The roots of non-concatenative morphology in Western Nilotic

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Puzzle

- Western Nilotic (WN) languages show a strong preference for non-concatenative morphophonological processes
  - Puzzle: Why would a language prefer non-concatenative morphology?

Background

- WN roots are generally monosyllabic: C (G) V (V) (V) C
- Root contrasts:
  - Ternary length (V, VV, VVV)
  - Three/four tones (H, L, Fall, Rise)
  - Modal/Creaky vs. breathy voice
- Inflected forms:
  - Mostly changes to root
  - Vowel lowering & fronting processes
    - (“vowel grades” – see below)
  - Lengthening and tonal overlays

Proposal

- Observation: WN show constraints on contrasts in suffixes (word-final position) - cf. roots.
  - Maximally –CV
  - Optional onsets, no codas
  - No length, tonal, voice quality contrasts
  - Little suffix stacking
- Proposal: Non-concatenative morphology results from:
  - Surface phonological well-formedness constraints on suffixes and how each language chooses to resolve violations of them
  - **tl;dr:** Phonological constraints drive root integration

<table>
<thead>
<tr>
<th>Vowel Grades</th>
<th>Creaky</th>
<th>Breathy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 1</td>
<td>i</td>
<td>e</td>
</tr>
<tr>
<td>Grade 2</td>
<td>i</td>
<td>e</td>
</tr>
<tr>
<td>Grade 3</td>
<td>i</td>
<td>e</td>
</tr>
</tbody>
</table>

Case study: Dinka

- **A. Basic pattern of root integration of -V suffixes**
    - *μ#: Assign one violation mark for every word-final mora
  - Explains prevalence of [e] in suffixes: [e] can be a non-moraic vowel in Dinka (see Andersen 2007:fn. 20; Remijes and Gilley 2008:335)
  - Vocalic suffixes incorporate into root to avoid violation of *μ#
  - Incorporation/metathesis preferred to deletion (MAX-μ >> LINEARITY)

- **B. No vowel reduction occurs with any –CV suffixes**
  - Monosyllabic output (b, c) violates *COMPLEXCODA and MAX-C
  - Non- contiguous metathesis (d) violates I-ADJACENCY (Carpenter 2002)
  - Final reduction (e) violates MAX-μ (or constraint favoring moraic syllables)

- **No root lengthening occurs with –CV suffixes**
  - Lowering due to vowel grade (Grade 3) still occurs at a distance, harmony with vowel in 2pl [-kā]

Zooming out: WN suffixation

- WN languages show phon. restrictions on suffixes → changes to the root through inflection:
  1. **Shilluk:** suffixes only short [-ATR] vowels, i.e. no length/ATR contrast (-a, -ɛ and -ọ on verbs, and -ŋ and -ọ on nouns: Remijes and Ayoker 2022).
    - Some morphological categories lengthen roots to overlong
    - Some morphological categories cause the root vowel to become [+ATR]
      - e.g., cam ’eat’ → cāām ’eat,CP’ (Remijes et al. 2015)
  2. **Nuer:** suffixes only short vowels with no voice contrast (Reid 2020:52)
    - The applicative and antipassive shift the root vowel to breathy (“Grade 2”)
  3. **Anywa:** suffixes only [-ATR] vowels, i.e. no contrast in ATR (Reh 1996)
    - The antipassive shifts root vowel to [+ATR] (sec. 3.6.1)