A SOCIOLINGUISTIC APPROACH TO THE PROBLEM OF NORMALIZATION

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The measurement of sound change in progress can be advanced considerably by recent techniques for formant analysis such as LPC. But increased accuracy will not help in placing trends across age level unless progress is made towards solving the normalization problem, so that changes in mean vowel position can be related to a single reference grid.

The normalization method that shows the greatest clustering is not necessarily the best, since significant characteristics of the data such as age-grading can be removed by too powerful clustering techniques. Optimum normalization will eliminate only those acoustic differences due to differences in vocal tract length. The preservation of social differentiation that is independent of vocal tract length offers the most decisive test of a normalization method.

Measurements of vowel systems of 176 Philadelphians were submitted to three normalizations: the vocal tract model of Nordström and Lindblom (1975); the log mean model of Nearey (1977); and the six parameter regression of Sankoff, Shorrock and McKay (1974). It can be shown that the Sankoff model is too powerful, and that both the Nearey and Nordström & Lindblom normalizations preserve socio-linguistic relations that are masked in the unnormalized data and eliminated by the very high degree of clustering achieved in the Sankoff normalization.

References

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