

# A Phonetic Study of the Syllabic Constituents in Lengshuijiang Dialect

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## ABSTRACT

This paper is a linguistic phonetic description of the syllabic constituents of Lengshuijiang dialect in middle Hunan Province. There are 24 initials, 35 finals, and 7 tones in Lengshuijiang phonology. Emphasis is placed on two issues - characteristics of the three types of plosive initial and the phenomenon of *Ci qing*-conditioned tonal split in Lengshuijiang dialect.

There are three sets of plosives classified by phonation type in Lengshuijiang phonology, the ‘fortis’ voiceless unaspirated plosive with relatively short VOT (around 10 ms), the voiceless aspirated plosive with large VOT (usually longer than 50 ms), and ‘lenis’ voiceless plosive with slack voice and moderate VOT (40-50 ms). Spectral slope (subtraction of the intensity of the second harmonic, the first and second amplitude from that of the first harmonic) and electroglottograph analysis suggests that the voiceless unaspirated plosive is tense with large negative spectral slope values and high closing quotient, the voiceless aspirated plosive is produced with small positive spectral slope values and moderate closing quotient, and the slack voiced plosive has large positive spectral slope values and low closing quotient. The acoustic property and timing of the slack voiced plosive varies in different contexts and across the speakers.

Acoustic and statistical analysis of fundamental frequency in seven tones shows that F0 after aspirated obstruent is significantly lower than after its unaspirated counterpart in *Ping sheng* 平聲 and *Qu sheng* 去聲 in all the speakers, but no systematic difference in *Shang sheng* 上聲 and *Ru sheng* 入聲. The Pearson's Chi-square test shows that there is a minor significant correlation between F0 and closing quotient (p-value = 0.05549) over time, that is to say, lower F0 after aspirated initial is related to the lower closing quotient.

Keyword: Lengshuijiang dialect, syllabic constituents, phonation type, *Ci qing*-conditioned tonal split