Articulation and Neutralization: Inherent and Derived Palatals in Korean

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The Issue

Lexical Palatalization

Alveolar stops (/t, ð/) become palatalized before a high front vowel [i] or a palatal glide [j], across a morphone boundary.

<table>
<thead>
<tr>
<th>Word</th>
<th>Effect</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>/mat+i/ 'the eldest'</td>
<td>/i/ → [i]</td>
<td>inherent palatal</td>
</tr>
<tr>
<td>/kat+i/ 'together'</td>
<td>/t̚/ → [t̚]</td>
<td>derived palatal</td>
</tr>
<tr>
<td>/pat+i/ 'field + NOM'</td>
<td>/t̚/ → [t̚]</td>
<td>derived palatal</td>
</tr>
</tbody>
</table>

Neutralization

Lexical palatalization in Korean creates a sound merger in which the resulting sounds from the palatalization process are perceptually the same as the underlying palatals, in spite of orthographic differences.

<table>
<thead>
<tr>
<th>Word</th>
<th>Orthography</th>
<th>Effect</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>/pa+i/ 'pants'</td>
<td>[pA]</td>
<td>/i/ → [i]</td>
<td>inherent palatal</td>
</tr>
<tr>
<td>/mat+i/ 'the eldest'</td>
<td>[m]</td>
<td>/i/ → [i]</td>
<td>derived palatal</td>
</tr>
<tr>
<td>/kat+i/ 'value'</td>
<td>[kA]</td>
<td>/t̚/ → [t̚]</td>
<td>inherent palatal</td>
</tr>
<tr>
<td>/pat+i/ 'together'</td>
<td>[p]</td>
<td>/t̚/ → [t̚]</td>
<td>derived palatal</td>
</tr>
</tbody>
</table>

Questions

- Do perceptually neutralized palatals have neutralized articulation?
- If not, how are two types of palatals different in production?

Methods

Participants

12 native speakers of Korean recruited in Tucson, AZ (M1 excluded from analysis due to poor quality of images); 6 males & 6 females; age ranges from 25 to 37; lived in the U.S for 2 months to 10 years; use Korean on a daily basis and speak English as their L2

Stimuli

16 words × 3 repetitions across target consonants and conditions; presented in Korean orthography

Data Collection & Analysis

Ultrasound imaging; image frames of gestural peaks (1 frame just before stop release); SSANOVA used for statistical test (Gu (2002); Davidson (2006))

Results

Result 1: Inherent (red) vs. Derived (blue) [t]
(F = female; M = male; * = significant differences)

Result 2: Inherent (red) vs. Derived (blue) [t̚]

Discussion

Summary of the Results (* = significant differences)

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inherent vs. derived [t] (8/11 different (73%))</td>
<td>*</td>
</tr>
<tr>
<td>Inherent vs. derived [t̚] (4/11 different (36%))</td>
<td>*</td>
</tr>
</tbody>
</table>

- Inherent and derived palatals are not articulatorily neutralizing. Whether this is solely due to orthographic difference (Warner et al. (2004, 2006)) needs to be further examined.
- Some consistent patterns across speakers are observed:
  - Derived [t] made with a fronter, higher tongue contour than its inherent counterpart [Fig. 1].
  - Derived [t̚] made with a backer tongue contour than its inherent counterpart [Fig. 2].
- Aspirated palatals (i.e., inherent vs. derived [t̚]) result in more frequent neutralization. The role of aspiration in articulatory neutralization merits further investigation.
- Age, gender, and dialectal background do not seem to play a role in the patterns.

Conclusions

- Inherent and derived palatals in Korean exhibit another case of limited neutralization, indicating individual differences and potential sound changes in progress (Dinnsen and Charles-Luce (1984); Dinnsen (1985)).
- The findings need to be further tested with a larger population and greater dialectal variation, coupled with acoustic and perceptual data.

Acknowledgements

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Selected References


