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Intrinsic Vowel Normalization:
Comparing Different Procedures (Data from Tuscan Italian)

Several intrinsic methods used in vowel representation were evaluated; the performance of forty-two different combinations of ways to normalize vowels (i.e. different scales, *f*0-correction, formant-correction) was compared by means of Multivariate Analyses of Variance and Discriminant Analyses. Data came from two different Tuscan varieties (Pisa and Florence) and from two different speech styles (read and semi-spontaneous speech). Intrinsic vowel normalization procedures seemed effective at maximizing differences between vowel categories but seemed somehow deficient in minimization differences in the same vowel spoken by different speakers. Comparisons across different styles within the same speakers seemed to be more successful than comparisons across different dialects and different speakers, although in the second case an identical type of speech material was used. As a whole, the parameter set F1 x F2 on the ERB scale seemed to be one of the most successful in reducing inter-speaker variability and in preserving vowel-category separability.