Tonal Variation of Southern Min Dialect: A Case Study of Klang Hokkien in Malaysia

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Tone plays a significant role in the phonological system of various Chinese varieties, alongside vowel and consonant segments. Understanding the evolution of ancient tones, which trace back to Middle Chinese (MC) around AD 600, holds crucial importance in the field of Chinese dialectology. Many non-Mandarin dialect groups, such as Min and Yue, have retained the MC tonal system and preserved ancient stop codas. Nevertheless, Chinese tone categories are currently undergoing merging, leading to increased tonal variation, especially in multilingual societies like Malaysia and Singapore.

Previous studies have observed that certain varieties of the southern Min dialect are experiencing tonal integration and stop coda weakening in Singapore and Penang, Klang of Malaysia [1] [2] [3]. The primary focus of this study is to further explore the tonal variation in Klang Hokkien (KH), which is spoken in the Klang district near Malaysia's capital. It aims to examine how the younger generation produces these lexical tones and gain insights into the dynamic changes of its tonal system with compared to the older generation [3].

The KH speech data were collected remotely due to pandemic-induced movement restrictions, which also provide participants with the flexibility to record at their convenience. All participants obtained their consent, and completed a background survey, along with self-recordings, following specific guidelines on a designated site. The recordings were saved in a non-lossy format and underwent thorough screening before further data analysis. For the purposes of this study, partial speech samples from the database were analyzed. This study comprised 15 female participants, all of whom were born and raised in the Klang district and spoke the southern Min dialect. The participants had an average age of 22 years (SD=4).

A list of 39 monosyllabic morphemes was used to examine the KH lexical tones in isolation, commonly referred to as citation forms. The list includes eight MC tones (T1-T8), which follows the standard method in Chinese dialectology research and is consistent with the previous KH study for improved comparability. All syllables consist of onset and rhyme, specifically CV and CVN for smooth tones (T1-T6), while CVP ended with an oral or glottal stop coda for check tones (T7-T8). A total of 487 valid tokens for analysis, excluding those that did not read out and read in Mandarin. The pitch and duration of each rhyme were examined by referring to spectrograms and auditory perception. In order to provide a clearer and more concise representation of the tonal variation, the pitch features have been categorized into low (L), mid (M), and high (H) levels instead of using Chao's 5-point tone letters.

The initial findings revealed that the citation form of the younger generation in the current study was largely similar to the older generation (Table 1), but it exhibited some variations. Referring to Figures 1 and 2, the realisations of T1, T2, T3, and T7 echoed the previous tone system but showed slight differences in pitch level and contour. The merging of T4, T5, and T6 was observed as stated, but around 20%-30% of realisations conflicted with other smooth tones. The T8 realisations showed a high degree of variation, with the emergence of a high falling tone similar to T7 and a mid-rising tone similar to T2. The study also confirmed the distinction of long-short features between smooth tones and checked tones. However, the rhyme duration of CVP ended with a glottal stop coda exhibited noticeable lengthening (median=200ms), which extended from the weakening and reduction of the stop coda (Figure 3). In terms of comprehensive pitch and duration features, the variation of T8 in KH was the most obvious in this study. In summary, the current findings show that the distinction between smooth and checked tones persists among the younger generation; however, tone reduction is particularly noticeable, especially in the T8 checked tone.

Table 1: Klang Hokkien citation tones produced by the older generation ([3])

<table>
<thead>
<tr>
<th>MC Tone Categories</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notation (Chao's 5-point tone letters)</td>
<td>33</td>
<td>24</td>
<td>53</td>
<td>31</td>
<td>53</td>
<td>33</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 1: Pitch realisation of lexical tone in Klang Hokkien: smooth tones (L=low, M=mid, H=high; *mark indicated the realisation similar to the citation forms reported in Chiew, 2019 [3])

Figure 2: Pitch realisation of lexical tone in Klang Hokkien: checked tones

Figure 3: Rhyme duration (msec) of smooth tones and checked tones in Klang Hokkien (P=syllable ended with oral stop coda, G=syllable ended with glottal stop coda)

References