

Free Classification of Regional Varieties of American English
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Two basic approaches have been utilized in the past to study of the perception of dialect variation in the United States. Perceptual dialectology research has explored naïve participants' mental representations of dialect variation in the absence of actual speech samples. Preston (1986) used a map-drawing task and Tamasi (2003) used a free classification task to elicit dialect regions and labels from naïve participants. Both researchers found a great deal of inter-participant variation in their responses, but they also observed general agreement about sociolinguistically marked regions such as the southern and northeastern United States. Clopper and Pisoni (in press) and Preston (1993) examined the perception of dialect variation in response to actual speech samples. Participants listened to speech samples and were asked to identify where they thought the talker was from using a forced-choice categorization task. Results revealed that naïve listeners are able to make broad generalizations about northern versus southern American speech.

The present experiment used a free classification task to assess categorization behavior of naïve listeners in response to actual speech samples without constraining the possible categories. Twenty-two native English-speaking undergraduates were asked to classify 66 white male talkers taken from the TIMIT Acoustic-Phonetic Continuous Speech Corpus (Fisher, Doddington, & Goudie-Marshall, 1986) using sentence-length utterances. The talkers represented six regional varieties of American English, with 11 talkers from each region. Using an interactive computer-based procedure, participants could listen to each talker as many times as they liked and were instructed to make as many groups with as many talkers in each group as they wanted.

As in the earlier perceptual dialectology studies, results revealed a great deal of inter-participant variation. The number of groups produced by the listeners ranged from 3 to 30, with a mean of 10 and a median of 7. The number of talkers in each group ranged from 1 to 34, with a mean of 9.36. Despite variability in performance in this task, the aggregate data were highly interpretable in terms of their underlying structure. Similarity matrices were constructed across dialect (as defined by the TIMIT corpus) and talker, by counting the number of times dialects and talkers co-occurred, respectively, in the classification solutions of the listeners. The dialect similarity matrix was submitted to a hierarchical clustering analysis which revealed three major perceptual clusters: New England, South, and Midwest/West. These three perceptual categories are identical to those reported by Clopper and Pisoni (in press) based on confusion matrices from a forced-choice categorization task and correspond fairly well to the three major dialects of American English described by Labov (1998) and Krapp (1925). The talker similarity matrix was submitted to a multi-dimension scaling analysis which revealed two interpretable dimensions: north vs. south and marked vs. unmarked. These two dimensions reflect earlier findings that southern and northeastern varieties of American English are highly distinguishable and socially marked. Taken together, the present findings provide further evidence for three major varieties of American English that can be distinguished by acoustic measures of production and measures of naïve listeners' perception.

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