

Comparative tonal text-setting in Mandarin and Cantonese popular song

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Much as there exist metrical constraints on poetic language based on properties like stress and vowel length, comparable text-setting constraints in tone languages govern the ways in which tonal sequences can be married to musical melodies. The fundamental principle appears to be an avoidance of *contrary settings*-asymmetry between the direction of melodic bigrams (rising, falling, level) and the corresponding sequence of tones in an accompanying text. One can then ask how strictly this basic constraint is enforced across languages and musical genres, as well as how the direction of a lexical tone sequence might be determined.

Our paper contributes to this line of research through a comparative case study of tonal text-setting in Mandarin and Cantonese popular song. Differently from earlier work, we use a corpus of songs in which pairs of language-specific texts are set to the same musical melody. By holding the musical component constant, any observed variation in tone-tune alignment is more likely to be a function of linguistic, rather than purely musical, differences.

Consistent with previous studies (Chan 1987a,b; Ho 2010; Schellenberg 2013), we observe a high degree of tone-tune correspondence in Cantonese (75%) with few contrary settings (6%), while in Mandarin, contrary settings are common no matter what grouping of tonal bigrams is considered (20-30%). We show how these differences can be explained by reference to the distribution of tonal registers in the two languages: Cantonese tones inhabit a space of four equally distributed registers, whereas for the purposes of text-setting, most Mandarin tones belong to just one of two registers. This may help explain why tonal text-setting constraints appear to be 'ignored' by lyricists of Mandarin popular song, and highlights the ways in which language-specific principles impact the relation between linguistic and musical domains.

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