PHANTOM STRUCTURE: A representational account of floating tone association

Nicholas Rolle & Florian Lionnet (Princeton University)

7th Annual Meeting on Phonology (AMP) 11-13 October 2019 Stony Brook University

[1] Main claim

- Floating tones can be associated to abstract tone-bearing units (TBUs - τ) on a parallel representational plane we call **Phantom Structure**

[2] Issue: Association of floating tones

- **1 - Phonological**: Association to unmarked position e.g. Floating tones (FTs) associating to metrically prominent position, e.g. stressed σ or domain edge
- **Lamba** (Bantu) [Bickmore 1995, De Lacy 2002]

Ⓗ
ta-tu-[**ká**-kom-a]$_{STRESS}$
NEG-we-FUT-hurt-FV
'we will not hurt'

Ⓗ
tu-[**lúku-leemb**-a]$_{STRESS}$
we-PROG$_1$-**write**-FV
'we are writing'

- **2 – Targeted**: Associated position (**i**) not necessarily unmarked, (**ii**) idiosyncratic to the sponsoring morpheme
- **Kuria** (Bantu): FTs associate to 2nd, 3rd, or 4th TBU of the macro-stem [MS] [among other patterns; see Odden 1987, Cammenga 2004, Mwita 2008, Marlo *et al*. 2015]

2nd: Ⓗ
n-to-**oka**-[hoótoote-ey-a]$_{M\text{-}STEM}$
FOC-we-**PST.PROG**-reassure-PFV-FV
'we have been reassuring'

3rd: Ⓗ
n-to-**re**-[hootóoter-a]$_{M\text{-}STEM}$
FOC-we-**REM.FUT**-reassure-FV
'we will reassure'

4th: Ⓗ
to-**ra**-[hootoóter-a]$_{M\text{-}STEM}$
we-**INCEP**-reassure-FV
'we are about to reassure'

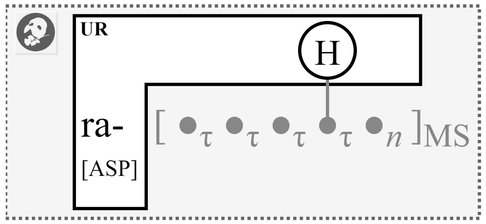
- These positions are not (all) phonologically unmarked

[3] The status of counting in grammar

- Marlo *et al*. (2015) pursue a **grammatical** account, wherein grammatical operations are able to **count**, e.g. place H on 4th TBU of word
- Formalized under Cophonologies by Phase (CBP) in Sande & Jenks (2018)
- [T,INCEPTIVE] ↔ { F: /ra- H/ ; $\mathcal{P}_1$: [$_\omega$ X- ; R_1: μ_4, SPREAD-(H,R) » IDENT-TONE }
- If correct, provides counterexample to claims that grammar can't count [Kenstowicz 1994:372, Smith & Tsimpli 1995, Hayes 1995:307, Corbett 2008:293, a.o.; see discussion in Marlo *et al*. 2015]

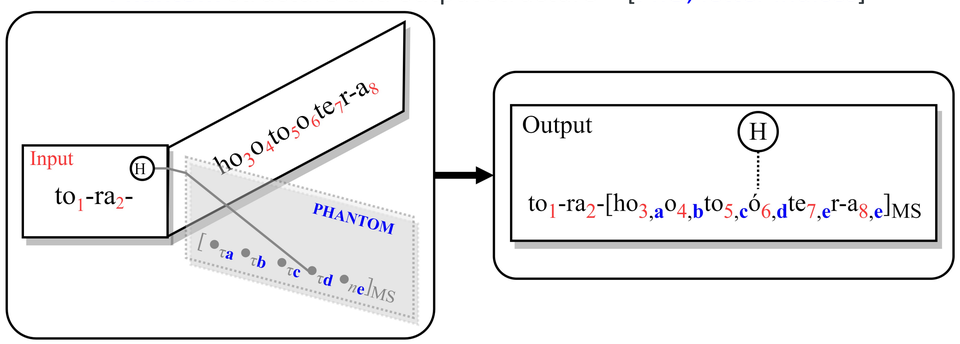
[4] Our proposal: PHANTOM STRUCTURE

- We forward a **representational** account – does not involve counting
  [Compare debates around **Prosodic/CV Templates**: "static **representational** phonological entities" vs. "**emergent** effects of constraint interaction" – Inkelas 2014:86ff. and refs therein; McCarthy 1981 up to Kastner 2019]
- A lexical entry contains **phonological substance** (i.e. its UR, in white below)
- It also contains **Phantom Structure**, to which the UR can be linked/linearized
  - E.g. H tone pre-associated in a parallel **Phantom Plane**, i.e. $\bullet_\tau\ \bullet_\tau\ \bullet_\tau\ \bullet_\tau$
    [Compare also subcategorization literature – Inkelas 1990, Zec 2005, Bennett *et al*. 2018, Tyler 2019, a.o.]
- Kuria prefix /ra- Ⓗ/ INCEPTIVE ASPECT pre-linked to the 4th phantom TBU (of MS)
- **Objective of Phantom Structure:** Capture 'desire' of morpheme to anchor its tone to particular position within a string of TBUs, but *does not* and *cannot* provide the requisite TBU structure itself



[5] Analysis of phantom structure in context

- In context with other morphemes: both a **Substantive Plane** (i.e. the Input) and a parallel **Phantom Plane** co-exist, and represent distinct strings
- Computation relies on two partially overlapping **correspondence** relations
  [McCarthy & Prince 1995, among many others]
  - **Input** structure and output structure [**IO**, number indices]
  - **Phantom** structure and output structure [**PHO**, letter indices]



- Output candidates are in **multiple CORR relations**, ranked appropriately:

IDENT-PHO(τ)
('corresponding TBUs in the phantom plane and output have identical tonal associations')
»
IDENT-IO(τ)
('corresponding TBUs in the input and output have identical tonal associations')
Markedness constraints (*FLOAT , H/HD , etc.)
[as well as constraints **MAX(T)**, and **INTEGRITY-PHO(τ)** - 'no TBU in the phantom plane has multiple correspondents in the output']

- "Desired" but absent structure provided **independently** by other morphemes
- 'True' floating tone (e.g. ↖Lamba) not subject to IDENT-PHO(τ)

[6] Alternative accounts: Arguments against floating ⓁⓁⓁⒽ sequence

- Marlo *et al*. (2015) originally rejected floating low analysis
  - i.e. /ra- ⓁⓁⓁⒽ/ ← **Note**: defended by Trommer (this conference)
- **Their arguments**: (**i**) violation of the OCP
- (**ii**) Kuria is privative H vs. Ø ; L inserted late only as default
- (**iii**) later H tone spreading operations spread into the hypothetical ⓁⓁⓁⒽ sequence, which we would expect to be blocked if there were bona fide L tones in representation

[7] Argument against deficient structure

- Alternative: prefixes in Kuria include **deficient structure** like **floating morae/TBUs**, or **latent/ghost segments** [Archangeli 1991, Zoll 1996, Sara Kirchner 2010 and refs therein, Zimmermann 2019 and refs therein]
- Hypothetical deficient structure: /ra$\bullet_\tau\bullet_\tau\bullet_\tau\acute{\bullet}_\tau$/ with H tone linked to a segmentally-deficient TBU, **all of which in input**
- **Main argument against**: Unlike deficient structure, the TBUs in the phantom structure show different behavior:
  - (**i**) not realized to avoid **markedness**
  - (**ii**) not deleted to avoid **markedness**
  - (**iii**) never realized with a latent segment
  - (**iv**) never realized via **epenthesis** or **reduplication**
- *to-**ra**$\bullet_\tau\bullet_\tau\bullet_\tau\acute{\bullet}_\tau$-hootooter-a → *to-**ra**hooto**ó**-hootooter-a
- Such a reduplicative pattern is not attested anywhere in Kuria, or in the extensive Bantu literature on floating tone
- In short: **Phantom structure is not substance in the input**

[8] Summary

- **Two types** of association patterns with **floating tone**
  - Association due to general **phonological** grammar
  - Association to a **targeted** position in some domain (idiosyncratic and not necessarily unmarked)
- **Targeted association** – e.g. H to the 4th TBU (τ) of stem – is modelled using **Phantom Structure** (introduced here)
- If a toneme T is pre-associated to a TBU in the **Phantom Plane**, high ranked **IDENT-PHO(τ)** will enforce T to be associated to its equivalent TBU in an output candidate
- Alternatives are rejected (e.g. floating tone sequences ⓁⓁⓁⒽ ; deficient τ-nodes in input /ra•τ•τ•τ•τ/)

T	T	T
•τ	•τ	(τ)
Pre-linked	Floating	**Phantom-linked**

Acknowledgments: Thanks to our colleagues at Princeton (Laura Kalin, Byron Ahn, Sam Zukoff, Sunwoo Jeong), and for feedback from Larry Hyman, Sharon Inkelas, Myriam Lapierre, and four anonymous AMP reviewers. **Complete references** are available on first author's website, next to a pdf link for this poster: www.nicholasrolle.com/output