**Sociolinguistic aspects of perception**

- Social differences across listeners influence the way they perceive stimuli of varying kinds
- Listeners are perceptually aware of community-based differences in speech production and that linguistic experience and resulting expectations also affect perception


**Production & perception at the individual level**

- Listeners select best exemplar vowels that resemble their own hyperarticulated productions (the ‘hyperspace’ effect) (Johnson, Flemming et al 1993, Frieda et al 2000)

- Several studies examining social and regional influences on individual perception suggest a speaker’s own production norms, not only broader community norms, play a role in perception, though this link is not transparent (Evans and Iverson 2004, 2007, Hay et al 2006, Sumner and Samuel 2009)

**Talkers from three regions**

[Map showing talkers from three regions] ANAE, Map 11.15 (Labov, Ash, and Boberg 2006: 148)
Sociolinguistic aspects of duration

- How does vowel duration interact with vowel spectral shifts?

- A couple of studies have found durational differences across regional dialects, though these effects have been claimed to be strongest for lax vowel categories (Clopper et al. 2005, Jacewicz et al. 2007)

Methods

- Web-based perception survey developed by Bartek Plitchta
  - http://bartus.org/
- Vowel tokens synthesized from a single talker were randomly played for listeners who had to identify the word they heard from two choices (Hillenbrand et al. 1995, Strange 1995, Thomas 2002)
- 4 repetitions of each of 7 steps along the continuum for 5 vowel pairs (x 2 environments, x 2 synthesis types)
  - Only looking at /e/ - /E/ & /i/ - /I/ today

A subset of the perception participants also read a passage and a word list containing vowels and phonetic contexts of interest

Figure 1. All perception results, BAIT (0%) to BET (100%)

- E_B_D ratings for all perception participants

<table>
<thead>
<tr>
<th>Region</th>
<th>All Perception Subjects</th>
<th>Subset Production Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern (~ Oswego, NY)</td>
<td>90</td>
<td>8</td>
</tr>
<tr>
<td>Western (~ Reno, NV)</td>
<td>96</td>
<td>10</td>
</tr>
<tr>
<td>Southern (~ Memphis, TN)</td>
<td>20</td>
<td>14 (13**)</td>
</tr>
<tr>
<td>Southern (~ Blacksburg, VA)</td>
<td>50</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>256 (265*)</td>
<td>32 (31**)</td>
</tr>
</tbody>
</table>

* +9 Southerners from intermediate locations not included in the previous figure
** One Southerner supplied production data but did not complete the perception experiment
Figure 2. Mean vowels spaces, three regions, Lobanov normalized

Figure 3. Individual Southerners, mid- and high- front vowels

Figure 4. Two Southern shifters

Figure 3. Individual Southerners, mid- and high- front vowels
Figure 5. Two non shifters

Figure 6. Durational differences

Figure 7. Two Southerners, a shifter and a non shifter, Dur x F1 x F2

Figure 8. BAIT ~ BET perception results for production subsample

These plots were generated using the vowels.R package for R and a new plug-in function durplot3d(). The code and information are available online: http://ncslaap.lib.ncsu.edu/tools/durplot3d/
In sum

- Looking at the individual and not just community-wide production differences among the Southern speakers has made it possible to tease apart perception differences that may have eluded us had we only used external criteria to separate our speakers into predetermined sociological or demographic categories.

- The resources individuals attend to perceptually and productively are variable, even within the same community, and the utilization of particular aspects of these resources does appear to reflect and be reflected in how perception is shaped.

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