

Dipping-tone contrasts in a multi-dipping-tone system: a case study of Lǔliáng Jìn Chinese

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Abstract

This paper, through an analysis of 22 native Lǔliáng Jìn Chinese speakers' recordings, demonstrates the contrasting patterns of dipping tones in multi-dipping-tone systems. It is discovered that there are 13 cases where a three-dipping-tone contrast is maintained, while nine cases exhibit a two-dipping-tone contrast. Within a multi-dipping-tone system, the dipping tones may exhibit variations in contours, durations, and phonations, thereby maintaining contrasts with each other.

Keywords: Lǔliáng Jìn Chinese, dipping tones, multi-dipping-tone system, tonal types

Introduction

A dipping tone has a falling-rising contour. The most familiar case is Shǎngshēng in Běijīng Mandarin, which is transcribed as [214] using Chao tone letters. Dipping tones appear in a number of Chinese dialects. Zhu et al. (2012) first classified seven types of dipping tones under the framework of the “multi-register and four-level” tonal model. In their system, there are four dipping tones in the modal register, which are low-dipping /323/ (低凹調), back-dipping /523/ (後凹調), front-dipping /324/ (前凹調) and double circumflex /3232/ (兩折調); and three in the lower register, which are creaky low-dipping /202/ (嘎咧低凹調), creaky high-dipping /404/ (嘎咧高凹調) and breathy dipping /213/ (弛聲凹調).

Jìn is a major variety of Chinese; it is spoken in Shānxī province (山西省) and neighboring regions (Hou and Wen, 1993). In certain dialects of Jìn Chinese, there are multiple dipping tones, but with subtle variations. The Lǔliáng dialect is a major sub-dialect of Jìn. This study, by analyzing 22 cases of Lǔliáng dialects, finds that there are 13 cases maintaining a three-dipping-tone contrast, and nine cases having a two-dipping-tone contrast.

Methodologies

The “multi-register and four-level” tonal model (Zhu 1999, 2005), and the universal tonal inventory (Zhu 2014, 2018) are the main methodologies applied in this study. 22 native Lǔliáng Jìn Chinese speakers' recordings have been

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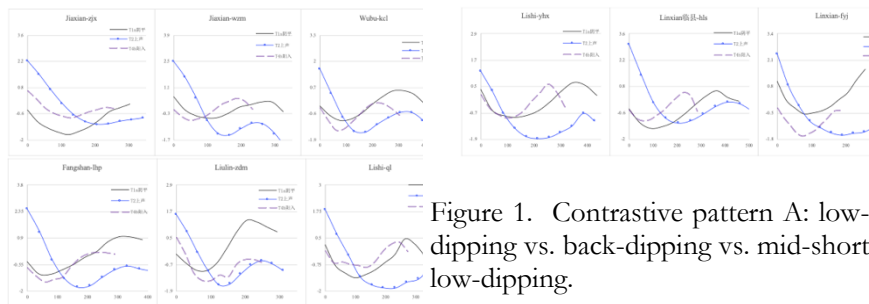
acoustically and phonologically analyzed. The software Praat was employed to reduce noise on some recordings, to annotate the recorded tokens for tonal measurements, to extract pitch values, and to draw up spectrograms, etc. The method in Zhu (2010) was adopted to measure the tone-bearing part of each token and to normalize the inter- and intra-speaker variations.

Data analyses

This study, conducted on a sample of 22 cases of Lǔliáng dialects, reveals that 13 cases exhibit a three-dipping-tone contrast, while nine cases demonstrate a two-dipping-tone contrast.

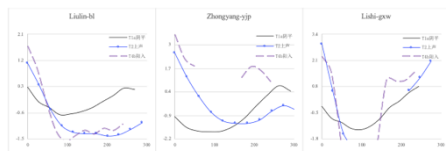
Contrastive pattern A: low-dipping vs. back-dipping vs. mid-short low-dipping

There are nine speakers maintaining a “low-dipping vs. back-dipping vs. mid-short low-dipping” contrastive pattern. This is the most common dipping-tone contrastive pattern in Lǔliáng dialects. In this contrastive pattern, T1a is the low-dipping tone and T2 is the back-dipping tone, both of which are long tones; and T4b is the mid-short low-dipping tone. The figure below shows the tonal curves of the nine dialect sites.



Contrastive pattern B: low-dipping vs. back-dipping vs. mid-short back-dipping

Among the three-dipping-tone systems, there are three cases displaying a “low-dipping vs. back-dipping vs. mid-short back-dipping” contrastive pattern. The figure below shows the tonal curves of the three cases.



Similar to the contrastive pattern A discussed above, both T1a and T2 are long tones. Furthermore, T1a is a low-dipping tone and T2 is a back-dipping tone. However, in pattern B, the T4b is a mid-short back-dipping tone, which means that T4b has the same contour as T2, but its duration is shorter than that of T2. The three dipping tones in pattern B are also contrastive along the two dimensions of height and duration.

In the cases we have analyzed in patterns A and B, all the T1as are low-dipping tones, and all the T2s are back-dipping tones. In the following eight cases, we can see that their T1a and T2 have merged into one tone, while the merged dipping tone might be either low-dipping or back-dipping.

Contrastive pattern C: back-dipping vs. mid-short back-dipping

The pattern C has five dialect sites. The neutralized tone of T1a and T2 of these five cases is a back-dipping tone. Among these five cases, the T4b in the case of Shílóu-cgh is a mid-short low-dipping tone, while the T4b in the other four cases is a mid-short back-dipping tone with creaky voice.

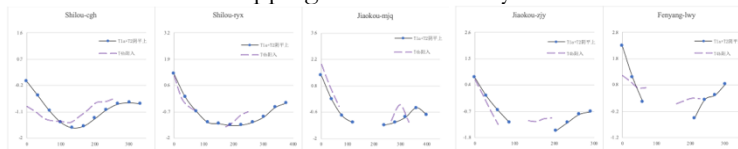


Figure 3. Contrastive pattern C: back-dipping vs. mid-short back-dipping.

Contrastive pattern D: low-dipping vs. mid-short low-dipping

The pattern D has three cases. In contrast to the pattern C, these three cases each have a neutralized low-dipping tone. All the T4bs are mid-short low-dipping tones.

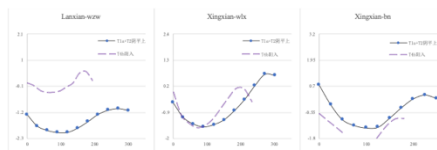


Figure 4. Contrastive pattern D: low-dipping vs. mid-short low-dipping.

Besides the twenty typical cases we have discussed above, the Wúbǔ-lcz and Fényáng-gf cases provide other contrastive possibilities of the dipping tones in Lǔliáng dialect. In the case Fényáng-gf, a “front-dipping vs. back-dipping vs. low-dipping” contrastive pattern has been formed. In the case of Wúbǔ-lcz, T4b prolonged its duration and finally merged into T1a. As a result, in the tonal system of Wúbǔ-lcz, two dipping tones remain.

Conclusions

Among the three-dipping-tone contrast cases, (1) there are nine speakers maintaining a “low-dipping vs. back-dipping vs. mid-short low-dipping” contrastive pattern. This is the most common dipping-tone contrastive pattern in Lüliáng dialects. In this contrastive pattern, T1a is the low-dipping tone and T2 is the back-dipping tone, both of which are long tones; and T4b is the mid-short low-dipping tone. (2) There are three cases displaying a “low-dipping vs. back-dipping vs. mid-short back-dipping” contrastive pattern, in which T1a is a low-dipping tone, T2 is a back-dipping tone, and T4b is a mid-short back-dipping tone. (3) One case presents that T1a has a front-dipping or rising contour, T2 is a back-dipping tone, and T4b is a low-dipping tone.

Among the two-dipping-tone contrast cases, (1) five speakers display a “back-dipping vs. mid-short back-dipping” contrast; (2) three speakers present a “low-dipping vs. mid-short low-dipping” contrast; (3) and one speaker has a “low-dipping vs. back-dipping” contrast.

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