Minimality, Movement, and Existential Match in Mandar

Dan; Research Symposium; 5/7
The Central Question

▷ What gives rise to prosodic words?

○ Syntactic diacritics: Svenonius 2016

○ Content Alignment: McCarthy & Prince 1993a,b
  “The left edge of an $X^0 \rightarrow$ the left edge of a $\omega$.”

○ Content Matching: Selkirk 2009, 2011
  “Both edges of an $X^0 \rightarrow$ the edges of a $\omega$”
Existential Correspondence

▶ My Proposal: Existential Match:
  ○ “Lexical $X^0$s must correspond to $\omega$s.”

▶ Comparandum: Content-Sensitive Match($X^0_{LEX \omega}$)
  ○ “The exponents of Lexical $X^0$s must be left/right-aligned with the left/right edges of $\omega$s.”
Word-Level Mismatch in Mandar

- **Mandar** imposes prosodic constraints on the $\omega$, and it resolves them with syntax-prosody mismatch.
  - There are second-position clitics that attach to the $\varphi$,
  - ... but they get parsed into $\omega$s with certain $X^0$s

- **Prosodic Lowering:**
  
  \[
  \text{LEX} \quad \varphi \quad \sigma_{\text{FNC}} \\
  \downarrow \\
  [\omega \text{LEX} \sigma_{\text{FNC}} ] \quad \varphi
  \]

- ✅ Existential Match; 🍬 Content-Sensitive Alternative
Payoff: Deriving Ordering Effects

▷ Mandar has second-position clitics that show an ordering effect: $\sigma\sigma > \sigma$

(1) loppa’ sannal dua memang to i
hot very still indeed also agr

▷ Proposal: the ordering effect follows from a requirement for Existential Match.
Roadmap

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1. Word and Phrase in Mandarin

Minimality and Epenthesis
Mandar

- South Sulawesi, Austronesian
- 400,000 Speakers; Indonesia

Sources of Data:
- Descriptive work
- Elicitation, 2018-
The Topic

▷ Prosodic Hierarchy Theory: (Selkirk 1984...) Phonological strings have constituent structure.

\[ \text{Intonational phrase} > \text{phonological phrase} > \text{prosodic word} > \text{foot} > \text{syllable} \]

▷ Some structure: built by phonology \( \sigma \)

▷ Other structure: built at the interface \( \omega \)
The Prosodic Word

- The word: penultimate stress.
- This pattern: disyllabic trochee

\[
[\omega \ldots (\sigma\sigma)]
\]

(2) Bémme mi hapému sun di pokétmu
fell agr your phone out of your pocket
`Your phone fell out of your pocket.'
The Minimality Effect

▷ Prosodic Constraint: \([\omega \sigma]\)
  ○ Headedness: the \(\omega\) must contain a foot
  ○ Foot Binarity: the foot must contain two syllables

▷ Loanword Phonology: ʔV-Epenthesis
  ○ Malay: lem rem bom cap bang
  ○ Mandar: le’eng re’eng bo’ong ca’a ba’ang glue brake bomb brand azan
2. Prosodic Lowering

Functional Clitics and Minimality Resolution
The Functional Clitics

▷ Two sets of second-position clitics:
  ○ agreement:  \(a', o, i\)
  ○ aspect:  \(mo, pa, da\)  “now, yet, just”

▷ Prosodic Parse:  outside of the \(\phi\).

\[
(3) \quad (\phi [\omega \text{boyán-na}]) \quad i \quad (\phi [\omega \text{íticing}][\omega \text{táu}])
\]

“it’s that guy’s house”
The Right Edge of $\varphi$

- Functional clitics surface before vowel sequences:

(4) $\left( \varphi \left[ \omega \text{ massáu } \right] \right) i$

recover agr

`he recovered’

- Comparison: vowel sequences eliminated $\varphi$-medially

(5) $\left( \varphi \left[ \omega \text{ pura } \right] \right) i \left( \varphi \left[ \omega \text{ (másso) } \right] \left[ \omega \text{ amongenna } \right] \right)$

already agr recover his disease

`He already recovered from his disease’
Monosyllables: ʔV-Epenthesis at  \( \phi \)

- “Functional” monosyllables: ok  \( \phi \)-medially...
- But: ʔV-Epenthesis at  \( )\phi \)

\[
\begin{align*}
\text{páte=i} & \quad \text{lagúmmu!} \\
\text{turn off} & \quad \text{the music!}
\end{align*}
\]

(6) ( \( \phi \) nauláccar  ) i ( sung hapému )
    I’ll throw agr out your phone

(7) ( \( \phi \) nauláccar  ) i ( sú’ung )
    I’ll throw agr out that phone
Prosodic Lowering

- When ``functional” monosyllabic $X^0$s are initial:
  - They precede functional clitics
  - They form $\omega$s, but don’t show $?V$-Epenthesis.

(8) Súng-i di boyang
    out-agr of house
    ‘He came out of the house’

(9) $[\omega \sigma \sigma_{FNC} ]_\varphi$
3. Existential Match

Correspondence and Autonomous Alignment
From Syntax to Prosody

▶ Syntactic $X^0$s are subject to this constraint:

**Max($X^0$):** a lexical $X^0$ must correspond to a $\omega$.

▶ Formally:
  ○ AOV for every $X^0$ at the base of an extended projection in an input syntactic representation $S$ that does not correspond to a $\omega$ in an output prosodic representation $P$. 
Prosodic $\omega$s are subject to these:

**Align-L($\omega$, $X^0$):** the left edge of a $\omega$ must be aligned with the left edge of the exponent of the corresponding $X^0$

**Align-R($\omega$, $X^0$):** the right edge of a $\omega$ must be aligned with the right edge of the exponent of the corresponding $X^0$
Prosodic Well-Formedness

Four phonological constraints:

**Headedness(ω):** the ω must contain a foot

**Foot Binarity:** the foot must contain two syllables

**DEP(segment):** do not epenthesize segments

**DEP(place):** do not epenthesize place features
Existential Match: Analysis

- Ranking: $\text{Dep(Segment)} > \text{Align-R}(\omega,X^0)$

<table>
<thead>
<tr>
<th>sung $i$</th>
<th>Max($X^0$)</th>
<th>Headedness($\omega$)</th>
<th>Foot.Binarity</th>
<th>DEP(SEG)</th>
<th>Align-R($\omega,X^0$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$[\omega \ (\text{sung}i)]$</td>
<td>*</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>$[\omega \ (\text{su’ung}) \ i]$</td>
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<td><em>!</em></td>
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<tr>
<td>$[\omega \ (\text{sung}) \ i]$</td>
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<td>*!</td>
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<tr>
<td>$[\omega \ \text{sung} \ i]$</td>
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<td>*!</td>
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<tr>
<td>sung $i$</td>
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<td>*!</td>
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</tbody>
</table>
Alternative: Content-Sensitive Match

▷ A problem for Selkirk’s (2009, 2011) theory:

**Content-Sensitive Match**($X^0$): AOV for every lexical $X^0$ whose exponent does not have its left and right edges aligned with those of a corresponding $\omega$. 

\[
\left[ \omega \sigma_{LEX} \sigma_{FNC} \right]
\]
Alternative: No Misalignment

- The problem:
  - V-Epenthesis satisfies Content-Sensitive Match
  - Prosodic Lowering does not.

<table>
<thead>
<tr>
<th>sung i</th>
<th>Match($X^0, \omega$)</th>
<th>Headedness($\omega$)</th>
<th>Foot.Binarity</th>
<th>DEP(SEG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[₁⁺(sungi)]</td>
<td>*!</td>
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</tbody>
</table>
Second Argument: Hiatus Resolution

- **Solution?** “Content-Sensitive Match is inactive.”
  - Ranking: $\text{DEP(segment)} > \text{Match}(X^0)$
  - Result: “better to just give up if you need epenthesis.”

- **No.** Lowering is not just a trick to resolve minimality.
Prosodic Lowering and Hiatus

- Vowel sequences of rising sonority:
  - Word-final: \((V.V)\)
    (10) \((\text{di.ang})\) \((\text{saba})\)
    there’s an issue
  - Before functional clitics: \((GV.\sigma_{\text{FNC}})\)
    (11) \((\text{dyam.mo})\) \((\text{saba})\)
    there’s-now an issue
Prosodic Lowering and Hiatus

Vowel sequences of falling sonority:

○ Word-final: (V.V)

(12) Inna mukiringi (la.o) where’d you send it to?

○ Before functional clitics: (VG.σ_{FNC})

(13) (law.mo) (Jogja) to-now Jogjakarta
Analysis: Existential Match

- Ranking:  *Hiatus > Align-R(ω,X^0*)

<table>
<thead>
<tr>
<th>diang mo</th>
<th>Max(X^0)</th>
<th>Headedness(ω)</th>
<th>Foot.Binarity</th>
<th>*Hiatus</th>
<th>Align-R(ω,X^0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ω (dyam.mo)]</td>
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<td>*</td>
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<tr>
<td>[ω (di.am)] mo</td>
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<td><em>!</em></td>
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<tr>
<td>[ω (dyam)] mo</td>
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<td>*!</td>
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<tr>
<td>[ω dyam] mo</td>
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<td></td>
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<td>*!</td>
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</tbody>
</table>
4. Clitic Linearization

Weight-based Ordering and Existential Match
The Second-Position System

- Second-position clitics: surface in the first $\varphi$
- Surface order > Syntactic Height

(14) Matindo bega dua memang i
sleeps too much still indeed agr
`He indeed still sleeps too much!'
The Templatic Effect

- Phonological generalization: $\sigma\sigma > \sigma$

(15) Matindo memang bo i
sleep indeed again agr
`He’s indeed asleep again!’

(16) *Matindo bo memang i
sleep again indeed agr
`He’s indeed asleep again!’
### Ordering Summary

#### Phonological generalization:

\[ \sigma\sigma > \sigma \]

#### Second-Position Clitic Order

<table>
<thead>
<tr>
<th>VP-level</th>
<th>TP-Level</th>
<th>CP-Level</th>
<th>Monosyllabic</th>
</tr>
</thead>
<tbody>
<tr>
<td>sannal</td>
<td>very</td>
<td>dua</td>
<td>memang</td>
</tr>
<tr>
<td>tongang</td>
<td>really</td>
<td>le’ba’</td>
<td>precisely</td>
</tr>
<tr>
<td>bega</td>
<td>too much</td>
<td>bappa</td>
<td>i hope</td>
</tr>
</tbody>
</table>
Templatic Analysis?

▷ Similar patterns exist across the Philippines
▷ Billings & Kaufman 2004: Templatic Constraint

\( \sigma \sigma > \sigma \): \( \sigma \sigma \) clitics must precede \( \sigma \) clitics

<table>
<thead>
<tr>
<th></th>
<th>( \sigma \sigma &gt; \sigma )</th>
<th>Linearity</th>
</tr>
</thead>
<tbody>
<tr>
<td>... bo memang</td>
<td></td>
<td></td>
</tr>
<tr>
<td>memang bo</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>bo memang</td>
<td>*!</td>
<td></td>
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</tbody>
</table>
Mapping to Words

- Monosyllables alone:
  - Bear stress; show epenthesis

(17) Loppa’ tó’o!
hot also
`Hot too!’

Proposal: \([\omega \sigma \nu] \phi\)
Mapping to Words

▷ Before functional clitics:
  ○ Stress, but no epenthesis.

(18) Loppa’ tó-i!
  hot also-agr
  ‘It’s hot too!’

▷ Proposal: $\left[ \omega \sigma \sigma_{\text{FNC}} \right]_\phi$
Existential Match $\rightarrow$ Linearity

- **Linearity:** higher clitics follow lower ones.
- **Ranking:** \( \text{Max}(X^0) > \text{Linearity} \)

<table>
<thead>
<tr>
<th>... bo memang i</th>
<th>Max((X^0))</th>
<th>Headedness</th>
<th>FtBin</th>
<th>DEP</th>
<th>Linearity</th>
<th>Align-R((\omega,X^0))</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \omega ) (memang) ( \omega ) (bo.i)</td>
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<td>( \omega ) (bo) ( \omega ) (memang)</td>
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<td>( \omega ) bo ( \omega ) (memang)</td>
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<td>bo ( \omega ) (memang)</td>
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<td>*!</td>
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</table>
Conclusion
Misalignment: Summary

▷ Prosodic constraints force functional clitics to be parsed into $\omega$s with unrelated syntactic $X^0$s.

▷ This violates content-sensitive Match constraints.
▷ I’ve proposed that it satisfies Existential Match,

▷ And this allows us to explain cases where the phonology places $X0$s near these functional clitics.
The Bigger Picture

- The result is a theory that separates the need for correspondence from requirements of alignment.

- There’s reason to do so:
  - Edge asymmetries suggest the need for content sensitive align constraints; redundant with content sensitive Match.
  - Itô & Mester 2019: Correspondence is enforced when alignment is impossible at the Φ-level (*he’s taller than i’m)
Thank you!

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