

THE PROSODY OF RUTOORO ADNOMINALS*

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1 Introduction

- Rutooro is one of only a few Bantu languages in which tone is no longer lexically contrastive. Bickmore and Clemens (2016) demonstrate that a High (H) tone marks the penultimate syllable of the φ -phrase.
- While the φ -phrase is the domain for tonal phenomena across the family, we have identified a previously unattested pattern in the prosody of DPs:
 - In some cases, the head noun is phrased with its modifier(s).
 - Other times, the head noun is phrased independently.
- We argue that the distribution of H tones serves as a diagnostic for whether an adnominal is generated in a DP-internal or external position.
- Reduced object RCs with overt subjects are a special case:
 - The head of a reduced object RC bears an unexpected H, while the subject is all-L despite the fact that it is a self-contained XP.
 - Prominent theories of the syntax-prosody interface offer no obvious solutions to this puzzle.
- We pursue an account in which the attested phrasing repairs a prosodic ambiguity that could otherwise point to unintended constituency.

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1.1 Language background

- Rutooro (E/J.12), also known as Tooro, is a Bantu language with approx. 850,000 speakers mostly in Western Uganda (Simons and Fennig 2017).
- Previous work includes a dictionary (Shigeki 2007), a brief article on tone (Kaji 2008), and a Runyooro-Rutooro grammar (Rubongoya 1999).
- Our data come from a 28-year-old native speaker of Rutooro, from Fort Portal, Uganda, who travels between Albany, New York and Fort Portal.
- Rutooro at-a-glance:
 - Rutooro is a highly agglutinative, polysynthetic language.
 - 19 of Bantu's 22 numbered noun classes are attested in Rutooro, and they are indicated by a prefix.
 - There are separate classes for singular and plural nouns; certain plural classes correspond to more than one singular class (1)-(2):

(1)	a. e-ri-iso AUG-C5-eye 'eye'	(2)	a. o-ku-tu AUG-C15-ear 'ear'
	b. a-ma-iso AUG-C6-eye 'eyes'		b. a-ma-tu AUG-C6-ear 'ears'

- Rutooro has rich nominal concord (3):

(3)	e- bi -tabu bi -taano by -aange by -oona bi -nu AUG-C8-book C8-my C8-five C8-all C8-this 'all five of these books of mine'
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- The subject's noun class is also represented on the predicate (4):

(4)	A- ba -ana ba -chuumb-ir ee-ki-huro. AUG-C2-child C2-cook-PRF AUG-C7-meal 'The children cooked the meal.'
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- Most tense/aspect markers are prefixal (see (4) for an exception).
- The final vowel (FV) is a suffixal mood marker that distinguishes between subjunctive and indicative.
- The augment (AUG) is a harmonizing vowel indicating a certain degree of functional structure.
- SVO is a common word order, although arguments are often dropped and focused constituents typically occur in postverbal position, indicated by a H tone on the verb.

1.2 Prominence

- Words in isolation are pronounced with prominence on the penultimate syllable, which we refer to as a H tone and mark with an acute accent.

(5)	a. ku- sóm-a C15-read-FV 'to read'	d. Ba-ka-haandík-a. 3PL-PST-read-FV 'They wrote.'
	b. e-ki-sumurúzo AUG-C7-key 'key'	e. a-ka-tuungúro AUG-C12-onion 'onion'
	c. mpóra slowly 'slowly'	f. ki-rúúngi C7-good 'good'

- The distribution of H tones is nontrivial in phrasal contexts:

- Although (6-a) and (6-b) are segmentally identical, the H tone distinguishes between a possessed nominal and a copular clause.

(6)	a. o-mw-aana mu-céke ► AUG-C1-child C1-SLENDER 'the slender child' b. O-mw-áána mu-céke. ► AUG-C1-child C1-SLENDER 'The child is slender.'
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- When larger sentences are examined, it is possible to find nearly any combination of all-L and H-marked words:

(7)	a. Nii-n-j-a kw-eend-a ba-taandik-e 1SG.SM-PROG-go-FV C15-want-FV 3PL.SM-start-FV ku-som ee-bi-tábu. C15-read AUG-C7-book 'I am going to want that they start to read the books.' b. Íijo a-bá-ána b-óóna ba-ku-sóm-a yesterday AUG-C2-child C2-all 3SG.SM-PST-read-FV múú-n-ju. LOC-C9-house 'Yesterday all the children read in the HOUSE.'
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1.3 Today's Plan

- In the remainder of the talk, we examine the distribution of H-tones in three syntactic contexts:
 1. Matrix clauses
 2. Nominal phrases
 3. Relative clauses
- Based on these data, I will argue that
 - Rutooro exhibits a strong correspondence between XPs and φ -phrases.
 - The distribution of H-tones in Rutooro thus serves as a reliable diagnostic for syntactic structure.
 - Prosodic structure that is nonisomorphic with the underlying syntax is the result of a need to repair a prosodic ambiguity.

Plan: Matrix clauses • Nominal phrases • RCs • Prosodic ambiguity

2 Distribution of H in matrix clauses

- H marks the right edge of a prosodic unit we take to be the φ -phrase:
 - Must be larger than the prosodic- ω , because not all words bear a H in phrasal contexts (7-a)
 - Must be smaller than the ι -phrase, because every word in a clause can bear a H tone, given the right context (7-b)
 - Tonal phonology phenomena across the family are sensitive to the φ -phrase (e.g. Bemba, Chaga, Chimwiini, Kimatuumbi, Luganda, Xitsonga, and many many others).
- In this section, we...
 - look at the distribution of H in simple matrix clauses
 - provide an explicit syntactic structure for these clauses
 - conclude that there is a reliable correspondence between XPs and φ -phrases in Rutooro.

2.1 Subjects vs. objects

- In intransitive clauses, the subject and the verb each bear a H tone.

- (8) a. A-ba-lími) φ ba-ka-kór-a) φ
AUG-C2-farmer C2.SM-PST-WORK-FV
'The farmers worked.'
- b. Kajúúmba) φ a-irúk-a) φ
Kajumba 3SG.SM-RUN-FV
'Kajumba runs.'

- The same H-tone distribution appears in cases of object drop: the subject (if one is pronounced) and the verb are each marked H.

- (9) a. Tu-ka-sóm-a) φ
1PL.SM-PST-read-FV
'We read them.'
- b. Kajúúmba) φ a-raa-gúr-a) φ
Kajumba 3SG.SM-FUT-buy-FV
'Kajumba will buy them.'

- In transitive sentences with overt objects, the verb surfaces as all-L and the object is marked H.

- (10) a. Tu-ka-som ee-bi-tábu) φ
1PL.SM-PST-read AUG-C8-book
'We read the books.'
- b. Kajúúmba) φ a-raa-gur ee-n-káító) φ
Kajumba 3SG.SM-FUT-buy AUG-C10-shoe
'Kajumba will buy shoes.'
- The verb and a single object are phrased together; subjects are separated from predicates by a φ -phrase boundary.

2.2 Multiple postverbal XPs

- In ditransitive clauses, both objects occur at the edge of a φ -phrase—again, diagnosed by the H on their penult.

- (11) a. A-ba-lími) φ ba-ka-h oo-mw-áán) φ
AUG-C2-farmer C2.SM-PST-give AUG-C1-child
ee-by-ookúlya) φ
AUG-C8-food
'The farmers gave the child food.'
- b. A-ba-somésa) φ ba-k-olek a-bá-ána) φ e-mí-ti) φ
AUG-C2-teacher C2.SM-PST-show AUG-C1-child AUG-C4-tree
'The teachers showed the children the trees.'

- The same pattern is found in the applicative construction, where the direct object and the applicative object each bear a High tone.

- (12) a. A-báá-ntu) φ ba-ka-som-er aa-ba-isíki) φ
AUG-C2-person 3PL.SM-PST-read-APPL AUG-C2-girl
e-bi-tábu) φ
AUG-C8-book
'The people read the books to the girls.'
- b. A-ba-záíre) φ ba-ku-leet-er oo-mw-áána) φ
AUG-C2-parent 3PL.SM-PROG-bring-APPL AUG-C1-child
e-bi-yúni) φ
AUG-C8-yam
'The parents are bringing the yams for the children.'

- Clauses in which the verb is followed by an adjunct, e.g. a locative phrase (13) or an adverb (14), pattern in the same way as clauses in which the verb is followed by an argument: the verb surfaces as all-L and each constituent that follows is marked with a H.

- (13) a. Ba-ka-byaam-a múú-nju φ
3PL.SM-PST-sleep C18-house
'They slept in the house.' (Far Past)
- b. A-ba-záire) φ ba-ka-vog-a matóka) φ
AUG-C2-parent 3PL.SM-PST-drive-FV car
ha-Sabííti) φ
C16.LOC-Sunday
'They drove the car on Sunday.'
- (14) a. Ba-ka-haandika-a mpóra) φ
3PL.SM-PST-write-FV slowly
'They write slowly.'
- b. A-báá-ntu) φ ba-som ee-bi-tábu) φ ku-rúúngi) φ
AUG-C2-person 3PL.SM-read AUG-C8-book C17-well
'The people read the books well.'

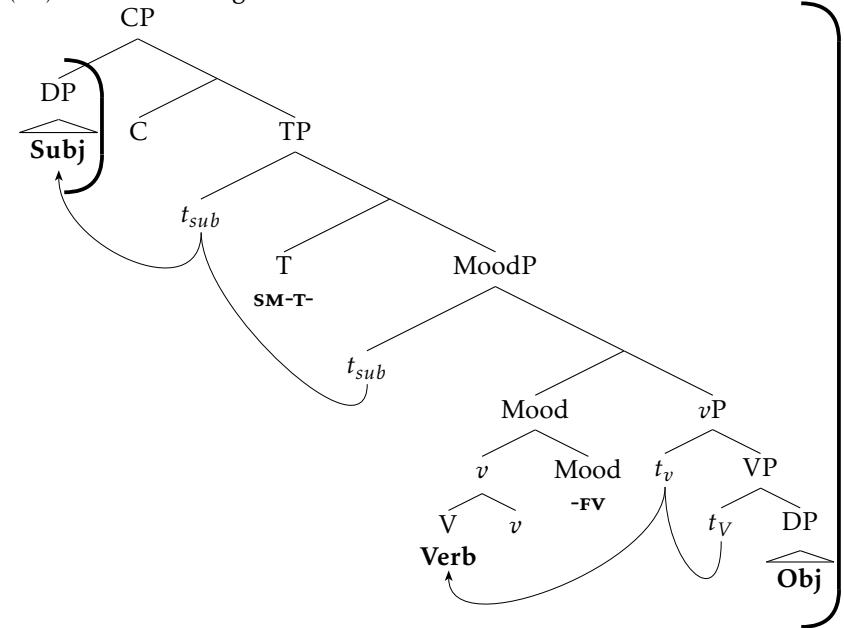
- In sum, a High tone marks the penultimate syllable of each post-verbal element, but not the verb that precedes them.

2.3 Preliminary analysis

- The distribution of H in 1-, 2-, and 3-place predicates, and clauses with adverbial and locative modifiers, comprises strong evidence for substantial overlap between prosodic and syntactic structure in Rutooro.

- In all of these examples, nominal phrases, locative phrases, and adverbs, all of which are phrasal, bear a penult H.
 - The verb is all-L, unless it is at the right edge of the maximal projection it heads, as in intransitives or cases of a pro-dropped object.
- The right edges of φ -phrases correspond to the right edges of a maximal projections in the syntax.

(15) H tone assignment in transitive clause



- A few assumptions from Bantu syntax:

- The verb root X⁰-raises to MoodP, which hosts the final vowel (FV) and introduces the external argument (e.g. Buell 2005; Cheng and Downing 2012; Halpert 2015; Julien 2002; Zentz 2016).
- In matrix SVO clauses the subject is a topic located in CP (e.g. Bresnan and Mchombo 1987; Cheng and Downing 2009; Downing and Hyman 2015; Henderson 2006; Lesholo 2002; Zentz 2016).

- Given what we have seen so far, multiple accounts are possible:

- An EDGE-BASED approach (Selkirk 1986, 1995, 2000; Truckenbrodt 1995, 1999, 2007) would i) create φ -phrase boundaries at the right edge of XPs and ii) assign prominence to their penults.
- A MATCH THEORY account (Selkirk 2011; Elfner 2012, 2015; Itô and Mester 2013; Clemens 2014) would i) assume complete correspondence between XPs and φ -phrases, and ii) analyze the intonational contour of the φ -phrase as all-L, except the penult.

Plan: □ Matrix clauses • □ Nominals • □ RCs • □ Prosodic ambiguity

3 Parallels in the nominal domain

- There are two types of adnominal phrases based on the distribution of H tones and constituent order:
 - The head noun and **type 1** modifiers, which are always postnominal.
 - The head noun bears its own H when it combines with **type 2** modifiers, which optionally occur before or after the head noun.
- In this section, we...
 - look at the distribution of H in DPs with non-clausal modifiers, and
 - provide an explicit syntactic analysis for these clauses that mirrors what we find in the clausal domain.

3.1 Group 1: No H on the noun

- Possessed nouns do not bear a H tone; a phrase-final High tone occurs only on the possessor:

- (16) a. e-n-kaito z-áange) φ
AUG-C10-shoes C10-1SG
'my shoes'
- b. e-by-ookulya by-áitu) φ
AUG-C8-food C8-1PL
'our food'
- (17) a. e-ki-tabu ky-a Kajúumba) φ
AUG-C7-book C7-AUG Kajumba
'Kajumba's book'
- b. e-by-ookuly by' oo-mu-lími) φ
AUG-C8-food C8 AUG-C1-farmer
'The farmer's food'

- The same pattern occurs with numerals:

- (18) a. e-bi-tabu bi-sátu) φ
AUG-C8-book C8-three
'three books'

- b. a-ba-ana ba-tááno) φ
AUG-C2-child C2-five
'five children'
- The nominal head is part of the same phonological phrase as the quantifiers 'many' and 'another':

(19) a. e-bi-tabu bí-íngi) φ
AUG-C8-book C8-many
'many books'

b. e-ri-iba líi-ndi) φ
AUG-C5-dove C5-another
'another dove'
- The head noun phrases with adjectives:

(20) a. e-ki-tbu ki-rúúngi) φ
AUG-C7-book C7-good
'the good book'

b. o-muu-ntu mu-bí) φ
AUG-C1-person C1-bad
'the bad person'
- As in the verbal domain, if multiple nominal modifiers follow the verb, they each have their own prominence:

(21) a. e-bi-tabu by-áange) φ bí-íngi) φ
AUG-C8-book C8-1SG C8-many
'many books of mine'

b. e-ma-iba ma-sátu) φ má-ndi) φ
AUG-C6-dove C6-three C6-another
'another three doves'

3.2 Group 2: H on the noun

- The universal quantifier and demonstratives can precede or follow the head noun. In either position, the noun is marked with a H tone:

- (22) a. e-bi-tábu) φ by-óóna) φ
AUG-C8-book C8-all
'all books'

- (23) b. by-óóna)φ e-bi-tábu)φ
C8-all AUG-C8-book
'all books'
- (23) a. e-ki-tábu)φ kí-nu)φ
AUG-C7-book C7-this
'this book'
- (23) b. kí-nu)φ e-ki-tábu)φ
C7-this AUG-C7-book
'this book'
- b. Ha-roho e-bi-tabu bi-ingi h'-a-me-eza.
C16.LOC-EXIST AUG-C8-book C8-many C16-AUG-C9-table
'There were many books on the table.'
- c. *Ha-roho by-oona e-bi-tabu h'-a-me-eza.
C16.LOC-EXIST C8-all AUG-C8-book C16-AUG-C9-table
Intended: 'There were all the books on the table.'
- d. *Ha-roho ki-nu e-ki-tabu h'-a-me-eza.
C16.LOC-EXIST C7-this AUG-C7-book C16-AUG-C9-table
Intended: 'There was this book on the table.'

- Certain modifiers from Group 1 can occur with an augment vowel, in which case the head noun bears a H tone.

- (24) a. e-bi-tábu)φ e-by-ááng)e)φ
AUG-C8-book AUG-C8-1sg
'my books/the books which are mine'
- b. a-bá-ána)φ a-ba-tááno)φ
AUG-C2-child AUG-C2-five
'five children/the children which are five [in number]'
- c. e-bi-tábu)φ e-bi-sátu)φ
AUG-C8-book AUG-C8-many
'many books/the books which are many [in number]'

- Note that these examples are alternatively translated as restrictive relative clauses, and so we set them aside until Section 4.

3.3 Accounting for the distribution of H

- Groups 1 and 2 *almost* perfectly correspond to the distinction between weak (e.g. those that contain numerals, 'many', 'another') and strong (e.g. those that contain demonstratives, 'all', 'the other') nominals.
- Examples (16) - (17) show that possession is a bit anomalous.

- The distribution of weak and strong DPs in combination with the existential supports the distinction (Milsark 1974):

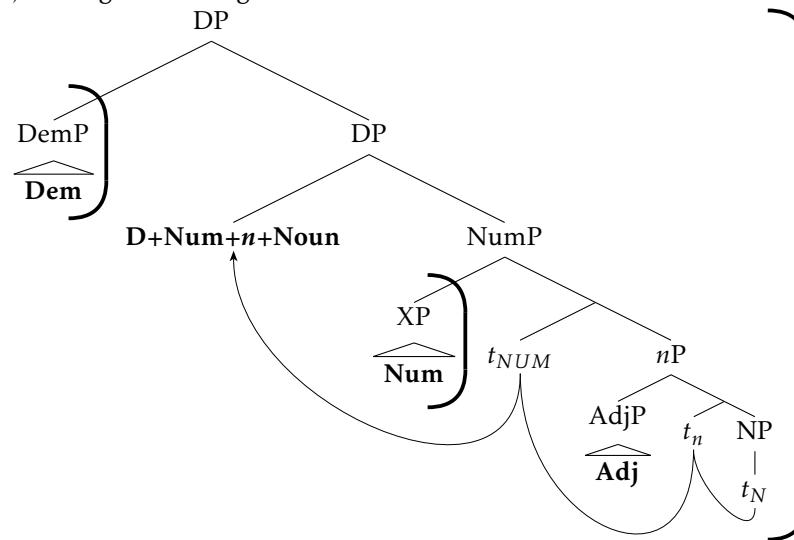
- (25) a. Ha-roho e-bi-tabu bi-satu h'-a-me-eza.
C16.LOC-EXIST AUG-C8-book C8-three C16-AUG-C9-table
'There were three books on the table.'

► The generalization from the previous section that *High tones serve as a diagnostic for φ-phrase boundaries, which in turn correspond to the edges of syntactic XPs* allows us to explain why nominal heads belong to the same φ-phases as their modifiers in some cases, but not in others.

- The distribution of H in the first group resembles verb phrases with internal arguments and low adjuncts:
 - Like internal arguments and low adjuncts, Group 1 adnominals are postnominal and the first one phrases with the noun.
 - Group 1 adnominals must be located inside of the XP in which the nominal head is pronounced, so that the head noun is not located at the right edge of an XP.
- With respect to the distribution of H tones, the second group patterns like clausal subjects
 - Like subjects (which can be post-posed and never¹ phrase with the verb), Group 2 adnominals can surface before or after the noun.
 - Group 2 adnominals must be located above the position where the nominal head is pronounced, so that the head noun can end up at the right edge of an XP.

¹Well, see Section 4.

- (26) High tone assignment in DPs



- The syntax and H tone assignment in (26) is both consistent with what we saw in (15) and Carsten's (2000,2008) account of the Bantu DP.

3.4 Testing predictions

- At this point we have seen the following patterns in DPs

- Weak NPs
 - * **Noun NUM**) φ
 - * **Noun NUM**) φ **ADJ**) φ

- Strong NPs
 - * **dem**) φ **Noun**) φ
 - * **Noun**) φ **dem**) φ

- When we combine the two types of modifiers, we get the following:

- **dem**) φ **Noun NUM**) φ **ADJ**) φ
- **Noun NUM**) φ **ADJ**) φ **dem**) φ

- It also follows from our analysis that strong determiners cannot surface between the noun and an internal modifier:

- (27) (bí-nu) e-bi-tabu bi-sátu (#bí-nu) bi-shááka (bí-nu)
C8-this Aug-C8-book C8-three C8-this C8-new C8-this
'these three new books'

Plan: Matrix clauses • Nominals • RCs • Prosodic ambiguity

4 Relative Clauses

- Clausal modification also comes in two types, according to their prosody:
 - The head of the relative clause does not bear a H tone when it is modified by a reduced relative clause (cf. weak NPs).
 - The head noun bears its own H tone when it is modified by a full relative clause (cf. strong NPs).
- In this section, we again explain whether or not a noun phrases independently according to attachment height relative to the head.

4.1 Full relative clauses

- Full relative clauses in Rutooro are similar to Luganda (Pak 2007) and Ikalanga (Letsholo 2009), with respect to their morphological and syntactic properties (cf. Henderson 2006).

- Verbal template for full relative clauses:

- **Subject RCs:** AUG-SUBJCM-NEG-T-Root-FV
- **Object RCs:** AUG-OBJCM-SUBJCM-NEG-T-Root-FV

- Other noteworthy syntactic properties:

- No subject-verb inversion in RCs, as found in related languages.
- RCs show the lower negative marker found in embedded clauses.
- Both restrictive and nonrestrictive readings are possible.

- In full subject RCs, the head is marked with a H tone. In (28) a matrix clause is compared to a full subject RC.

- (28) a. A-báá-ntu) φ ba-sóm-a) φ
AUG-C2-people C2-read-FV
'People read.'
- b. a-báá-ntu) φ [RC a-ba-sóm-a]) φ
AUG-C2-people AUG-C2-read-FV
'people who read'

- Full object RCs exhibit the same pattern:

- (29) e-bi-tábu) φ [RC a-báá-ntu) φ e-bi-ba-sóm-a]) φ
AUG-C8-book AUG-C2-people AUG-C8-C2-read-FV
'the books that people read'

- Reasons to treat full RCs as CPs:

- In full RCs, the subject's class marker is represented on the verb, which we take to be agreement between the subject and T^0 .
- Full object RCs show class agreement with object head, which we take to represent agreement between Op and C^0 .
- High adverbs appear between the subject and the verb in full object RCs, as they can in matrix clauses where SVO subjects are CP topics.

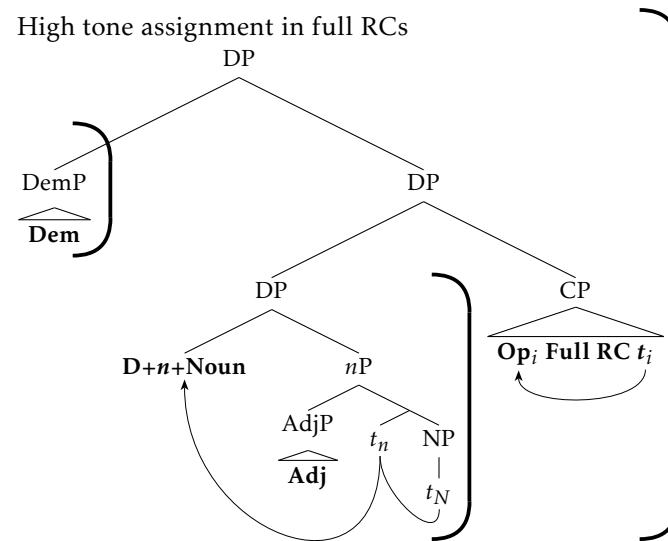
- (30) a. A-báá-ntu) φ ííjo) φ ba-sóm-a e-bi-tábu) φ
AUG-C2-people yesterday C2-read-FV AUG-C8-book
'the people read books yesterday.'
- b. e-bi-tábu) φ [RC a-báá-ntu) φ ííjo) φ
AUG-C8-book AUG-C2-people yesterday
e-bi-ba-sóm-a]) φ
AUG-C8-C2-read-FV
'the books that the people read yesterday'

- Like nominal heads modified by strong determiners, the heads of full RCs are at the right-edge of a φ -phrase boundary.
- This prosodic similarity can be captured by attaching the RC above the XP in which the RC head is pronounced.

- We adopt a matching analysis of RC formation:

- Raising analyses of RCs are incompatible with head-movement in the DP domain
- There is no evidence of movement in either type of RCs (see also Pak 2007 for Luganda).

- (31) High tone assignment in full RCs



- This analysis also easily explains why high determiners can precede or follow the relative clause or precede the head.

- (32) (bá-nu) φ a-baa-ntu ba-sátu) φ (bá-nu) φ [RC
C2-this AUG-C2-people C2-three C2-this
a-ba-sóm-a]) φ (bá-nu) φ
AUG-C2-read-FV C2-this
'those three people who read'

4.2 Reduced relative clauses

- Verbal template for reduced relative clauses:

- Subject RCs:** (*AUG)-SUBJCM-NEG-T-Root-FV
- Object RCs:** (*AUG-OBJCM)-SUBJCM-NEG-T-Root-FV

- Other noteworthy properties:

- Still no subject-verb inversion in reduced RCs

- Reduced RCs have a low negative marker as well
- In reduced relative clauses, only the restrictive reading is possible.
- In reduced subject RCs, the head is not marked with a H tone. In (33) a matrix clause is compared to a reduced subject RC.

- (33) a. A-báá-ntu)φ ba-sóm-a)φ
AUG-C2-people C2-read-FV
'People read.'
- b. a-baa-ntu [RC ba-sóm-a])φ
AUG-C2-people C2-read-FV
'people who read'

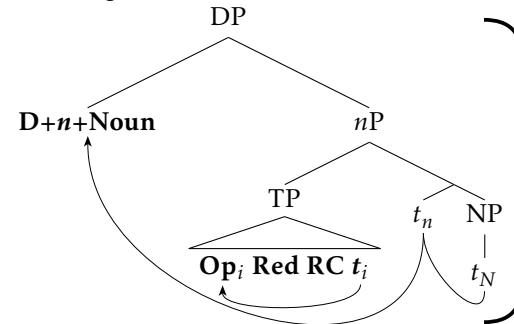
- Object RCs exhibit the same pattern:

- (34) a. e-bi-tabu [RC ba-ku-sóm-a])φ
AUG-C8-book C2-PROG-read-FV
'the books they are reading'

- Reasons to treat reduced RCs as TPs:

- Reduced RCs have tense markers and the subject's class marker is represented on the verb, i.e. the RC projects as high as TP.
- Reduced object RCs do not show class agreement with object head.
- High adverbs cannot appear between the subject and the verb in reduced object RCs, as they can in matrix clauses and full RCs.
- Like nominal heads modified by demonstratives and other weak determiners, the heads of reduced RCs are not at the right-edge of a φ-phrase.
- This prosodic similarity can be captured by attaching the RC internal to XP in which the RC head is pronounced.

(35) High tone assignment in reduced RCs



- This analysis also captures the fact that high determiners cannot precede the relative clause in reduced RCs (while they could in full RCs).

- (36) (bá-nu)φ a-baa-ntu ba-satu (*bá-nu)φ [RC
C2-this AUG-C2-people C2-three C2-this
ba-sóm-a])φ (bá-nu)φ
AUG-C2-read-FV C2-this
'those three people who read'

4.3 A sticking point

- In reduced object RCs with overt subjects, the head bears a H tone, but the subject of the RC does not.

- (37) o-mw-áána)φ [RC a-ba-limi ba-ta-góónz-a])φ
AUG-C1-child AUG-C2-farmer C2-NEG-like-FV
'the child that the farmers don't like'

► This is unexpected, because the head of a reduced RC does not usually bear a H tone and subjects typically *do*.

- While this sinks in, let's listen to some examples:

- Simple matrix clause ►

- (38) a-báá-ntu)φ ba-ka-som e-bi-tábu)φ
AUG-C2-person C2-PST-read AUG-C8-book
'The people read the books.'

- Full object relative *pro* subject ▶

- (39) e-bi-tábu φ [RC e-bi-ba-ka-som-ére]) φ
 AUG-C8-book AUG-C8-C2-PST-read-PRF
 'the books that they read'

- Reduced object relative *pro* subject ▶

- (40) e-bi-tabu [RC ba-ka-som-ére]) φ
 AUG-C8-book AUG-C8-C2-PST-read-PRF) φ
 'the books they read'

- Full object relative overt subject ▶

- (41) e-bi-tábu φ [RC a-báá-ntu) φ e-bi-ba-ka-som-ére]) φ
 AUG-C8-book AUG-C2-person AUG-C8-C2-PST-read-PRF
 'the books that people read'

- Reduced object relative overt subject ▶

- (42) e-bi-tábu φ [RC a-baa-ntu ba-ka-som-ére]) φ
 AUG-C8-book AUG-C2-person AUG-C8-C2-PST-read-PRF
 'the books people read'

Plan: □ Matrix clauses • □ Nominals • □ RCs • □ Prosodic ambiguity

5 Towards a solution

- In reduced object relative clauses, we have found an XP that is *not* marked with a H tone, and an X⁰ that *is* marked with a H tone even though it is not at the right edge of a φ -phrase. We have two choices:

1. Take another look at the syntax of reduced relative clauses.
2. Reconsider how H tone is assigned.

▶ For now, I'll focus on #2.

5.1 Boundary suppression

- We might say that there are—for some unknown prosodic reason—no boundaries allowed before reduced RCs.

- On one hand this would simplify the syntactic account of relative clauses: we could say that full and reduced RCs attach at the same place, the only syntactic difference is their size.

- However, we would lose the parallel between clausal and non-clausal modification and an explanation for the distribution of high determiners in combination with RCs.

- An empirical shortcoming of this approach is that there is at least one instance of a H tone preceding a reduced relative: when the subject of the reduced object RC is modified.

- (43) a. e-bi-tábu) φ a-baa-ntu ba-sátu) φ ba-ku-sóm-a) φ
 AUG-C8-book AUG-C2-person C2-three C2-PROG-read-FV
 'the books three people are reading'
 b. e-bi-tábu) φ a-ba-ana b'o-mu-lími) φ
 AUG-C8-book AUG-C2-child C2-AUG-C1-farmer
 ba-ku-sóm-a) φ
 C2-PROG-read-FV
 'the books the farmer's children are are reading'

▶ This type of constraint would be both difficult to motivate and inconsistent in its application.

5.2 Phases

- It is worth considering whether the domain for H tone assignment is larger than φ -phrases corresponding to XPs.
- One domain larger than XP, but not as large as CP, would be the phase. Prosodic work that has made use of the notion of phases includes Dobashi (2003); Ishihara (2003, 2007); Kahnemuyipour (2009); Kratzer and Selkirk (2007); Pak (2007, 2008).
 - Perhaps there is no boundary on the subject in a reduced object RC, because the subject is not separated from the rest of the clause by a phase head (as the reduced RC projects only to TP).

- In contrast, there is a boundary on the subject in a full object RC, because the subject is in CP, separated from the rest of the RC by a phase head, namely C⁰.
- An empirical shortcoming of this approach is that H tones surface on subjects associated with clauses even smaller than TP:

- (44) a. Ni-tw-iij-a kw-eend o-mu-lími) φ
 PRES-1PL.SM-come-FV C15-want AUG-C1-farmer
 a-yaamb-e Kajúumba) φ
 3SG-help-FV Kajumba.
 'We are going to want the farmer to help Kajumba.'
- b. Ni-ny-eend-a Kajúumba) φ a-taandik-e ku-yaamb
 PRES-1SG.SM-want-FV Kajumba 3SG-start-FV C15-help
 oo-mu-lími) φ
 AUG-C1-farmer
 'I want Kajumba to start to help the farmer.'

- Since both objects in 3-place predicates bear an H tone, DPs would be phases on this account. However, subjects, whether they are located in vP, TP, or CP, have the same functional structure as objects.
- While DPs are natural phases, it is unclear why adverbs and adjectives should be phase heads. Recall that arguments and adjuncts behave similarly with respect to their prosodic characteristics.

► In short, the relevant prosodic domain is probably not the phase.

5.3 Ambiguous Parse

- Let's restate the problem:
 - The head of a reduced RC does not bear a H tone, except in reduced object RCs with overt subjects.
 - Subjects always bear a H tone, except in reduced object RCs with overt subjects.
- In other words, we find an H where we do not expect one and we lack an H where we *do* expect one, and the context for both problems is reduced object RCs with overt subjects.

- What we expect:

- (45) e-bi-tabu [RC a-báá-ntu) φ ba-ka-som-ére]) φ
 AUG-C8-book AUG-C2-person AUG-C8-C2-PST-read-PRF
 'the books people read'

- What we find:

- (46) e-bi-tábu) φ [RC a-baa-ntu ba-ka-som-ére]) φ
 AUG-C8-book AUG-C2-person AUG-C8-C2-PST-read-PRF
 'the books people read'

- One observation about nominal phrases in the examples we've seen is that immediately adjacent DPs are always separated by a φ -phrase boundary, except when the second DP modifies the first.
- Two adjacent DPs in a possessive:

- (47) a. e-ki-tabu ky-a Kajúumba) φ
 AUG-C7-book C7-AUG Kajumba
 'Kajumba's book'
- b. e-by-ookuly by' oo-mu-lími) φ
 AUG-C8-food C8 AUG-C1-farmer
 'The farmer's food'

- Two adjacent DPs in a ditransitive:

- (48) a. A-ba-lími) φ ba-ka-h oo-mw-áán) φ
 AUG-C2-farmer C2.SM-PST-give AUG-C1-child
 ee-by-ookúlya) φ
 AUG-C8-food
 'The farmers gave the child food.'
- b. A-ba-somésa) φ ba-k-olek a-bá-ána) φ e-mí-ti) φ
 AUG-C2-teacher C2.SM-PST-show AUG-C1-child AUG-C4-tree
 'The teachers showed the children the trees.'

- Because left edges are unmarked in Rutooro, NOUN NOUN) φ RC) φ strings can either represent

1. (NOUN ((NOUN) φ RC)) φ
2. ((NOUN NOUN) φ RC)) φ

► The question that I'd like to pursue at this point is whether H tones are such a reliable indicator of constituency, that a NOUN NOUN) φ RC) φ string must somehow be prosodically disambiguated, so that it does not point to an unintended constituency.

- One way to do that would be to shift the problematic H tone to the head of the reduced relative clause (cf. 43).
- The prosody would no longer be isomorphic with the syntax, but constituency would nonetheless be clear.
- A proposal along these lines would have to avoid disallowing the attested phrasing of embedded (possibly nominalized) infinitives, like (49), in which the subject of *ayaambe* 'help' has the same prosodic marking as it would if it were the object of *kweenda* 'want.'

- (49) Ni-tw-iij-a kw-eend o-mu-lími) φ a-yáamb-e) φ
 PRES-1PL-come-FV C15-want AUG-C1-farmer 3SG-help-FV.
 'We are going to want the farmer to help.'

- Perhaps the important difference is that the subject in (49) is part of a phrase that is embedded under *kweenda* 'want', whereas the subject of a reduced object relative is not embedded under the object head.

Plan: Matrix clauses • Nominals • RCs • Prosodic ambiguity

6 Wrapping up

- We've looked at the distribution of H tones in Rutooro in a variety of syntactic contexts, and have found striking parallels between the verbal and nominal domains.
- For the majority of these data, H tones mark the right-edges of φ -phrases, which reliably correspond to the right-edges XPs.
- Yet, there remains at least one structure that resists obvious explanation.
- I've sketched the beginning of a proposal that would treat the anomalous prosodic structure of reduced object relative clauses with overt subjects as an attempt to unambiguously represent the underlying syntactic constituency of the phrase.

References

- Bickmore, Lee, and Lauren Clemens. 2016. Phonological phrasing in Rutooro. Presented at the 47th Annual Conference on African Linguistics (ACAL), University of California, Berkeley.
- Bresnan, Joan, and Sam A. Mchombo. 1987. Topic, pronoun, and agreement in Chicheŵa. *Language* 63:741–782.
- Buell, Leston. 2005. Issues in Zulu verbal morphosyntax. Doctoral Dissertation, University of California Los Angeles.
- Carstens, Vicki. 2000. Concord in Minimalist Theory. *Linguistic Inquiry* 31:319–355.
- Carstens, Vicki. 2008. DP in Bantu and Romance. In *The Bantu-Romance connection: A comparative investigation of verbal agreement, DPs, and information structure*, ed. Katherine De Cat, Cécile Demuth, volume 131, 131–165. Linguistik Aktuell/Linguistics Today.
- Cheng, Lisa Lai-Shen, and Laura J. Downing. 2009. Where's the topic in Zulu? *The Linguistic Review* 26:207–238.
- Cheng, Lisa Lai-Shen, and Laura J. Downing. 2012. Against FocusP: Arguments from Zulu. In *Contrasts and positions in information structure*, ed. Ivona Kučerová and Ad Neeleman, 247–266. Cambridge, UK: Cambridge University Press.
- Clemens, Lauren Eby. 2014. Prosodic noun incorporation and verb-initial syntax. Doctoral Dissertation, Harvard University, Cambridge, MA.
- Dobashi, Y. 2003. Phonological phrasing and syntactic derivation. Doctoral Dissertation, Cornell University, Ithaca, NY.
- Downing, Laura J. 2010. An edge-based approach to the alignment of syntactic phases and prosodic phrases. *Transactions of the Philological Society* 108:352–369.
- Downing, Laura J., and Larry M. Hyman. 2015. Information structure in Bantu. In *The Oxford Handbook of Information Structure*, ed. Caroline Féry and Shinichiro Ishihara, 790–813. Oxford: Oxford University Press.
- Elfner, Emily. 2012. Syntax-prosody interactions in Irish. Doctoral Dissertation, University of Massachusetts Amherst.
- Elfner, Emily. 2015. Recursion in prosodic phrasing: Evidence from Connemara Irish. *Natural Language and Linguistic Theory* 33:1169–1208.
- Halpert, Claire. 2015. *Argument licensing and agreement*. Studies in Comparative Syntax. Oxford: Oxford University Press.
- Henderson, Brent. 2006. The syntax and typology of Bantu relative clauses. Doctoral Dissertation, University of Illinois at Urbana-Champaign.
- Ishihara, Shinichiro. 2003. Intonation and interface conditions. Doctoral Dissertation, Massachusetts Institute of Technology, Cambridge, MA.
- Ishihara, Shinichiro. 2007. Major phrase, focus intonation, Multiple Spell-

- Out. *The Linguistic Review* 24:137–167.
- Itô, Junko, and Armin Mester. 2013. Prosodic subcategories in Japanese. *Lingua* 124:20–40.
- Julien, Marit. 2002. *Syntactic heads and word formation*. Oxford Studies in Comparative Syntax. Oxford: Oxford University Press.
- Kahnemuyipour, Arsalan. 2009. *The syntax of sentential stress*. Oxford: Oxford University Press.
- Kaji, Shigeki. 2008. Tone and syntax in Rutooro, a toneless Bantu language of Western Uganda. *Language Sciences* 31:239–247.
- Kratzer, Angelika, and Elisabeth Selkirk. 2007. Phase theory and prosodic spellout: The case of verbs. *The Linguistic Review* 24:93–135.
- Lesholo, Rose. 2002. Syntactic domains in Ikalanga. Doctoral Dissertation, University of Michigan, Ann Arbor.
- Letsholo, Rose. 2009. The forgotten structure of Ikalanga relatives. *Studies in African Linguistics* 38:131–154.
- Pak, M. 2007. Phrasal tone domains in San Mateo Huave. In *Proceedings of the 33rd Annual Meeting of the Berkeley Linguistics Society*.
- Pak, M. 2008. The postsyntactic derivation and its phonological reflexes. Doctoral Dissertation, University of Pennsylvania, Philadelphia, PA.
- Rubongoya, L. T. 1999. *Modern Runyoro-Rutooro grammar*. Köln: Rüdiger Köppe Verlag.
- Selkirk, Elisabeth. 1986. On derived domains in sentence phonology. *Phonology Yearbook* 3:371–405.
- Selkirk, Elisabeth. 1995. The prosodic structure of function words. In *University of Massachusetts occasional papers in linguistics 18: Papers in optimality theory*, ed. Jill N. Beckman, Laura Walsh Dickey, and Suzanne Urbanczyk. Amherst, MA: Graduate Linguistic Student Association, University of Massachusetts, Amherst.
- Selkirk, Elisabeth. 2000. The interaction of constraints on prosodic phrasing. In *Prosody: Theory and experiment*, ed. M. Horne, 231–261. Dordrecht: Kluwer.
- Selkirk, Elisabeth. 2011. The syntax-phonology interface. In *The handbook of phonological theory*, ed. John Goldsmith, Jason Riggle, and Alan C. L. Yu, 435–484. Wiley-Blackwell, 2nd edition.
- Shigeki, Kaji. 2007. *A rutooro vocabulary*. Tokyo: Research Institute for Languages and Cultures of Asia and Africa.
- Simons, Gary F., and Charles D. Fennig, ed. 2017. *Ethnologue: Languages of the world*, 20th ed.. Dallas, TX: SIL International. URL <http://www.ethnologue.com>.
- Truckenbrodt, Hubert. 1995. Phonological phrases: Their relation to syntax, focus, and prominence. Doctoral Dissertation, Massachusetts Institute of Technology.
- Truckenbrodt, Hubert. 1999. On the relation between syntactic phrases and phonological phrases. *Linguistic Inquiry* 30:219–256.
- Truckenbrodt, Hubert. 2007. The syntax-phonology interface. In *The cambridge handbook of phonology*, ed. Paul deLacy, 435–456. Cambridge, UK: Cambridge University Press.
- Zentz, Jason. 2016. Forming wh-questions in Shona: A comparative Bantu perspective. Doctoral Dissertation, Yale University.