**PHANTOM STRUCTURE: A representational account of floating tone association**

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**[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 or domain edge

   - Kuria (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-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)

   - 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


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

     - IDENT-PhO(t)" (‘corresponding TBUs in the phantom plane and output have identical tonal associations’)
     - IDENT-IO(t)" (‘corresponding TBUs in the input and output have identical tonal associations’)

   - Markedness constraints (FLOAT, H/H0, etc.)


- We formalize a representational account – does not involve counting

  - Compare debates around Prosodic/CV Templates: “static representational phonological entities” vs. “emergent effects of constraint interaction” – Inkelas 1984-86ff 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. [•••]


- Kuria prefix /ra- /Intl. 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


**[6] Alternative accounts: Arguments against floating (ለለለለ) sequence**

- 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-a, e.g. 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

- 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

**[7] Argument against deficient structure**

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**[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 (t) of stem – is modelled using Phantom Structure (introduced here)

- If a tone T is pre-associated to a TBU in the Phantom Plane, high ranked IDENT-PhO(t) will enforce T to be associated to its equivalent TBU in an output candidate

- Alternatives are rejected (e.g. floating tone sequences /ለለለለ/; deficient t-nodes in input /ra-a, e.g. with H tone)

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**Image 105x2317 to 307x2576**

[Diagram showing the relationship between Input and Output in the context of Phantom Structure]

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**Image 1020x624 to 2299x1071**

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**Image 1653x1502 to 2310x1800**

[Diagram illustrating the computational model used for Phantom Structure]

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**Image 2381x1944**

[Diagram showing the output candidates being ranked appropriately with IDENT-PhO(t) and IDENT-IO(t)]