

The Effect of Lexical Frequency on Tone Space Dispersion: Evidence from Cantonese
Tone Production

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Abstract

Previous research has identified robust effects on segmental production of lexical factors like word frequency, predictability or neighborhood density. Frequent, predictable, or easy (sparse-neighborhood) words are produced with weaker segmental articulation and shorter duration. Explanations of this weakening (whether drawing on lexical access, articulatory routinization, prosodic intermediation, and/or direct hearer modeling) predict that the production of lexical tone should also be affected by lexical factors such as usage frequency. This study tests this prediction by investigating whether usage frequency affects tone production in Cantonese. Cantonese monosyllabic words of high and low usage frequency were recorded with segmental factors being controlled. The results show that lexical factors do influence tonal production. Words of the same tone but of different usage frequency differ significantly in pitch height. Low-frequency words are hyperarticulated and produced with relatively higher pitch. The overall tone space of low-frequency words is more expanded than that of their high-frequency counterparts. Furthermore, as a result of tone space expansion, the acoustic distinctiveness of highly confusable tones increases. The results support models of speech production like H&H, in which informativity guides hyperarticulation and hypoarticulation.