Following L over hill and dale: Changes in L-vocalization through, space, time, and methods

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Research focus

- Transmission vs. diffusion
- Transferred from Philadelphia or homegrown in WV?
- Assessing constraints on L variation
  - Transmission = consistent constraints within the region
  - Diffusion = weakening of constraints between regions for younger speakers {?????}
Light and Dark L

Johnson & Britain (2007:302): “Whilst the primary (consonantal) place for this sound is coronal, it has a secondary (vocalic) place which is dorsal. The difference between the clear and dark /l/ rests in the relationship between the two gestures. Dark /l/ is traditionally described as ‘velarised’ (see for example Ladefoged (2001), implying that clear /l/ has no dorsal gesture.”
Light and Dark L

Johnson & Britain (2007:302) Phonetic studies: “In the case of the clear /l/ the coronal gesture generally precedes the dorsal one, making the latter somewhat weaker. On the other hand, in the case of dark /l/, the order of the gestures is reversed, the dorsal one preceding the coronal (leaving a margin for error in the coronal).”
L-Vocalization

* L-vocalization is the phonetic process where the apical gesture of a dark L does not occlude airflow to create a more vocalic sound.

* This more vocalic sound may range from a semi-vowel to a full vowel.

* Hardcastle & Barry (1989:15): “. . . the vocalisation process should not be seen simply as the suppression of the apical gesture under certain conditions but, speaking figuratively, as a reduction in the intensity of the apical command.”
Previous research


<table>
<thead>
<tr>
<th>/l/ before</th>
<th>vocalised</th>
</tr>
</thead>
<tbody>
<tr>
<td>velar</td>
<td>16 (67)</td>
</tr>
<tr>
<td>palato-alv*</td>
<td>20 (41)</td>
</tr>
<tr>
<td>alveolar</td>
<td>12 (16)</td>
</tr>
</tbody>
</table>
Points of comparison

![Graph showing syllabic /l/ vocalisation and the effect of preceding consonant.](image)

Fig. 5. Syllabic /l/, vocalisation and the effect of preceding consonant.
## Diffusion or Transmission?

<table>
<thead>
<tr>
<th>More Vocalization</th>
<th>Philadelphia</th>
<th>Older WV</th>
<th>Younger WV</th>
</tr>
</thead>
<tbody>
<tr>
<td>before velars</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>before labials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>before coronals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>before vowels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>after low vowels</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The geographical region

[Map showing different regions marked by colors: Group 2, Group 3, Group 4]
The set of speakers

Social divisions for the West Virginia Corpus of English in Appalachia (WVCEA)

<table>
<thead>
<tr>
<th>Group</th>
<th>Subgroup</th>
<th>Number of People</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Group 2: 1919–1947</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Group 3: 1950–1979</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Group 4: 1980–1989</td>
<td>21</td>
</tr>
<tr>
<td>Sex</td>
<td>F</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>35</td>
</tr>
<tr>
<td>Region</td>
<td>North</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>South</td>
<td>34</td>
</tr>
<tr>
<td>College experience</td>
<td>College (some)</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>No college</td>
<td>23</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>African American</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>European American</td>
<td>61</td>
</tr>
<tr>
<td>Social class</td>
<td>Working</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Lower middle</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Upper middle</td>
<td>19</td>
</tr>
</tbody>
</table>
Older Speaker’s L Samples
A closer look
A closer look
Acoustic methods

- 988 tokens were marked for preceding and following phonological environment.
- Acoustically analyzed for duration, intensity, pitch, F1, F2, and F3 at four points along the L-containing word.
Acoustic methods: Coda L

-The change in intensity (in terms of amplitude) from the vowel midpoint to the L.

-Vowel + L as one unit (no imaginary boundaries)

-Dependent variable: (The intensity measure from its midpoint) - (the intensity measure at the 75% mark).

-The more intensity drops, the more consonant-like the L is. The foundational assumption is that the more consonant-like the L is, the more closure it will have.

-The intensity measures were normalized by dividing the change in intensity by the intensity at the vowel midpoint.
Acoustic methods: Syllabic L

* For syllabic L, there is no vowel to L transition.

* F3 for Syllabic L

  * First, when F3 is low, you normally have something rounded (like the back rounded vowels of vocalized L)

  * Second, a lateral L should have a high F3 (because it should have an antiformant between F2 and F3 that drives its F3 up)

* Lower F3 means a more vocalized token

* F3 normalized to each speaker’s /a/ vowel.
## Tokens of L

<table>
<thead>
<tr>
<th></th>
<th>Tokens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coda L</td>
<td>570</td>
</tr>
<tr>
<td>Syllabic L</td>
<td>418</td>
</tr>
<tr>
<td>Oldest speakers</td>
<td>295</td>
</tr>
<tr>
<td>Youngest speakers</td>
<td>693</td>
</tr>
<tr>
<td>Female</td>
<td>479</td>
</tr>
<tr>
<td>Male</td>
<td>509</td>
</tr>
<tr>
<td>Northern WV</td>
<td>586</td>
</tr>
<tr>
<td>Southern WV</td>
<td>402</td>
</tr>
</tbody>
</table>
Statistical findings: Coda L

Decrease in intensity from vowel midpoint to L across age groups

age group

Intensity decrease
Statistical findings: Coda L

Decrease in intensity from vowel midpoint to L, older speakers

following place of articulation

vowel coronal labial none velar
Statistical findings: Coda L

Decrease in intensity from vowel midpoint to L, younger speakers

![Diagram showing intensity decrease from vowel midpoint to L for different places of articulation, with box plots for: vowel, coronal, labial, none, velar.]

Friday, August 19, 2011
Statistical findings: Syllabic L

Normalized F3 at syllabic L midpoint across age groups
Statistical findings: Syllabic L

Normalized F3 at syllabic L midpoint, older speakers

following place of articulation

- vowel
- coronal
- labial
- none
- velar
Statistical findings: Syllabic L

Normalized F3 at syllabic L midpoint, older speakers

- Northern region
- Southern region
Statistical findings: Syllabic L

Normalized F3 at syllabic L midpoint, younger speakers

Normalized F3

0.8       1.0       1.2       1.4

female          region            male
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</tr>
<tr>
<td>before coronals</td>
<td></td>
<td></td>
<td>↑</td>
</tr>
<tr>
<td>before pause</td>
<td>↑</td>
<td></td>
<td>↑</td>
</tr>
<tr>
<td>before vowels</td>
<td>↑</td>
<td>↑</td>
<td></td>
</tr>
<tr>
<td>after low vowels</td>
<td>↑</td>
<td>↑</td>
<td></td>
</tr>
</tbody>
</table>
Discussion

- If there is a change in process for syllabic L towards a less vocalized norm, younger females and northerners in general are leading the way.

- Inter-speaker variation is small. All speakers greatly overlap in their distribution of tokens.

- Intra-speaker variation is large for all speakers.
Intra-speaker variation: Coda L

Decrease in intensity from vowel midpoint to L

![Graph showing the decrease in intensity from vowel midpoint to L for different speakers.](image-url)
Intra-Speaker Variation: Syllabic L

Normalized F3 at syllabic L midpoint

Normalized F3

Speaker
Summary

- Analysis reinforces our belief that Coda L and Syllabic L are different phonetic creatures.
- It appears that older speakers shared constraints with Philadelphians, but that younger speakers are working towards more phonetically natural constraints. Transmission.
- Phonetic analysis of L-vocalization is more fruitful for the study of language variation and change.
Endings

PDF of presentation:

http://dialects.english.wvu.edu/research

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References