Resisting Prosodic Ambiguity: The Case of Reduced Relative Clauses in Rutooro*

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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.

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'
b. a-**ma**-iso
AUG-C6-eye
'eyes'

(2) a. o-**ku**-tu
AUG-C15-ear
'ear'
b. a-**ma**-tu
AUG-C6-ear
'ears'

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– 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'

– 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.'

– 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-s**ó**m-a
C15-read-FV
'to read'

b. e-ki-sumur**ú**zo
AUG-C7-key
'key'

c. mp**ó**ra
slowly
'slowly'

d. Ba-ka-haand**í**k-a.
3PL-PST-read-FV
'They wrote.'

e. a-ka-tuung**ú**ro
AUG-C12-onion
'onion'

f. ki-r**úú**ngi
C7-good
'good'

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

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

(6) a. o-mw-aana mu-c**é**ke ▶
AUG-C1-child C1-SLENDER
'the slender child'

b. O-mw-**áá**na mu-c**é**ke. ▶
AUG-C1-child C1-SLENDER
'The child is slender.'

– 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-t**á**bu.
C15-read AUG-C7-book
'I am going to want that they start to read the books.'

b. **Íí**jo a-b**á**-**á**na b-**óó**na ba-ku-s**ó**m-a
yesterday AUG-C2-child C2-all 3SG.SM-PST-read-FV
m**úú**-n-ju.
LOC-C9-house
'Yesterday all the children read in the HOUSE.'

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. Nominals phrases
3. Relative clauses

• Based on these data, we 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 • □ Nominals • □ 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-límí)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 [it].'
b. Kajúúmba)φ a-raa-gúr-a)φ
Kajumba 3SG.SM-FUT-buy-FV
'Kajumba will buy [it].'

- 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-káíto)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-límí)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 child.'

- 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-záíre)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.'

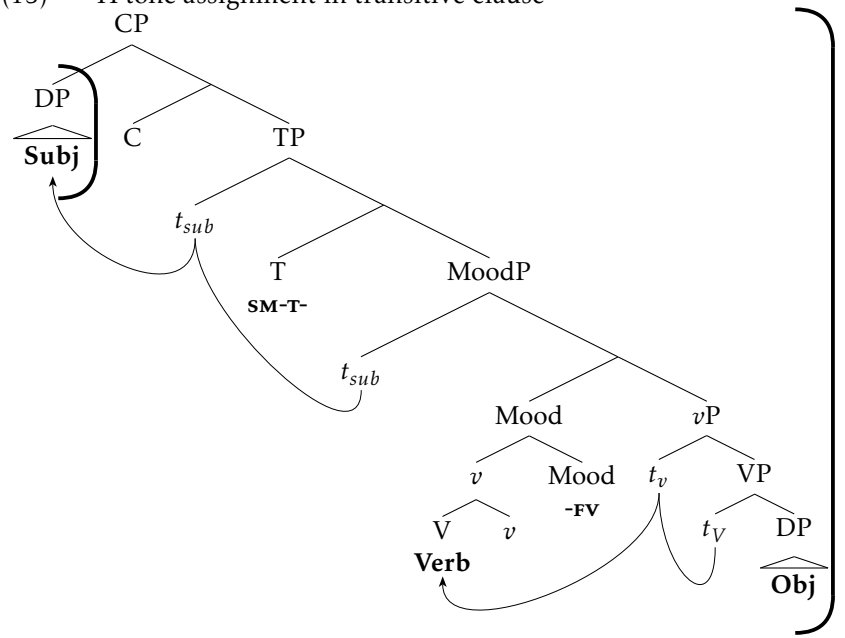
➽ In sum, a High tone marks the penultimate syllable of each post-verbal element, but not the verb that precedes them.

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 maximal projections in the syntax.

(15) H tone assignment in transitive clause



- A few assumptions from Bantu syntax:
  - The verb root X^0-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-áánge)φ
AUG-C10-shoes C10-1SG
'my shoes'
b. e-by-ookulya by-áítu)φ
AUG-C8-food C8-1PL
'our food'

(17) a. e-ki-tabu ky-a Kajúúmba)φ
AUG-C7-book C7-AUG Kajumba
'Kajumba's book'
b. e-by-ookulya by' oo-mu-límí)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 lií-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-áánge)φ bí-íngi)φ
AUG-C8-book C8-1SG C8-many
'many books of mine'
b. e-ma-iba ma-sátu)φ máá-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'

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'
b. kí-nu)φ e-ki-tábu)φ
C7-this AUG-C7-book
'this book'

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

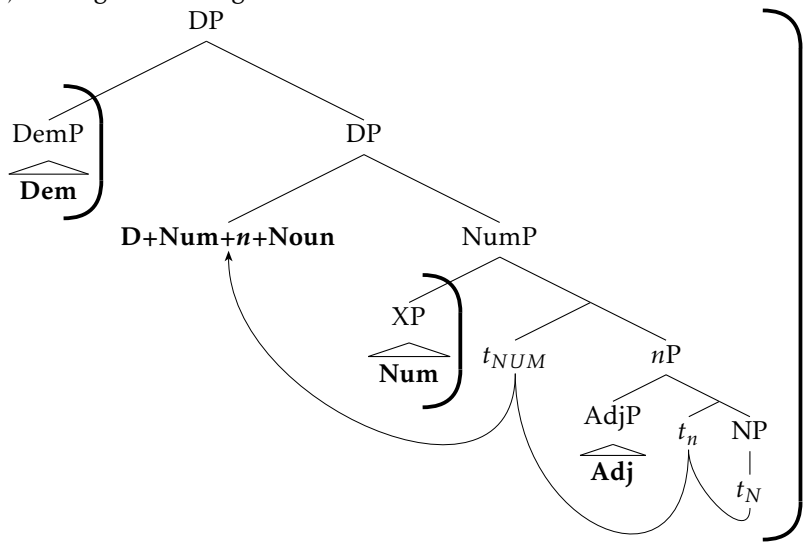
(25) a. Ha-roho e-bi-tabu bi-sátu ha-méézа.
C16.LOC-EXIST AUG-C8-book C8-three C16-table
'There were three books on the table.'
b. Ha-roho e-bi-tabu bí-íngi ha-méézа.
C16.LOC-EXIST AUG-C8-book C8-many C16-table
'There were many books on the table.'
c. *Ha-roho by-óóna e-bi-tábu ha-méézа.
C16.LOC-EXIST C8-all AUG-C8-book C16-table
Intended: 'There were all the books on the table.'
d. *Ha-roho kí-nu e-ki-tábu ha-méézа.
C16.LOC-EXIST C7-this AUG-C7-book C16-table
Intended: 'There was this book 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 never[1] 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.

[1] Well, 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 can appear between the subject and verb in full object RCs, as they can in matrix clauses where SVO subjects are CP topics.

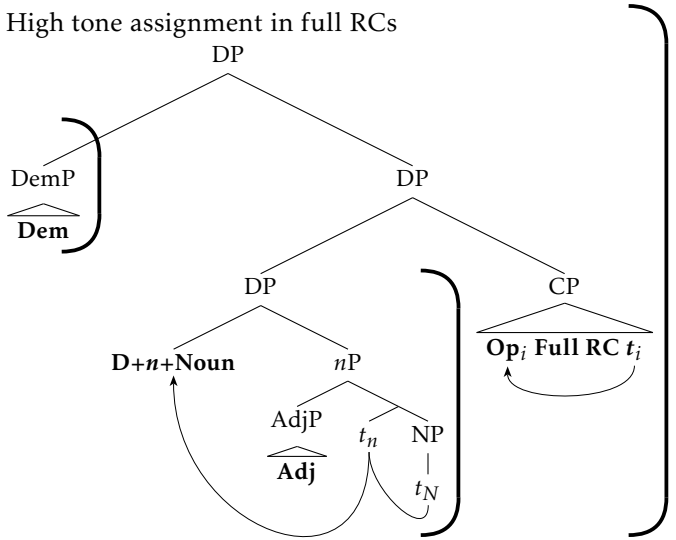
(30) a. A-báá-ntu)φ íijo)φ ba-som ee-bi-tábu)φ
AUG-C2-people yesterday C2-read AUG-C8-book
'the people read books yesterday.'
b. e-bi-tábu)φ [$_{RC}$ a-báá-ntu)φ íijo)φ
AUG-C8-book AUG-C2-people yesterday
e-bi-ba-sóm-a])φ
AUG-C8-C2-read-FV
'the books that the people read yesterday.'

- 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:

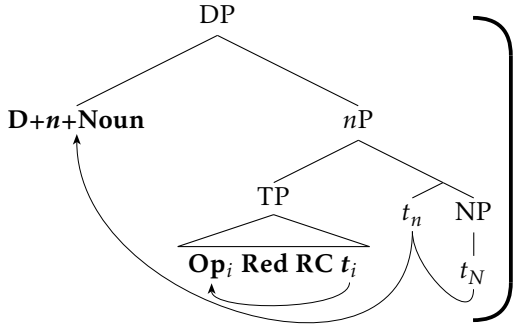
(34) a. e-bi-tabu [$_{RC}$ ba-ku-sóm-a])φ
AUG-C8-book C2-PROG-read-FV
'the books they are reading'

- 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 immediately 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 ee-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 X^0 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, we'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'oo-mu-límí)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 C^0.

- 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-límí)φ
PRES-1PL.SM-come-FV C15-want AUG-C1-farmer
a-yaamb-e Kajúúmba)φ
3SG-help-FV Kajumba.
'We are going to want the farmer to help Kajumba.'

b. Ni-ny-eend-a Kajúúmba)φ a-taandik-e ku-yaamb
PRES-1SG.SM-want-FV Kajumba 3SG-start-FV C15-help
oo-mu-límí)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 *v*P, 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 Kajúúmba)φ
AUG-C7-book C7-AUG Kajumba
'Kajumba's book'

b. e-by-ookulya by' oo-mu-límí)φ
AUG-C8-food C8 AUG-C1-farmer
'The farmer's food'

- Two adjacent DPs in a ditransitive:

(48) a. A-ba-límí)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. $\big($NOUN ((NOUN)φ RC) $\big)\varphi$
2. ((NOUN NOUN)φ RC$\big)\varphi$

➽ The question that we'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-límí)φ a-yáámb-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 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.
- We'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.

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