The morphology of Muna nasal substitution

Alan C. L. Yu
University of Chicago

1. Irrealis allomorphy in Muna

The realis and irrealis distinction in Muna is partly distinguished by the infixing of -um- after the initial consonant of certain verb stems.

(1) | Realis | Irrealis | Gloss     |
---|---|---|---|
| dadi | d[um]adi | ‘live’ |
| dhudhu | dh[um]udhu | ‘push’ |
| gaa | g[um]aa | ‘marry’ |
| hela | h[um]ela | ‘sail’ |
| solo | s[um]olo | ‘flow’ |
| rende | r[um]ende | ‘alight’ |

When the root is vowel-initial, however, m- is prefixed instead.

(2) | Realis | Irrealis | Gloss     |
---|---|---|---|
| ala | m-ala | ‘take’ |
| ere | m-ere | ‘stand up’ |
| uta | m-uta | ‘pick fruit’ |
| omba | m-omba | ‘appear’ |

However, when roots begin with p or f, these consonants are replaced by m. This is referred as ‘nasal substitution’ or ‘nasal fusion’ in the literature.

(3) | Realis | Irrealis | Unattested | Gloss     |
---|---|---|---|---|
| pong | mongko | *p[um]ongko | ‘kill’ |
| pili | mili | *p[um]ili | ‘choose’ |
| foni | moni | *f[um]oni | ‘climb, go up’ |
| futaa | mutaa | *f[um]utaa | ‘laugh’ |

While nasal substitution occurs with p- and f-initial stems, when the root begins with b, bh, nasal or prenasalized consonant, there is no formal change in the root.

(4) | Realis/irrealis | Unattested | Gloss     |
---|---|---|---|
| baru | *b[um]aru/*maru | ‘happy’ |
| bhala | *bh[um]ala/*mala | ‘big’ |
| manda | *m[um]anda | ‘repent’ |
| nale | *n[um]ale | ‘soft, weak’ |
| mbolaku | *mb[um]olaku | ‘steal’ |
| ndiwawa | *nd[um]iwawa | ‘yawn’ |

The majority of roots with initial w behaves like the roots above, namely, no formal change occurs (5)a. However, some require nasal substitution (5)b.

(5) | Realis | Irrealis | Gloss     |
---|---|---|---|
| wanu | wanu | ‘get up’ |
| wei | wei | ‘clear (a field)’ |
| waa | [m]aa | ‘give’ |
| wora | [m]ora | ‘see’ |

Question: What motivates/determines the irrealis allomorphy in Muna?
Structure of this presentation

- Background
- Three solutions
  - Purely phonologically conditioned allomorphy
  - Morpholexical rules/Listed stem selection
  - Medium-size generalization in Sign-Based Morphology

2. Background

- Muna is an Austronesian language spoken on the island, Muna, located off the southeast coast of the crab-shaped island of Sulawesi, Indonesia.
- The phonemic inventory is given below:

\[
\begin{array}{cccccccc}
\text{p} & \text{t} & \text{c} & \text{k} & \text{i} & \text{u} \\
\text{b} & \text{d} & \text{g} & \text{e} & \text{a} \\
\text{mp} & \text{nt} & \text{bk} & \text{a} \\
\text{mb} & \text{nd} & \text{ns} & \text{ng} \\
\text{f} & \text{s} & \text{rh} & \text{h} \\
\text{m} & \text{n} & \text{ng} & \\
\text{w} & \text{r} & \text{l} \\
\end{array}
\]

- The syllable structure is always CV in Muna. The syllable division of words like lambu ‘house’ is always la.mbu where mb is analyzed as a single unit (i.e. a prenasalized stop).\(^1\)

- Muna verbs are classified into three types: Class-a, Class-ae, and Class-ao. Each class is associated with a distinct set of subject markers. Moreover, when a verb is in the irrealis mood, a distinct set of subject markers are employed for each of the three verb classes.

\[
\begin{array}{cccccccc}
\text{Realis} & \text{Irrealis} & \text{Realis} & \text{Irrealis} & \text{Realis} & \text{Irrealis} \\
\text{sg} & \text{1} & \text{a} & \text{ao} & \text{a} & \text{ao} \\
\text{2} & \text{o} & \text{omo} & \text{o} & \text{omo} \\
\text{2p} & \text{to} & \text{tao} & \text{te} & \text{tao} \\
\text{3} & \text{no} & \text{nao} & \text{ne} & \text{nao} \\
\text{du} & \text{1 inc} & \text{da} & \text{dae} & \text{do} & \text{dao} \\
\text{pl} & \text{1 inc} & \text{da} & \text{dae} & \text{do} & \text{dao} \\
\text{1 ex} & \text{ta} & \text{tae} & \text{tao} & \\
\text{2} & \text{o} & \text{omo} & \text{ome} & \text{omo} \\
\text{2p} & \text{to} & \text{tao} & \text{te} & \text{tao} \\
\text{3} & \text{do} & \text{dao} & \\
\end{array}
\]

- The irrealis subject markers of the ae-class and the ao-class can be attached to the verb stem directly. However, the a-class irrealis subject markers must be prefixed to the so-called um-form.

---

\(^1\) The phoneme /d/ may be realized as an implosive [d] (e.g., [dahu] ~ [dahu] ‘dog’, [deu] ~ [deu] ‘needle’) Word-initial vowels are optionally preceded by a non-phonemic glottal stop (e.g., [ina] ~ [?ina] ‘mother’, [ure] ~ [?ure] ‘high tide’). A glottal stop may optionally appear between the first and the second vowel in a sequence of three vowels in a sequence of three vowels in complex words (e.g., nokooe [nokoe] ~ [nokoe] ‘it was water’, nokoue [nokoe] ~ [nokoe] ‘it was veins’).
• A verb’s class membership is not predictable. While the verb classes seem to fall into certain syntactic/semantic groupings (i.e., class-a verbs tend to be dynamic intransitive verbs; class-ae verbs tend to be transitive verbs; class-ao verbs tend to be stative intransitive), there are many exceptions.

3. Against a unique irrealis morpheme analysis

Solution 1: Pater 2001
• A unique irrealis morpheme: /um/
• Irrealis allomorphy is determined by general phonological principles in Muna (Pater 2001)
• -um- /C ~ m- V = ONSET >> PREFIX-um
• Nasal substitution = labial dissimilation

3.1 Infixation ≠ Displacement
Pater 2001 argues that the infixation of the morpheme /um/ is motivated by ONSET, a constraint against onsetless syllables. This constraint must dominate the left alignment of -um-.

(8) ONSET >> PREFIX-um

<table>
<thead>
<tr>
<th>Input: um+dadi</th>
<th>ONSET</th>
<th>PREFIX-um</th>
</tr>
</thead>
<tbody>
<tr>
<td>umdadi</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

ONSET also motivates the deletion of the initial vowel of the irrealis morpheme when the root is vowel-initial. In this case, ONSET dominates MAX, a constraint that generally prevents deletion.

(9) ONSET >> MAX

<table>
<thead>
<tr>
<th>Input: um+ala</th>
<th>ONSET</th>
<th>MAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>umala</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

MAX must dominate PREFIX-um in order to prevent the deletion of the entire -um- morpheme to satisfy ONSET.

(10) Input: um+dadi | ONSET | MAX | PREFIX-um |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>umdadi</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>dadi</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
</tbody>
</table>

Problem: Muna allows onsetless syllables in general, both in roots (11) and in affixed forms (7). Ranking MAX below ONSET is therefore problematic since it predicts initial-vowel deletion in unaffixed vowel-initial stems and infixation of vowel-initial prefixes as a strategy to ‘repair’ an output that has an onsetless syllable.

(11) ala ‘take’
era ‘stand up’
uta ‘pick fruit’
omba ‘appear’

Conclusion: There are at least two listed underlying irrealis allomorphs: /-um-/ and /m-/. The choice between them is determined by output constraints (e.g., Kager 1996).2

2 Pater acknowledges that an analysis along this line is ultimately necessary in the final analysis (2001:179 fn.2). He also suggests that relativizing MAX to -um- might be a possible alternative to the listed allomorph selection analysis. While relativizing faithfulness constraint to particular morphemes is not unprecedented in the OT literature (e.g., Alderete 1999), it is ultimately undesirable. Recent research in OT has been to
3.2 Against nasal substitution by labial dissimilation

- Pater 2001 argues that Muna nasal substitution is driven by a ban on the co-occurrence of homorganic labial segments in the output, formulated as a self-conjoined markedness constraint, *PL/LAB².
- The absence of overt irrealis morphology in (4) is analyzed as *PL/LAB² out-ranking MAX.

(12) *PL/LAB² >> MAX

<table>
<thead>
<tr>
<th>Input: um₁+b₂aru</th>
<th>*PL/LAB²</th>
<th>MAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. b₂aru</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>b. b₂um₁aru</td>
<td>!</td>
<td></td>
</tr>
</tbody>
</table>

- Nasal substitution = *PL/LAB² and MAX must outrank UNIFORMITY, a constraint that guarantees the one-to-one correspondence between input and output strings.

(13) *PL/LAB² >> MAX >> UNIFORMITY

<table>
<thead>
<tr>
<th>Input: um₁+p₁ili</th>
<th>*PL/LAB²</th>
<th>MAX</th>
<th>UNIFORM</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. m₁p₁ili</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. p₁ili</td>
<td>!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. p₂um₁ili</td>
<td>!</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- To prevent nasal substitution in the voiced labial-initial forms (4), Pater relies on a constraint called, IDENT[PHARYNGEAL EXPANSION].
- [PHARYNGEAL EXPANSION] is a phonetic feature that distinguishes obstruent voicing from nasal voicing.
- Nasal substitution is prevented in the case of b and bh-initial words in order to maintain the feature [PHAREXP] of the voiced obstruents in the output.

(14) *PL/LAB², IDENT[PHAREXP] >> MAX >> UNIFORM

<table>
<thead>
<tr>
<th>Input: um₁+b₂aru</th>
<th>*PL/LAB²</th>
<th>IDENT[PHAREXP]</th>
<th>MAX</th>
<th>UNIFORM</th>
</tr>
</thead>
<tbody>
<tr>
<td>m₁b₂aru</td>
<td>!</td>
<td>**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>m₁b₂um₁aru</td>
<td>!</td>
<td>**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>m₁₂aru</td>
<td>!</td>
<td>**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.2.1 Problems with *PL/LAB²

- The co-occurrence restriction of two labial segments is empirically dubious. Based on his corpus of 1,100 C₁V.C₂V roots, Van den Berg actually found many instances of roots where C₁ and C₂ are both labial (pg. 28-29) (e.g., meme ‘wet’ (324), fumaa ‘eat’) Even if the labial co-occurrence restriction constraint were a genuine phonotactic requirement in Muna, it must apply within roots, as van den Berg himself stresses; *PL/LAB² does not reflect this fact.
- This labial dissimilation account of nasal substitution is also untenable on empirical ground. *PL/LAB² bans the co-occurrence of two labial segments anywhere in the output, thus ruling out the following attested forms (and all potential reduplicated forms of labial-initial roots!):
Realis Irrealis Gloss

a. limba [im]limba ‘to go out’ (33)
b. omba [m]omba ‘to appear’ (32)
c. sumbele s[um]umbele ‘to slaughter’ (365)
d. sampu s[um]ampu ‘to go down’ (353:27)
e. kaapi k[um]aapi ‘to fetch’ (353:26)
f. sawi s[um]awi ‘to ride’ (353:26)
g. tumbu t[um]umbu ‘to grow’ (345:56)
h. rabu r[um]abu ‘to make’ (345:53)
i. gampi g[um]ampi ‘to move’ (344:47)

There are other morphemes in Muna that contain labials that do not display any dissimilatory effects (cf. Pater 2001:179 fn. 5) e.g., both the causative fo- (16)a and imperative me-/mo- (16)b begin with a labial segment.

pesua ‘enter (intr.)’ ne-fo-pesua ‘enter (tr.)’
futaa ‘laugh’ ne-fo-futaa ‘cause to laugh’
fumaa ‘eat’ ne-fo-fumaa ‘feed’
naando ‘be’ ne-fo-naando ‘organize, set up’
ngkora ‘sit’ ne-fo-ngkora ‘put’
ngkora ‘sit’ me-ngkora ‘sit down!’
buri ‘write’ me-buri ‘write!’
lodo ‘sleep’ mo-lodo ‘sleep!’
bhalo ‘answer’ mo-bhalo

3.2.2 Nasal dissimilation?

Labial dissimilation plays no role in words that begin with a non-labial nasal or prenasalized stop that nonetheless prevent um-infixation.

Nasal dissimilation cannot be motivated since Muna has plenty of nasal prefixes and suffixes that do not display similar behaviors (e.g., the active participle verb form can be marked either by the circumfixes me-X-no (16)a or mo-X-no (16)b or the um-infixed forms plus –no (16)c. The choice depends on the verb class to which the verb belongs).

Conclusions:

The onset- and labial-dissimilation-driven accounts of um-infixation and nasal substitution cannot be maintained on both theoretical and empirical grounds.

The evidence converges toward the conclusion that Muna irrealis allomorphy is at least partially morphologically-governed.

3 For certain dialects within standard Muna, -um- may appear as -im- in roots where the first vowel is i (van den Berg 1989: 33).
4. Against a listed stem selection approach

Solution 2: Nasal substitution = listed stem selection

(19) ‘kill’ ‘choose’ ‘climb, go up’ ‘laugh’

\[
\begin{align*}
\text{mongko} & \quad \text{pon} \quad \text{pili} \quad \text{foni} \quad \text{futaa} \\
\text{mili} & \quad \text{moni} \quad \text{mutaa}
\end{align*}
\]

A morpholexical rule selects the nasal-initial form as the irrealis stem.

4.1 Some evidence for the restricted distribution of irrealis allomorphy

Van den Berg (1989:33-34) points out that the \textit{um}-affixation is compatible with a limited set of prefixes (i.e. the \textit{um}-philic prefixes). Not all of these prefixes are productive.

(20) a. Affix | Meaning | Base | Productive
--- | --- | --- | ---
fe- | locutional causative | V | yes
fo₁- | causative | V | yes
feka- | factitive/adverbial | Vst | yes
foko- | ‘call/shout X’ | N | no
para- | habitual | V | no
ka- | ‘unexpectedly’ (296) | V | yes
ka-RED | ‘rather’ (299-300) | Vst.intr | no

b. Realis | Irrealis | Gloss
--- | --- | ---
no-fo-ada-e | na-[m]o-ada-e | ‘he borrows it’
naka-fo-fono | na-[m]o-fono | ‘3sl.CAUS.full’ (365:20)
fo-lai-lai-no | [m]o-lai-lai-no | ‘CAUS.RED.trust.A-PART’(341:8)
no-ka-baru-baru | na-k[u]m[a-baru-baru | ‘he is naughty’\(^4\)

The majority of the affixes (some homophonous to the ones above) resists \textit{um}-affixation (i.e. the \textit{um}-phobic prefixes!). All of these prefixes are productive.

(21) a. Affix | Meaning | Base | Productive
--- | --- | --- | ---
fo₂- | detransitivizer | V | yes
paka- | ‘when first, when just’ | V | yes
piki- | ‘early, soon’ | V | yes
po- | reciprocal | Vtr | yes
poka-RED | ‘pretend, for fun, a little’ | V, N | yes
ki/-ha | ‘many, all together’ | Vsound | yes
ko- | ‘have/possess’ | N | yes
si- | ‘be one, have the same’ | N | yes
si/-ha | ‘at one time, together’ | V | yes
ti- | accidental/agentless passive | V | yes

b. Realis | Irrealis | Gloss
--- | --- | ---
no-fo₂-pongko | na-fo₂-pongko | ‘he will kill X’
no-ko-do | na-ko-do | ‘he has money’
no-ti-wora | na-ti-wora | ‘it is visible’

\(^4\) This \textit{ka-} is quite possibly fossilized with the reduplication process. As van den Berg points out on p. 299-300, it is no longer transparently what the function of \textit{ka-} is in this construction.
4.2 Problems with an allo-stem listing approach

- missing certain medium-size generalizations (cf. Koenig 1999)
- irrealis allomorphy appears to be productive
  - applies to loanwords (e.g., *fekiri ~ mekiri ‘think’)
  - applies to derived class-a forms.
- Class-ae verbs might become amenable to um-affixation under the phenomenon of definiteness shift (van den Berg 1989:60, 1995).
- Definiteness shift occurs when a transitive ae-verb shifts to class-a because the object is definite.

Some realsis verbs that undergo definiteness shift…

(22) a. **Class-ae** ne-gholi lambu 'she bought a house’ (63)
   3sR-buy house
b. **Class-a** no-gholi-e (*ne-gholi-e) 'she bought it’ (63)
   3sR-buy-it

(23) a. **Class-ae** ne-ala kapulu 'he took a machete’ (63)
   3sR-take machete
b. **Class-a** no-ala (*ne-ala) kapulu-no 'he took his machete’ (63)
   3sR-take machete-his

Some irrealis verbs that undergo definiteness shift…

(24) a. **Class-ae** nae-gholi lambu 'she will buy a house’ (63)
   3sI-buy house
b. **Class-a** na-gh[um]oli-e (*nae-gholi-e) 'she will buy it’ (63)
   3sI-buy-it

(25) a. **Class-ae** mina nae-ala kapulu ‘he didn’t take a machete’ (63)
   not 3sR-take machete
b. **Class-a** mina na-[m]ala kapulu-no ‘he didn’t take his machete’ (63)
   not 3sI-take machete-his

Conclusions:
- Irrealis um-affixation is morphologically restricted; it only applies to certain prefixes and certain stems.
- Irrealis um-affixation is at least partially productive; a purely listed stem selection approach is not viable.

5. Sign-Based Morphology: a combined approach

5.1 A proposal

- The lexicon consists of a list of possible irrealis allomorphs.

<table>
<thead>
<tr>
<th></th>
<th>[nasal] applies to the Fstems</th>
<th>[um, m] applies to the Gstems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Special</strong></td>
<td>Fstem = a stem that begins with either a [nasal] or [labial] consonant.</td>
<td></td>
</tr>
<tr>
<td><strong>General</strong></td>
<td>Gstem = a stem that does not begin with either a [nasal] or [labial] consonant</td>
<td></td>
</tr>
</tbody>
</table>

- Certain types of irrealis allomorphy are determined by output constraints (e.g., Kager 1996).
- Nasal substitution is allomorph-specific and will be handled by a special co-phonology (more below).
5.2 Theoretical assumptions:

- **Sign-Based Morphology** (Orgun 1996, 1998, Inkelas & Orgun 2002) is a declarative, non-derivational theory of the morphology-phonology interface which utilizes the basic tools one finds in any constituent structure-based unificational approach to linguistics (e.g., Construction Grammar: Fillmore & Kay 1996, and HPSG: Pollard & Sag 1987, 1994).
- It assumes that the fundamental objects of linguistic analysis are signs, modeled by feature structures, which are sorted (or typed). The sort indicates what kind of object is being described.
- **Type hierarchy**, a device that is already widely employed in the treatment of other morphological problems (Flickinger 1987, Koenig 1999, Koenig and Jurafsky 1994, Riehemann 1993, 1998, 2001, Orgun 1995, 2002), is generally represented as a lattice with the maximally general type at the top and the specific type at the bottom.
- Type hierarchy captures generalizations across constructions by extracting such generalizations into a supertype (i.e. the notion of subsumption). It provides a natural way to express which features are appropriate to which kinds of items and what range of specifications are possible for the value of a given attribute.
- The type declaration for a given object will include a statement of what features are appropriate for that object. E.g., in Muna, verbs bear the feature MOOD, but nouns do not.
- Type declarations specify the range of values for a given attribute. For example, *irrealis* is a possible value of the attribute MOOD, but *cat* is not (in the type hierarchy, *irrealis* is a subtype of MOOD, while *cat* is not).
- The type declaration of a grammatical construction includes specification of the types of its mother and daughters, and the requirements on the relationship of the mother’s features to the daughters’.
- Muna inflectional classes are handled by assigning each class to a type.
- The mother node of each grammatical construction belongs to a specific type that uniquely identifies that construction.

(27) A partial type hierarchy of the Muna verb stem

```
verb stem
  MOOD
    realis
      marked
        class-a Fstem
        marked irrealis Gstem
      unmarked
        Fstem
    irrealis
      marked irrealis class-a Gstem
      irrealis unmarked class-ae ...

(28) Constraints on two different irrealis stem types
```

```
[marked class - a irrealis Gstem]
  \[ \mu \text{-STRUCTURE} \]
  \[ \text{PHON} \]
  \[ \text{SYNSEM | CAT} \]

[marked class - a irrealis Fstem]
  \[ \mu \text{-STRUCTURE} \]
  \[ \text{PHON} \]
  \[ \text{SYNSEM | CAT} \]
```

- **PHON**
- **DGHTR**
- **Gstem**
- **Fstem**
5.3 Co-phonology $\phi_1$


(29) **ALIGN** $\langle m, L, \text{stem}, L \rangle$ The left edge of the prefix $m$ is aligned with the left edge of the stem.

(i.e. **PREFIX-$m$**)

**ALIGN** $\langle um, L, C_1, R \rangle$ The left edge of the affix $um$ is aligned with the right edge of first consonant (cf. Yu 2003).

- The allomorphs are assumed to be present in the input (Kager 1996).
- Allomorph selection is determined by proper alignment and partially by the ban on complex cluster in Muna, a genuine phonotactic constraint of the language.

\[
\begin{array}{|c|c|c|c|c|}
\hline
\text{ALIGN} & \langle m, L, \text{stem}, L \rangle & \langle um, L, C_1, R \rangle & \text{CONTIGUITY} \\
\hline
\text{a. dumadi} & \star & \star & \\
\text{b. umdadi} & \star & \star & \\
\text{c. dmadi} & \star & \star & \\
\text{d. mdadi} & \star & & \\
\hline
\end{array}
\]

5.4 Co-phonology $\phi_2$

(32) **ANCHOR-[nasal]-LEFT** The featural morpheme [nasal] must coincide with the left edge of the stem.

**IDENT[PHAREXP]** Input and output must have the same [PHAREXP] specification.

(33) Nasal substitution as featural affixation

\[
\begin{array}{|c|c|c|c|c|}
\hline
\text{ANCHOR-[nasal]} & \text{IDENT[PHAREXP]} & \text{EXPONENT} & \text{MORPHDIS} \\
\hline
\text{a. m}_{12}\text{ili} & \star & & \\
\text{c. p}_{3}\text{ili} & \star & & \\
\hline
\end{array}
\]

(34) Null affixation in $b$ and $bh$-initial forms as the maintenance of [PHAREXP] identity.

\[
\begin{array}{|c|c|c|c|c|}
\hline
\text{ANCHOR-[nasal]} & \text{IDENT[PHAREXP]} & \text{EXPONENT} & \text{MORPHDIS} \\
\hline
\text{a. b}_{2}\text{aru} & \star & & \\
\text{c. m}_{12}\text{aru} & \star & & \\
\hline
\end{array}
\]

(35) Null affixation in prenasalized and nasal-initial forms as nasal absorption.

\[
\begin{array}{|c|c|c|c|c|}
\hline
\text{ANCHOR-[nasal]} & \text{IDENT[PHAREXP]} & \text{EXPONENT} & \text{MORPHDIS} \\
\hline
\text{a. n}_{d1}\text{iwawa} & \star & & \\
\text{b. n}_{2}\text{iwawa} & \star & & \\
\text{[nasal]}+n_{2}\text{ale} & \star & & \\
\text{a. n}_{12}\text{ale} & \star & & \\
\text{b. n}_{2}\text{ale} & \star & & \\
\hline
\end{array}
\]
6. Conclusions

- When the phonological conditioning factors that originally determine affix allomorphy becomes so opaque that a strictly phonological analysis is no longer feasible, one must appeal to the morphological component to handle partially, if not totally, the proper allomorph selection.

- A theory of morpho-phonological interface must be able to capture the type of intermediate generalizations, such as those found in Muna.

- A more enriched model of the morpho-phonological interface such as Sign-Based Morphology offers a more insightful analysis.

References


