

A Phonological Sketch of the Datong Dialect, Qinghai Province

川澄, 哲也
松山大学

<https://hdl.handle.net/2324/7403573>

出版情報 : 現代中国語研究. 22, pp.25-38, 2020-10. 朝日出版社
バージョン :
権利関係 :



A Phonological Sketch of the Datong Dialect, Qinghai Province

Tetsuya KAWASUMI

(松山大学)

提要: 本文依据笔者 2019 年 8 月实地调查获得的青海大通方言语料, 对该方言的音段音位系统进行了分析与归纳。在此基础上, 得到了 24 个辅音音位(/b, p, d, t, g, k, dz, ts, dz̥, zh, ch, f, s, ʃ, sh, r, h, m, n, l, w, y, j/)及 8 个元音音位(/i, u, e, o, a, ẽ, õ, ǎ/)。文章还进一步对大通方言的单字调与双字调进行了描述, 并得出以下两点结论: 1.大通方言是一个 3 声调方言。2.大通方言是一个“词声调”语言。

关键词: 青海省 大通县 方言 音系

1 Introduction

The Datong (大通) dialect is a Chinese variety spoken in Datong Hui and Tu Autonomous County, Qinghai (青海) Province, PRC. In this paper, the phonology of the Datong dialect¹ is examined².

This paper is organized as follows: In section 2, the syllable structure is described. In sections 3 and 4, the segmental phonology is analyzed. In section 5, the tone system is dealt with. Section 6 summarizes the study.

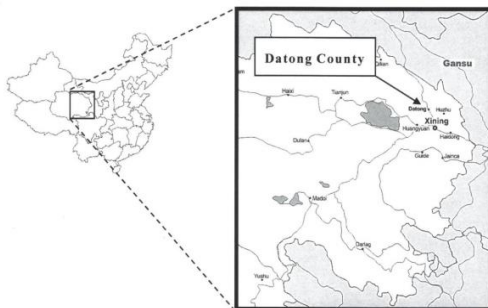


Figure. 1 Location of Datong³

2 Syllable Structure

The syllable structure of the Datong dialect can be represented as (1):

(1) (Initial)⁴ + (Glide) + Nucleus / Tone

Compared with Standard Chinese (henceforth SC), the absence of ‘ending’ is a peculiarity of the

¹ Language consultant of this study is LI Guozheng (李国政). He was born in 1947 in Dongxia (东峡) town of the County. The data presented in this paper was collected in August 2019.

² To date, no paper has been published on this subject, except for those by the present author (Kawasumi 2014, 2015, 2016)

³ The base map was downloaded from an Internet site (https://d-maps.com/carte.php?num_car=16806&lang=ja [last access: March 22, 2020]) and revised by the present author.

⁴ () indicates that the element inside is optional.

dialect. This difference with SC is due to the internal sound changes in the dialect such as monophthongization (see section 4.1) and vowel nasalization (see sections 4.5-4.7).

3 Consonants

Section 3 discusses the consonant phonemes in the Datong dialect. The phonological inventory of the dialect includes twenty four consonant phonemes as in Table 1 (/w/ and /y/ are double articulation).

Table 1. The Datong dialect consonant phonemes

	labial	alveolar	alveolo-palatal	retroflex	palatal	velar
plosive	b, p	d, t				g, k
affricate		dz, ts	dz, tɕ	zh, ch		
fricative	f	s	ɕ	sh, r		h
nasal	m	n				
liquid		l				
approximant	w, y				j, y	w

In the following subsections, I present briefly the results of my phonemic analysis of the consonants.

3.1 Consonants that appear in the initial position

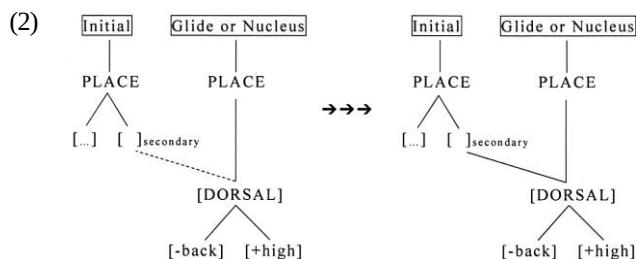
3.1.1 Plosives

- /b/ [p~b̥] e.g. [pɔ²⁴] “to wrap” [pã⁴⁴ tã²¹] “wooden stool”
- /p/ [p^h] e.g. [p^hɔ⁴²] “to run” [p^hɔ²⁴] “fat”

Like other Mandarin varieties, aspiration is distinctive in the Datong dialect. The phoneme /b/ is sometimes realized as a half-voiced consonant ([b̥]) as a free variant⁵. When /b/ and /p/ are followed by [j], [ʒ] or [ɿ], they are realized as the palatalized allophones:

e.g. [b̥^hʒ²¹ tsɿ³] “nose” [p^hʒ²¹ k^wu⁴⁴] “apple” [p^hɿ²¹ m^jɛ⁴²] “north”

As will be shown elsewhere below, many other consonants, as well as the bilabial plosives, are also palatalized in the same environments. This can be indicated as follows (the less important features⁶ are omitted):



If the glide or nucleus has the features [–back] and [+high], they spread (symbolized by ‘---’) to the

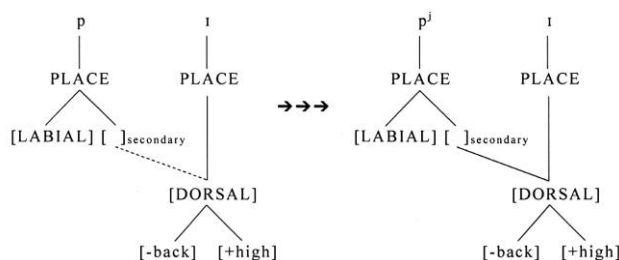
⁵ The same can be said of all the other voiceless plosives and affricates.

⁶ As for the phonological features of the Datong dialect, see the Appendix attached at the end of this paper.

initial and cause palatalization as a secondary articulation.

The following is one example of this process:

(3)



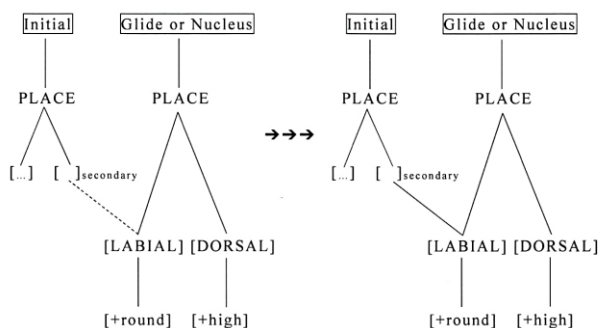
- /d/ [t~d] e.g. [tʰA²⁴] “big” [pA²¹ tʰjE⁴⁴] “8 o’clock”
- /t/ [tʰ] e.g. [tʰA²⁴] “tower” [tʰj²⁴] “to paste”

Alveolar plosives are realized as the corresponding rounded plosives when they are followed by [w] or [u].

e.g. [tʰw²⁴] “many” [tʰwu²⁴] “to take off” [tʰA²⁴ tʰwə²¹] “Datong”

Other consonants are also rounded in the same environments. This can be indicated as (4):

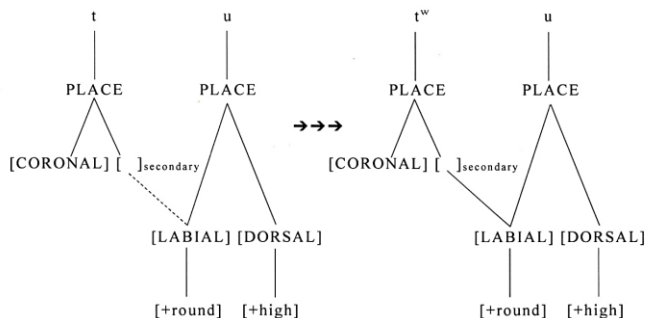
(4)



When the glide or nucleus has the features [+round] and [+high], the former one spreads to the initial and causes labialization as a secondary articulation.

The following is one example of this process:

(5)



- /g/ [k~g] e.g. [gə²⁴] “rainbow” [kʷwə²⁴] “bow”
- /k/ [kʰ] e.g. [kʰv²⁴] “to cry” [kʰwə²⁴] “empty”

3.1.2 Affricates

- /dz/ [ts[◌]ɖz] e.g. [tsu⁴²] “to walk” [ts^wu²¹ʂu⁴²] “left hand”
- /ts/ [ts^h] e.g. [ts^{hw}u²⁴] “thick” [pɔ²¹ ts^hɛ^{44~42}] “spinach”

Besides the alveolar affricates, there are also postalveolar and alveolo-palatal affricates in the dialect. These affricates are in complementary distribution based on the following sounds. This is shown in Table 2, where “○” indicates the actual combinations.

Table 2. Complementary distribution of some affricates

	ɿ	ɪ	u	w	ʉ	ɛ	ɔ	ʌ	ǣ	ǣ̃	ǣ̄	ʒ	ʒ ^w	i	j	ɥ
ts	○				○	○	○	○	○	○	○					
ts ^j		○														
ts ^w			○	○												
tʃ												○				
tʃ ^w													○			
tɕ														○	○	
tɕ ^w																○

Judging from the distribution and phonetic similarity, it seems possible that these affricates are grouped in one phoneme. However, this paper groups the postalveolar and alveolo-palatal affricates in the same phoneme, and considers the alveolar affricate to be a separate phoneme (the reason for this will be taken up in section 4.2 below).

- /dz/ [tɕ[◌]ɖz̥~tʃ[◌]ɖz̥] e.g. [tɕi²⁴] “near” [tɕ^wɥu²⁴] “foot” [tʃ^z21 zɥu⁴⁴] “chicken”
- /tɕ/ [tɕ^h~tʃ^h] e.g. [tɕ^hi²¹ tsɿ⁴⁴] “eggplant” [tʃ^hz̥44 tɕ^{hw}wɔ̃²⁴] “to get up”

The appearances of postalveolar affricates can be explained by the following rule (6)⁷:

$$(6) \begin{pmatrix} -\text{anterior} \\ +\text{distributed} \\ \text{CORONAL} \\ \text{DORSAL} \end{pmatrix} \rightarrow \begin{pmatrix} +\text{anterior} \\ -\text{distributed} \end{pmatrix} /_{\text{syll}} _ \emptyset \begin{pmatrix} +\text{anterior} \\ -\text{distributed} \\ \text{DORSAL} \end{pmatrix}$$

The alveolo-palatal affricate changes to a postalveolar affricate if it is followed by [ʒ] or [ʒ^w].

- /zh/ [tɕ[◌]ɖz̥] e.g. [tɕən²⁴] “needle” [fā²⁴ tɕ^wu³¹] “dining table”
- /ch/ [tɕ^h] e.g. [tɕ^hɔ̃²⁴] “to sing” [x^wu⁴⁴ tɕ^hɛ²¹] “train”

3.1.3 Fricatives

- /f/ [f] e.g. [fɔ²¹³¹]⁸ “to speak” [fɿ²¹ tʃ^z44] “airplane”
- /s/ [s] e.g. [sɔ⁴⁴] “to sweep” [s^wwɔ̃²¹ fɿ⁴⁴] “squirrel”

⁷ Gussenhoven and Jacobs(2017: 255-256) analyzes that postalveolars are [+anterior][−distributed] whereas alveolo-palatals are [−anterior][+distributed]. This paper shares this opinion.

⁸ In the Datong dialect, SC “s + u” combination is changed to [f].

In addition to [s], there also are [ʃ] and [ç] in the dialect. Like the affricate series mentioned in section 3.1.2, they too are in complementary distribution as follows:

Table 3. Complementary distribution of some fricatives

	ɿ	ɪ	u	w	ʉ	ɛ	ɔ	ʌ	ẽ	ã	õ	ʒ	ʒ ^w	i	j	ɥ
s	○				○	○	○	○	○	○	○					
s ^j		○														
s ^w			○	○												
ʃ												○				
ʃ ^w													○			
ç														○	○	
ç ^w																○

Here again this study considers [ʃ] and [ç] to be in the same phoneme underlyingly, and interprets the alveolar fricative as a separate phoneme.

- /ç/ [ç~ʃ] e.g. [çjɔ⁴⁴] “small” [ç^wʉ²⁴] “snow” [ʃʒ⁴⁴] “to wash”

The appearance of [ʃ] can be explained by the rule (6) shown above.

- /sh/ [ʃ] e.g. [ʃɔ⁴⁴] “few” [ʃɛ²⁴] “snake”
- /t/ [z] e.g. [zɛ²⁴] “hot” [k^wwɔ̃²¹zɔ̃⁴⁴] “worker”
- /h/ [x] e.g. [x^wu²¹³¹] “to drink” [xtu²¹ɛ^{44~42}] “monkey”

3.1.4 Nasals

- /m/ [m] e.g. [mʌ⁴⁴] “horse” [m¹ʒ²¹mɔ⁴⁴] “eyebrow”
- /n/ [n] e.g. [nɔ²⁴] “goose” [ʃ²¹n¹ʒi³¹] “Xining(place name)”

3.1.5 Liquids

- /l/ [l] e.g. [lʌ²⁴] “to pull” [l^wwɔ̃¹³] “dragon”

3.2 Consonants that appear in the glide position

In the Datong dialect, approximants [w], [ɥ] and [j] could appear in the glide position. This study phonemicizes them as /w/, /y/ and /j/, respectively. This interpretation can simplify the phonological inventory of vowels (for details of this point, see section 4.2).

- /w/ [w] e.g. [x^wwʌ²¹ɛ⁴⁴] “flower” [wʌ²⁴] “to dig”
- /y/ [ɥ] e.g. [ɥ^wʉ²¹tɕ^{hw}wʌ⁴⁴] “steamer” [ɥ^ẽɛ⁴²] “far”
- /j/ [j] e.g. [p¹ʒi²⁴zɔ̃³¹] “patient” [jʌ²⁴] “to press”

3.3 Summary

Through the present analysis, the following twenty four consonant phonemes are obtained: /b, p, d, t, g, k, dz, ts, dz, tç, zh, ch, f, s, ç, sh, r, h, m, n, l, w, y, j/.

4 Segments that appear in the nucleus position

Section 4 investigates the segments that appear in the nucleus position. In my data, the following

vowels and syllabic consonants are found in this position: [ɿ], [ʮ], [ʒ], [ʒʷ], [i], [u], [ʌ], [ɔ], [ɛ], [ʋ], [ɪ], [ä], [Ē], [ō], [ō], [ī], [y], [ɣ], [ɣ], [ɣʷ].

Subsequent sections show the results of my phonemic analysis of these segments.

4.1 [ʌ], [ɔ], [ɛ], [ʋ], [ɪ]

This section deals with [ʌ], [ɔ], [ɛ], [ʋ] and [ɪ]. This paper phonemicizes them as /a/, /o/, /e/, /u/ and /i/.

- /a/ [ʌ] e.g. [pʰʌ²⁴] “to climb”
- /o/ [ɔ] e.g. [gɔ²⁴](高) “high”
- /e/ [ɛ] e.g. [lɛ²⁴](来) “to come”
- /u/ [ʋ] e.g. [gʊ²⁴](狗) “dog”
- /i/ [ɪ] e.g. [fɪ²⁴](水) “water”

It also should be noted that, as the above examples followed by Chinese character show, SC diphthongs *ao*, *ai*, *ou*, *ei* are monophthongized to [ɔ], [ɛ], [ʋ], [ɪ] in the Datong dialect.

4.2 ɿ, ʮ, ʒ

This section discusses [ɿ], [ʮ] and [ʒ]. These three sounds are similar to each other⁹, and are in complementary distribution as follows:

- [ɿ]/ after alveolars
e.g. [sl²¹ tsɿ³] “lion”
- [ʮ]/ after retroflexes
e.g. [tɕʰɿ²⁴] “to eat” [ʂɿ²¹ tɕʰɿ³¹] “October”
- [ʒ]/ after postalveolars, after bilabials and when initial is zero
e.g. [ʃʒ²⁴] “to wash” [pʰʒ²⁴ tsɿ³¹] “duvet” [ʒ²¹ fʏ³³] “clothes”

In order to reduce the inventory of nuclei, this paper groups them in one phoneme. In addition, these three sounds never combine with the approximants shown in 3.2. In other words, the nuclei [ɿ], [ʮ], [ʒ] and the approximant never simultaneously appear in the same syllable. Based on the complementary distribution, these three nuclei could be grouped with a phoneme presented in 3.2. From the viewpoint of phonetic similarity, it seems reasonable to suppose that these three nuclei are allophones of /j/. The rules that are needed can be stated as follows:

(7)¹⁰ a. j → ʒ / (Initial) Ø __]_{syll}
/j/ is realized as [ʒ] when it is used in the nucleus position.

b. ʒ → ɿ / $\left\{ \begin{array}{c} s \\ ts \\ ts^h \end{array} \right\} \text{Ø} \text{ __]}_{\text{syll}}$

[ʒ] changes to [ɿ] when it is preceded by an alveolar.

c. ʒ → ʮ / $\left(\begin{array}{c} -\text{anterior} \\ -\text{distributed} \end{array} \right) \text{Ø} \text{ __]}_{\text{syll}}$

[ʒ] changes to [ʮ] when it is preceded by a retroflex.

⁹ According to Pullum and Ladusaw(1996), [ɿ] “is essentially a syllabic [z]” (p. 89) and [ʮ] “is essentially a syllabic [ʒ]” (p. 90. [ʒ] must be a misprint of [z]).

¹⁰ The element in () is optional.

d. $j \rightarrow j / (\text{Initial}) \text{ ___ Nucleus}$

/j/ is realized as [j] when it is used in the glide position.

As mentioned in 3.1.2 and 3.1.3, this paper considers alveolars and alveolo-palatals (including postalveolars) to be separate phonemes. Of course, it is also possible to hypothesize that they are in the same phoneme. However, if this analysis is adopted, then we need to treat [ɭ] and [ʒ] as two different phonemes. In order to reduce the phonemic inventory of nuclei, this paper analyzes [ɭ], [ɮ] and [ʒ] as allophones of /j/.

4.3 [ʒ^w], [ɣ]

This section deals with [ʒ^w] and [ɣ].

e.g. [jɔ̃²¹ʒ^{w44}] “potato” [ɣ²¹k^wɪ⁴⁴] “tortoise”

These two syllabic consonants, too, could never be employed with the approximant. This paper thinks that, parallel to /j/ discussed above, [ʒ^w] and [ɣ] also are allophones of approximant phonemes. Based on phonetic similarity, [ʒ^w] is analyzed as an allophone of /y/. The rules needed are as follows:

(8) a. $y \rightarrow ʒ^w / (\text{Initial}) \emptyset \text{ ___ }]_{\text{syll}}$

/y/ is realized as [ʒ^w] when it is used in the nucleus position.

b. $y \rightarrow \eta / (\text{Initial}) \text{ ___ Nucleus}$

/y/ is realized as [ɲ] when it is used in the glide position.

[ɣ] is phonemicized as /w/ by setting the following rules:

(9) a. $w \rightarrow \gamma / (\text{Initial}) \emptyset \text{ ___ }]_{\text{syll}}$

/w/ is realized as [ɣ]¹¹ when it is used in the nucleus position.

b. $w \rightarrow w / (\text{Initial}) \text{ ___ Nucleus}$

/w/ is realized as [w] when it is used in the glide position.

The rules (7)a, (8)a, (9)a could be integrated into (10)¹²:

(10) $\begin{pmatrix} - \text{consonantal} \\ + \text{sonorant} \\ - \text{vocalic} \end{pmatrix} \rightarrow \begin{pmatrix} + \text{consonantal} \\ - \text{sonorant} \\ + \text{vocalic} \end{pmatrix} / (\text{Initial}) \emptyset \text{ ___ }]_{\text{syll}}$

When the approximant phonemes appear in the nuclear position, they are realized as syllabic fricatives of the same place of articulation.

In addition, rules (7)d, (8)b, (9)b could also be integrated as follows:

¹¹ When initial is [x], [ɣ] is often pronounced like [ɣ].

¹² However, in order to get the correct forms [ʒ][ʒ^w], rule (10) needs to be accompanied with the following rule:

• $\begin{pmatrix} - \text{anterior} \\ + \text{distributed} \end{pmatrix} \rightarrow \begin{pmatrix} + \text{anterior} \\ - \text{distributed} \end{pmatrix} / (\text{Initial}) \emptyset \text{ ___ }]_{\text{syll}}$

In addition, to realize [ɣ], the following rule is also needed:

• $[+ \text{round}] \rightarrow [- \text{round}] / (\text{Initial}) \emptyset \text{ ___ }]_{\text{syll}}$

4.6 [ĩ], [ẽ]

Similarly, [ĩ] and [ẽ] are in complementary distribution, too. As for the latter, the fronted variant [ẽ̃] also appears if the glide is zero.

- [ĩ] / when glide is /j/ or /y/ e.g. [ɕĩ²¹ ɕjũ⁴⁴] “star” [xɑ²¹ ɕ^wĩ⁴²] “bear”
- [ẽ] / elsewhere
e.g. [t^hẽ²⁴] “painful” [wẽ²⁴] “to smell” [xẽ²⁴ ɛ³¹] “apricot”
[mẽ²¹ ɥẽ⁴⁴] “Menyuan(place name)”

These two sounds can be phonemicized as /ẽ/ by setting the following rule:

- (13) ẽ → ĩ / (Initial) Glide —
[CORONAL]
ẽ / elsewhere

/ẽ/ is realized as [ĩ] if the preceding glide contains the feature [CORONAL]. Elsewhere, /ẽ/ is realized as [ẽ̃].

In addition, /ã/ and /ẽ/ are sometimes realized as “vowel+[n]”.

- e.g. [nã²¹ k^wɑ⁴⁴] ~ [nan²¹ k^wɑ⁴⁴] “pumpkin” [n^jẽ⁴²] ~ [n^jɛn⁴⁴] “face”
[pẽ⁴³ tsɿ²¹] ~ [pən⁴³ tsɿ²¹] “notebook”

To simplify the syllable structure, this paper regards “vowel+[n]” as a free variant of nasal vowel phonemes¹⁵. The required rule is: (14) $\tilde{V} \rightarrow Vn$ (optional)

4.7 [ĩ]

This section deals with [ĩ]¹⁶. Sometimes [ĩ] is also pronounced as [ẽ̃]. For example, [ɕjẽ²¹] of the second example below and [ɕjẽ²¹] of the third one is the same morpheme(箱). Based on this fact, this paper phonemicizes [ĩ] as /ĩ/.

- e.g. [lĩ²⁴] “wolf” [tsɿ⁴⁴ ɕjẽ²¹ tsɿ²¹] “paper box” [ɕjẽ²¹ kɛ⁴⁴ tsɿ²¹] “lid”

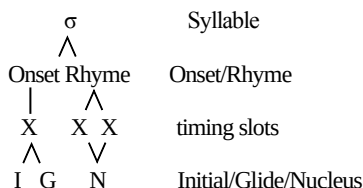
4.8 [ɿ], [ɿ^w]

This subsection investigates the remaining syllabic consonants, [ɿ] and [ɿ^w]. Examples are as follows:

- [ɿ²¹ ɛ⁴⁴] “pear” [xɿ²¹ ɿ^{42~44}] “fox” [kɑ²⁴ ɿ^{w21} ɛ²¹³²] “donkey”

[ɿ] is never combined with [l], [ɟ] or [ɟ^w] in the dialect. According to this fact, this paper

¹⁵ This paper assumes that a Datong syllable has three timing slots (cf. Duanmu 2007: 42-43, 82):



This study analyzes that the nasal [n] after a vowel is in the second slot of Nucleus.

¹⁶ Compared with the nasal vowels mentioned above, the nasality of [ĩ] is weak.

analyzes that the underlying representation of [ɬ] is /lɔ̃j/ and of [ɬʷ] is /lɔ̃y/. In this analysis, the rule (15) is newly required.

$$(15) \text{syll} [[+lateral] \emptyset \begin{pmatrix} + \text{anterior} \\ - \text{distributed} \end{pmatrix}]_{\text{syll}} \rightarrow \begin{pmatrix} +lateral \\ - \text{sonorant} \\ + \text{strident} \end{pmatrix}]_{\text{syll}}$$

When /l/ is combined with [ɰ][ɰʷ], they become syllabic lateral fricatives [ɬ][ɬʷ].

The derivational processes are as follows:

	/lɔ̃j/	/lɔ̃y/
rule(10)	↓	↓
	lɰ̃	lɰ̃ʷ
rule(4)	↓	↓
	lɰ̃	lʷɰ̃ʷ
rule(15)	↓	↓
	ɬ	ɬʷ

4.9 Summary

Section 4 analyzed the segments appeared in the nucleus position. As a result, the following eight vowel phonemes are obtained: /i, u, e, o, a, ẽ, õ, ă/.

5 Tones

This section discusses tone. In the following two subsections, the Datong monosyllabic and disyllabic tones are examined, respectively.

5.1 Monosyllabic tones

There are phonetically four kinds of monosyllabic (or citation) tones in the Datong dialect¹⁷: [24], [2131], [44] and [42]. Among them, [24] and [2131] are interchangeable, as the F0 curves below show¹⁸:

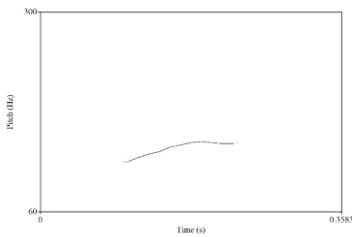


Figure 2. [xtu²⁴](厚) “thick”

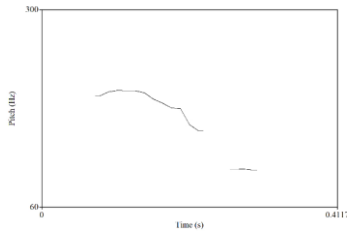


Figure 3. [xtu²¹³¹](厚) “thick”

It follows from these figures that [24] and [2131] are free variation in the dialect. The following monosyllabic words are pronounced in [24] and/or [2131]:

¹⁷ In my data, there are about 140 monosyllabic words.

¹⁸ The figures in this section are made with *Praat*.

[ʒ](一)“one”, [jA](牙)“tooth”, [tʰA](塔)“tower”, [jɔ](腰)“waist”, [fɿ](树)“tree”, [nʲɪu](牛)“cattle”, [lɔ̃](狼)“wolf”, [mɔ̃](毛)“hair”, [lʷwɔ̃](龙)“dragon”, [kɔ̃](高)“tall”, [kʰwɛ](快)“fast”, [pʰɔ̃](胖)“fat”, [tʂʰɿ](吃)“to eat”, [wɔ̃](闻)“to smell”, [jA](压)“to press”, [tʂʰi](切)“to cut”, [tsʰA](茶)“tea”, [tʂjɛ̃](箭)“arrow”, [tʰwɿ](脱)“to take off”, [tsɛ̃](摘)“to take off”, [pʲɿ](冰)“ice”, [ʉ̃ɛ̃](圆)“round”, [kʰɛ̃](开)“to open”, [gɔ̃](刚)“just”.

From these examples it can be seen that, in the Datong monosyllabic words, *ping*(平“even”), *qu*(去“departing”) and *ru*(入“entering”) tones of Middle Chinese are merged into [24~2131].

Turning now to [44] and [42]. The following figures show that these two tones are also interchangeable:

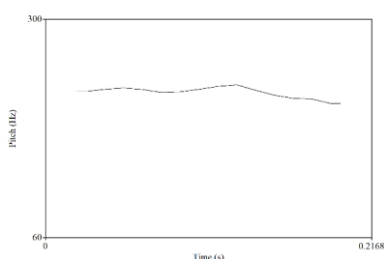


Figure 4. [tɔ̃⁴⁴](搗) “to pound”

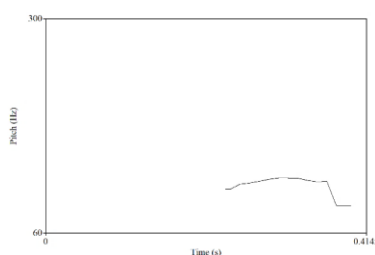


Figure 5. [tɔ̃⁴²](搗) “to pound”

The monosyllabic words below are all pronounced in [44] and/or [42]:

[tʰwɿ](腿)“leg”, [ktu](狗)“dog”, [xʷu](火)“fire”, [tʲʷɜ̃](举)“to hold up”, [ɕjɔ̃](小)“small”, [mā](满)“full”, [jɔ̃](舀)“to ladle out”, [jɔ̃](痒)“itch”, [ɕi](写)“to write”, [pʰɔ̃](捧)“to hold in both hands”, [wA](瓦)“tile”, [ʒ](洗)“to wash”, [wɔ̃](往)“toward”, [wā](碗)“bowl”.

It is clear from the above examples that the Datong [44] and [42] tones are derived from *shang*(上“rising”) tone of Middle Chinese.

From what has been observed above, it is concluded that the Datong dialect has only two monosyllabic tones¹⁹.

5.2 Disyllabic tones

This subsection describes tone patterns in disyllabic words²⁰. Table 4 summarizes the disyllabic tone sandhi of the Datong dialect.

¹⁹ This is not to say that the Datong dialect only has two **tonemes**. The next section discusses this point further.

²⁰ In my data, there are about five hundred disyllabic words.

Table 4. The disyllabic tone sandhi of the Datong dialect

$\sigma_1 \backslash \sigma_2$	<i>ping</i>	<i>ru</i>	<i>qu</i>	<i>shang</i>
<i>ping</i>	21-44(∼42)			
<i>ru</i>				
<i>qu</i>	24-31(∼21)			
<i>shang</i>	44-21(∼24)			21-44(∼42)

Examples are:

• $\sigma_1 = \text{ping}$

$\sigma_2 = \text{ping}$: [sə̃²¹ tɕjɔ̃^{44~42}](生姜) “ginger”

$\sigma_2 = \text{ru}$: [ts^hA²¹ i^{ɛ42}](茶叶) “tea-leaves”

$\sigma_2 = \text{qu}$: [ɕjɔ̃²¹ ts^hɛ⁴⁴](香菜) “coriander”

$\sigma_2 = \text{shang}$: [n^hjɯ²¹ nɛ⁴⁴](牛奶) “milk”

• $\sigma_1 = \text{ru}$

$\sigma_2 = \text{ping}$: [t^hj²¹ tɕ^hjɔ̃⁴⁴](铁桥) “railroad bridge”

$\sigma_2 = \text{ru}$: [ʃ²¹ t^hj⁴²](吸铁) “magnet”

$\sigma_2 = \text{qu}$: [ʃl²¹ t^wɔ̃⁴⁴](石洞) “cave”

$\sigma_2 = \text{shang}$: [tɕ^hi²¹ pã⁴⁴](切板) “cutting board”

• $\sigma_1 = \text{qu}$

$\sigma_2 = \text{ping}$: [tA²⁴ mɔ̃^{21~31}](大门) “entrance door”

$\sigma_2 = \text{ru}$: [tA²⁴ zɯ³¹](大肉) “pork”

$\sigma_2 = \text{qu}$: [tA²⁴ lɥ³¹](大路) “highroad”

$\sigma_2 = \text{shang}$: [tA²⁴ ʒ^{w21}](大雨) “heavy rain”

• $\sigma_1 = \text{shang}$

$\sigma_2 = \text{ping}$: [lɔ⁴⁴ sl²¹](老师) “teacher”

$\sigma_2 = \text{ru}$: [ɥ⁴⁴ ɥu²¹](五月) “May”

$\sigma_2 = \text{qu}$: [fr⁴⁴ k^hɥ^{21~24}](水库) “dam”

$\sigma_2 = \text{shang}$: [fr²¹ ku⁴⁴](水果) “fruit”

As seen before, in the Datong monosyllabic words, *ping*, *ru* and *qu* are merged into one tone. However, based on the disyllabic tone sandhi mentioned above, it is appropriate to distinguish *qu*

from *ping* and *ru*. Therefore, this paper concludes that the Datong dialect is a three-tone dialect²¹.

Table 4 also suggest that the tone patterns in the Datong disyllabic words are determined by the tone of the initial syllable. In other words, the dialect is a “word-tone” language.

6 Conclusion

This study has outlined the phonology of the Datong dialect. The main conclusions are as follows:

- (a) Syllable structure is simplified as “Initial + Glide + Nucleus / Tone”.
- (b) The dialect has 24 consonant phonemes and 8 vowel phonemes.
- (c) Phonologically, the dialect has three tones.
- (d) The dialect is a word-tone language.

Acknowledgements

This study was completed with the support of the Special Research Fund from Matsuyama University for the academic year 2020. The research was also funded by the Grant-in-Aid for young scientists(B), entitled ‘An investigation of Datong dialects of Chinese spoken in the Tibetan-inhabited area’(No. 17K13452). An earlier version of this study was presented at the second regular meeting of 2019 of the Kyushu branch of the Chinese Linguistic Society of Japan, held at Fukuoka University on December 7, 2019. I thank Professor Feng Yunze(Kumamoto Gakuen University) and the participants for their constructive comments. I also thank Professor Keith Dede(Lewis and Clark College) for his insightful comments on an earlier version of this paper. All errors and misunderstandings are, of course, my responsibility.

References

- Duanmu, San(2007) *The Phonology of Standard Chinese*. (2nd edition) Oxford: Oxford University Press.
- Gussenhoven, Carlos and Haike Jacobs(2017) *Understanding Phonology*. (4th edition) London and New York: Routledge.
- Kawasumi, Tetsuya[川澄哲也](2014) Qinghai Datong fangyan de yinduan yinxixue[青海大通方言的音段音系学(Segmental phonology of Datong dialect(Qinghai Province))]. *Fukuoka University Review of Literature & Humanities* 46-3: 653-677. (In Chinese)
- (2015) Qinghai Datong fangyan de danzidiao yu shuangzidiao[青海大通方言的单字调与双字调(On monosyllabic and disyllabic tones in Datong dialect in Qinghai Province)]. *Fukuoka University Review of Literature & Humanities* 47-1: 165-178. (In Chinese)
- (2016) Qinghai Datong fangyan de shengdiao -Jiyu Tuzu huazhe de yuliao fenxi[青海大通方言的声调 - 基于土族话者的语料分析(Tone in Datong dialect in Qinghai Province: An analysis based on the data from a Monguor informant)]. *Research in Asian Languages* 10(Kobe City University of Foreign Studies Annuals of Foreign Studies 92): 135-144. (In Chinese)
- Pullum, Geoffrey K. and William A. Ladusaw(1996) *Phonetic Symbol Guide*. Chicago: The University of Chicago.

²¹ More detailed phonological study of tones remains as a matter to be discussed further.

Appendix

Distinctive Feature Representation of the Datong dialect

(“✓” indicates the presence of an articulator; “✓” indicates a secondary articulation)

	p	pʰ	pʳ	t	tʰ	tʳ	tʷ	k	kʰ	kʳ	kʷ	ts	tsʰ	tsʳ	tsʷ	tʂ	tʂʰ	tʂʳ	tʂʷ	tʃ	tʃʰ	tʃʳ	tʃʷ
consonantal	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
sonorant	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
vocalic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
continuant	—	—	—	—	—	—	—	—	—	—	—	+	+	+	+	+	+	+	+	+	+	+	+
strident	—	—	—	—	—	—	—	—	—	—	—	+	+	+	+	+	+	+	+	+	+	+	+
nasal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
lateral	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
voice	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
labial	✓	✓	✓					✓			✓				✓				✓				✓
round	—	—	—								+				+				+				+
coronal				✓	✓	✓	✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
anterior				+	+	+	+					+	+	+	+	+	+	+	+	+	+	+	+
distributed				—	—	—	—					—	—	—	—	—	—	—	—	—	—	—	—
dorsal			✓			✓		✓	✓	✓	✓			✓					✓	✓	✓	✓	✓
high			+			+		+	+	+	+			+					+	+	+	+	+
low			—			—		—	—	—	—			—					—	—	—	—	—
back			—			—		+	+	+	+			—					—	—	—	—	—
spread glottis	—	+	—	—	+	—	+	—	+	—	—	—	+	—	—	+	—	—	—	+	—	—	—

	f	fʰ	s	sʰ	sʷ	ʂ	ʂʰ	ʂʳ	ʂʷ	ʃ	ʃʰ	x	xʰ	xʷ	m	mʰ	n	nʰ	l	lʰ	lʷ	lʳ	ɮ	ɮʷ
consonantal	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
sonorant	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	+	+	+	+	+	+	+	+	+
vocalic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
continuant	+	+	+	+	+	+	+	+	+	+	+	+	+	+	—	—	—	—	+	+	+	+	+	+
strident	+	+	+	+	+	+	+	+	+	+	+	—	—	—	—	—	—	—	—	—	—	—	+	+
nasal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	+	+	+	—	—	—	—	—	—
lateral	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	+	+	+	+	+	+	+	+	+
voice	—	—	—	—	—	+	—	—	—	—	—	—	—	—	+	+	+	+	+	+	+	+	+	+
labial	✓	✓			✓				✓		✓			✓	✓	✓				✓	✓	✓	✓	✓
round	—	—			+				+		+			+	—	—								+
coronal			✓	✓	✓	✓	✓	✓	✓	✓	✓						✓	✓	✓	✓	✓	✓	✓	✓
anterior			+	+	+	—	—	—	—	+	+						+	+	+	+	+	+	+	+
distributed			—	—	—	—	—	—	—	+	+						—	—	—	—	—	—	—	—
dorsal		✓		✓			✓	✓	✓	✓	✓	✓	✓	✓		✓		✓		✓		✓		✓
high		+		+			+	+	+	+	+	+	+	+		+		+		+		+		
low		—		—			—	—	—	—	—	—	—	—		—		—		—		—		—
back		—		—			—	—	—	—	—	+	—	+		—		—		—		—	—	—
spread glottis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

	j	ɟ	ɭ	ɭʰ	ɥ	ɥʷ	w	v	ʌ	ɔ	ɛ	ʉ	ɪ	i	u	ä	ē	ō	ī	ō
consonantal	—	+	+	+	—	+	—	+	—	—	—	—	—	—	—	—	—	—	—	—
sonorant	+	—	—	—	—	—	+	—	+	+	+	+	+	+	+	+	+	+	+	+
vocalic	—	—	—	—	—	—	—	—	+	+	+	+	+	+	+	+	+	+	+	+
continuant	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
strident	—	+	+	+	+	+	+	+	—	—	—	—	—	—	—	—	—	—	—	—
nasal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	+	+	+	+	+
lateral	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
voice	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
labial					✓	✓	✓	✓		✓					✓					✓
round					+	+	+	+		+					+					+
coronal	✓	✓	✓	✓	✓	✓														
anterior	—	+	+	—	—	+														
distributed	+	—	—	—	+	—														
dorsal	✓	✓			✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
high	+	+			+	+	+		—	—	—	+	+	+	+	+	—	—	—	—
low	—	—			—	—	—		+	—	—	—	—	—	—	+	—	—	—	+
back	—	—			—	—	+		+	+	—	+	—	—	+	—	—	+	—	+
spread glottis	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ATR									—	—	—	+	—	+	+	—			+	—