are left with the conclusion that a phonological phrase is formed on the basis of syntactic structure, but is not necessarily itself a syntactic unit.

The relative clauses in (24) provide another argument that phonological phrases are not syntactic phrases.

- (24) a. [mu-nthu Ø-m-pelo Jaamá/ chi-buukú]
 person#SP-OP-give(perf,rel)#Jaama/ book
 ‘the person who gave Jaama a book’
- b. [w-ana w-aa yé/ wa-someleeló]
 children#AG-a#(s)he/ SP-OP-read to(perf,rel)
 ‘the children whom he read to them’
- c. [mu-nthu wa Jáama/ Ø-haḍilo kuwa Ø-ilé/ Ø-waliko Núuru]
 person#AG-a#Jaama/ SP-say(perf,rel)#that#SP-come(perf)/ SP-be Nuuru
 ‘the person whom Jaama said came was Nuuru’

Recall that relative verbs are marked invariably by final accent and usually by a final vowel **-o** and that there are two essential structures in which the relative verb occurs. In subject relativization, we observe the pattern seen in (24a). Specifically, the head immediately precedes the relative verb and is (more precisely, may be) included in the same phonological phrase as the relative verb. If, on the other hand, the head is playing a non-subject role, as in (24b–c), the head is separated from the subject of the relative verb by the particle **AG-a**. In structures with the **a**-link, the head typically forms a phrase with the particle **-a** and the particle always forms a phrase with the subject.

(24a) shows that the sequence **head-relative verb-XP-YP** breaks down into two phrases: **head-relative-XP** is one phrase and **YP** is a second phrase. It should be obvious that the first phrase in no way represents a syntactic unit of any known kind. (24b–c) establish the same point, though the evidence is quite different. In these examples we see that the sequence **head-particle-subject** forms a phonological phrase. Once again, it is obvious that this is not a syntactic unit of any sort.

Chimwiini sentential complements provide another source of evidence that phrasing is a phonological construct and not a syntactic construct. Look at the data in (25).

- (25) a. [n-na-x-taraja kuwa Jaamá/ Ø-oloshelé]
 SP-pres-inf-hope#that#Jaama/ SP-go(perf)
 ‘I hope that Jaama went’
- b. [n-tshosheze kuwa Nuurú/ Ø-uzile gaarí]
 SP-think(perf)#that#Nuuru/ SP-buy(perf)#car
 ‘I thought that Nuuru bought a car’
- c. [n-flatilile kuwa Hamadí/ m-konó/ u-m-furii]é]
 SP-expect(perf)#that#Hamadi/ hand/ SP-OP-swell(perf)
 ‘I expected that Hamadi’s hand would swell on him’

In these sentences, we cite three verbs that permit the occurrence of a sentential complement introduced by the particle **kuwa**. There are variations of such sentences where the subject of the complement is moved in front of **kuwa** as well as variations where **kuwa** may be omitted. However, we will focus our attention here on the canonical forms shown in (25). Notice that the accentual facts indicate that **n-na-x-taraja kuwa Jaamá**, **n-tshosheze kuwa Nuurú**, and **n-flatilile kuwa Hamadí** are each a single phrase. This phrasing follows, of course, from the ALIGN-XP R proposal, since neither the verb nor **kuwa** stand at the end of an XP while the subject of the complement verb does. But these phonological phrases obviously are not syntactic phrases since they consist of the main verb, the complementizer, and the subject of the sentential complement.

The evidence that phonological phrases are not the same as (widely assumed) syntactic phrases is considerably more extensive than shown above. However, these additional arguments also argue against any claim that **all** phonological phrases end at the right edge of a (lexical) maximal projection. So it is to this topic that we turn now.

7. Inadequacy of the view that ALIGN-XP R is the only phrasing principle in Chimwiini

The insufficiency of ALIGN-XP R in accounting for all phrasing properties of Chimwiini sentences is manifested in several quite different ways. We shall refer to the phrasing predicted by ALIGN-XP R alone as the **canonical phrasing** of a sentence. We shall refer to the phrasing that does not result from ALIGN-XP R alone as **non-canonical phrasing**. In this section we will review a number of different sorts of non-canonical phrasing.

7.1. Non-canonical phrasing triggered by lexical items

A rather common source of non-canonical phrasing is connected to the fact that there are a number of lexical items which are either phrasal isolates (i.e. are themselves phrases) or are always located at a phrase edge. These lexical items are not

words belonging to the major lexical categories like noun, verb, adjective, but rather are particles, conjunctions, adverbial elements, etc. We provide a few representative examples in (26). We put the relevant lexical item in boldface.

- (26) **laakini** 'but' (a borrowing from Arabic)
- a. [mí/ hu-ja zi-nthu ma-túuri/ w-ótte/ **laakíni**/ mí/ si-wáandi]
I/ hab-eat#things#fat/ all/ but/ I/ neg/ SP-fat
'I eat all fat things, but/ I do not get fat' (a riddle)
- ote** 'all' (sometimes pronounced **-otte**, and also **-on the**)
- b. [Hasiibu/ Ø-chi-m-fungulila sultáni/ izije zi-m-weetó/ **z-óte**]
Hasiibu/ SP-past cont-OP-tell#sultan/ what#SP-OP-ceive(perf,rel)/ all
'Hasiibu/ told the king all that had befallen him'
- hatá** 'even, until'
- c. [Ø-chi-láala/ **hatá**/ ma-skuu káti]
SP-past cont-sleep/ until/ night#middle
'(s)he slept until midnight'
- walá** 'nor'
- d. [s-xaadíri/ x-kóoda/ **walá**/ ku-dawatá]
neg/ SP-able/ inf-talk/ nor/ inf-complain
'I cannot talk nor complain'

We are not concerned here with developing a formal treatment of these cases of lexically assigned phrasing. For convenience, we will assume that a set of constraints of the shape: ALIGN-LEX R, PP R and ALIGN-LEX L, PP L exist (limited to function words), where each of these constraints may be ranked higher than the general constraint that prohibits phrase breaks. The key point is that such lexically induced phrasing does not contradict ALIGN-XP R, but rather supplements it, by adding phrase breaks that are not required by ALIGN-XP R.

7.2. Non-canonical phrasing: morphological negation

Another class of cases where the Selkirkian algorithm does not predict the correct phrasing comes from verb forms which are morphologically negative in contrast to their affirmative counterparts. The examples in (27) illustrate. We put the negative verb in boldface.

- (27) a. [mu-kée=w-e/ Ø-shishile míimba]
his wife/ SP-hold(perf)#stomach
'his wife became pregnant'
- vs.
- b. [mu-kée=w-e/ **nth-a-x-shiika**/ míimba]
his wife/ neg-SP-inf-hold/ stomach
'his wife did not become pregnant'
- c. [úyu/ Ø-ta-k-infa káazi]
this/ SP-pres-inf-be of use#job
'this one is suitable for the job'
- vs.
- d. [úyu/ **h-a-ta-k-iinfa**/ káazi]
this/ neg-SP-fut-inf-be of use/ job
'this one is not suitable for the job'

In (27b,d) we find that the negative verb is located at the end of a phonological phrase, while the corresponding affirmative verb in (27a,c) is not (as we will see below, this does not mean that it is impossible for the affirmative verb to be phrase-final, just that in the common phrasing the verb is grouped into the same phrase as its complement).

For our present purposes, we can assume a constraint in Chimwiini, ALIGN-V_{NEG} R, PP R. This constraint requires that the right edge of a negative verb be aligned with the R edge of a phonological phrase. However, there is some reason to believe

that this constraint may in fact be a subcase of a more general constraint about *focus*. In other words, we might wish to say that a negative verb is inherently focused and it is this characteristic that triggers the assignment of a right phrase edge. See section 7.4 for a discussion of focus and its role in phrasing.

An idiosyncratic role for negation has been observed before in the literature on phrasing in Bantu languages (cf. Hyman et al., 1987 for Luganda; Hyman, 1990 for Kinande; Kisseberth, 1994 for Xitsonga; Maniacky, 2002 for Ngangela). For some discussions of the issue of phrasing differences between negative and affirmative verbs, see Philippson (1991), Hyman (1999), Odden (2000). Obviously, a detailed comparison of Chimwiini to these other examples is warranted, but it remains to be seen whether there is a unifying theme. However, further work on Chimwiini itself is needed. Although during hours of elicitation and in numerous narrative texts, negative verbs were regularly separated prosodically from what follows, there are also data where we regularly observed the absence of a phrase break as well.

One case where negative verbs show the phrasing predicted by ALIGN-XP R rather than ALIGN-V_{NEG} R, PP R involves the negative verb used in a relative construction. Here the negative verb groups with an immediately following complement. The negative verb is put in boldface.

- (28) a. [**ha-fundowi** na maamay-é/ hu-m-fundo]-mweengú
neg/ hab-teach(pass,rel)#by#his mother/ hab-OP-teach(rel)#world
'the one who is not taught by his mother is the one whom the world teaches'
- b. [**h-a-ta-x-fáanya**/ káazi]
neg-SP-fut-inf-do/ work
'he won't do work'
vs.
- c. [mu-nthu **h-a-ta-x-fanya** kaazí]
person#neg-SP-fut-inf-do# work
'the man who won't do work'

As we will discuss later, relative clause structures in Chimwiini resist internal focus more strongly than do non-relative structures. The data in (28) thus suggest that the location of a phrase break after the negative verb in (27) represents a kind of inherent focus on the verb, but that this focus is not permitted (or perhaps more accurately, not as common) in the relative clause. The analysis of these facts is not clear. Perhaps they could be viewed as a case where a construction-specific version of the WRAP-XP constraint proposed in Truckenbrodt (1999) dominates ALIGN-V_{NEG} R, PP R. But we leave that discussion for another day.

Although we do not have a great deal of relevant material, we did identify another clear case where the assignment of a phrase edge to the end of the negative verb is blocked. These cases involve instances where the complement to the negative verb is focused/emphasized. Once again the negative verb is put in boldface.

- (29) a. [**nth-a-k-éenda**/ numbáa=ni]
neg-SP-inf-go/ home
'(s)he did not go home'
vs.
- b. [**nth-a-k-enda** numáa=ni]
neg-SP-inf-go#home
'(s)he did not go *home* (i.e. (s)he went somewhere else, not home)'
- c. [yé/ **nth-a-m-letela** Núuru/ chi-búuku/ m-lete]e]e Múusa]
(s)he/ neg-SP-OP-bring to# Nuuru/ book/ SP-OP-bring to(perf)#Muusa
'(s)he did not bring Nuuru a book/ (s)he brought Muusa (one)'

What seems to be going on here is that there is focus on a complement to the negative verb rather than on the negative verb itself. It appears that this complement focus eliminates any focus on the negative verb. We are not aware of any study of inherent focus and thus cannot be certain whether the pattern in (29) is an expected one.

The separation of the negative verb also does not occur within the scope of interrogatives:

- (30) a. [**h-a-ta-x-fáanya**/ káazi]
neg-SP-fut-inf-do/ work
'(s)he won't do work'
vs:

- b. [yé/ **h-a-ta-x-fanya** káazi/ líini]
(s)he/ neg-SP-fut-inf-do#work/ when
'when won't he do work?'
- c. [**nth-a-ku-léeta**/ chibuku chi-hába]
neg-SP-inf-bring/ book#small
'(s)he didn't bring the small book'
vs:
- d. [**nth-a-ku-leta** chi-buku gáni]
neg-SP-inf-bring#book#which
'which book did he not bring?'

The explanation for these data appears to be that when the focus is on the questioned element in the sentence, the negative verb is no longer the focus and thus the negative verb does not appear at the end of a phonological phrase. Thus these data are strongly linked to those in (29).

Morphological negation represents just one source for non-canonical phrasing. In the next section we turn to the issue of the definite/indefinite contrast and its role in phrasing.

7.3. Non-canonical phrasing used in making the definite vs. indefinite distinction

A somewhat more subtle case of non-canonical phrasing involves the issue of definite versus indefinite noun phrases in Chimwiini. As in many other Bantu languages, there is no formal marking of the indefinite/definite distinction on nouns. We have not pursued any extensive study of the extent to which this distinction is actually reflected in the linguistic system or what the full range of linguistic choices involved might be. Nevertheless, it is clear that word order may be used to indicate indefiniteness and object agreement may (in part) be used to indicate definiteness.

(31) illustrates the use of word order to convey the definite/indefinite contrast.

- (31) a. [mw-áana/ Ø-íle]
child/ SP-come(perf)
'the child came'
vs.
- b. [Ø-ile mw-áana]
SP-come(perf)#child
'came a child'

In (31a), the definite NP is pre-verbal, while in (31b), the indefinite noun is post-verbal. In post-verbal position, the indefinite subject phrases with the verb.

Object agreement on the verb is obligatory for human objects, but if the object is inanimate, then object agreement indicates a definite noun (though the absence of agreement does not necessarily indicate indefiniteness).

- (32) a. [n-uzile chi-buukú]
SP-buy(perf)#book
'I bought a book'
vs.
- b. [ni-ch-uzile chi-buukú]
SP-OP-buy(perf)#book
'I bought the book'

In addition to these two devices for conveying the indefinite/definite distinction in Chimwiini, phonological phrasing is also utilized. When a noun is modified, phrasing serves to separate an indefinite from a definite noun. The following examples illustrate that when the noun is indefinite, the noun is in a separate phrase from the modifier. We have bolded the indefinite NP.

- (33) a. [chi-wa-wene w-ana wa-wovú]
SP-OP-see(perf)#children#bad
'we saw the bad children'

vs.

[chi-wa-wene **w-aaná**/ wa-wóvu]

SP-OP-see(perf)#children/ bad

'we saw some bad children'

b. [n-uzile mezaa n-khulú]

SP-buy(perf)#table#big

'I bought the big table'

vs.

[n-uzile **meezá**/ n-khúlu]

SP-buy(perf)#table/ big

'I bought a big table'

It is as though the indefinite NP has an appositive structure "a table, a big one". If such a syntactic analysis is put forward, then perhaps the above data can be considered as examples of the canonical phrasing specified by ALIGN-XP R. If there is not really any compelling evidence in favor of considering the indefinite/definite contrast to be a matter of syntactic phrasal structure, then it will be necessary to permit a phrasing principle that assigns non-canonical phrasing on the basis of the semantic property of indefiniteness. It should perhaps be noted that in our unpublished study of Shingazidja, a Bantu language spoken on Ngazidja in the Comoros Islands, indefiniteness triggers canonical phrasing and definiteness triggers the assignment of non-canonical phrasing. Thus even if the definite/indefinite contrast plays a role in phrasing in other Bantu languages, it is unclear whether there is any deep parallelism.

The preceding examples have shown that the indefinite/definite phrasing contrast is possible in post-verbal position. We have not had an opportunity to explore the full range of positions where the contrast is available. Interestingly, we did observe that while the definite phrasing is possible in subject position when the verb is intransitive, the indefinite phrasing was considered ungrammatical by our main consultant.

- (34) a. [mw-anaa mú-le/ Ø-íle]
 child#tall/ SP-come(perf)
 'the tall boy came'
 *[mw-áana/ mú-le/ íle] 'a tall boy/ came'
- b. [mw-anaa mú-le/ Ø- kaa-yá]
 child#tall/ SP-cond-come
 'if the tall boy had come'
 *[mw-áana/ mú-le/ kaa-yá] 'a tall boy/ if (he) had come'

An indefinite subject is indicated by postposing the subject after the verb and assigning indefinite phrasing.

- (35) a. [Ø-ile mw-áana/ mú-le]
 SP-come(perf) #boy/ tall
 'a tall boy came'
- b. [Ø-ka-ya mw-aaná/ mu-lé]
 SP-cond-come#child/ tall
 'if a tall boy had come'

It is possible to postpose a definite subject as well, but then definite phrasing must be used:

- (36) a. [Ø-ile mw-anaa mú-le]
 SP-come(perf)#boy#tall
 'the tall boy came'
- b. [Ø-ka-ya mw-anaa mu-lé]
 SP-cond-come#boy tall
 'if the tall boy had come'

When the verb is transitive, both definite and indefinite phrasing can be observed in subject position.

- (37) a. [mw-anaa mú-le/ Ø-m-bishile Núuru]
 child#tall/ SP-OP-hit(perf)# Nuuru
 ‘the tall boy hit Nuuru’
- b. [mw-áana/ mú-le/ Ø-m-bishile Núuru]
 child/ tall/ SP-OP-hit(perf)#Nuuru
 ‘a tall boy hit Nuuru’

An important issue with respect to indefinite phrasing is the precise principle whereby phrase edges are assigned. Given the preceding data, a constraint such as (38) seems warranted.

- (38) ALIGN-INDEF N R, PP R
 Align the right edge of an indefinite noun with the right edge of a phonological phrase.

The right edge of the adjective following the noun would also be assigned a right PP edge due to ALIGN-XP R.

It is not clear, however, that (38) makes the correct predictions. Consider the situation where the noun has two modifiers. In the definite phrasing, both modifiers are drawn into the same PP as the definite noun.

- (39) [wa-wene w-ana wa-tatu wa-lee wále]
 SP-OP-see(perf)#children#three#tall#tall
 ‘(s)he saw the three tall children’

This phrasing would be expected provided that in a **Noun Adj Adj** structure the first adjective does not itself stand at the end of a maximal projection. Indefinite phrasing, on the other hand, yields a perhaps somewhat surprising result:

- (40) [wa-wene/ wa-tátu/ wa-lee wá-le]
 SP-OP-see(perf)/ three/ tall#tall
 ‘(s)he saw three/ tall children’

What we observe here is that each modifier is in a separate PP. This would not follow from the claim that a **Noun Adj Adj** sequence is a single XP and that indefinite phrasing assigns a right PP edge at the right edge of an indefinite noun. Such a procedure would yield a phrasing *[wa-wene w-áana/ wa-tatu wa-lee wá-le].

Much more research is required before one can provide a reasonably thorough analysis of the indefinite/definite distinction and its role in phrasing. There is no doubt, however, that it is an important element in a complete theory of phrasing in Chimwiini.

7.4. Non-canonical phrasing and the role of emphasis/focus

The most extensive case where the phonological phrase does not end at the right edge of a (lexical) maximal projection involves a broad range of cases that we refer to generally as *emphasis*. Emphasis includes matters such as stylistic or narrative emphasis, contrastive stress, focus. We categorize these notions together because they all seem to have the same effect from a phrasing point of view: namely, a word that is emphasized stands at the end of a phonological phrase.¹²

In canonical phrasing the first complement of the verb groups into the same phrase as the verb, as was demonstrated in section 5.3 in example (19) and can also be seen in (41) below. However, emphasis on a verb separates the verb from its following complement, as in (42). In (42), we have highlighted the verb by putting it in boldface and have italicized the corresponding verb in the translation.

- (41) **verb groups together with first complement**
- a. [Ø-sh-funga safári] ‘he set out on a journey [lit. tied a journey]’
- b. [Ø-ch-anza x-fanya káazi] ‘he began to do work’
- c. [Ø-chi-biga hóodj] ‘he asked [lit. beat] for permission to enter’

¹² Other than phrasing, the primary indication of the presence of emphasis is pitch height. In Chimwiini, there is a default “downstep” intonation whereby each accented syllable is somewhat lower in pitch than a preceding accented syllable in the intonational phrase. When a word is emphasized, however, it will be raised in pitch and not downstepped. We do not indicate these pitch level facts in our discussion here. It is possible that there might be intonational differences associated with differences in the type of emphasis (e.g. the relative pitch height of the accented member in an emphasized phrase might differ according to the type of emphasis involved, or there might be other factors like loudness that come to play), but these phonetic effects are outside our current concerns.

(42) **verb separated from a following argument**

- a. [n-jiilé/ náma]
SP-eat(perf)/ meat
'I ate meat'
- b. [sí/ **sh-kaleenthé**/ i-jabali Xáafu/ sku n-íngi]
we/ SP-sit(perf)/ mountain#Xaafu/ days#many
'we stayed on the mountain Xaafu many days'

verb separated from a sentential or infinitival complement

- c. [(n)-na-x-suulá/ wé/ k-enda náa mi/ ku-ja úki]
SP-pres-inf-want/ you/ inf-go#with#me/ inf-eat honey
'I want you/ to go with me to eat honey'
- d. [dhíbu/ ku-m-wele_{le}ja níngi/ mw-áana/ **Ø-chi-'azíma**/ k-ondoka ka ápo]
troubles/ inf-OP-be to# many/ child/ SP-past cont-decide/ inf-leave#from#there
'difficulties being many to him, the boy decided to go from there'
- e. [Hasiibu/ **Ø-chi-m-jíiba**/ kuwa ni wazíiri]
Hasiibu/ SP-past cont-OP-answer/ that#be# minister
'Hasiibu answered him that he was the minister'

verb separated from a following prepositional phrase

- f. [Ø-chi-láwa/ karka múu-yi/ óyo]¹³
SP-past cont-leave/ from#town/ that
'he left from that town'

verb separated from a following adverb

- g. [Yuusúfu/ Ø-waliko **Ø-sh-pendóowa**/ nthó/ na waawá=y-e]¹⁴
Joseph/ SP-be SP-past cont-love(pass)/ very/ by#his father
'Joseph/ was loved very much/ by his father'

We can see in (42) that the boldfaced verb is phrase-final because (a) it bears accent and (b) if it has a long vowel in its structure, it retains this length. If the verb were phrase-medial, it would lack accent since it would not be the last word in the phrase and any long vowel would shorten due to the vowel being unstressed (too far back from the end of the phrase to receive stress).

Emphasis does not affect just verbs, of course. In the canonical phrasing of a noun phrase, the noun is part of the same phrase as any post-nominal modifier. We have seen that indefinite phrasing leads to separation of the nominal from its modifier. However, emphasis on the noun will have the same effect. We have put the noun in boldface in the examples in (43) and have italicized the corresponding noun in the translation.

- (43) a. [ba'ada y-a **mi-yéezi/ hába**]
after#AG-a#months/ few
'after a few months'
- c. [**xabári**/ ízi/ zi-m-komele sul_táani]
news/ these/ SP-OP-reach(perf)#sultan
'[lit.] these news reached the sultan'
- d. [**wazíiri**/ m-kúlu/ Ø-chi-mw-ambíla/ ku-m-letela m-phíingu/ na xpalá]
minister/ chief/ SP-past cont-OP-tell/ inf-OP-bring to#chain/ and#padlock
'the chief minister told him to bring to him a chain and a padlock'

¹³ Observe that in this example, in addition to the phrasal separation of the verb, the noun **muu-yi** is separated from the following demonstrative **oyo**. Although this separation is not usual in elicitation, we have encountered it quite often in texts. Presumably, the noun is being emphasized with this phrasing.

¹⁴ The adverb **nt^ho** is always phrase-final in our data, but may phrase with a preceding verb or adjective: [**hu-m-pendaa nt^hó/ Abunawaási**] 'he loved very much/ Abunawaási' and [**chi-su íchi/ ni shkalii nt^hó**] 'this knife/ is very sharp'.

In each of these examples, the boldfaced noun bears an accent, which is possible only if it is phrase-final. Furthermore, those nouns that have a long vowel retain this length; this is only possible because these nouns are phrase-final and stress falls on these long vowels.

The examples in this section support the general claim that a focused element stands at the right edge of a phonological phrase. A preliminary formulation of the constraint requiring this phrasing is given in (44). We shall modify this constraint in section 9.

- (44) ALIGN-FOC R, PP R
Align the R edge of a focused element with the right edge of a phonological phrase.

7.5. A summary of canonical and non-canonical phrasing in Chimwiini

Both canonical and non-canonical phrasing in Chimwiini seem to be (almost?) entirely a matter of locating the *right* edge of various elements in the sentence. The various constraints that we have identified are repeated in (45). In referring to these constraints, we generally put them in a shortened form, omitting the “PP R” portion of the constraint.

- (45) ALIGN-XP R, PP R = align the R edge of each maximal projection with the R edge of a PP
ALIGN-FOC R, PP R = align the R edge of a focused/emphasized item with the R edge of a PP
ALIGN-V_{NEG} R, PP R = align the R edge of a negative verb with the R edge of a PP (though this constraint may be a special case of ALIGN-FOC R)
ALIGN-INDEFIN N R, PP R = align the R edge of an indefinite noun with the R edge of a PP
ALIGN LEX L/R PP L/R = the assignment of PP edges triggered by specific lexical items

The important point to note about this collection of constraints is that they are not in conflict with one another, and thus satisfying one of these constraints is not incompatible with satisfying the others. Each assigns a phrase edge, but these assignments do not impact the assignment of phrase edges elsewhere in the sentence. Although it has no particular importance in the present situation, we assume when it comes to phrasing constraints, constraints are categorical and not gradient. Furthermore, we assume that a phrase cannot end or begin internal to a word.

In the next section we look into the issue of whether there are any cases of conflicts among the phrasing constraints in Chimwiini.

8. Are constraints ever in conflict in Chimwiini?

In his 1999 paper, Truckenbrodt suggests that there are two constraints on phrasing that are potentially in conflict with one another. One of these constraints is ALIGN-XP R. The second constraint is one that Truckenbrodt refers to as WRAP-XP. This constraint requires that all elements inside a maximal projection be in the same phonological phrase. The most significant application of this constraint (at least with respect to the general literature on the subject) is with respect to the verb phrase, where it requires that all the elements in the verb phrase be inside the same phonological phrase. Clearly, ALIGN-XP R and WRAP-XP are in (apparent) conflict when confronted with a V NP NP sequence where the two NP's are both complements of the verb. ALIGN-XP R requires that the two NP's be in different phrases, while WRAP-XP requires them to be in the same phrase.

Truckenbrodt noted that these two constraints are in conflict and cannot both be satisfied if phrasing is not recursive. Without recursion, one can only have either a phrasing (V NP) (NP) where ALIGN-XP R is satisfied and not WRAP-XP, or (V NP NP) where WRAP-XP is satisfied, but not ALIGN-XP R. Truckenbrodt notes that recursive structure would permit both constraints to be satisfied: (V NP) NP), for example.

Truckenbrodt made an important observation concerning Chimwiini. A recursive structure like (V NP) NP) accounts for the Chimwiini vowel length facts just as well as the structure (V NP) (NP). There simply is no evidence provided in K&A that would show that verb phrases *need* to be wrapped into a single PP. We would like now to argue for exactly this position. The facts about vowel length do not offer us any evidence on this matter (which explains why it was impossible for Truckenbrodt to locate any pertinent evidence on the matter from the data in K&A); the facts about accent (possibly) do.

Look at the following data from person-marking final accent.

- (46) a. [mí/ n-tinzilee namá/ kaa chí-sú]
I/ SP-cut(perf)#meat/ with#knife
'I/ cut meat with a knife'
cf. with default accent:
[yé/ Ø- tinzilee náma/ kaa chí-su]
(s)he/ SP-cut(perf)#meat/ with#knife
'(s)he cut meat with a knife'

- b. [sh-pokele wa-geení/ mi-zigo ayó]
 SP-take from(perf)#guests/ luggage#those
 ‘we took that luggage from the guests’
 cf. with default accent:
 [wa-pokele wa-géeni/ mi-zigo áyo]
 SP-take from(perf)# guests/ luggage#those
 ‘they took that luggage from the guests’
- c. [ni-m-tovelele mw-aaná/ maandá/ m-tuzii=ní]
 SP-OP-dipfor(perf)#child/ bread/ into sauce
 ‘I dipped the bread into the sauce for the child’
 cf. with default accent:
 [ye/ Ø-m-tovelele mw-áana/ máanda/ m-tuzii=ni]
 (s)he/ SP-OP-dip for(perf)#child/ bread/ into sauce
 ‘(s)he/ dipped the bread into the sauce for the child’

We have said that the first/second person present and past verb forms require final accent. We have seen that this final accent is not realized necessarily on the verb form itself, but on the phrase that contains the verb. The above data however show that the final accent is heard on **more than one phrase-final word**. For example, in (46a) it is heard on both **nama** and **chi-su** and in (46c) it is heard on **mw-aana**, **maandra**, and **m-tuzii=ni**. How can that be? A simple answer to this question would be: because the verb occurs in more than one phrase. This is not true if only ALIGN-XP R is assumed. The verb would be in a phrase with the first complement but not with a second or a third complement. However, if we assume that WRAP-XP is obeyed at the expense of violating the ban on recursive structure, then the verb is in multiple phrases; e.g. (46c) would have the VP phrasing: (**m-tovelele mw-áana**) **máandra**) **m-tuzii=ni**), where the verb occurs in three phrases. (See Truckenbrodt, 1999 for discussion of why this particular recursive structure is preferred over the alternative possibilities.)

To summarize: allowing recursive structure permits the verb to be in multiple phrases at the same time. Assuming a tonal realization principle that says *a verb requiring final accent imposes that accent in every phonological phrase in which the verb occurs*, we will then predict multiple final accents just in case there is recursive structure. And there will be recursive structure just in case it is required to satisfy both ALIGN-XP R and WRAP-XP.

Further evidence for the proposal that the word triggering final accent may be inside multiple phrases comes from relative clauses.

- (47) a. [sulṭáani/ Ø-funzilo ruuhu=y-é/ mi-konó/ ka siṣiṣi]¹⁵
 sultan/ SP-tie(perf,rel)#himself/ hands/ with#chain
 ‘the sultan who tied himself hands with a chain’
- b. [mw-alimu Ø-jilo ch-aa-ku-já/ hotelii=ní/ h-a-xaḍíri]
 teacher SP-eat(perf,rel)#food/ at hotel/ neg-SP-be able
 ‘the teacher who ate food at the hotel is sick’
- c. [mu-nthu Ø-m-pelo Jaamá/ chi-buukú]
 person#SP-OP-give(perf,rel)#Jaama/ book
 ‘the man who gave Jaama a book’
- d. [mu-nthu Ø-somesheleza mw-aaná/ qur’aaní/ na mw-aalimú]
 person#SP-teach for(perf,pass,rel)#child/ Quran/ by#teacher
 ‘the man for whom was taught the child the Quran by the teacher’

In these data, we see that the final accent triggered by the relative verb appears not just at the end of the phrase consisting of the verb and the first complement, but also at the end of every other phrase inside the VP. Thus in (47a), the final accent occurs on **ruuhu=y-e**, **mi-kono**, and **siṣiṣi**. In (47d), the final accent occurs on **mw-aana**, **qur’aani**, and **mw-aalimu**.

What we see from the relative clause data in (47) is the same thing we saw in the person-marking final accent case: the final accent associated with the verb appears not just on the phrase that obviously includes the verb, but also on the final vowel of every other phrase located inside the relative clause as a whole. This would be accounted for if we accept the idea

¹⁵ In elicitation, Mohammad Imam Abasheikh regularly phrased a definite head of a subject relative clause together with the relative verb, but this example shows that it is possible to separate the head from the relative clause. In our recent work with Jeylani Mohamad Dini, this variation in phrasing is evident even in elicitation. This example also shows that the head, when phrased separately, has default accent.

that Chimwiini has recursive phrasal structure and thus *WRAP-XP* and *ALIGN-XP R* are both more highly ranked than the constraint that bars recursive structure. If both *WRAP-XP* and *ALIGN-XP R* must be satisfied at the expense of violating the ban on recursive structure, we will get phrasing like (mu-nthu somesheleza mw-aaná) qur'aaní) na mw-aalimú) and the surface distribution of final accent will be accounted for in terms of the simple principle that an item that triggers final accent locates that accent on every phrase in which this item appears. The tableau in (48) illustrates the selection of the correct phrasing in (c). (**REC* refers to a ban on recursive structure.¹⁶)

(48)

candidates	<i>ALIGN-XP R</i>	<i>WRAP-XP</i>	* <i>REC</i>
a. (mu-nthu somesheleza mw-aana qur'aani na mw-aalimú)	*!*	ok	ok
b. (mu-nthu somesheleza mw-aaná) (qur'aani) (na mw-aalimu)	ok	*!	ok
c. (mu-nthu somesheleza mw-aaná) qur'aaní) na mw-aalimú)	ok	ok	*

From (48), we can see that there is no necessary ranking between *ALIGN-XP R* and *WRAP-XP* since the availability of recursive structure means that there is no need to choose between the two. However, these constraints must be ranked above **REC* so that indeed they both can be satisfied.

We have not spoken about the precise lexical representation of the property that identifies a final-H trigger or the mechanism for expressing the idea that the H tone appears on each of the phrases that contains the trigger. There are doubtless several different formal approaches. One, suggested by Larry Hyman in personal communication, proposes a tonal analysis where a H trigger (e.g. relative verb) in fact has a final H tone in its underlying phonological representation. This H tone would shift to the final syllable of a phrase in which it appears. If there are multiple phrases, there are multiple sites to which it shifts. This strikes us as a plausible way to view the phenomenon, but in this paper we are more concerned with getting the phrasing correct than in the mechanisms involved in realizing the final accent. The default accent does not actually require a trigger, so it may be assigned by rule to any unaccented phrase.

9. Emphasis/focus and recursive structure

The next point that we would like to look at is the implications that recursive structure has for the constraint *ALIGN-FOC R*, that was given above as (44). It turns out that the facts about final accent (particularly in relation to person marking final accent) significantly clarify the formulation of *ALIGN-FOC R* (presumably not just in Chimwiini, but in other languages as well).

The formulation of *ALIGN-FOC R* in (44) was that the right edge of a focused element must be at the right edge of a phonological phrase. This formulation, however, will not achieve the correct results in Chimwiini on the assumption of recursive structure. To see this, we need to return to person-marking final accent and look at it in relationship to focus/emphasis matters. Consider the following example:

- (49) [Ø-**bigiliile=ni**/ ɿ-kutáa=ni]
 SP-hammer(perf)=what/ into wall
 'what did you hammer into the wall'

Notice that in this sentence, the question word enclitic =**ni** 'what?' triggers the isolation of the verb from the following locative phrase. Furthermore, notice that final accent occurs only on the verb and not on the locative complement.

A proper answer to this question would be:

- (50) [**m-bigiliile mu-smaarí**/ ɿ-kutáa=ni]
 SP-hammer(perf)#nail/ into wall
 'I hammered a nail into the wall'

Notice here that the verb and the "new information" provided in the answer are grouped together and receive final accent; however, the locative complement that follows does not exhibit final accent. In contrast, the simple statement that I hammered a nail into the wall would be pronounced:

- (51) [m-bigiliile mu-smaarí/ ɿ-kutaa=ni]
 SP-hammer(perf)#nail/ into wall
 'I hammered a nail into the wall'

where both *mu-smaari* and *ɿ-kutaa=ni* receive final accent.

(52) provides additional examples illustrating similar cases where the final accent appears on a focused element and not on subsequent phrases in the VP:

¹⁶ We forego discussion of precisely how violations of **REC* are calculated; see Truckenbrodt (1999) for the technical discussion. It is for this reason that we show only the candidate that has minimal violations of **REC*. This is, of course, the candidate that yields the correct result.

- (52) a. [Ø-bigilile ka ní/ mu-smáari/ l-kutáa=ni]
 SP-hammer(perf)#with#what/ nail/ into wall
 ‘what did you use to hamer the nail into the wall?’
- b. [m-bigilile ka n-duundó/ mu-smáari/ l-kutáa=ni]
 SP-hammer(perf)#with#hammer/ nail/ into wall
 ‘I hammered with a hammer the nail into the wall’
- c. no focus: [n-ulile gaarí/ peesá] ‘I bought a car with/ money’
- d. focus **gaari**: [n-ulile gaarí/ péesa] ‘I bought a car with/ money’
- e. focus **peesá**: [n-ulile peesá/ gáari] ‘I used money to buy/ a car’
- f. no focus: [ni-m-bozele mw-aaná/ chi-buukú]
 SP-OP-steal-perf child/ book
 ‘I stole from the child a book’
- g. verb focus: [ni-m-boozelé/ mw-ána/ chi-búuku]
- h. focus **mw-aana** [ni-m-bozele mw-aaná/ chi-búuku]

Whenever there is a focused element internal to the verb phrase (whether it is the verb or the complement following the verb), the final accent triggered by the verb is not heard to the right of the focused element. Phrases to the right of the focus are assigned default accent. We refer to this phenomenon as the Accentual Law of Focus.

How are these data to be explained? The answer seems quite simple: WRAP-XP must **not** have organized the elements following the focus into a phrase with the focused element. But why not? We suggest that the answer is in the precise formulation of ALIGN-FOC R. Specifically, we suggest revising this constraint as in (53).

- (53) ALIGN-FOC R (revised)
 A focused/emphasized element must be rightmost in any phrase that contains it.

The constraint WRAP-XP cannot be satisfied in (49–52) without violating the revised ALIGN-FOC R constraint given above. Thus by ranking ALIGN-FOC R above WRAP-XP, we will successfully prevent WRAP-XP from being involved in the optimal outcome and thereby keep the final accent from projecting to the right of the focused element. The tableau in (54) illustrates how the correct phrasing will be selected and the accentual facts accounted for.

(54)	ALIGN-FOC R	ALIGN-XP-R	WRAP-XP	*REC
candidates				
a. (ni-m-bozele mw-ana ^F chi-bukú)	*!	*	ok	ok
b. (ni-m-bozele mw-aaná ^F chi-bukú)	*!	ok	ok	*
c. (ni-m-bozele mw-aaná ^F) (chi-búuku)	ok	ok	*	ok

The superscript ^F indicates a focused element. The candidate in (a) obeys WRAP-XP, but violates both ALIGN-FOC R (since the focused element is not phrase-final) and ALIGN-XP R (since **mw-aana** is the right edge of a maximal projection but not at the right edge of a phonological phrase). Since ALIGN-FOC R is ranked higher than WRAP-XP, candidate (a) cannot be optimal. The candidate in (b) satisfies both ALIGN-XP R and WRAP-XP by employing recursive phrasing. However, (b) violates ALIGN-FOC R since while the focused element is at the right edge of a phrase, it is not at the right edge of *all* the phrases in which it is included. Specifically, **mwaana** is not at the right edge of the phrase that wraps the verb together with the complement **chi-buuku**. Thus (b) is non-optimal since it violates the undominated constraint ALIGN-FOC R. The optimal candidate is (c). It violates WRAP-XP, but satisfies the more highly ranked constraint ALIGN-FOC R. In this optimal phrasing, the verb is in just one phrase, the one that ends with the focused element **mw-aana**, and it is only this word that gets the final accent triggered by the verb.

This account of the facts seems quite appealing to us, but there are issues concerning its generality. Although relative clauses generally do not seem to favor any internal focus, our recent research suggests that it is possible to have ALIGN-FOC R operate inside a relative clause. But even if we have such phrasing, the relative clause final accent extends all the way to the end of the relative clause. This phenomenon is illustrated in (55).

- (55) a. [mw-ana óyo/ Ø-bashizo chi-buukú]
 child#that/ SP-lose(perf,rel)#book
 ‘that child who lost the book’
 vs.

- b. [mw-ana óyo/ Ø-bashiizó/ chi-buukú]
 child#that/ SP-lose(perf,rel)/ book
 'that child who *lost* the book'

Assuming that the phrasal separation of the relative verb in (55b) is the consequence of ALIGN-Foc R, then it seems that there is recursive structure and thus a violation of the revised version of ALIGN-Foc R since the final accent is projected to the noun **chi-buuku**. This phrasing (mw-ana óyo)(bashiizó) chi-buukú) would of course follow from ranking WRAP-XP above ALIGN-Foc R. However, this is the opposite ranking from what is needed for the earlier data from person-marking final accent. A solution might be developed on the basis of construction-specific rankings (cf. Pater, 2009). But this matter is beyond the scope of the present paper.

10. Parallelism between indefinite phrasing and emphasis/focus

At first glance, it might seem that the indefinite phrasing discussed earlier is entirely distinct from the emphasis/focus phrasing, but this is not true. Indefinite phrasing interacts with person-marking final accent in exactly the same way as emphasis/focus. The following data illustrate:

- (56) a. [n-jilee ma-zú/ húundu]
 SP-eat(perf)#bananas/ red
 'I ate (some) red bananas'
- b. *[n-jilee ma-zú/ huundú] 'ibid.'
- c. *[ni-zi-jilee ma-zú/ húundu] 'ibid.'
- d. [ni-zi-jile ma-zu huundú]
 SP-OP-eat(perf)#bananas# red
 'I ate the red bananas'
- e. [n-jile ma-zu huundú]
 SP-eat(perf)#bananas#red
 'I ate the red bananas (not the yellow ones)'

(56a) shows that when the indefinite noun is separated from the following modifier, the final accent triggered by a first person past tense form appears on the noun but default accent appears in the modifier. This is, of course, exactly the same as when an element inside the verb phrase is focused: final accent appears on the focused element, but default accent on the subsequent elements. (56b) shows that it is ungrammatical for the final accent to appear on the modifier in this phrasing. (56c) shows that when the object is indefinite (and non-human), it is not possible to have an object marker on the verb. (56d) shows that an object prefix may occur when there is definite phrasing, but (56e) shows that the object prefix is not obligatory. There appears to be some difference in usage in that when there is no object prefix, there seems to be a contrast being made, while in the form with an object prefix, simple definiteness is at issue. In any event, in both cases the modifier is included in the phrase and receives the final accent triggered by the first person singular verb form.

Some additional examples illustrating the interaction of indefinite phrasing and final accent:

- (57) a. [ni-wa-wene waa-nthú/ w-iingi/ suxúu=ni]
 SP-OP-see(perf)#people/ many/ at market
 'I saw many people many at the market'
- b. [chi-m-wene eeló/ m-kúlu/ m-súura]
 SP-OP-see(perf)#gazelle/ large/ beautiful
 'we saw a beautiful large gazelle'

In these data, the indefinite noun is not only separate from the modifier but also does not allow the final accent to project past it.

It should be noted that there is a conflict between emphasis of a modifier and indefinite phrasing. Specifically, in order to emphasize the modifier, it is grouped into the same phrase as the noun it modifies. We put a superscript ^F after the emphasized modifier to make its special status clear.

- (58) a. [ni-wa-wene wa-nthu w-iingi^F/ suxúu=ni]
 SP-OP-see(perf)#people#many/ at market
 'I saw *many* people (lit. people many) at the market'

- b. [n-uzile ma-zuu m-bi_i^F/ suxúu=ni]
 SP-buy(perf)#bananas#green/ at market
 'I bought *green* bananas at the market'

When emphasizing the modifier, it is apparently not possible to use phrasing to contrast indefinite and definite noun phrases. This fact may be connected with other cases where one cannot focus an element in the presence of another focused element (e.g. the inherent focus on a negative verb is lost when the verb is followed by a focused element).

Indefinite phrasing produces some evidence that can be interpreted as supporting our analysis of how ALIGN-Foc R blocks the employment of WRAP-XP. Consider examples where a verb is followed by a NP and then by a noun-modifier sequence that has been assigned indefinite phrasing. We have used a superscript ^F after the indefinite noun in order to suggest that this may be a special case of focus.

- (59) a. [ni-m-uj_ile liisá/ núumba^F/ n-khúlu]
 SP-OP-buy for(perf)#lisa/ house/ large
 'I bought a large house for lisa'
- b. [ni-wa-pele w-aaná/ zi-lú_i^F/ s-tátu/ zi-lee zí-le]
 SP-OP-give(perf)#children/ sticks/ three/ long#long
 'I gave the children three long sticks'

What we see here is that the final accent appears on first complement to the verb, but not on the indefinite noun or either of the adjectives. The explanation for this is not immediately obvious, but would seem to be explicable if indefinite phrasing is a special case of ALIGN-Foc R as formulated in (53).

The tableau in (60) illustrates how the correct surface form would follow from our analysis.

(60)		ALIGN-Foc R	ALIGN-XP R	WRAP-XP	*REC
candidates					
a. (ni-m-uj _i le isa numba ^F n-khulú)	*!	*	ok	ok	ok
b. (ni-m-uj _i le liisá) nuumbá ^F n-khulú)	*!	ok	ok	*	*
c. (ni-m-uj _i le liisá) nuumbá ^F (n-khulú)	ok	ok	*	*!	*!
d. (ni-m-uj _i le liisá) (núumba ^F) (n-khúlu)	ok	ok	*	ok	ok

Candidate (a), which satisfies WRAP-XP without appeal to recursive structure, is rejected by the undominated constraint ALIGN-Foc R since the focused word **nuumba** is not final in the phrase that it is in. Candidate (b) satisfies both ALIGN-XP R and WRAP-XP at the cost of violating the ban on recursive structure. However, even though it has put **nuumba** at the end of phrase, as demanded by ALIGN-Foc R, it still fails to satisfy that constraint since **nuumba** is not final in all the phrases that contain it. Specifically, **nuumba** is part of a phrase that includes **n-khulu**, but is not final in that phrase. Consequently, (b) cannot be optimal.

Candidate (c) is an interesting candidate. It uses recursive structure to include the focused element in a phrase with the verb, but it excludes the following adjective from the recursive structure so that ALIGN-Foc R can be satisfied. Besides satisfying ALIGN-Foc R, (c) also satisfies ALIGN-XP R. But it violates WRAP-XP since it has not included the adjective **n-khulu** in the same phrase as the rest of the VP. In addition to violating WRAP-XP, however, (c) also violates *REC, since recursive structure was used to put the focused element in the same phrase as the verb. The optimal candidate is (d), which lacks any recursive structure whatsoever. It satisfies ALIGN-Foc R since the focused element is rightmost in the only phrase that contains it. (d) Also satisfies ALIGN-XP R. (d) Violates WRAP-XP, just as (c) does. What is critical here, however, is that WRAP-XP is a categorical constraint. It is either satisfied or not satisfied; (c) is not better than (d) because it has included the focused element in the same phrase as the VP material to its left while (d) has not. The only thing that is crucial is that neither satisfy the requirement that all the elements of the VP be in the same phonological phrase! That being the case, then (d) is optimal because it does not violate *REC while (c) does. The final accent triggered by the verb projects only to phrases that include the verb. In (60d), the verb is not in a phrase with **nuumba** and thus **nuumba** cannot receive final accent from the verb.

We take these data to be striking confirmation of our analysis of the scope of final accent (as well as the categorical nature of WRAP-XP that was originally argued in Truckenbrodt, 1999).

11. Conclusion

The clarity of the evidence (based on the dual factors of vowel length alternations and accent) makes Chimwiini an ideal language to explore the interplay between phonological phrasing and other aspects of linguistic structure (morphology, syntax, focus, stylistics, and so on). It is not just the clarity of the evidence, but also its abundance that is critical. Each and every one of the infinitely large set of Chimwiini sentences provides evidence as to what the phrasing principles in the language are.

There is no doubt that the ALIGN-XP R constraint proposed by Selkirk is fundamental to an analysis of Chimwiini phrasing. The data in sections 9 and 10 raise the distinct possibility that WRAP-XP also has a significant role to play in the language as well. Other than lexically determined phrasing, the other active phrasing principles in Chimwiini appear to be deeply related to focus/emphasis. For example, we have suggested that phrase edges appear at the right edge of a negative verb due to the negative verb bearing an inherent focus. In section 10, we showed that there were strong parallels between indefinites being at the right edge of a phonological phrase and focused elements being at the right edge of a phrase.

Chimwiini provides, in our estimation, unparalleled support for the basic ideas of Selkirk (1986) and also for the OT extension of this approach with its notion of a set of multiple phrasing constraints that sometimes may be in conflict with one another.

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