

# PREVENTING PROSODIC INDETERMINACY: A SYNTAX-PROSODY MISMATCH IN RUTOORO'S RELATIVE CLAUSES

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The 2nd Princeton Symposium on Syntactic Theory  
Princeton, NJ, April 5–6, 2019

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## 1 Introduction

- Rutooro (E/J.12), spoken in Western Uganda, is one of only a few Bantu languages in which tone is not lexically contrastive.
- The penultimate syllable of  $\varphi$ -phrases are marked H (Bickmore & Clemens 2016).
- While the  $\varphi$ -phrase is the domain for tonal phenomena across the family, we have identified a previously unattested pattern in the prosody of adnominal clauses:
  - In some cases, the head is phrased with its modifier(s).
  - Other times, the head is phrased independently.
- ▶ The distribution of H tones serves as a diagnostic for whether an adnominal is generated in an internal or external position.
- The focus of this talk will be the exceptions:
  1. The head of a reduced object RC with an overt subject bears an unexpected H.
  2. The subject of a reduced object RC is all-L despite the fact that it is a self-contained XP.
  3. Modifiers of a reduced RC heads are all-L despite surfacing at the right edge of an XP.

▶ The attested phrasing prevents i) genuine ambiguity and ii) indeterminate prosodic structure (Clemens & Bickmore 2019).

- (1) **Indeterminate prosodic structure:** Prosodic structure that could be the output of more than one syntactic configuration is indeterminate.

### 1.1 Prominence

- The penultimate syllable of words in isolation are realized with a prominence that we refer to as a H tone and mark with an acute accent. H tones are not part of Rutooro's orthography.<sup>1</sup>
- (2)
    - a. e-ki-sumurúzo  
AUG-C7-key  
'key'
    - b. a-ka-tuungúro  
AUG-C12-onion  
'onion'
    - c. mpóra  
slowly  
'slowly'
    - d. Ba-ka-haandík-a.  
3PL.SM-PST-read-FV  
'They wrote.'

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<sup>1</sup>Previous work on Rutooro includes a dictionary Kaji (2007), a brief article on tone (Kaji 2008), and a Runyoro-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.

- The distribution of H tones is nontrivial in phrasal contexts:
  - While (3-a) and (3-b) are segmentally identical, the H tone distinguishes between a nominal and a clause.

- (3) a. o-mw-aana mu-céke  
 AUG-C1-child C1-slender  
 ‘the slender child’  
 b. O-mw-áana mu-céke.  
 AUG-C1-child C1-slender  
 ‘The child is slender.’

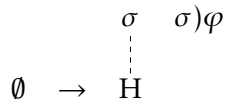
- When larger sentences are examined, it is possible to find nearly any combination of all-L and H-marked words:

- (4) 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. Ííjo a-bá-ána b-óóna  
 yesterday AUG-C2-child C2-all  
 ba-ka-sóm-a múú-n-ju.  
 3SG.SM-PST-read-FV LOC-C9-house  
 ‘Yesterday all the children read in the HOUSE.’

- Clemens and Bickmore (2019) demonstrate that H tone insertion proceeds as follows:

(5) **High Tone Insertion Rule:** Insert a High tone and link it to the penultimate syllable of every  $\varphi$ -phrase.

(6) **High Tone Insertion**



## 1.2 Today’s Plan

- Make a case for using the distribution of H-tones in Rutooro as a syntactic diagnostic in three contexts:

1. Matrix clauses
2. Nominals phrases
3. Relative clauses

- While the correspondence between XPs and  $\varphi$ -phrases is highly reliable in the language, nonisomorphisms do arise. We argue that they prevent prosodic indeterminacy.

**Plan:** □ Matrix clauses • □ Nominals • □ RCs • □ Exceptions

## 2 Distribution of H in matrix clauses

- **Intransitives:** the subject and the verb each bear a H tone.

- (7) a. A-ba-lími) $\varphi$  ba-ka-kór-a) $\varphi$   
 AUG-C2-farmer C2.SM-PST-work-FV  
 ‘The farmers worked.’  
 b. Kajúúmba) $\varphi$  a-irúk-a) $\varphi$   
 Kajumba 3SG.SM-run-FV  
 ‘Kajumba runs.’

- **Transitives:** the verb is all-L and the object is marked H.

- (8) a. Tu-ka-gur ee-bi-tábu) $\varphi$   
 1PL.SM-PST-bought AUG-C8-book  
 ‘We bought the books.’  
 b. Kajúúmba) $\varphi$  a-raa-gur ee-n-káito) $\varphi$   
 Kajumba 3SG.SM-FUT-buy AUG-C10-shoe  
 ‘Kajumba will buy the shoes.’

- **Ditransitives:** Both objects occur at the edge of a  $\varphi$ -phrase.

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

- **Adjuncts:** 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.

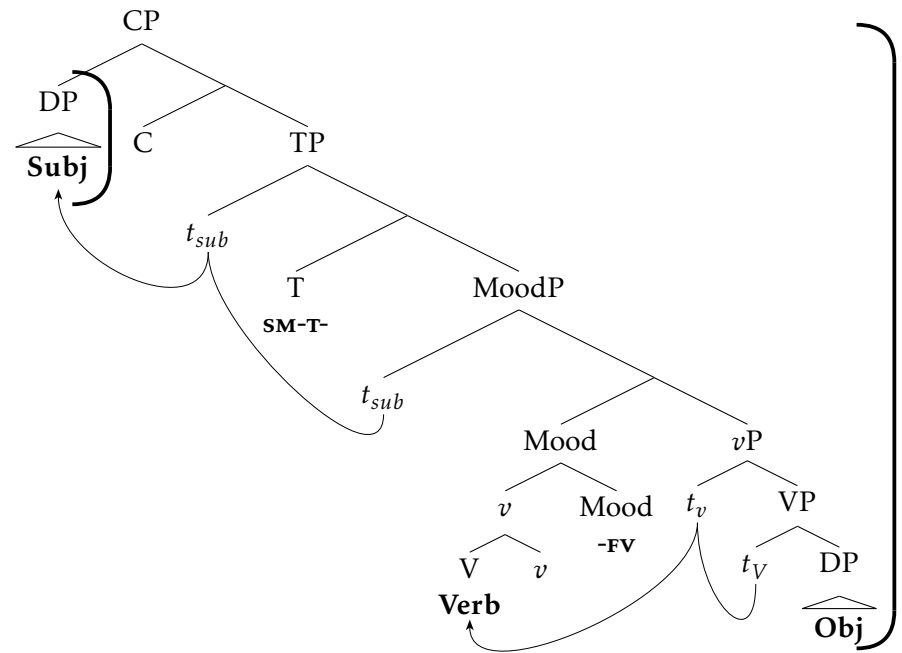
- (10) a. A-ba-záire) $\varphi$  ba-ka-vog-a matóka) $\varphi$   
 AUG-C2-parent 3PL.SM-PST-drive-FV car  
 ha-Sabííti) $\varphi$   
 C16.LOC-Sunday  
 ‘The parents drove the car on Sunday.’
- b. Ba-ka-haandika-a mpóra) $\varphi$   
 3PL.SM-PST-write-FV slowly  
 ‘They wrote slowly.’

- Subjects are separated from predicates by a  $\varphi$ -phrase boundary. The verb is phrased together with the first element that follows (argument or low-adjunct); every subsequent element is phrased separately. Clause-final verbs are phrased alone.

- The distribution of H in 1-, 2-, and 3-place predicates, and clauses with adverbial and locative modifiers, reveals perfect overlap between syntax and prosody:

- The right edges of maximal projections correspond to the right edges of  $\varphi$ -phrases.

- (11) H tone assignment in a 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).

**Plan:**  Matrix clauses •  Nominals •  RCs •  Exceptions

### 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 and **type 1** modifiers—which are always postnominal—phrase together
  - The head bears its own H when it combines with **type 2** modifiers, which occur either before or after the head.

#### 3.1 Type 1: No H on the noun

- **Possession:** The possessum phrases with the possessor.

- (12) a. e-n-kaito z-áánge) $\varphi$   
AUG-C10-shoes C10-1SG  
 ‘my shoes’  
 b. e-ki-tabu ky-a Kajúúmba) $\varphi$   
AUG-C7-book C7-LNK Kajumba  
 ‘Kajumba’s book’

- **Quantifiers:** The head phrases with quantifiers.

- (13) a. e-bi-tabu bí-íngi) $\varphi$   
AUG-C8-book C8-many  
 ‘many books’  
 b. e-ri-iba líí-ndi) $\varphi$   
AUG-C5-dove C5-another  
 ‘another dove’

- **Numerals and adjectives:** Same pattern occurs.

- (14) a. a-ba-ana ba-tááno) $\varphi$   
AUG-C2-child C2-five  
 ‘five children’  
 b. o-muu-ntu mú-bi) $\varphi$   
AUG-C1-person C1-bad  
 ‘the bad person’

- **Multiple modifiers:** As in the verbal domain, each element that surfaces after the head has its own prominence:

- (15) a. e-bi-tabu by-áánge) $\varphi$  bí-íngi) $\varphi$   
AUG-C8-book C8-1SG C8-many  
 ‘many books of mine’  
 b. e-ma-iba ma-sátu) $\varphi$  máá-ndi) $\varphi$   
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. In either position, the noun is marked H:

- (16) a. e-bi-tábu) $\varphi$  by-óóna) $\varphi$   
AUG-C8-book C8-all  
 ‘all books’  
 b. by-óóna) $\varphi$  e-bi-tábu) $\varphi$   
C8-all AUG-C8-book  
 ‘all books’

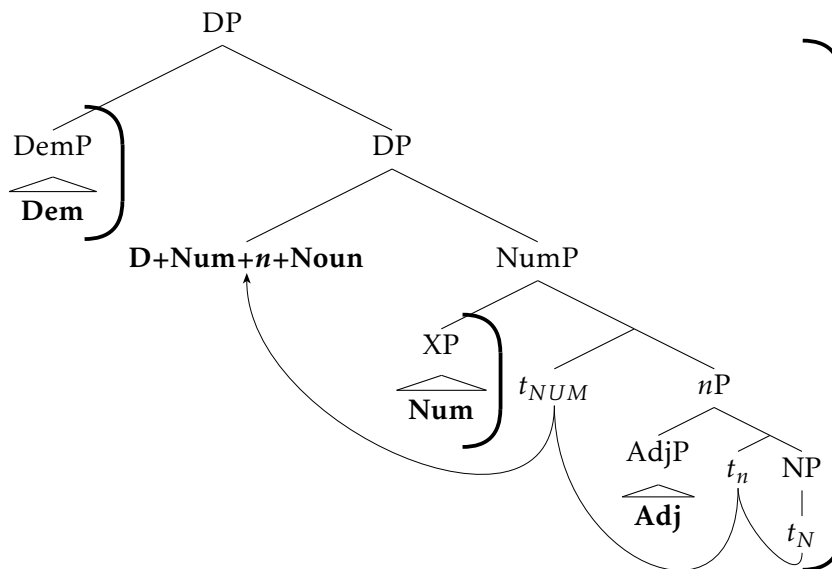
- (17) a. e-ki-tábu) $\varphi$  kí-nu) $\varphi$   
AUG-C7-book C7-this  
 ‘this book’  
 b. kí-nu) $\varphi$  e-ki-tábu) $\varphi$   
C7-this AUG-C7-book  
 ‘this book’

#### 3.3 Accounting for the distribution of H

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

- The distribution of H in the first group resembles verb phrases with internal arguments/low adjuncts:
  - Like internal arguments/low adjuncts, Group 1 adnominals are postnominal and the first 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 *almost* never phrase with the verb and can be post-posed), 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.

(18) High tone assignment in DPs



- The syntax and H tone assignment in (18) is both consistent with what we saw in (11) 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
  - Type 1 modifiers
    - **Noun** NUM)φ
    - **Noun** NUM)φ ADJ)φ
  - Type 2 modifiers
    - Dem)φ **Noun**)φ
    - **Noun**)φ Dem)φ
- When we combine the two types of modifiers, we get:
  - 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:

(19) (bí-nu) e-bi-tabu bi-sátu (#bí-nu) bi-shááka  
 C8-this Aug-C8-book C8-three C8-this C8-new  
 (bí-nu)  
 C8-this  
 ‘these three new books’

**Plan:** ☑ Matrix clauses • ☑ Nominals • ☐ RCs • ☐ Exceptions

## 4 Relative Clauses

- Clausal modification also comes in two types
  - The relative clause head does not bear a H tone when it is modified by a reduced relative (cf. Type 1 modifiers).
  - The head noun bears its own H tone when it is modified by a full relative clause (cf. Type 2 modifiers)
- We again explain the prosodic phrasing of adnominals according to attachment height relative to the head.

### 4.1 Full relative clauses

- Verbal template:
  - **Full RC:** REL-CM.HEAD-CM.SUBJ-NEG-T-Root-FV
- Other noteworthy properties:
  - No subject-verb inversion in RCs
  - RCs show the lower negative and lower progressive marker found in some embedded contexts
  - Both restrictive and nonrestrictive readings are possible.
- In full subject RCs, the head is marked with a H tone. In (20) a matrix clause is compared to a full subject RC.

- (20) a. A-báá-ntu) $\varphi$  ba-sóm-a) $\varphi$   
 AUG-C2-people C2-read-FV  
 ‘People read.’ (habitual)
- b. a-báá-ntu) $\varphi$  [<sub>RC</sub> a-ba-sóm-a)] $\varphi$   
 AUG-C2-people REL-C2-read-FV  
 ‘people who read’ (habitual)

- Full object RCs exhibit the same pattern:

- (21) e-bi-tábu) $\varphi$  [<sub>RC</sub> a-báá-ntu) $\varphi$  e-bi-ba-sóm-a)] $\varphi$   
 AUG-C8-book AUG-C2-people REL-C8-C2-read-FV  
 ‘the books that people read’ (habitual)

- Reasons to treat full RCs as CPs:
  - In full RCs, the subject’s CM appears on the verb, which we take to be agreement between the subject and T<sup>0</sup>.
  - Full object RCs show agreement with object head, which we take to represent agreement between *Op* and C<sup>0</sup>.
  - 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.

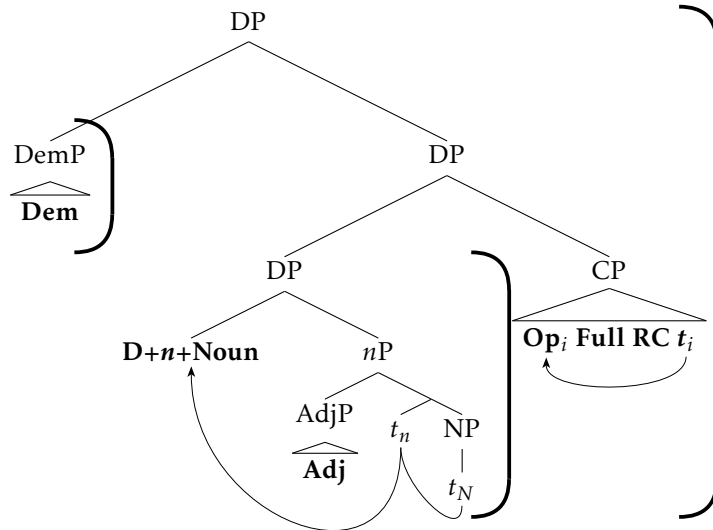
- (22) a. A-báá-ntu) $\varphi$  íjjo) $\varphi$  ba-ka-som  
 AUG-C2-people yesterday rel-pst-read  
 ee-bi-tábu) $\varphi$   
 AUG-C8-book  
 ‘The people read books yesterday.’
- b. e-bi-tábu) $\varphi$  [<sub>RC</sub> a-báá-ntu) $\varphi$  íjjo) $\varphi$   
 AUG-C8-book AUG-C2-people yesterday  
 e-bi-ba-a-sóm-a)] $\varphi$   
 REL-C8.OM-C2.SM-PST-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  $\varphi$ -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).

(23) 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.

(24) (bá-nu) $\varphi$  a-baa-ntu ba-sátu) $\varphi$  (bá-nu) $\varphi$  [<sub>RC</sub>  
 C2-this AUG-C2-people C2-three C2-this  
 a-ba-sóm-a)] $\varphi$  (bá-nu) $\varphi$   
 REL-C2-read-FV C2-this  
 ‘those three people who read’ (habitual)

b. a-baa-ntu [<sub>RC</sub> ba-sóm-a)] $\varphi$   
 AUG-C2-people C2.SM-read-FV  
 ‘people who read’ (habitual)

- Object RCs exhibit the same pattern:

(26) a. e-bi-tabu [<sub>RC</sub> ba-ku-sóm-a)] $\varphi$   
 AUG-C8-book C2.SM-PROG-read-FV  
 ‘the books they are reading’

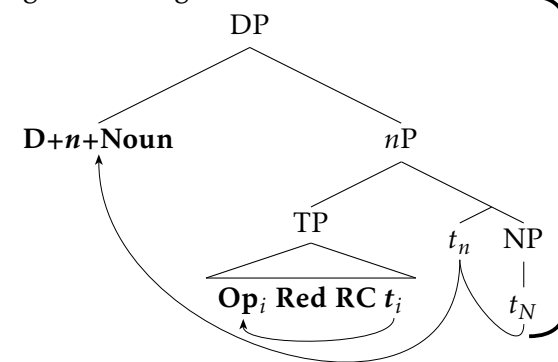
- Reasons to treat reduced RCs as TPs:

- Reduced RCs have tense markers and the subject’s CM is on the verb, i.e. the RC projects as high as TP.
- No agreement with head in reduced object RCs
- High adverbs cannot follow the subject in reduced object RCs, as they can in matrix clauses and full RCs.

- As was the case for Type 1 modifiers, the heads of reduced RCs are not at the right-edge of a  $\varphi$ -phrase.

- ➔ This prosodic similarity can be captured by attaching the RC internal to XP in which the RC head is pronounced.

(27) High tone assignment in reduced RCs



- This analysis also captures the fact that our speaker disprefers high determiners preceding the relative clause in reduced RCs (this judgement does not hold for full RCs).

## 4.2 Reduced relative clauses

- Verbal template for reduced relative clauses:
  - **Reduced RCs:** CM.SUBJ-NEG-T-Root-FV

- In reduced RCs, only the restrictive reading is possible.
- In reduced subject RCs, the head is not marked with a H tone. In (25) a matrix clause is compared to a reduced subject RC.

(25) a. A-báá-ntu) $\varphi$  ba-sóm-a) $\varphi$   
 AUG-C2-people C2.SM-read-FV  
 ‘People read.’ (habitual)

- (28) (bá-nu) $\varphi$  a-baa-ntu ba-satu (?bá-nu) $\varphi$  [<sub>RC</sub>  
 C2-this AUG-C2-people C2-three C2-this  
 ba-sóm-a)] $\varphi$  (bá-nu) $\varphi$   
 C2.SM-read-FV C2-this  
 ‘those three people who read’ (habitual)

**Plan:**  Matrix clauses •  Nominals •  RCs •  Exceptions

## 5 Analysis


- We saw a simple account of H tone insertion in (5) and (6)
- We still need to map syntactic XPs to phonological  $\varphi$ -phrases.
  - These data do not help us distinguish between an EDGE-BASED approach (Selkirk 1986, 1995, 2000; Truckenbrodt 1995, 1999, 2007) and a MATCH-theoretic account (Selkirk 2011; Elfner 2012, 2015; Itô and Mester 2013).
- For all of the data we’ve seen so far—matrix clauses, nominals, and relative clauses—we need one basic mapping constraint:

(29) MATCH PHRASE: XPs correspond to  $\varphi$ -phrases.

- Syntax-prosody mapping is this straightforward in the overwhelming majority of construction types we’ve considered.
- Let’s consider an applicative example:

- (30) A-ba-záire) $\varphi$  ba-ku-leet-er  
 AUG-C2-parent C2.SM-PROG-bring-APPL  
 oo-mw-áána) $\varphi$  e-bi-yúni) $\varphi$   
 AUG-C1-child AUG-C8-yam  
 ‘The parents are bringing the yams for the child.’

- (31) Assigning prosodic structure to (30):

Input:	MATCH
[CP[DPSubject][TP[MoodPVerb[ <sub>vP</sub> [AppIP[DPAppIO][VP[DPDO]]]]]]]	PHRASE
a.  Subject) $\varphi$ Verb AppIO) $\varphi$ DO) $\varphi$	
b. Subject) $\varphi$ Verb AppIO DO) $\varphi$	*!

### 5.1 Problematic relative clause data

- **RCs with modified heads:** Type 1 modifiers that precede the RC do not bear a H tone.

- (32) a-ba-ana ba-taano [<sub>RC</sub> ba-sóm-a)] $\varphi$   
 AUG-C2-child C2-five C2.SM-read-FV  
 ‘five children who read’ (habitual)

- ➔ This is unexpected; with multiple DP-internal modifiers each typically *does* bear a H tone, cf. (33).

- (33) e-ma-iba ma-sátu) $\varphi$  máá-ndi) $\varphi$   
 AUG-C6-dove C6-three C6-another  
 ‘another three doves’

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

- (34) o-mw-áána) $\varphi$  [<sub>RC</sub> a-ba-limi ba-ta-góónz-a)] $\varphi$   
 AUG-C1-child AUG-C2-farmer C2.SM-NEG-like-FV  
 ‘the child that the farmers don’t like’

- ➔ This is unexpected; the head of reduced RCs do not usually bear a H tone, cf. (35-a), and subjects typically *do*, cf. (35-b).

- (35) a. a-baa-ntu [<sub>RC</sub> ba-sóm-a)] $\varphi$   
 AUG-C2-people C2.SM-read-FV  
 ‘people who read’ (habitual)



- b. A-ba-lími) $\varphi$  ba-ka-kór-a) $\varphi$   
 AUG-C2-farmer C2.SM-PST-WORK-FV  
 ‘The farmers worked.’

- In sum, for a subset of reduced RCs, we have XPs that are not *not* marked with a H tone, and X<sup>0</sup>s that *are* marked with a H tone even though they are not at the right edge of a  $\varphi$ -phrase.

## 5.2 Reduced RCs with modified heads

- When a reduced RC follows the other DP-internal modifier, that modifier is not pronounced with a H tone, even though it is at the right edge of an XP:

- (36) a-ba-ana ba-taano [<sub>RC</sub> ba-sóm-a)] $\varphi$   
 AUG-C2-child C2-five C2.SM-read-FV  
 ‘five children who read’ (habitual)

- To account for this pattern, we propose the following:

- (37) \*) RED REL: Assign a penalty to the right edge of a  $\varphi$ -phrase before reduced relative clauses.

- (38) Assigning prosodic structure to (36):

Input: [ <sub>DP</sub> Noun[ <sub>NumP</sub> [ <sub>XP</sub> Num][ <sub>NP</sub> [ <sub>TP</sub> Red Rel]]]]	*) RED REL	MATCH PHRASE
a. Noun Num) $\varphi$ Red Rel) $\varphi$	*!	
b. Noun Num Red Rel) $\varphi$		*

- When the head of a reduced RC is modified, the predicted prosodic structure only obtains when the reduced relative clause immediately follows the head:

- (39) a-ba-ana [<sub>RC</sub> ba-sóm-a ]) $\varphi$  ba-tááno) $\varphi$   
 AUG-C2-child C2.SM-read-FV C2-five  
 ‘five children who read’ (habitual)

- Does \*) RED REL render the syntactic explanation irrelevant?
  - The basic mapping constraint and the highly specialized prosodic constraint are doing double duty in some cases.
  - When the head of the reduced RC is immediately followed by the RC we find some redundancy.

- (40) Assigning prosodic structure to (39):

Input: [ <sub>DP</sub> Noun [ <sub>NP</sub> [ <sub>TP</sub> Red Rel][ <sub>XP</sub> Num]]]]	*) RED REL	MATCH PHRASE
a. Noun Red Rel) $\varphi$ Num) $\varphi$		
b. Noun) $\varphi$ Red Rel) $\varphi$ Num) $\varphi$	*!	*

- The syntactic analysis of reduced RCs was meant to explain the distribution of the H tone, but it has other points in its favor:

- It offers an explanation as to what types of elements can intervene between the head and the reduced RC.
- Unifies the syntactic treatment of RCs with other adnominals, specifically Type 1 modifiers.

- Why would the grammar include such a specialized prosodic constraint?

- Reduced RCs and matrix clauses are string ambiguous; the most faithful phrasing of a modified reduced RC would produce an entirely ambiguous string:

- (41) a. \*a-ba-ana ba-tááno) $\varphi$  [<sub>RC</sub> ba-sóm-a)] $\varphi$   
 AUG-C2-child C2-five C2.SM-read-FV  
 ‘five children who read’ (habitual)  
 b. A-ba-ana ba-tááno) $\varphi$  ba-sóm-a)] $\varphi$   
 AUG-C2-child C2-five C2.SM-read-FV  
 ‘Five children read.’ (habitual)

- Disambiguation via prosody is a common strategy cross-linguistically, and it is possible that we are offering a formal account of a processing-cum-grammatical consideration.

- We extend this intuition to explain a second necessary, but peculiar constraint to explain another problematic prosodic realization found in reduced relative clauses.

### 5.3 Reduced object RCs with overt subjects

- Reduced object RCs with overt subjects are exceptional for two distinct reasons:

1. They provide the only example of a reduced RC whose head is followed by a prosodic boundary.
2. They provide the only example of a subject that does not bear a H tone.

- Compare the predicted (42-a) to the attested phrasing (42-b):

- (42) a. \*e-bi-tabu [<sub>RC</sub> a-báá-ntu) $\varphi$   
 AUG-C8-book AUG-C2-person  
 ba-a-som-ére]) $\varphi$   
 C2.SM-PST-read-PRF  
 ‘the books people read’
- b. e-bi-tábu) $\varphi$  [<sub>RC</sub> a-baa-ntu  
 AUG-C8-book AUG-C2-person  
 ba-a-som-ére]) $\varphi$   
 C2.SM-PST-read-PRF  
 ‘the books people read’

- The attested phrasing is nonisomorphic with the syntax, but it is consistent with a general observation about adjacent DPs in the language:

– Immediately adjacent DPs are separated by  $\varphi$ -phrase boundaries.

- Compare two adjacent DPs in a ditransitive clause and a nominal predicate:

- (43) a. A-ba-somésa) $\varphi$  ba-k-olek a-bá-ána) $\varphi$   
 AUG-C2-teacher C2.SM-PST-show AUG-C1-child  
 e-mí-ti) $\varphi$   
 AUG-C4-tree  
 ‘The teachers showed the children the trees.’
- b. o-múú-ntu) $\varphi$  mu-somésa) $\varphi$   
 AUG-C1-person C1-teacher  
 ‘The person is a teacher.’

- Because left edges are unmarked in Rutooro and because boundary cues aren’t gradient,  $\text{NOUN NOUN})\varphi \text{RC})\varphi$  strings represent a number of different constituencies:

- (44)  $\text{NOUN NOUN})\varphi \text{RC stem})\varphi$
- a. [<sub>NOUN</sub> [[<sub>NOUN</sub>] RC stem]]
  - b. [<sub>NOUN</sub> [<sub>NOUN</sub>] [RC stem]]
  - c. [[<sub>NOUN</sub> [<sub>NOUN</sub>]] [RC stem]]

- In (44-a)—but not (44-b) or (44-c)—the second noun and the RC stem form a unique constituent.

- In (44-c)—but not (44-a) or (44-b)—the first and second noun form a unique constituent, much like possessive constructions:

- (45) e-by-ookulya by-’ oo-mu-lími) $\varphi$   
 AUG-C8-food C8-LNK AUG-C1-farmer  
 ‘the farmer’s food’


- The prosodic structure in (44) is indeterminate, because it is the output of more than one syntactic configuration, and crucially, configurations that have an analogue in the language.

- The question is whether H tones are such a reliable indicator of constituency, that a  $\text{NOUN NOUN})\varphi \text{RC})\varphi$  string is disallowed, because it could point to an unintended constituency.

- If so, this would motivate the second constraint that we need to account for the H tone distribution in reduced relative clauses:

(46) N)N : Assign a penalty to adjacent DPs that are not separated by a prosodic boundary.

(47) Assigning prosodic structure to (42-b):

Input: [DPNoun] <sub>nP</sub> [TP [DPNoun] Red Rel]]]	N)N	*) RED REL	MATCH PHRASE
a. Noun Noun)φ Red Rel)φ	*!	*	
b. Noun Noun Red Rel)φ	*!		*
c. Noun)φ Noun)φ Red Rel)φ		*!	*
d.  Noun)φ Noun Red Rel)φ			**

## 6 Conclusion

- H tones mark the right-edges of φ-phrases, which reliably correspond to the right-edges XPs.
    - The distribution of H tones serves as a diagnostic for whether an adnominal is generated in an internal or external position.
  - Exceptional syntax-prosody interactions are found in
    1. reduced relative clauses with modified heads
    2. reduced object relative clauses with overt subjects
  - Exceptions were addressed with ad hoc prosodic constraints motivated on the basis of preventing i) ambiguity and ii) indeterminate prosodic structure
  - Both ambiguity and prosodic indeterminacy result in the violation of the otherwise reliable correspondence between syntactic and prosodic constituents in the language.
- Thus, the exceptions allow for greater regularity in the positive—and negative—signaling of syntactic constituency via prosodic structure.

## 7 Acknowledgements

We warmly thank our language consultant Barbara Balinda. Thanks also to Michael Diercks, Claire Halpert, Larry Hyman, Ruth Kramer, and Jason Zentz for feedback on this project. We also benefited from feedback we received at The Annual Conference on African Linguistics 47 (University of California, Berkeley), The Workshop on the Effects of Constituency on Sentence Phonology (University of Massachusetts, Amherst), and audiences at The University of Toronto, The University of Maryland, and Rutgers University.

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