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Explaining the final vowel mismatch in Zulu reduplication

In many analyses of Bantu reduplication, one puzzling aspect is the absence of correspondence between the final vowel (FV) of the disyllabic reduplicant (RED) and the FV of the base. Focusing on Zulu, the default FV for a verb is -*a* (as is the case throughout Bantu), but certain forms, such as the recent past and subjunctive, take an FV of -*e*, which is barred from appearing on RED (1a). When the FV of the base is -*e*, in the absence of other suffixes, the FV on RED is required to be -*a* (in instances when the FV on the base is -*a*, the FVs match (1b,c)) . This systematic mismatch between the RED and base is difficult to account for within OT, where it is necessary to formulate constraints that penalize including "inflectional" material in RED (Hyman et al. 2009) or have different rankings for RED-BASE FAITH constraints for root material (highly ranked) v. non-root material (low ranked) (Downing 2001).

However, in a derivational theory such as the one implemented here (Distributed Morphology (DM)), the absence of correspondence between the FV of RED and the FV of the base follows straightforwardly from the nature of the derivation, as the FV -*a* is taken to be an intermediate spell-out of the *v* (verbalizing) head that attaches to an acategorical root (Fig. 2, Step 1). In the RED+base verb complex as a whole, this -*a* gets overwritten as the verb moves up to higher syntactic projections (such as mood and aspect), but at this point, RED is no longer accessible as a privileged constituent, and its -*a* FV cannot be targeted (Fig. 3).

Within Zulu, RED is a disyllabic constituent prefixed to the verb stem. We assume that it is a bare prosodic template; that is, the RED morpheme is [σσ] (though it can also be envisioned as a rule that forces a copy of 2 syllables from the stem). In the derivation, an acategorical root merges with a verbalizing head, *v*, prior to reduplication (other extensional suffixes like the applicative -*el*- and causative -*is*- may attach between *v* and RED). The *v* head is spelled out as -*a*, and the combination of root + *v* yields a stem — the constituent which is subject to reduplication (Fig 2, Step 2), (following Inkelas & Zoll (2005) in arguing for the primacy of the stem). At this point, with the example of a root with the canonical CVC prosodic shape, the RED and base are identical.

This structure, which consists of the root, extension suffixes (if present), a final vowel, and a reduplicant (if present) is known in Bantu as the Macrostem (Meeussen 1967, Myers 1987). One way of understanding the Macrostem in a syntactic framework, is to think of it as the portion of the verb that is assembled before it moves out of the VP and onto higher projections (Fig. 3). Once the verb has moved out of VP, we claim that the RED+base complex is no longer analyzable as a complex constituent, much in the way that inner phonological domains are closed off once a form has moved on to "later" levels of the morphophonology. The FV of the RED+base complex may be targeted by virtue of being at the edge.

Since the stem is the constituent that undergoes reduplication, in other theories the RED+base complex is analyzed as two occurrences of the stem; however, in the DM approach implemented here, it is only two occurrences of the stem *until* the verb has moved out of VP. After this crucial point in the derivation, its internal structure and composition are no longer accessible. Consequently, seeing the absence of correspondence between the FV of RED and the FV of the base is, in this analysis, not the right way of looking at things. Instead, the so-called "mismatch" between the FV's of the RED and base is in fact a mismatch between the FV of RED and that of the entire RED+base complex.

(1) <u>Regular and reduplicated verb forms</u>
A '+' symbol separates reduplicant and base. The meaning of reduplication is that the action denoted by the verb is performed carelessly or without skill. The verb root used in the examples is *-cul-* 'sing' (tones omitted).
(a) *ngi-cul-e* → *ngi-[cul-**a**+cul-e]* **ngi-[cul-e+cul-e]*
   'I sing' / 'I sang' (subjunctive / recent past, respectively))
(b) *uku-cul-**a*** → *uku-[cul-**a**+cul-**a**]*   (c) *ngi-cul-**a*** → *ngi-[cul-**a**+cul-**a**]*
   'to sing'   'I sing…"

(2) Derivation of the portion of the verb (within VP)

Step 2
Step 1

√ROOT   ν   RED
-cul-   [a]   [σσ]   → *-cul-a+cul-a*
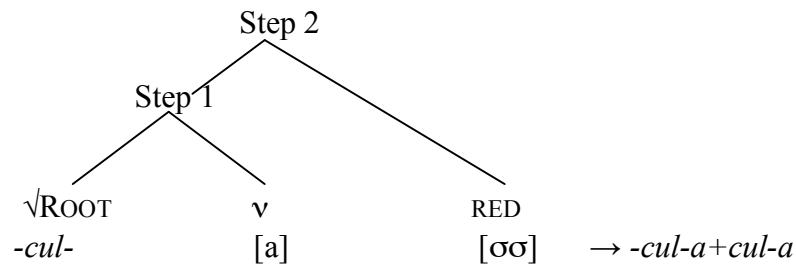
(3) After the Macrostem is complete, movement to higher syntactic projections to acquire prefixal morphemes and the final vowel.

TP (3)
MoodP (2)
ngi-culacule
culacule   Macrostem (1)
                       [culacula]
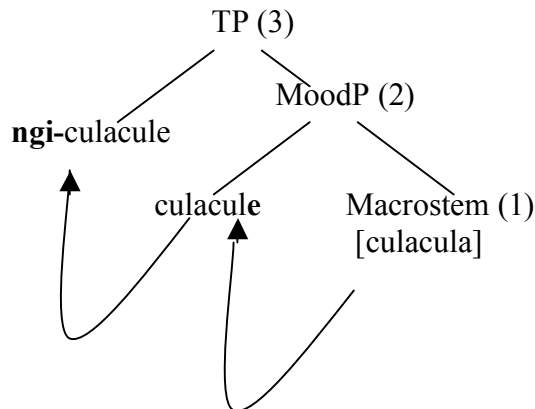
<u>References</u>
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