

VARIOUS MEASURES AND THE DISTINCTION
OF TENSE AND LAX CONTRASTS:
THE CASE OF ZHOUCHEG BAI

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ABSTRACT

The acoustic characteristics of the tense and lax contrasts have been studied extensively, and different measures were attested to be related, but few of these studies discussed different measures together and explored their relationships. Three of the eight tones in Zhoucheng Bai (i.e., T2, T6, and T7) are marked as tense tones, while the rest are lax tones. Based on Electroglottographic (EGG) and acoustic signals, this paper examined eight measures, namely fundamental frequency (F0), open quotient (OQ), speed quotient (SQ), H1*-H2*, H2*-H4*, H1*-A1*, H1*-A2*, and H1*-A3*, in the data obtained from 10 Zhoucheng Bai speakers. It shows that different measures perform variously in the distinction of tense and lax contrasts. F0 well distinguishes between T6 and T1, and both EGG measures and spectral measures can differentiate between T2 and T8, but none of measures reflects the contrast of T7 and T3 for all speakers. The case of T7 and T3 suggests that the relationship between production and

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不同参数与松紧调的区分——以周城白语为例

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摘要

目前已有不少研究讨论过不同语言中“松音”和“紧音”声学性质，很多参数被证实能反映松紧音的差别，但综合性讨论不同参数和参数相关性的较少。周城白语一共有 8 个声调，T2、T6 和 T7 是紧调，其余被标为松调。本文录制了 10 位周城白语发音人的声门阻抗信号和语音信号，从 EGG 信号中提取了基频、开商、速度商，从语音信号中提取了 H1-H2、H2-H4、H1-A1、H1-A2、H1-A3 等 5 个参数，对比分析这些参数在白语松紧调中的表现。研究表明，不同参数在区分松紧调中的表现不同。基频(F0)能很好地区分紧调 T6 和松调 T1，所有参数(包括从 EGG 信号和语音信号中提取的参数)都能区分紧调 T2 和松调 T8，但没有一个参数能区分所有发音人的紧调 T7 和松调 T3。T7 和 T3 的例子表明松紧音发音和感知之间的关系并非通常认为的那么简单，值得进一步研究。所有参数并非总是都参与松紧调的区分，也未必起到相同的作用，但相关分析表明大多数参数两两之间具有显著的相关关系。

关键词

周城白语 松紧调 EGG 参数 频谱参数