

Normalization, essentialization, and the erasure of social and linguistic variation

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Linguists investigating the phonetic properties of vowels, e.g. height and frontness, often use normalization algorithms to remove 'irrelevant' variation from vowel formant data. The current conception and evaluation of these algorithms focuses on phonemic classification and the removal of 'anatomical' variation, an approach which suggests an essentialist perspective on linguistic variation and leads to the erasure and underreporting of linguistic and social information. Instead, it is suggested that for many purposes, researchers need algorithms that correctly represent phonetic information by removing only non-phonetic formant variation. Acoustic variation that does not affect phonetic properties is non-phonetic, making it 'transparent' to the linguistic system and incapable of communicating linguistic contrast. Evidence is presented that only the uniform scaling of formant patterns appears to be non-phonetic, indicating that uniform scaling normalization algorithms should be preferred.

Finally, given that phonetic properties are products of human psychology that enter into experience only through perception, it is argued that the normalization algorithms used by phoneticians and sociolinguists should be thought of as models of human perception. The change to a perceptual and phonetic, rather than anatomical and phonemic, approach to normalization will promote more reliable and theoretically sound research outcomes, and better aligns with linguistic theory.