New approaches to network analysis in sociolinguistics

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Social network analysis offers important new directions for the study of sociolinguistic variation. On one hand, network analysis stands to illuminate the interactional mechanisms that underlie patterns of linguistic difference, such as the maintenance of blue collar/white collar distinctions in the case of stable linguistic variables or the curvilinear class pattern found for linguistic changes from below (Labov 2001). On the other hand, social network data allows the development of hypotheses about the reasons for linguistic uniformity across broad geographic regions even during change in progress. Contemporary network techniques, paired with large-scale linguistic data, create new opportunities for sociolinguistic analysis.

The utility of network analysis is demonstrated in the context of Raleigh, North Carolina, where dialect contact has caused the rapid, ongoing reversal of the Southern Vowel Shift (SVS) as well as the adoption of national trends such as the low back merger. Data from a 150-speaker subset of the Raleigh corpus, a 300-speaker conversational corpus collected since 2008, shows that the retreat from the SVS began with speakers born around 1950. A two-mode network is constructed such that the ties between speakers represent co-attendance at one or more schools (elementary, middle, and high school). The school co-attendance network has a dense core that corresponds to the oldest city schools, while relatively peripheral clusters correspond to suburban neighborhoods. The hypothesized network effect is that the speakers with the most advanced retreat from the SVS will be found in peripheral clusters where many Northern migrants settled, net of age, occupation, and sex. Abstracting from Raleigh, the general question is whether, and in what ways, network similarity predicts linguistic similarity.

Three contemporary network techniques are discussed via their application to the Raleigh data: 1) The cohesive blocking procedure (Moody & White 2003) generates a network hierarchy in which individuals are “nested”, or embedded, at different places in the community’s network structure. Nestedness is then tested as a predictor of linguistic variation in linear models. While the use of nestedness as a speaker-level variable returns expected results (cf. Dodsworth 2014), this strategy cannot be used to ask directly whether the network relationship between two speakers predicts their linguistic similarity. 2) By contrast, quadratic assignment procedure (QAP) regression (Mizruchi 1992), which is linear regression for matrices rather than vectors, evaluates matrices of linguistic differences between speakers. The independent variables include a matrix of nestedness differences, a matrix of binary network relationships, and matrices with column-wise values for year of birth, sex, and occupation (Dodsworth & Benton 2015). 3) Six community detection algorithms are used to identify clusters of speakers in the network based on tie density, controlling for age, enabling the construction of categorical variables related to a speaker’s degree of contact with migrants from the Northern U.S. while growing up. As expected, speakers who attended school in a neighborhood that was relatively insulated from the Northern migrants retain the Southern variants to a greater extent than their peers. More prominent, however, is the *lack* of additional network effects: the other clusters show no significant linguistic differences. Even during a period of rapid contact-induced linguistic change, indirect ties can transmit linguistic variables, allowing disparate clusters of speakers in a community to be linguistically similar.

Although the network techniques demonstrated here produce useful results, the greater value of network analysis in sociolinguistics is its potential for the development of testable hypotheses about the transmission and maintenance of linguistic variation.

References

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