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## **Listener evaluation of sociophonetic variability: probing constraints and capabilities**

### **Abstract**

A key element in shedding light on the agency of listeners in the process of phonological innovation and change is to understand more about listeners' sensitivity to and awareness of variability present within the speech signal. With a particular focus on *social-indexical* variability, the present study investigates the mechanisms through which listeners form associations in memory between properties of phonetic realisation and particular social categories.

Our method involves training participants on new patterns of sociophonetic variability and, in a subsequent test phase, we assess the extent to which this training has led to new associations between specific realisational variants and the social categories with which they have been associated in the training material. This approach enables us to address questions such as whether certain social-indexical properties of speech are easier to become attuned to than others, how much exposure is needed for an individual to link a particular pattern of variation to a novel social category, how categorical does a phonetic variant/social category association have to be in order for it to be learned, and how consistent is cross-individual performance in this sort of learning?

Participants (all adults) are trained on a set of isolated word stimuli. In some test conditions there is a 100% correspondence between social category *x* and phonetic variant *y*, whereas in other conditions phonetic variant *y* is only *predominantly* associated with social category *z*. In the subsequent test phase of the experiment, listeners are asked to respond to each stimulus as rapidly as they can, indicating which social category they believe the speaker producing the stimulus belongs to. In order to avoid listeners being affected by their real-life experience of sociophonetic variation, the labels used for the social categories have been kept as neutral as possible; the stimuli in the training phase are identified as being produced by a speaker from either *tribe1* or *tribe2*. In the test phase, the participant uses a left/right mouse click to identify the test stimulus as being produced by a speaker of *tribe1* or *tribe2*.

To date, we have investigated four conditions:

condition 1 (6 participants) - disyllabic words with intervocalic [t] vs [ʔ] (distributed categorically);

condition 2 (15 participants) - as in condition 1, except that the distribution of [t] vs [ʔ] was non-categorical;

condition 3 (10 participants) - monosyllabic words from the FLEECE lexical set with [i] vs a slightly diphthongised variant (distributed categorically);  
condition 4 (6 participants) - monosyllabic words from the FACE lexical set with [e] vs [eɪ] (distributed non-categorically).

Findings to date suggest novel sociophonetic associations can be acquired on the basis of exposure to material which embeds that association even if the association in the training takes the form of a (strong) tendency rather than a categorical association (conditions 2 and 4). On the other hand, listeners appear to encounter greater difficulty in learning novel associations relating to fine-grained (but systematic) variation in vowel variants (condition 3). We discuss these results and their implications and point to further work, now under way, in which we systematically vary the various parameters which we can control (e.g. nature of the variants and degree of listener familiarity with the same, skewness of variant distribution across social categories, number of social categories, amount of training, time lapse between training and testing, etc.).