**Introduction**

Kinyambo provides useful data for examining the treatment of adjuncts and phonological phrasing. APs are post-nominal, and we have clear data on phrasing thanks to High Tone Deletion (1) (Bickmore 1990).

1. **High Tone Deletion** (Bickmore 1990)
   \[ H \to \emptyset / (\phi \ldots (w \ldots . . . ) (w \ldots H \ldots . . . ) . . . ) \]
   Bickmore (1990) shows that in simple intransitives, 1-word NPs phrase with V, while 2-word NPs phrase separately, as shown by HTD.

2. a. \( \{\phi \text{ abakazi bākaijina} \) ‘the workers helped’
   b. \( \{\phi \text{ abakazi bākiru} \) \( \{\phi \text{ bākaijina} \) ‘the mature workers helped’

We have uncovered a pathological prediction of some implementations of Match Theory (Selkirk 2011) and Align/Wrap (Truckenbrodt 1999): the **Adjunct Cohesion Pathology** (3).

3. **Adjunct Cohesion Pathology**
   \[ \text{TP} \ [w \ N \ A] [w \ V \ . . . ] \to \ldots N \ldots (\phi \ldots . . . A \ldots V \ldots ) \ldots \]

**Objectives**

Conduct a computationally rigorous study in OT to address:
- the proper interpretation of adjunct structure
- the predictions of Match Theory vs. Align/Wrap
- the precise formulation of φ-binarity constraints

**Methods**

We examine 12 typologies generated by crossing three factors:

- XP-segment visibility: See visibility settings in (4).
- type of faithfulness: Match = [Match-XP, Match-φ] vs. Align = [Align-L(XP), Align-R(XP), Wrap(XP)]
- definition of binarity: number of branches vs. number of words

4. **Adjunction Visibility Settings**
   a. \( H+L \) visible b. Only \( H \) visible c. Only \( L \) visible
   \( \text{N} \) \( \text{XP} \) \( \text{XP} \) \( \text{XP} \) \( \text{XP} \) \( \text{XP} \)

We employ the computational tools OT Workplace (Prince, Tesar, & Merchant 2015) and SPOT (Bellik, Bellik, & Kalivoda 2015), a new JavaScript application which we have developed. SPOT allows us to automatically generate and evaluate prosodic tree structures of arbitrary length and depth.

**Results**

Only Match systems generate Kinyambo phrasings. Also, the high XP segment must be visible to ensure that an adjunct phrases with what it modifies (avoid ACP).

**Major results**

- Our Match systems can capture Kinyambo and avoid ACP if high XP segments are visible (i.e., all L systems fail).
- Align/Wrap: All systems both undergenerate and overgenerate.

The typologies from each system are summarized in Table 1.

**Table 1: Summary of results from all 12 systems. Green = no ACP, yellow = ACP tie, orange = ACP winner**

- HL+Match+BinBr is an exemplary successful system: HL+Match+BinBr
- H+Match+BinBr
- H+Match+BinBr
- H+Match+BinBr
- H+Match+BinBr
- H+Match+BinBr
- H+Match+BinBr
- H+Match+BinBr
- H+Match+BinBr
- H+Match+BinBr
- H+Match+BinBr
- H+Match+BinBr
- H+Match+BinBr

But this success is fragile: if the higher segment of XP is invisible, as in L+Match+BinBr, the ACP candidate ties with the desired optimum.

**5. Support for Kinyambo ranking in HL+Match+BinBr**

But this success is fragile: if the higher segment of XP is invisible, as in L+Match+BinBr, the ACP candidate ties with the desired optimum.

**6. ACP and attested output tie in L+Match+BinBr**

Worse still, there is a ranking paradox when the high segment of XP is invisible.

**7. Ranking paradox in L+Match+BinBr**

**Conclusions**

- The high XP segment must be visible for faithfulness to distinguish phrasings where the adjective phrases with its noun, and phrasings where the adjective phrases with the verb.

- **Match provides better empirical coverage** than Align.
  - All Match systems in which the high XP segment was visible achieved empirical coverage and avoided the ACP.
  - No Align system generates Kinyambo, and all generate ACP systems.
  - Even with Truckenbrodt’s visibility settings, NonRec and Exhaustivity must be added to CON to achieve empirical coverage with Align.

- **Word-based Binarity yields larger typologies** than branch-based Binarity, but each predicts languages that the other doesn’t – an area for further investigation.

**Constants**

We hold the following factors constant in all systems:

- Sentences examined are of the forms in (2) and (8) (Bickmore 1989, 1990).
  a. \( \text{b-he-will-give worker chair slowly} \)
  b. \( \text{b-he-will-give worker chair slowly} \)

- Their syntactic structures are assumed to be:

- GEN: allows non-vacuous recursion, & violations of exhaustivity & headedness.
- Visibility settings: AP, Adv, functional projection (TP, VP, VP headed by trace) count for faithfulness. N.B. These assumptions are usual for Match Theory but not for Align/Wrap.
- All versions of CON include EQUALSISTERS (see Myrberg 2013).

**References**


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