

Acoustic characteristics of Utah's CARD-CORD merger

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UTAH'S *card-cord* MERGER

- ▶ /ɔɪ/ merges into /aɪ/
- ▶ Beginnings in 19th century
- ▶ First scholarly mention 1935 (Pardoe)
- ▶ Socially salient and stigmatized by 1960s

SCHOLARLY CLAIMS

- ▶ General agreement on the merger's existence
- ▶ Pardoe 1935: Complete merger of /ɔɪ/ into /aɪ/
- ▶ Cook 1969: Partial merger of /ɔɪ/ into /aɪ/
- ▶ Helquist 1970: Lowering and unrounding of /ɔɪ/
- ▶ Krahnke 1979: Lowering of /ɔɪ/
- ▶ Lillie 1998: Complete merger of /ɔɪ/ into /aɪ/
- ▶ Bowie 2003: Unrounding of /ɔɪ/

THE QUESTION

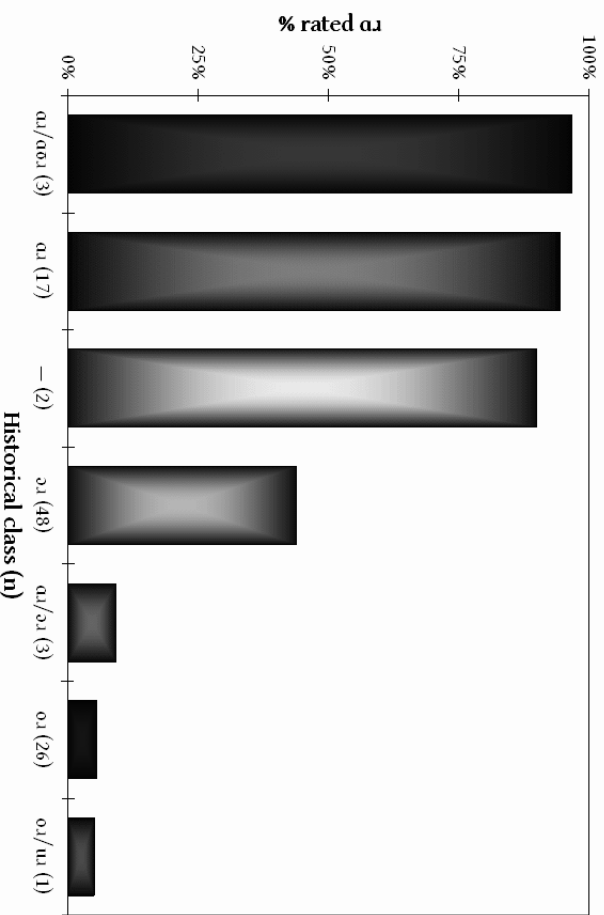
- ▶ What *exactly* is going on?

THE EXPERIMENT

- ▶ Utterances rated by a panel
- ▶ 40 undergraduate students
- ▶ No previous exposure to Utah English
- ▶ All utterances from one speaker
- ▶ Male, b. 1922, lifelong resident of Northern Utah
- ▶ Speeches broadcast on television between 2000 and 2003
- ▶ 100 tokens
- ▶ 20% /aɪ/, 80% /ɔɪ/ (more or less)
- ▶ Panelists given a forced binary choice
- ▶ All words presented twice
- ▶ All words presented without wider context

HISTORICAL WORD CLASSES

- ▶ 7 historical word classes in data
- ▶ 4 very small classes (less than 3 tokens)
 - ▶ aɪ/aɔɪ, aɪ/ɔɪ, oɪ/uɪ, unclassifiable
- ▶ 3 larger classes
 - ▶ aɪ (17 tokens), ɔɪ (48 tokens), oɪ (26 tokens)

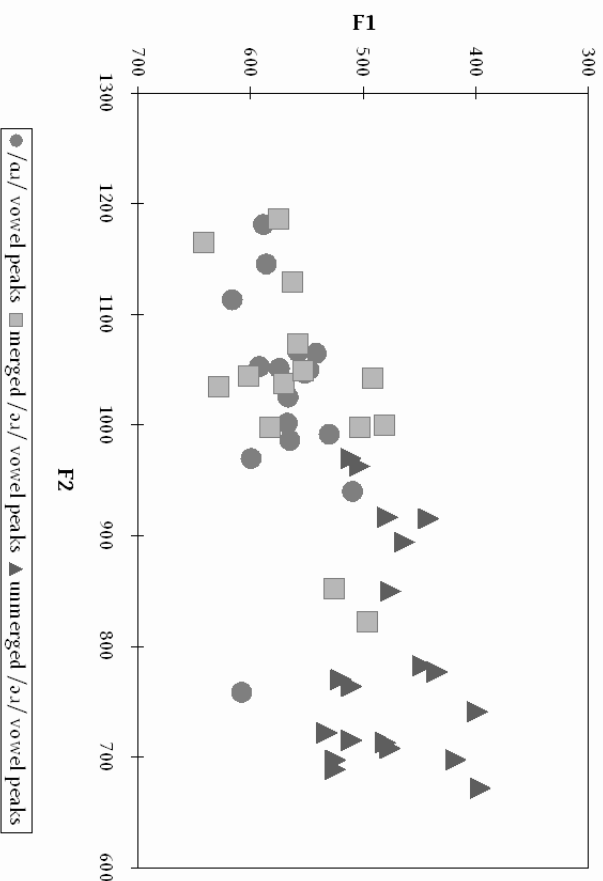


SIMPLIFICATIONS

- ▶ Leave out very small classes
- ▶ Leave out oɪ class
- ▶ Include aɪ class (but temporarily leave out *far*)
- ▶ Include ɔɪ class words with more than 75% agreement on merger status
- ▶ Therefore, the remaining sample:
 - ▶ 16 aɪ class words (*far* to return later)
 - ▶ 14 merged ɔɪ class words
 - ▶ 19 unmerged ɔɪ class words

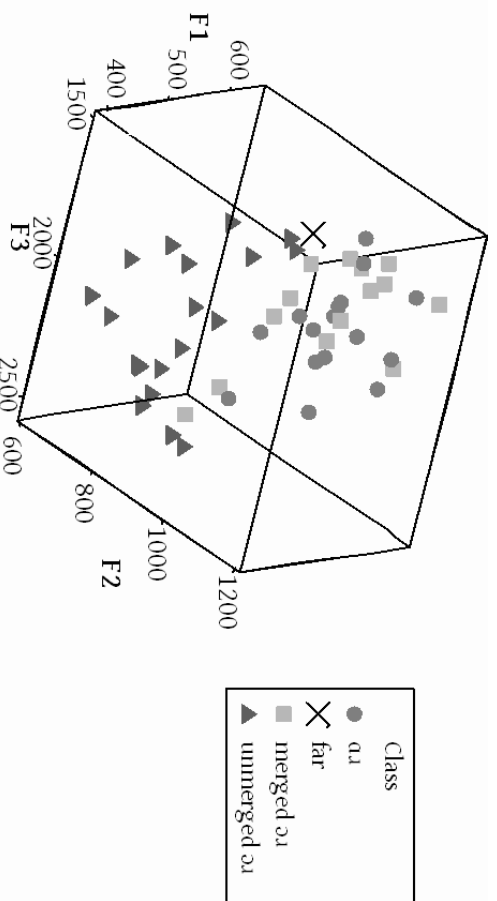
F1-F2 RESULTS

- ▶ aɪ class appears same as merged əɪ class but not unmerged əɪ class
- ▶ Overlap still exists, and far appears in the midst of əɪ class vowels



OTHER FORMANTS

- ▶ No formant pair differentiates aɪ and merged əɪ vs. unmerged əɪ classes
- ▶ F1-F2-F3 plot shows clear differentiation at one rotation, with far at border



OTHER POSSIBLE SOLUTIONS

- ▶ Formants at beginning of vowel
- ▶ No differentiation
- ▶ Formants at end of vowel
- ▶ No differentiation
- ▶ Formants at peak intensity of /ɪ/ following vowel
- ▶ No differentiation
- ▶ Vowel length vs. /ɪ/ length ratio
- ▶ Interesting patterns, but no differentiation
- ▶ Potential merger-induced homophony
- ▶ Common sense that *born* more perceivable as merged than *organize*
- ▶ Has no direct effect and does not clarify any other potential solution

SO WHAT?

- ▶ Conclusions
 - ▶ Merger involves unrounding (cf. Helquist 1970; Bowie 2003)
 - ▶ Differentiating aɪ and merged əɪ vs. unmerged əɪ classes
 - ▶ Peak intensity F1, F2, and F3 give nearly planar separation
 - ▶ aɪ class word at boundary may be widely perceived as [ɔɪ]
 - ▶ No differentiation in vowel length
 - ▶ No effect from potential merger-induced homophony
- ▶ Caveats
 - ▶ Only one speaker
 - ▶ Non-representative sample of speech
 - ▶ əɪ class words without general agreement not analyzed
 - ▶ Panelists had had no contact with Utah English

WHAT EXACTLY IS GOING ON?

- ▶ More complexity than we often look at

PUBLISHED STUDIES ON UTAH'S CARD-CORD MERGER (in chronological order)

- Pardoe, T. Earle. 1935. Some studies of Rocky Mountain dialects. *Quarterly Journal of Speech* 21:348-355.
- Cook, Stanley Joseph. 1969. Language change and the emergence of an urban dialect in Utah. University of Utah PhD dissertation.
- Helquist, Val J. 1970. A study of one phonological variable in urban and rural Utah. University of Utah master's thesis.
- Krahmke, Karl J. 1979. Sociolinguistic variation and the vowel system of northern Utah. In *Language and Linguistics symposium 1979*, Cheryl Brown, ed Provo, Utah: Deseret Language and Linguistics Society 6-11.
- Lillie, Diane DeFord. 1998. The Utah dialect survey. Brigham Young University master's thesis.
- Bowie, David. 2003. Early development of the CARD-CORD merger in Utah. *American speech* 78:31-51.