Feet in Sri Lanka Malay – No stress please

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Sri Lankan Malay prosody:

1. **There is no word stress in SLM**

2. **Words are parsed into bimoraic feet**

Evidence from pre-final syllable lengthening (and gemination) processes
Sri Lankan Malay (SLM) is the language of the ethnic group of the Malays in Sri Lanka.

It is an off-shoot of Trade Malay (Austronesian) with heavy morphosyntactic influence from the adstrates Sinhala (Indo-Aryan) and Tamil (Dravidian).

The morphosyntactic markup has changed dramatically in the last 300 years, the phonology less so (Adelaar 1991, Smith & Paauw 2007, Slomanson 2007, Ansaldo 2008).
The Malays arrived between the 17th and the 19th centuries mainly as soldiers and exiles and had close ties to the colonial administration (Hussainmiya 1990).

Today they live mostly in towns in the Southern upcountry.

They are all multilingual.

0.3% of the population, 40,000 speakers, decreasing (Bichsel-Stettler 1989).

documented by the DobeS project.
Background

- retention of the historic vowel system a,e,i,o,u plus marginal schwa
- development of retroflexes and prenasalized stops under adstrate influence (Tapovanaye 1995)
- change of word order from SVO to SOV
- heavy increase of nominal and verbal morphology under adstrate influence (Smith & Paauw 2004, Slomanson 2007, Ansaldo 2008)
Vowel chart

i   u

 e  (ə)  o

a
Syllable structure

- complex onset
- no diphtongs
- simple coda
- initial extrasyllabic s-
  - (S)C(C)V(ː)(C)
- example *sbraːnak* ‘having been born’
- long vowels, but not phonemic
Common word structures

1. CVC.CV(C) ṭaksir ‘think’
2. CV::CV(C) ṭi:ga ‘three’
3. CV.CV.CV(C) kuṭumun ‘see’
4. C vow, CV::CV(C) cəca:wak ‘wash’
Moraic structure

<table>
<thead>
<tr>
<th>F</th>
<th>σ</th>
<th>&lt;σ&gt;</th>
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<tbody>
<tr>
<td>C</td>
<td>VC</td>
<td>C</td>
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<tr>
<td>t ak s i r</td>
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<tr>
<td>C</td>
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<td>C</td>
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<td>t i g a</td>
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Moraic structure

- trisyllables with schwa often drop the schwa \( s(\text{ə})pa:\tilde{\text{u}} \) ‘shoe’, or even the whole first syllable \( k(\text{ə})pa:la \) ‘head’.
Compounds

- ka:ca ‘mirror’
- ma:ţa ‘eye’
- kacama:ţa ‘spectacles’
- maţaka:ca ‘spectacles’
- → in compounds, the long vowels of non-final roots disappears
- ma:kan ‘eat’
- makanan ‘food’
- → affixation makes the long vowel disappear as well (Tapovanaye 1996)
- Vowel length is not lexically determined
Compounds

(F)
\[
\begin{array}{c}
\sigma \\
\mu \\
CV
\end{array}
\hspace{1cm}
\begin{array}{c}
\sigma \\
\mu \\
CV
\end{array}
\cdot
\begin{array}{c}
\sigma \\
\mu \\
C
\end{array}
\cdot
\begin{array}{c}
\sigma \\
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V
\end{array}
\cdot
\begin{array}{c}
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\mu \\
V
\end{array}
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\begin{array}{c}
\sigma \\
\mu \\
V
\end{array}

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V
\end{array}
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\begin{array}{c}
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\mu \\
V
\end{array}
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ma
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k\quad a\quad c\quad a
Affixation

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<tr>
<th>F</th>
<th>σ</th>
<th>&lt;σ&gt;</th>
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<tbody>
<tr>
<td>C</td>
<td>V</td>
<td>C</td>
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<tr>
<td>m</td>
<td>a</td>
<td>k</td>
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</tbody>
</table>

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<tr>
<th>F</th>
<th>σ</th>
<th>σ</th>
<th>&lt;σ&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>CV</td>
<td>CV</td>
<td>C</td>
<td>V</td>
</tr>
<tr>
<td>ma</td>
<td>ka</td>
<td>n</td>
<td>a</td>
</tr>
</tbody>
</table>
Summary

- Vowel length is not lexically determined, rather
  the penultimate is lengthened by $> 50\%$ when
    - it is open
    - it is in a disyllable
    - it is in a trisyllable with initial schwa
- The final consonant of the penultimate is geminated when
  - the penultimate nucleus is schwa
  - $p\text{ərənəj}$ ‘war’
The role of stress

- stress-to-length is a well-known pattern in the world’s languages
- Italian (D’Imperio & Rosenthall 1999), Norwegian (Rice 2006)
- is this the case in SLM?
- phonetic cues for stress in the world’s languages:
  - intensity
  - pitch
  - vowel quality
  - duration
  - duration in this case explanandum, not explanans
Stress cues in SLM?

- 49 words of varying syllable structures were tested in 6 different environments
- plain citation, embedded citation, topic, broad focus, narrow focus, question
Stress cues in SLM?

- phrasal pattern:
- initial and final syllables have higher intensity
- pitch drop to final boundary
Stress cues in SLM?

- word level:
  - no systematic difference in intensity between penultimates and other syllables
  - no systematic difference in $f_0$ between penultimates and other syllables
Different contexts

- the following images show the word *thaandak* ‘dance’ in four different contexts
- all of them have a long penultimate vowel, but none of them have intensity or pitch cues for stress
Different contexts

embedded citation

old information

broad focus

narrow focus
penultimate and antepenultimate have equal $f_0$ and amplitude

final syllable has pitch drop and higher amplitude because of end of utterance
Conclusion: no stress cues

- Neither pitch nor intensity differentiate penultimates from other syllables
- No independent cues for lengthening
- Sri Lankan Malay feet are stressless
- Sri Lankan Malay feet are headless (cf. Halle & Vergnaud 1987ab; Crowhurst 1991; Halle & I dsardi 1992; Hagberg 2006)
OT analysis

- **NONF**: Final syllables are not parsed into a foot.
- **FTBIM**: Feet are minimally and maximally bimoraic.
- **PARSE**: Syllables are parsed into feet.

<table>
<thead>
<tr>
<th>tiga</th>
<th>NONF</th>
<th>FtBIM</th>
<th>PARSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>(tiₜ,gaₜ)</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(tiₜ',gaₜ)</td>
<td>*(!)</td>
<td>*(!)</td>
<td></td>
</tr>
<tr>
<td>(tiₜ).&lt;gaₜ&gt;</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>(tiₜ').&lt;gaₜ&gt;</td>
<td></td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>
**WBP**: Coda consonants are moraic.

<table>
<thead>
<tr>
<th></th>
<th>NONF</th>
<th>FtBIM</th>
<th>PARSE</th>
<th>WBP</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>taksir</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(taₘ.k.siᵢᵣ)</td>
<td>*!</td>
<td></td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>(taₘ.k)&lt;siᵢᵣ&gt;</td>
<td></td>
<td>*!</td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>(taₘ.kᵢᵣ)</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>(taₘₐₘ.kₐₘ)&lt;siᵢᵣ&gt;</td>
<td></td>
<td></td>
<td>*</td>
<td>**!</td>
</tr>
<tr>
<td>(taₘₐₘ.kₐₘₐₘ)&lt;siᵢᵣ&gt;</td>
<td></td>
<td></td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>
## OT analysis

<table>
<thead>
<tr>
<th>Tweet</th>
<th>NONF</th>
<th>FTBIM</th>
<th>PARSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>κυτυμαμ</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>(ku_μ, tu_μ),&lt;mu_μη&gt;</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>κυ_μ.(tu_μ::μ),&lt;mu_μη&gt;</td>
<td></td>
<td>**!</td>
<td></td>
</tr>
<tr>
<td>(ku_μ::μ),(tu_μ,mu_μη)</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ku_μ::μ, tu_μ),&lt;mu_μη&gt;</td>
<td>*!</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>κυ_μ.(tu_μ),&lt;mu_μη&gt;</td>
<td>*!</td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>(ku_μ, tu_μ::μ),&lt;mu_μη&gt;</td>
<td>*!</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>
OT analysis

- **TROCH**: Feet are left-headed.
- **IAMB**: Feet are right-headed.

<table>
<thead>
<tr>
<th></th>
<th>PARSE</th>
<th>TROCH</th>
<th>IAMB</th>
</tr>
</thead>
<tbody>
<tr>
<td>ku₃umunŋ</td>
<td>*</td>
<td><em>(!)</em></td>
<td><em>(!)</em></td>
</tr>
<tr>
<td>(ku₃.tu₃).&lt;mu₃.n&gt;</td>
<td>*</td>
<td><em>(!)</em></td>
<td><em>(!)</em></td>
</tr>
<tr>
<td>kú₃.tu₃).&lt;mu₃.n&gt;</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>ku₃.tú₃).&lt;mu₃.n&gt;</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>
*PROHD: Don’t project an edge. (counterpart to Head Location Parameter, Halle & Idsardi, 1992).

\[
\begin{array}{|c|c|c|c|}
\hline
    \text{kutumun\textsubscript{\textmu}} & \text{*PROHD} & \text{PARSE} & \text{TROCH} & \text{IAMB} \\
\hline
    (ku\textsubscript{\textmu},tu\textsubscript{\textmu}).<mu\textsubscript{\texteta}> & \text{*} & \text{*} & \text{*} & \text{*} \\
\hline
    (ku\textsubscript{\textmu},tu\textsubscript{\textmu}).<mu\textsubscript{\texteta}> & \text{!*} & \text{*} & \text{*} \\
\hline
    (ku\textsubscript{\textmu},tu\textsubscript{\textmu}).<mu\textsubscript{\texteta}> & \text{!*} & \text{*} & \text{*} \\
\hline
\end{array}
\]
**NON-FOOT(ə):** Schwa-headed syllables have no metrical projection.

<table>
<thead>
<tr>
<th>Word</th>
<th>NON-FOOT(ə)</th>
<th>NONF</th>
<th>FtBim</th>
<th>PARSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>cəcawak</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cə.(ca_μ.wa_μ.k)</td>
<td>*!</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>ə cə.(ca_μ.i.).&lt;wa_μ.k&gt;</td>
<td></td>
<td></td>
<td></td>
<td>**!</td>
</tr>
<tr>
<td>(cə_μ.ca_μ.).&lt;wa_μ.k&gt;</td>
<td>*!</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>cə.(ca_μ).&lt;wa_μ.k&gt;</td>
<td></td>
<td>*!</td>
<td></td>
<td>**</td>
</tr>
</tbody>
</table>
**OT analysis**

- **NONF, FTBIM >> NON-FOOT(ə)**

<table>
<thead>
<tr>
<th>Word</th>
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<th>FTBIM</th>
<th>NON-FOOT(ə)</th>
<th>PARSE</th>
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</thead>
<tbody>
<tr>
<td>pəɾə̝n</td>
<td>*!</td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>(pəɻ.rə̝ )&lt;ɾə̝ n&gt;</td>
<td>*!</td>
<td></td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>(pəɻ ).&lt;ɾə̝ n&gt;</td>
<td>*!</td>
<td></td>
<td>*</td>
<td>*</td>
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<tr>
<td>(pəɻ ).&lt;ɾə̝ n&gt;</td>
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<tr>
<td>(pəɻμ).&lt;ɾə̝ n&gt;</td>
<td>*!</td>
<td></td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>
Conclusion

1. Vowel length in SLM is determined by a bimoraic foot requirement
2. Neither intensity nor pitch are predictors of vowel length
   i.e. there is no stress-to-weight effect in SLM
3. This means that SLM has a moraic structure without having stress
4. → Stress is no requirement for foot structure
5. SLM: morphological rather than metrical feet?
Disyllables with coda in penultimate

- CVC.CV(C)
- ṭaksir ‘think’: both vowels are of about the same length
Disyllables with schwa in penultimate

- \textit{pərraŋ} ‘war’: the intevocalic consonant is geminated
Disyllables without coda in penultimate

- \textipa{ti:ga} ‘three’: the vowel in the penultimate is about 50% longer than the vowel in the ultimate
Trisyllables

- *kutumung* ‘see’: all vowels are of about equal length
Trisyllables with initial schwa

- \(\textit{c\text{a}:wak}\) ‘wash’: the vowel in the penultimate is longer than the other two vowels.


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