Acoustic transitions in Khmer word-initial clusters

James Kirby
Linguistics and English Language, University of Edinburgh, Scotland, UK

Phonological status of interconsonantal acoustic transitions (3) known to differ across languages [3, 7, 9, 10]

Khmer (Cambodian) has an inventory of 70+ CC onset clusters

<table>
<thead>
<tr>
<th>C1</th>
<th>p</th>
<th>t</th>
<th>j</th>
<th>k</th>
<th>p′</th>
<th>t′</th>
<th>j′</th>
<th>k′</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2</td>
<td>pt</td>
<td>pj</td>
<td>tk</td>
<td>tk′</td>
<td>pt′</td>
<td>j′t</td>
<td>j′k</td>
<td>tk′</td>
</tr>
<tr>
<td>t</td>
<td>tk</td>
<td>tk′</td>
<td>j′k</td>
<td>j′tk</td>
<td>t′k</td>
<td>j′tk′</td>
<td>j′tk′</td>
<td>tk′</td>
</tr>
</tbody>
</table>

Huffman [6]: clusters can be organised into three classes based on the type of acoustic transition that separates them

Class 1: no transition /psaa/ > [psaa]
Class 2: voiceless transition /pteha/ > [pʰteaha]
Class 3: voiced transition /pdaa/ > [pʰdaa]

Results: Frequency of transition

<table>
<thead>
<tr>
<th>Condition</th>
<th>Slow</th>
<th>Fast</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>0.70</td>
<td>0.50</td>
</tr>
<tr>
<td>t</td>
<td>0.20</td>
<td>0.10</td>
</tr>
<tr>
<td>j</td>
<td>0.10</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Speech rate effects on vowel intrusion

- While increase in the relative overlap of extant articulatory gestures at fast speech rates may be a hallmark of intrusion [2, 5],...

- ... if relative timing is maintained but spatial displacement adjusted, two Cs may have an audible transition regardless of the speed of articulation [2, 4]

Although disappearance of 3 in fast speech may be a good indicator of excrescence, converse is not necessarily true [4, 5]

Summary

- Both context and speech rate have variable effects on the appearance of acoustic transitions in Khmer

- Single voiced C can license 3, but likelihood varies with class; for some cluster types, 3 more common in faster speech

- Current acoustic data cannot rule out a gestural target associated with acoustic transitions in this language

References


