

A Study on Phonetic Features of Chinese Poetry

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Abstract—This paper analyses the chanting of 21 five-syllable modern-style poems, which is Chinese traditional style of poem reciting with cadence and pleasant melody, in order to find out the prosodic hierarchy according to pause duration, and probe the phonetic features and methods of chanting. Results reveal that pause exists after “level-level” tonal combinations, which is a kind of metrical pattern of Chinese poetry. The duration of syllables doubles in sentence final position. An exclamation is added when the sentence ends with a checked syllable. The pitch of syllables with level tone is lower than that of syllables with oblique tones, alternation of level and oblique tones forms the chanting melody. Sentences and poems with same metrical pattern have the same chanting melody.

Index Terms—Chanting, Prosodic hierarchy, Five-syllable modern-style poems

I. INTRODUCTION

Chanting has a long history in China. It accompanies poetry as the traditional style of reciting poems and proses with cadence and pleasant melody. After the New Culture Movement chanting has gradually declined, today only a few very old scholars can chant.

Professor Zhao Yuanren made great contributions to chanting. He is the first scholar who recorded and studied chanting, claiming to save this kind of art and compose songs according to chanting [1]. Mr Tang Wenzhi set a special “Tang Melody” and trained many chanters. Yang Yinliu, Chen Bingzheng, Sun Xuanling and Du Yaxiong studied the relationship between chanting and music [2-4]. Wang Enbao, Chen Shaosong, and Qin Dexiang collected materials about chanting and studied the history, methods and melodies of chanting [5-6].

None of researches mentioned above has employed the method of phonetic analysis. This paper carries out phonetic study of 21 five-syllable modern-style poems chanted by Professor Tu An, trying to find out the prosodic hierarchy according to silent gaps, and probe the phonetic features and methods of chanting.

II. METHOD

A. Material and chanter

Poems recorded are five-syllable modern-style poems. The chanter is Professor Tu An, a 87-year old male

scholar in good health. He was born in Changzhou. He had been well-educated in old-style private school with proficiency in classic Chinese literature.

B. Recording

All the poems are recorded in the laboratory of Peking University. Each poem is recorded three times. The first time is reciting in standard Chinese, the second time is reciting in the chanter’s dialect, the third time is chanting in the chanter’s dialect. The major equipment for recording is 16-channel Powerlab PL3516. This experiment collects signals of 2 channels using Chart 5. Channel 1 is speech signal collected through microphone and console mixer; Channel 2 is phonation signal collected through Electroglottography. All sample rates are 44kHz. Devices used in recording are: microphone, Sony ECM-44B; console mixer, Behringer XENYX502; Electroglottography, Kay 6103. The software used in analysis is Praat.

III. RESULTS

A. Prosodic hierarchy and metrics

According to the pause duration in chanting, three levels of prosodic units can be identified: prosodic sentence, prosodic phrase, and foot. Prosodic boundaries agree with the metrics of poems.

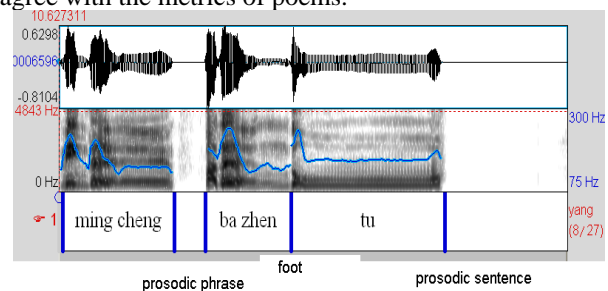


Figure 1. The wave and spectrograph of sentence “ming cheng ba zhen tu” in chanting, “level-level-oblique-oblique-level”

Boundaries between prosodic phrases appear after “level-level” tonal combinations. That is, after the second or the fourth syllable of a five-syllable sentence. As shown in “Fig. 1”, the metrics of the sentence “ming cheng ba zhen tu” is “level-level-oblique-oblique-level”, and the longest pause appears after “ming cheng”, the “level-level” tonal combination, and before the boundary

the syllable “cheng” lengthens. In average, the gap of the boundaries of prosodic phrases is 0.47s, the syllables before the boundary lengthen for 12%.

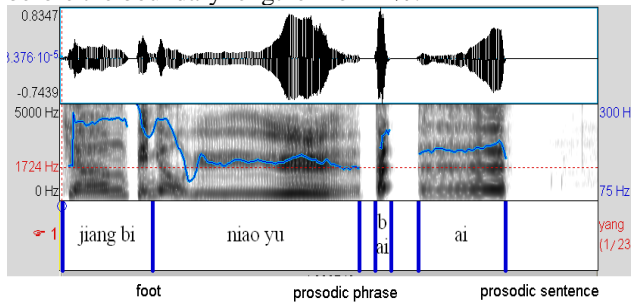


Figure 2. Sentence final checked syllable lengthens by adding an exclamation

The duration of syllables doubles in sentence final position, which is the most obvious feature of chanting. As shown in “Fig. 1”, the duration of the syllable “tu” doubles. The average duration of sentence final syllables is up to 1.7s. If the final syllable is a checked syllable, an exclamation is added to the syllable to reach the effect of lengthening. As in “Fig. 2”, the sentence final syllable “bai” is a checked one in the chanter’s dialect, therefore, an exclamation “ai” is added and lengthened.

There is no obvious pause at the boundaries between feet, and no lengthening of syllables before foot boundaries. As in “Fig. 1”, there is little pause between the two feet “ba zhen” and “tu”, and in “Fig. 2” after the foot “jiang bi” there is no break of speech.

B. Chanting melody and metrics

In chanting syllables of level tone have a lower pitch while syllables of oblique tones have a higher pitch, forming the rise and fall in melody through alternation of level and oblique syllables. Sentences of same metrics have the same pattern of melody, and poems of same metrics are similar in melody.

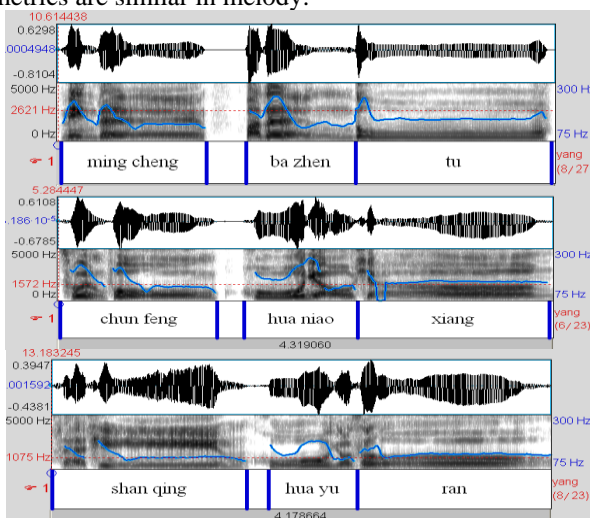


Figure 3. Three examples of “level-level- oblique-oblique-level” pattern and their melody curve

As shown in “Fig. 3”, all the three sentences are of

“level-level-oblique- oblique-level” pattern. The pitch of “level- level” tonal combinations “ming cheng”, “chun feng”, and “shan qing” is lower than the “oblique-oblique” combinations “ba zhen”, “hua niao”, and “hua yu”. The three sentences have the same metrical pattern, therefore their melodies are similar, forming a “low-low-high-high-low” curve. By combining sentences of the same metrical pattern, poems of the same metrics have the same melody, therefore, chanters may chant poems of the same metrics with similar melody.

IV. CONCLUSIONS

From analysis above, the chanting of five-syllable modern-style poems has the following features:

Pause exists after “level-level” tonal combinations. Before the break the duration of the syllable lengthens

The duration of syllables doubles in sentence final position. An exclamation is added when the sentence ends with a checked syllable.

The pitch of syllables with level tone is lower than that of syllables with oblique tones, alternation of level and oblique tones forms the chanting melody. Sentences and poems with same metrical pattern have the same chanting melody.

These are main features of the chanting of five-syllable modern-style poems, and also the main techniques of chanting. Chanting with this method and personal features would be a splendid works of voices.

This research is an analysis of one chanter, more chanters and various types of chanting of poems in different dialects will be included in future study.

ACKNOWLEDGMENT

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