

Glottal Stop Production and Its Interaction with Tonal Evolution:  
A Case Study of Entering Tone Sound Change in Puxian Min

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**Abstract**

There is a growing body of work investigating the phonetic properties of tones and seeking potential explanations for tonal changes. The main purpose of this paper is to shed light on entering tone sound change — a recalcitrant problem in Chinese linguistics and phonological theory — through a case study of Puxian Min. In order to achieve this goal, a new phonological description of the Puxian Min phonological system is given based on acoustic analysis, especially seven citation tones.

As for entering tone sound change, this study makes three major points: 1) the traditional term “glottal stop” consists of a number of phonations with different degrees inside the larynx, and they show different connections with pitch height. The reverse relationship indirectly decides different directions of tone merge; 2) the speed of sound change is partially controlled by the pitch height, and this phenomenon is a universal pattern “short-high” vs. “long-low” based on the mechanism of hypercorrection and compensation; and 3) the vowel qualities for the entering tones are different from those in non-checked tones, and the difference serves as a redundancy-free feature for the identification of entering tone. When the short duration and the final consonant gradually disappear, the vowel qualities may become an important feature in production. In summary, this study reconstructs the evolutionary route for entering tones in Puxian Min, which poses a model for entering tone sound changes in Chinese dialects.