**Malay verbal reduplication with the *məŋ-* prefix**

Malay has both full reduplication (*buŋa-buŋa* 'flowers') and nasal substitution when a nasal is followed by a voiceless obstruent (e.g. *məŋ+tari* → *mənari* 'dance'). These two processes interact in verbal reduplication where the *məŋ-* prefix attaches either to the first component of the reduplicated verb (mənari+nari), giving it a continuous meaning, or to the second component of the reduplicated verb (tari+mənari), giving it a reciprocal meaning. When *məŋ-* attaches to the first component, the copy that doesn't bear the prefix surfaces with a nasal homorganic to the underlying voiceless stop. When the *məŋ-* attaches to the second component, the copy that doesn't bear the prefix surfaces faithfully with the underlying voiceless stop.

This pattern is difficult to account for under any derivational account that must consider the order of reduplication and *məŋ-* prefixation, and therefore the order of reduplication and nasal substitution. If reduplication happens first, then the non-prefixed component always surfaces with the underlying voiceless obstruent, regardless of whether it occurs first or second. If *məŋ-* prefixation happens first, then the non-prefixed component surfaces with the homorganic nasal, regardless of whether it occurs first or second. It would seem that resolving this ordering paradox requires an arbitrary separation of the two prefixations into different operations with different orderings. However, we pursue a simple phonological analysis by involving constraints that are already at play in the language.

We propose that the interaction between verbal reduplication and *məŋ-* prefixation is best accounted for in Parallel OT. For our analysis, we adopt a set of constraints for nasal substitution, which we collapse here into a single constraint NASALSUB (see Pater 2001 for full analysis). Additionally, we include two constraints that are necessary to get the correct output for the non-prefixed component of the reduplicant; both are independently motivated. These are defined in (1).

(1) Additional constraints (not including constraints for nasal substitution)

| | |
|---|---|
| IDENT(nasal)-BR: | Corresponding segments in the base and reduplicant of the output must have the same [nasal] value |
| $*N_{[word\text{-}initial]}$: | No nasals word-initially |
| PRESERVE(nasal)-IO: | Nasals in the input must be nasals in the output |

IDENT(nasal)-BR is part of a family of base-reduplicant faithfulness constraints (see McCarthy & Prince 1995 and subsequent works) that is based on the intuition that speakers generally prefer the reduplicant to be faithful to the base from which it was copied; these constraints are commonly invoked to account for other reduplication phenomena. The markedness constraint $*N_{[word\text{-}initial]}$ reflects the observation that Austronesian languages of Southeast Asia have restrictions against nasals in word-initial position (Blust 2013, p214; Zuraw 2010 for Tagalog). A coarse-grained search through an online Malay corpus (MalaysianWaC) yielded results that support this generalization.

In our analysis, $*N_{[word\text{-}initial]}$ out-ranks IDENT(nasal)-BR such that a correspondence between base and reduplicant is preferred unless it results in a word-initial nasal. PRESERVE(nasal)-IO out-ranks $*N_{[word\text{-}initial]}$ to protect nasals that were in the input. This ranking produces the correct output whether *məŋ-* occurred on the first or the second reduplicated component, as shown in (2) and (3).

(2) *məŋ+X-X*

| | /məŋ$_1$+t$_2$ari- t$_2$ari/ | PRES(n)-IO | NASALSUB | $*N_{[word\text{-}initial]}$ | ID(n)-BR |
|---|---|---|---|---|---|
| → a. | mən$_{12}$ari-n$_2$ari | | | * | |
| b. | mən$_{12}$ari-t$_2$ari | | | * | *! |
| c. | mən$_1$t$_2$ari-t$_2$ari | | *! | * | |
| d. | bən$_{12}$ari-n$_2$ari | *! | | | |

(3) *X-məŋ+X*

| | /t$_2$ari-məŋ$_1$+t$_2$ari/ | PRES(n)-IO | NASALSUB | $*N_{[word\text{-}initial]}$ | ID(n)-BR |
|---|---|---|---|---|---|
| → a. | t$_2$ari-mən$_{12}$ari | | | | * |
| b. | n$_2$ari-mən$_{12}$ari | | | *! | |
| c. | t$_2$ari-mən$_1$t$_2$ari | | *! | | |