The Phonological System of Pingchang Dialect in Sichuan Province

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Abstract—**This paper describes the characteristics of phonological rhyme in the Pingchang dialect of Sichuan, and uses related vocabularies as examples to demonstrate that Pingchang dialect has the typical characteristics of the southwestern Mandarin dialect area. Also Pingchang Dialect has its unique phonetic features.**

Keywords—phonological system; Pingchang County; initials; finals; tone

I. INTRODUCTION

Pingchang County is located in the northeastern part of Sichuan province and belongs to Bazhong city. The local language belongs to the Chengdu-Chongqing area of the Sichuan-Chinese program, which has its own dialectal features. Our main respondents are two old people: Du Chengwu, male, 85 years old, can recognize some Chinese characters, but can not speak Putonghua, and live in rural;Ding Guogui, female, 86 years old, has elementary school education, can recognize some words and speak a little Putonghua, live in rural also. The two old people are all talking about the authentic Pingchang dialect. At the same time, we visited some other villages in Pingchang County, investigated and recorded the pronunciation phenomenon of local people, and used various materials to confirm. By the aid of praat software and the actual situation of Pingchang dialect, it is proposed to construct the Pingchang dialectal phonological system with the aspects of initials, finals and tone.

II. THE INITIAL SYSTEM

A. The Initial System of Pingchang Dialect

According to field investigation in combination with the practical situation of Pingchang dialect, it is concluded that there are 23 initials in Pingchang dialect. Their Pronunciation characteristics are listed as follows:

no initials: [ø], e.g: "ian" (延) [ian];

b[p]: bilabial, unaspirated, unvoiced sound, plosive, e.g: "bu" (布) [pu];

p[pʰ]: bilabial, aspirated, unvoiced sound, plosive, e.g: "pan" (盘) [pʰan];

m[m]: bilabial, voiced sound, nasal sound, e.g: "men" (门) [mən];

f[f]: labiodental, unvoiced sound, fricative, e.g: "fu" (福) [fu];

d[t]: blade-alveolar, unvoiced sound, unvoiced sound, plosive, e.g: "dao" (到) [tau];

t[tʰ]: blade-alveolar, aspirated, unvoiced sound, plosive, e.g: "tai" (太) [tʰai];

l[l]: blade-alveolar, voiced sound, lateral, e.g: "lu" (路) [lu];

ŋ[ɲ]: alveo-palatal sound, voiced sound, nasal sound, e.g: "nü" (女) [ɲy];

z[ts]: blade-alveolar vowel, unaspirated, unvoiced sound, affricate, e.g: "zu" (祖) [tsu];

c[tsʰ]: blade-alveolar vowel, aspirated, unvoiced sound, affricate, e.g: "cu" (醋) [tsʰu];

s[s]: blade-alveolar vowel, unvoiced sound, fricative, e.g: "sen" (僧) [sən];

zh[tʂ]: blade-palatal, unaspirated, unvoiced sound, affricate, e.g: "zhen" (蒸) [tʂən];

ch[tʂʰ]: blade-palatal, aspirated, unvoiced sound, affricate, e.g: "chong" (虫) [tʂʰuŋ];

sh[ʂ]: blade-palatal, unvoiced sound, fricative, e.g: "shu" (书) [ʂu];

r[z]: blade-palatal, voiced sound, fricative, e.g: "ren" (认) [zʑən];

j[tɕ]: dorsal, unaspirated, unvoiced sound, affricate, e.g: "jie" (结) [tɕie];

q[tɕʰ]: dorsal, aspirated, unvoiced sound, affricate, e.g: "qi" (旗) [tɕʰi];

x[ɕ]: dorsal, unvoiced sound, fricative, e.g: "xia" *(夏)* [ɕia];

g[k]: velar, unaspirated, unvoiced sound, plosive, e.g: "gui" *(贵)* [kuei];

k[k']: velar, aspirated, unvoiced sound, plosive, e.g: "kai" *(开)* [kʰai];

h[x]: velar, unvoiced sound, fricative, e.g: "hong" *(红)* [xuŋ];

ng[ŋ]: velar, voiced sound, nasal sound, e.g: "ŋen" *(硬)* [ŋən].

B. The Characteristics of Initial Consonants in Pingchang Dialect

A comparison between the phonetics of the Pingchang dialect and the middle ancient Chinese was made in this research and described synchronically and diachronically. Finally the characteristics are summed up as follows:

- From the perspective of the medieval Chinese, the number of initials in Pingchang dialect is much less than that in reality, because some initials can be spelled by other sounds. For example: zh[tʂ], ch[tʂʰ], sh[ʂ] can be spelled from z[ts], c[tsʰ], s[s] with-r-tone colour;j[tɕ], q[tɕʰ], x[ɕ] can be spelled from z[ts], c[tsʰ], s[s] with-ri- tone color. That is to say, although there are 23 initials in Pingchang dialect, they can be reduced to 17 initials, because some of the 23 initial consonants in Pingchang dialect can be spelled with other tones on the basis of 17 basic sounds.

- For the bilabial-plosive in the medieval Chinese: In Pingchang dialect, although the total voiced sound of the mediaeval Chinese no longer exists, they convert to two situations — the voiced sound became voiceless aspirated, and the oblique tones of total voiced sound became un-aspirated voiceless. For example, the initial of "布" "步" "别" in Pingchang dialect is [p] ("布" and "步" are homonym), and the initial of "怕" "盘" is [pʰ].

- In Pingchang dialect, the two initials of "ming" *(明)* "wei" *(微)* of the mediaeval Chinese are not the same. The initial of "Ming" *(明)* of the medieval Chinese is still read as[m], while the other initial of "wei" *(微)* has no initials now. For example, the initial of "men" *(门)* is [m], and that of "wen" *(闻)* is zero initials.

- In Pingchang dialect, the guttural of medieval Chinese is still pronounced as [x]. And the fricative of medieval Chinese is still pronounced as [f]. In Pingchang dialect, [f], [x] are basically not mixed.

- In Pingchang dialect, the pronunciation of zh[ʐ], ch[tʂʰ], sh[ʂ], j[tɕ], q[tɕʰ], x[ɕ], z[ts], c[tsʰ], s[s] are basically not mixed.

- In Pingchang dialect, there is no confluence between Jian Yin and Tuan Yin. That is to say, these two characters still have different pronunciations in Putonghua, for example, in Pingchang dialect, the initials of "jing" *(精)* "jie" *(节)* are actually read as [ts], and the initials of "jing" *(经)* "jie" *(结)* are still read as [tɕ], whlie all the initials of these four words are the same [tɕ] in Putonghua. Similarly, the initials of "qiu" *(秋)*, "qi" *(齐)* "quan" *(全)* "qu" *(趣)* are actually read as [ts], and "qiu" *(丘)*, "qi" *(旗)*, "quan" *(权)*, "qu" *(去)* are still read as [tɕʰ] in Pingchang dialect, whlie the initials of these four are the same [tɕʰ] in Putonghua;The initial of xiu" *(修)* "xuan " *(祓)*are the same [s], and the initials of "xiu" *(休)* and "xuan" *(玄)* are the same [ɕ] in Pingchang dialect, whlie the initials of these four are the same [ɕ] in Putonghua.

- In Pingchang dialect, zero initial consonant is more complicated. For example, some of the ancient voice of opening Hong Yin of "Ying" *(影)* and "Yi" *(疑)* in the phonological system of Medieval Chinese has become [ŋ] now, such as the initials of "ŋao" *(袄)*, "ŋen" *(硬)* are the same [ŋ] in Pingchang dialect while they are zero initials in Pingchang. In addition, the others of this kind ancient vocal switch are all zero initials now as Putonghua, for example the word "wu" *(五)* has no initial in Pingchang dialect the same.

- [n], [l] are also complicated in Pingchang dialect. Some of the initials of the words, such as "nan" *(难)*, "lan" *(兰)*, "nu" *(怒)*, "lu" *(路)*, are different in Putonghua-[n]and[l], while they have the same initial [l] in Pingchang dialect. That is to say, [n], [l] are the same phoneme [l] in some words in Pingchang dialect. And some initials of words in Putonghua are [n], in the Pingchang dialect are [ŋ], for example For example, the initial of "nü" *(女)*, "nian" *(年)* are [n] in Putonghua, while [ŋ] in Pingchang dialect.

In summary, by sorting and comparing the sounds of the investigative words, we can get the basic outline of the Pingchang dialect, and get the above 23 initials.

III. THE FINALS SYSTEM

Through the investigation and analysis of the words, pronunciation of Pingchang dialect, it is roughly concluded that Pingchang dialect has 41 finals. The author lists them as follows:

A. Single Vowel

-i[ɿ]: front vowel, high vowel, non-round lip vowel, e.g: "zi" *(资)* [tsɿ];

-i[ʅ]: back vowel, high vowel, non-round lip vowel, e.g: "zhi" *(知)* [ʂʅ];

i[i]: front vowel, high vowel, non-round lip vowel, e.g: "di" *(地)* [ti];

a[a]: central vowel, Low vowel, on-round lip vowel, e.g: "pa" *(爬)* [pʰa];

o[o]: front vowel half-close vowel Non-round lip vowel, e.g: "guo" *(过)* [ko];

e[e]: back vowel, half-high vowel, round lip vowel, e.g: "ge" *(哥)* [ke];

e[ɣ]: back vowel, half-high vowel, non-round lip vowel, e.g: "she" *(蛇)* [ʂɣ];

ü[y]: front vowel, high vowel, round lip vowel, e.g: "nü" *(女)* [ɳy];

u[u]: back vowel, high vowel, round lip vowel, e.g: "mu" *(木)* [mu];

er[ɚ]: retroflex vowel, central vowel, middle vowel, non-round lip vowel, e.g: "er" *(耳)* [ɚ].

B. Compound Vowels

1) Main vowl+tail vowel
[ai]: "gai" *(盖)* [kai] [ei]: "mei" *(妹)* [mei]

[au]: "bao" *(饱)* [pau] [ou]: "dou" *(斗)* [tou]

[an]: "duan" *(短)* [tuan] [ən]: "gen" *(根)* [kən] [in]: "lin" *(林)* [lin]

[aŋ]: "sang" *(桑)* [saŋ] [uŋ]: "hong" *(红)* [xuŋ]

2) Medial+ Main vowel
[ia]: "jia" *(夹)* [tɕia] [ie]: "tie" *(铁)* [tʰie] [io]: "xue" *(学)* [ɕio]

[ua]: "gua" *(刮)* [kua] [uæ]: "gua" *(国)* [kuæ]

[uo]: "tuo" *(拖)* [tuo] [ue]: "ue" *(喂)* [ue]

[yo]: "iao" *(药)* [yo] [ye]: "que" *(缺)* [tɕʰye]

3) Medial+ Main vowel+tail vowel

[iai]: "jiai" *(解)* [tɕian] [iau]: "tiao" *(条)* [tʰiau]

[ian]: "jian" *(减)* [tɕiɛn] [iaŋ]: "jiang" *(讲)* [tɕiaŋ]

[uai]: "guai" *(怪)* [kuai] [uei]: "gui" *(桂)* [kuei]

[uan]: "chuan" *(船)* [tʂʰuan] [uen]: "hun" *(魂)* [xuen]

[uaŋ]: "chuang" *(床)* [tʂʰuaŋ] [iəu]: "liu" *(流)* [liou]

[yan]: "üan" *(圆)* [yɛn] [yn]: "ün" *(云)* [yn]

[yŋ]: "xiong" *(胸)* [ɕyŋ]

C. The Characteristics of Finals System

- The main vowels of Pingchang dialect are [a], [o], [e], [i], [u], [y], and the finals of the vowels include open finals, vowel finals [-i], [-u], nasal finals [-n] [-ŋ]. The main vowels are combined with different Medial and tail vowel to form a compound vowel.

- In Pingchang dialect, there is no entering rhyme carrying forward from the medieval Chinese. Some entering rhymes read as [æ], [uæ], but do not merge with Yin rhyme in medieval Chinese, such as "ba" *(爸)* [pæ], "wan" *(挖)* [uæ].

- All the rhymes of entering tone disappeared. A large number of the entering rhymes of the generations in medieval Chinese are pronounced as single vowels like [i], [u], [y], [a], [e], [o], Next is the binary vowel. [uo], [io], [iu], [ie], [ye], [ia], [ua], [ai].

- In Pingchang dialect, there is no distinction between ən—əŋ, in—iŋ. Like Chengdu dialect and Chongqing dialect, there are only [ən], [in], no [əŋ]-[iŋ].

- The finals [eŋ] in Putonghua mostly become [uŋ] in modern Pingchang dialect, such as "绷" [puŋ], "翁" [uŋ].

- Some of the vowels of [e] in Putonghua become [o] rhymes in Pingchang dialect, such as "河" [xo].

- The real pronunciation of e and a in vowels is not the same, but has their own pronunciation changes. For example, the finals [ə], [ɛ], [a], [æ] and so on.

IV. TONE SYSTEM

With the aid of voice analysis by Praat software, it is concluded that there are four tone categories in Pingchang dialect as shown in "Table I":

TABLE I.　　THE TONE SYSTEM OF PINGCHANG DIALECT

	Tone category	Tone pitch	Tone type	Examples
1	Yinping	34	middle-rising tone	天[tʰian³⁴], 帮[pan³⁴]
2	Yangping	42	high-falling tone	笛[di⁴²], 房[fan⁴²]
3	Shangsheng	213	falling-rising tone	捡[tɕian²¹³], 挡[tan²¹³]
4	Qusheng	453	rising-falling tone	唱[tʂʰaŋ⁴⁵³], 付[fu⁴⁵³]

V. CONCLUSION

In summary, it can be found that the main phonetic difference between Pingchang dialect and other dialects in Sichuan is that there is no entering tone in Pingchang dialect. And the combination of initials, vowels and tone has its own characteristics. Compared with Putonghua, Pingchang dialect has some unique vowels and vowels, which needs further investigation.

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