

An Experimental Analysis of the Phenomenon of Deletion of the Consonant r in Baicheng County Dialect of Modern Uyghur Language Based on Field Survey

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ABSTRACT

One of the contextual variations in the Uyghur language stream is the deletion of vowels, which leads to long vowelization. However, in Baicheng county dialect of modern Uyghur language, apart from the long vowelization of vowels resulting from the deletion of consonants, there is also the phenomenon of non-long vowelization of vowels. If the individual words resulting from the deletion of the consonant [r] is used alone, it may have the effect of distinguishing meaning, but when the word is used in the groups of words, phrases or sentences, it returns to its pre-deletion meaning according to the context and does not have the effect of distinguishing meaning.

INTRODUCTION

There are three dialects in Uyghur language: Central dialect, Hetian dialect, and Luobupo dialect. Talimu subdialect in the central dialect is further divided into branches such as Kuche, Talimu and mogali(moral). Kuche county dialect is mainly distributed in four counties of Akesu region, namely Kuche, Xinhe, Baicheng and Shaya¹. Therefore, Baicheng county dialect of modern Uyghur language can be said to be a branch of the Kuche county dialect of Talimu subdialect. In modern Uyghur there are various phonetic variation phenomena such as phonological deletion, alienation, weakening, assimilation, alternation and transposition. In addition to these phonetic phenomena, Baicheng county dialect of modern Uyghur language has some contextual variation in the language stream that are different from the modern Uyghur standard language, among which the deletion of consonants and the long vowelization of vowels are more obvious and prominent.

There are different views on the phenomenon of consonant deletion and the long vowels in Uyghur, both in China and abroad. According to foreign scholars, Uyghur language does not have long vowels, but it has stressed vowels², the view of domestic scholars is not quite the same, some of them think that it has not only secondary long vowels, but also primary long vowels³, some scholars disagree with the view above and do not believe that Uyghur language has a primary long vowel, which came later in the

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development of Uyghur language. In addition, the secondary long vowel is the result of a vowel merger resulting from the deletion of a consonant between two vowels, or the result of the deletion of a consonant at the end of a sound and the change of the preceding vowel to a long vowel⁴.

This paper based on the field survey, the relevant theories and methods of traditional phonetics and experimental phonetics are combined to conduct a preliminary experimental analysis of the phenomenon of deletion of the consonant [r] in Baicheng county dialect of modern Uyghur, and to discuss the phenomenon of long vowelization of vowels produced by consonant deletion.

ABOUT INVESTIGATION

Investigation Point and Informant

“Baicheng” means beautiful and rich land in Uyghur language, Baicheng county is located in the Akesu region of Xinjiang Uyghur Autonomous Region, with a total area of 19,100 square kilometers. Our investigation team takes the town of Baicheng, the town of Sailimu (located in the eastern part of Baicheng county, roughly 28km away from Baicheng county), and the villages of Balakezi and Kumugeremu (located in the eastern part of Baicheng county, roughly 18 km away from Baicheng town) in Tuokexun investigation Point in November 2021 to conduct a field survey of Baicheng county dialect of modern Uyghur language. The survey was mainly conducted by interviewing and recording, while the special questions found in the recording were recorded on the spot, and all contents related to the purpose of the survey were uniformly marked with international phonetic symbols.

The investigation team had several requirements for selecting informant; first, gender and age requirements: no gender requirement, between the ages of 30 and 80. The second is the pronunciation requirements: normal organs of articulation, bright and clear voice and smooth language expression; third is the field experience and educational background: native born and raised in Baicheng county, few out-of-town experiences, education to primary or secondary school level; fourth is the degree of influence by other dialects or subdialects: the family language environment has not been or almost rarely been influenced by other relatives dialects, subdialects or county dialects. Their spouses or parents are typical local people; according to the several requirements above, the investigation team identified eight informants.

Informant 1: female, 76 years old, farmer, first grade elementary school education level, lives in Gardener neighborhood of Baicheng Township in Baicheng county; informant 2: female, 71 years old, farmer, elementary school education level, lives in Baicheng county, Balakezi village of Tuokexun country; informant 3: female, 65 years old, farmer, elementary school education level, lives in Baicheng county, Kumugeremu village of Tuokexun country; informant 4: female, 58 years old, farmer, elementary school education level, lives in Baicheng county, Kumugeremu village of Tuokexun country; informant 5: female, 52 years old, farmer, elementary school education level,

lives in Baicheng county, Balakezi Village of Tuokexun country; informant 6: female, 49 years old, farmer, junior high school education level, lives in Kendikedun village, Baicheng township in Baicheng county; informant 7: male, 34 years old, farmer, elementary school education level, lives in Baicheng county, Kumugeremu village of Tuokexun country; informant 8: male, 32 years old, worker, junior high school education level, lives in Gardener neighborhood of Baicheng Township in Baicheng county.

Content and Methods of Investigation

CONTENT OF INVESTIGATION

At present, the study of Uyghur dialects and subdialects has made some achievements, but so far there is no work dedicated to the study of Baicheng county dialect of modern Uyghur language, and there is no paper dedicated to the study of Baicheng county dialect of modern Uyghur language in the online database, only some contents have been covered in some works and papers, but not many, which shows that Baicheng county dialect of modern Uyghur language has still failed to attract the attention of language researchers for so many years. Baicheng county dialect of modern Uyghur language belongs to the central dialect of modern Uyghur, but due to the differences in geographical location, historical development and social customs, some special linguistic phenomena have been formed in the process of language evolution, which are different from the Uyghur standard language. As the main feature of Baicheng county dialect of modern Uyghur language, the phonological changes of the language stream can reflect some phonological phenomena unique to Baicheng county dialect, such as the deletion of consonants and the resulting long vowelization of vowels. We believe that there are a lot of linguistic materials that can be collected in Baicheng county dialect of modern Uyghur language, and we can explore more phonological phenomena through field investigation, especially the phonological phenomena such as consonant deletion and long vowelization of vowel, which can better reflect the phonological characteristics of Baicheng county dialect of modern Uyghur language. Therefore, according to the requirements mentioned above and taking into account the personal situation of the informants. This investigation team divided the survey into the following aspects: the informants' living conditions, work situation, family situation (including various aspects of the informants' family members), personal experience, the relationship between the informants and their family members or relatives, and recent events. In order to ensure the purity of the corpus of this survey, no special vocabulary lists were prepared for informants to read aloud, but rather in the form of natural conversation.

METHODS OF INVESTIGATION

This research study mainly used traditional methods and acoustic methods, for example: Traditional methods:

First, field survey method: this study uses the field survey method to conduct field surveys in representative villages in Baicheng county, and to filter, compare, analyze and summarize on the basis of first-hand data.

Second, the combination of description and explanation method: this research collates and summarizes the collected first-hand data and analyzes and annotates them according to the relevant theories of phonology, so as to make a more detailed description and explanation of the phenomenon of consonant deletion.

Third, the method of co-temporal comparative analysis: In the process of analysis, the phenomenon of consonant deletion in Baicheng county dialect of modern Uyghur language is compared with the modern Uyghur standard language and Kuche county dialect, and its universal and differences are analyzed, and on this basis, personal opinions and views on this study are presented.

Acoustic methods:

First, recording method: recording and data acquisition using instruments and software have Apple laptop (Mac book pro2015), with its own sound card and microphone and other hardware equipment and Cool edit pro 2.0 and Adobe audition2020 software for recording.

Second, data acquisition and playback method: sampling rate 44100Hz, precision 16 bits, sound through a single channel acquisition.

Third, speech analysis method: the collected sound is analyzed by Praat (version 6.1.53) speech analysis software.

SURVEY ANALYSIS

For the phenomenon of consonant deletion in modern spoken Uyghur, it is believed that consonant deletion is one of the main reasons for the production of long vowels. Every short vowel consonant in Uyghur becomes a long vowel after deletion. Consonant deletion in spoken Uyghur does not play a role in distinguishing meaning, but only in producing long vowels⁵. So here are a few questions, is it true that every short vowel consonant in modern Uyghur language will change to a long vowel after deletion? Is there a phenomenon that individual short vowels do not change to long vowels after consonant deletion? If there is no such phenomenon in modern Uyghur standard language, is there any phenomenon that the vowel preceding this consonant does not change to a long vowel after the consonant is deletion in individual dialects or county dialect? If there is no such phenomenon in modern Uyghur spoken language, then will the words with the deletion consonants be confused with other words without the deletion consonants because they have the same pronunciation? We will answer these questions based on the following investigations and experiments.

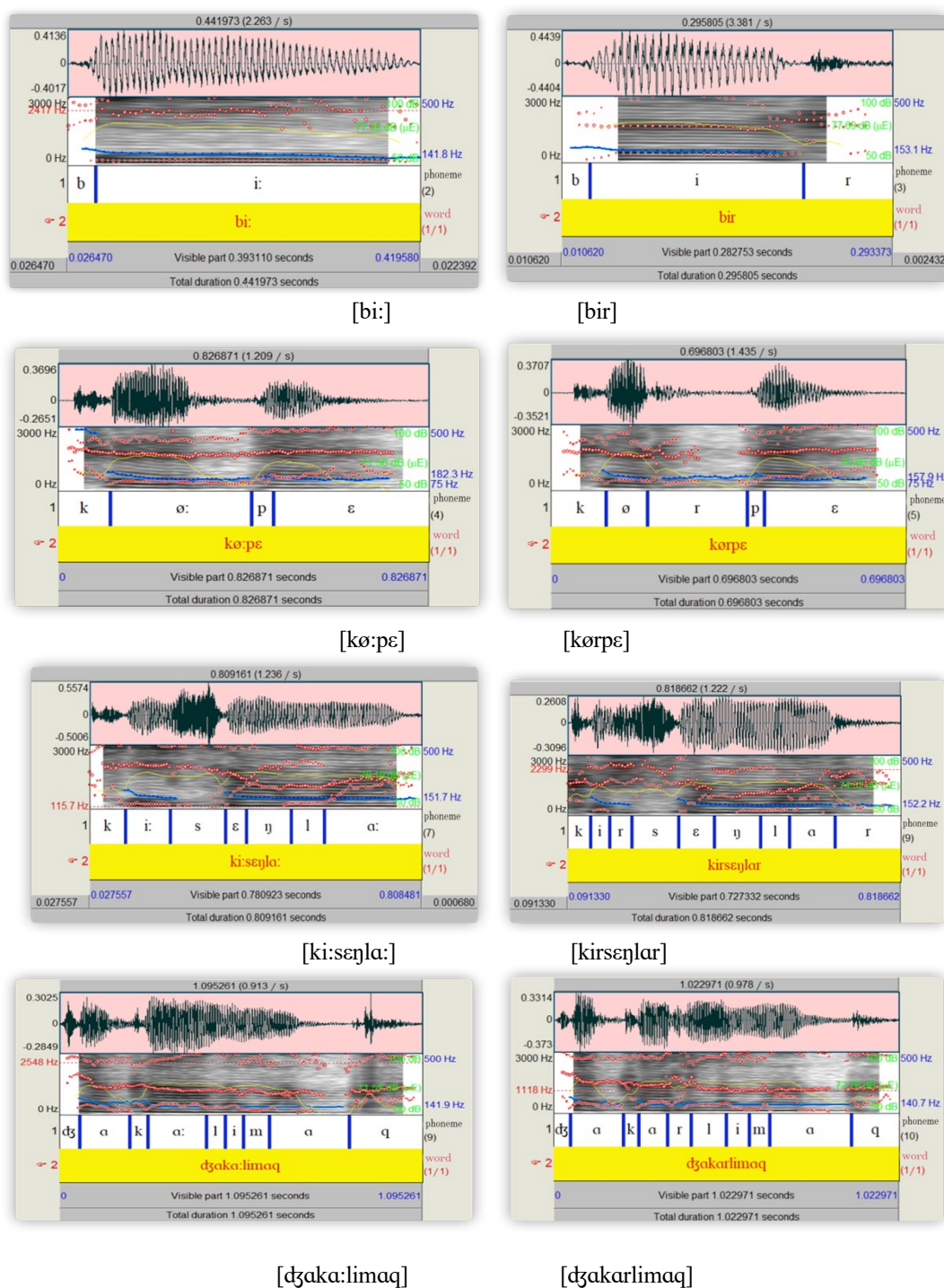


Figure 1. Three-dimensional spectrogram of deletion of consonant [r].

After the Deletion of Consonant [R], The Vowel in Front Of [R] Is Elongated to Become a Long Vowel.

During the linguistic investigation, it was found that Baicheng county dialect of modern Uyghur language is similar to other dialects in that the vowel in front of the consonant [r] is elongated to produce a long vowel due to the deletion of the consonant [r] in the speech stream. In the following, we look at the duration, formant and fundamental frequency of the consonant [r] with and without deletion in Baicheng county dialect of modern Uyghur language and Uyghur Standard language through the three-dimensional spectrogram.

From the above three-dimensional spectrogram, we can see that the difference between the non-deletion of the consonant [r] in Uyghur standard language and the deletion of [r] in Baicheng county dialect in Uyghur is mainly in the duration, that is, the duration of the consonant [r] after deletion is a little longer in Baicheng county dialect in modern Uyghur than in modern Uyghur standard language. In addition, there is almost no difference in the first formant F1, second formant F2, and third formant F3. In terms of phonetic intensity, it appears to fluctuate due to the influence of consonants, resulting in the difference in phonetic intensity between modern Uyghur standard language and Baicheng county dialect of modern Uyghur language. In addition, there is almost no difference in the fundamental frequency between the consonant [r] before and after deletion. Therefore, the main difference between modern Uyghur standard language and Baicheng county dialect of modern Uyghur language after the consonant [r] deletion is in the duration, and there is little difference in other aspects. The following is a comparison of the duration of the consonant [r] when it is deletion and when it is not deletion in Baicheng county dialect of modern Uyghur language and modern Uyghur standard language.

TABLE I. COMPARISON OF DURATION OF BAICHENG COUNTY DIALECT OF MODERN UYGHUR LANGUAGE AFTER DELETION OF CONSONANTS.

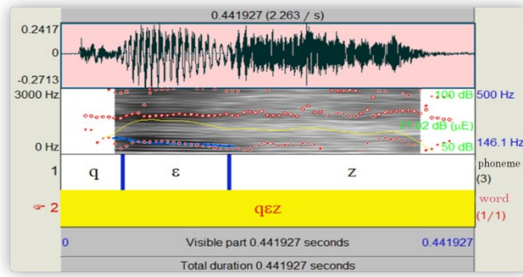
syllable	Baicheng county dialect of modern Uyghur language / modern Uyghur standard language	In English	Deletion of [r] /s	Non-deletion of [r] /s
monosyllable	bi:/bir	one	0.386	0.248
	ja:/jar	cliff	0.536	0.331
	ta:/tar	narrow	0.552	0.389
disyllable	kymy:/kømyr	coal	0.439	0.341
	kø:pe/ kørpe	mattress	0.624	0.525
	tu:nu:/tonur	Nang pit	0.503	0.431
Three-syllable	ki:səŋla:/kirsəŋlar	Come	0.741	0.650
	bøldzy:gen/ bøldzyrgen	strawberry	0.846	0.756
	eske:tij/eskərtij	suggest	1.014	0.897
Four-syllable	aʃka:limaq/aʃkarilimaq	exposure	1.052	0.791
	kəpʃe:limek/ kəpʃərimek	Electric welding	1.057	0.848
	dʒaka:limaq/ dʒakarilimaq	announce	1.051	0.956

We have selected 12 examples that are representative and highlight the phenomenon of consonant deletion in Baicheng county dialect of modern Uyghur language, which are frequently encountered in conversation, and classified them by syllables, comparing them with the modern Uyghur standard language. From Table 1, we can find that consonant [r] deletion in the speech stream occurs in both monosyllabic and polysyllabic words. In addition, it also occurs in the middle or final part of the words, but not when it is in the first position of the initial syllable of the word. When the consonant [r] is deleted, the vowel preceding it is elongated to a long vowel, so it is longer in duration than when it is not deleted.

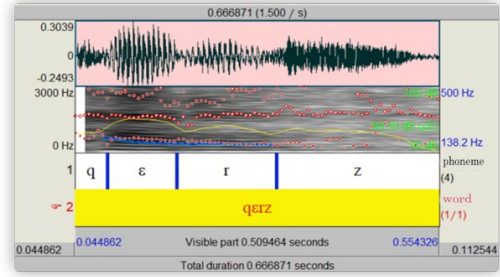
The Vowel Does Not Change to Long Vowel After the Deletion of Consonant [R].

In the speech stream, after the consonant [r] is deleted in Baicheng county dialect of modern Uyghur language, some of the vowels become long vowels, and some of the vowels are not elongated after the consonant is deleted and are spoken at normal speech rate, which means that the vowels before [r] do not become long vowels. To further examine this feature, we selected some examples from the collected corpus that are commonly used in Baicheng county dialect of modern Uyghur language and reflect this phenomenon of consonant deletion in Baicheng county dialect of modern Uyghur language and compared them with the modern Uyghur standard language to find out the similarities and differences in their speech stream. The following three-dimensional spectrogram are used to look at the consonant [r] before and after deletion.

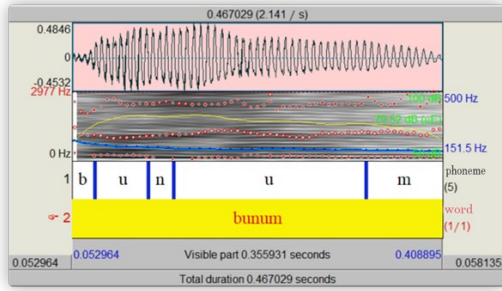
From the above three-dimensional spectrogram, we can see that the difference between the non-deleted consonant [r] in modern Uyghur standard language and the deleted [r] in Baicheng county dialect of modern Uyghur language is mainly in the duration, but unlike the above example where the duration of the consonant [r] is longer than the non-deleted standard language, it is shorter because after the consonant [r] is deleted, none of the vowels before it is stretched to become long the duration of the consonant [r] is shorter than that of the standard language. In addition, the first formant F1, the second formant F2 and the third formant F3 are also almost indistinguishable. The intensity of the tone appears to fluctuate due to the influence of consonants. There is almost no difference between before and after deletion on the fundamental frequency. Let's observe the comparison of the duration of the consonant [r] in Baicheng county dialect of modern Uyghur language and modern Uyghur standard language when it is deleted and when it is not deleted.



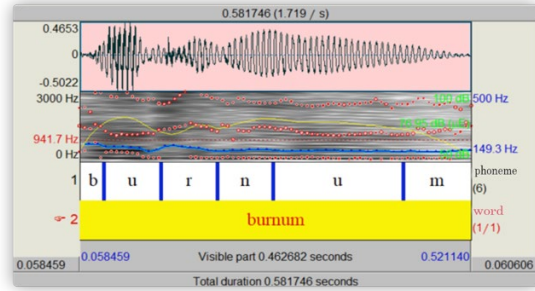
[qεz]



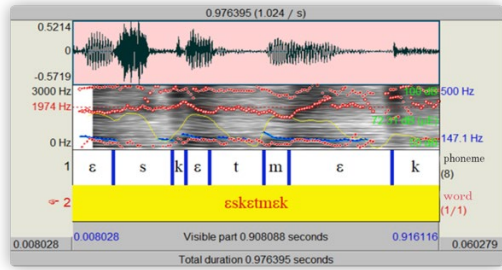
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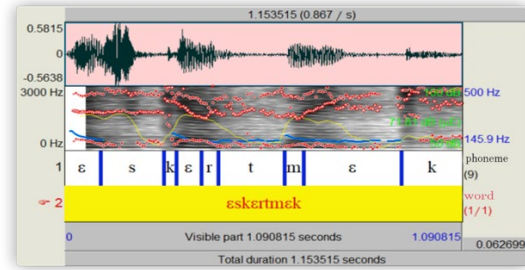
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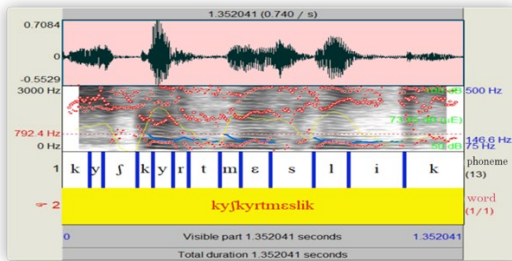
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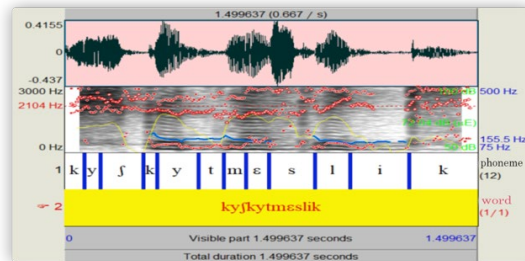
[εskεtmek]



[εskεrtmek]



[kyjkyrtmeslik]



[kyjkyrtmeslik]

Figure 2. Three-dimensional spectrogram of deletion of consonant [r].

TABLE II. COMPARISON OF DURATION OF BAICHENG COUNTY DIALECT OF MODERN UYGHUR LANGUAGE AFTER DELETION OF CONSONANTS.

syllable	Baicheng county dialect of modern Uyghur language / modern Uyghur standard language	In English	Deletion of [r] /s	Non-Deletion of [r] /s
monosyllable	qez/qerz	debt	0.651	0.664
	ez/erz	lawsuit	0.318	0.451
	des/deris	lesson	0.388	0.531
disyllable	bidem/ birdem	awhile	0.516	0.622
	ƣagit/ƣagirt	apprentice	0.852	0.942
	bunum/burnum	my nose	0.362	0.453
Three-syllable	ky/kytmek/ ky/kyrtmek	instigation	0.845	1.046
	esketmek/eskertmek	suggest	0.907	1.102
	køketmek/ køkertmek	verdurization	0.956	1.170
Four-syllable	jygytməslik/ jygyrtmėslik	don't let run	1.139	1.339
	ky/kytməslik/ ky/kyrtmėslik	don't instigation	0.941	1.275
	esketmėslik/eskertmėslik	don't suggest	1.136	1.371

From Table 2, we can see that the deletion of the consonant [r] in Baicheng county dialect of modern Uyghur language can occur in both monosyllables and polysyllables, and it is more common for the vowel preceding this consonant to change to a long vowel after the deletion of [r]. However, in some cases, the vowel in front of the consonant [r] remains unchanged as a long vowel after the consonant [r] is deleted. When the consonant [r] is at the beginning of a word, it does not fall off, but when it is at the end of a word, there are two cases: the first one is that it does not delete, and the second one is that the vowel in front of this consonant becomes a long vowel after deletion.

We have discussed above whether the consonant [r] deletion will play a role in distinguishing the meaning. Here we look at it through a few examples. In some word in the speech stream due to the different speed or height of speech, there may be deletion in some word, but after deletion we can still understand the meaning expressed in the speech stream through the context, only when the word produced after deletion is listed separately, due to the similarity with other words that are not deletion, there may be some confusion. For example:

(1) uni ezseŋ ez, mən be:ribir seni ez qilime.

English: You can oppress him if you want, anyway I will sue you.

(2) a: ma:lim buru:n maŋa des wə:gen , her qetim sual sorisa o:numdin des turup andin dʒawap birtim.

English: The teacher had taught me before, and every time she asked a question, I stood up and answered.

The monosyllabic word [erz] (sue) in Baicheng county dialect of modern Uyghur language is affected by factors such as the height or speaking rate in the speech stream causing [r] to deletion and change to [ez], which is the same as the pronunciation of [ez] (oppress) in the Uyghur standard language, for example, in example (1) the [ez] in front means oppression and the following [ez] means sue, both are the same in pronunciation,

duration and intonation, so when those two words are listed separately, there is still some confusion in the meaning, and the meaning can only be distinguished in the speech stream according to the context.

The preceding [dɛs] in example (2) means lesson and the next [dɛs] means stand straightly, both of which have the same pronunciation and duration, but the Baicheng county dialect of modern Uyghur language can only distinguish meaning in the speech stream based on context and the tone of speech. Therefore, not all consonant deletion in modern spoken Uyghur does not play a role in distinguishing meaning, there are few words in some dialects or subdialect that may play a role in distinguishing meaning when listed individually but return to their original meaning when in a specific group of words, phrase or sentence.

CONCLUSION

Baicheng county dialect of modern Uyghur language belongs to the central dialect of modern Uyghur language, so its accent is also more inclined to the central dialect. However, during its historical evolution, due to its geographical location and various customs and habits, has formed some special phonological characteristics that are different from the central dialect, among which the contextual variation is a prominent phonological phenomenon, for example, compared with the Tulufan and Hami subdialects in the central dialect, the consonant deletion in Baicheng county dialect of modern Uyghur language is more obvious. The consonant deletion, especially the deletion of the consonant[r] is more obvious in Baicheng county dialect of modern Uyghur language. The following conclusions are drawn from the linguistic survey and later inductive analysis:

First, the monosyllabic words in Baicheng county dialect of modern Uyghur language are in the stream of speech, if the [r] deleted at the end of the word, then the vowel in front of the [r] will be elongated, if the [r] deleted at the middle of the word, then the vowel in front of the [r] will not be elongated.

Second, in the stream of speech, the vowel in front of this consonant becomes a long vowel after the deletion of consonant has relativity. For example, in disyllabic or polysyllabic words, if the vowel in front of the consonant is elongated after the deletion of consonant [r], it can be regarded as the normal phenomenon if it occurs at the end of the word, but if it occurs in the middle of the word, some vowels are elongated and some are not.

Third, not all the consonant deletion in Uyghur spoken language can't play the role of distinguishing meaning, there are few words in some subdialect or county dialect due to consonant deletion in the stream of speech, when listed separately, there may be some confusion due to the similarity with other words without deletion, thus it may play the role of distinguishing meaning, but in specific group of words, phrases or sentences, it returns to the original meaning and can't play the role of distinguishing meaning.

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