himalayan linguistics

A free refereed web journal and archive devoted to the study of the languages of the Himalayas

**Himalayan Linguistics**

# *The sound system of Gangou from a comparative perspective*

**Richard Kerbs**

University of Helsinki

## ABSTRACT

The purpose of this study is to present some aspects of the sound system of Gān'gōu Chinese, a Northwest Mandarin variety of the Amdo Sprachbund, and to compare them with other Northwest Mandarin languages. The grammatical structure of Gān'gōu has been shown to exhibit an Altaic-type orientation (verb-final syntax, case system etcetera), while the phonology of Gān'gōu, which has only recently been examined, is of a Sinitic type. The questions asked are, how has the phonology of Gān'gōu changed as compared to its ancestor Old Mandarin on the one hand and Mandarin languages outside the Amdo Sprachbund on the other? How is it similar to other Northwest Mandarin varieties and where does it possibly differ? It has been found that Gān'gōu shows significant phonological similarities with the other members of the Northwest Mandarin branch. Also, many of the phonological innovations in Gān'gōu seem to be typical of the languages of the Amdo Sprachbund as a whole, further establishing the position of Gān'gōu as a member of the Sprachbund. Eight innovations are discussed, seven related to retentions or losses in the medial or coda part of the syllable, one related to tone reduction. After an overview of the syllable structure and phonemic inventory of Gān'gōu, these innovations are presented in turn.

## KEYWORDS

phonology, Gangou (Gān'gōu), language description

This is a contribution from *Himalayan Linguistics, Vol. 20(3): 8-27.*
ISSN 1544-7502

*Himalayan Linguistics, Vol. 20(3).* © Himalayan Linguistics 2021
ISSN 1544-7502

# *The sound system of Gangou from a comparative perspective**

**Richard Kerbs**
University of Helsinki

## 1 Introduction

Gān'gōu Chinese (*gān'gōu huà* 甘溝話 'Gān'gōu vernacular' or *gān'gōu fāngyán* 甘溝方言 'Gān'gōu dialect'), henceforth Gān'gōu, is a Sinitic language spoken by an estimated 15,000 people in Gān'gōu Township and neighboring areas in Mínhé County, Qīnghǎi Province, China. Gān'gōu Township, where the vast majority of Gān'gōu speakers reside (hence the name of the language), had a population of 11,852 people in 2011; of these, 5,900 were of Han ethnicity (the largest ethnic group in China), 4,228 were Hui, 1,310 Monguor, and 414 Tibetan (Zhao 2015:1, citing data from the official government website of Minhe Hui and Tu Autonomous County). According to the author's consultants, most residents in Gān'gōu Township speak primarily Gān'gōu, but some people of the Tu ethnic group have also retained their native Mangghuer (Mongolic) language (Slater 2003). Likely due to cultural and religious differences, the Hui—who are Muslims—constitute a group that is at least to some degree isolated from the rest of the population, which is predominantly Buddhist. It is likely, therefore, that phonological (and perhaps also morphosyntactic) differences exist between the Gān'gōu spoken by Hui on the one hand and the Gān'gōu spoken by non-Hui on the other, as has been reported for other languages in the region such as Tángwāng (Sinitic) (Xu 2017). See Feng and Stuart (1992) and Zhu et al. (1997) for further details about the sociolinguistic situation in Gān'gōu Township and surrounding areas.

In terms of genetic affiliation, views differ on whether Gān'gōu should be classified as a Sinitic or as a mixed language. This is because Gān'gōu has a largely Sinitic vocabulary but a grammar that is highly atypical of Sinitic. Janhunen (2006) and Peyraube (2017) see it as a Sinitic language while Zhu et al. (1997) consider it a mixed language. The view is taken here that Gān'gōu is a Sinitic (rather than Siniticized) language belonging to a branch of Mandarin Chinese that has been referred to as Northwest(ern) Mandarin (e.g., Janhunen 2006; Sandman 2016), which geographically covers a large area of northwestern China including the Qīnghǎi and Gānsù provinces (see Zhu et al. 1997 and references therein). Within the Amdo Sprachbund, Janhunen (2007: 86) recognizes five Sinitic languages: Qīnghǎi Mandarin, Hézhōu[1], Wǔtún, Tángwāng, and Gān'gōu. The Mandarin Chinese language in Qīnghǎi is spoken over a wide area and has been further subgrouped into several dialects,

* I would like to express my deep gratitude to Mr. Zhu Yongzhong for his great hospitality and willingness to help in every way during and after my stay in China. Without him this research would not have been possible. I am also indebted to the Gān'gōu speakers who gave their time to this project for their invaluable contribution, and to Erika Sandman and professor Juha Janhunen at the University of Helsinki for their helpful comments and support.
[1] Spoken in Línxià Prefecture, formerly known as Hézhōu.

the three principal ones being the Lèdū–Mínhé, Xīníng, and Xúnhùa varieties (Dede 2003: 331-332; Zhu et al. 1997). In contrast to these regional varieties, which could be considered Mandarin dialects, Wǔtún, Tángwāng, and Gān'gōu (perhaps also Hézhōu/Línxià) have been subject to a considerably higher degree of contact-induced change, to the extent that they can be regarded as distinct languages (Janhunen 2006, 2007).

The grammar of Gān'gōu, with its verb-final syntax, case system, and other "Altaic" features atypical of Sinitic in general, clearly shows the structural convergence of Gān'gōu toward the Altaic prototype that characterizes the languages of the Amdo Sprachbund. On a more local level, Mangghuer has had the most influence on Gān'gōu morphosyntax and could be regarded as the principal donor, or dominant, language in an "areal union" formed by these two languages (Janhunen 2007). Below are some examples, elicited by the author, of Gān'gōu morphosyntactic features representative of the Amdo Sprachbund. As can be seen, the common constituent order is such that the S/A argument comes first, the verb comes last while the object is situated in the middle (SOV). Case is indicated by nominal suffixes, such as the instrumental case marker *-lia* in (1a) and the accusative case marker *-ha* in (1b) and (1c). Verbal suffixes include the realis marker *-zhili* (example (1c)), which is used for habitual or ongoing events (also called a progressive marker by Zhu et al. 1997), and the irrealis marker *-li* (example (1d)), which is used for prospective or hypothetical events, and the perfect aspect marker *-lio* (example (1e)). The clause-linking suffix *-shi* in (1d) marks the end of a subordinate clause. Another common grammatical feature in Gān'gōu is the use of verbal suffixes, such as *gei* (derived from *gei* 'give') in *kai-gei* [open-give] 'open' in (1b) and *ha* (perhaps derived from the verb 下, pinyin *xià*, 'go down') *tuixeu-ha* [retire-HA] 'retire' in (1e). The final particle *sha* in (1b) (perhaps related to *sha* 'what') is used for emphasis and in requests. See Zhu et al. (1997) for further information about Gān'gōu morphosyntax.

(1a) *we-mu yigua kuaizi-lia chi-zhili*[2]
1P-PL all chopsticks-INSTR eat-REAL
'We all eat with chopsticks.'

(1b) *ni chuangzi-ha kai-gei sha*
2SG window-ACC open-give PTCL
'Open the window, please.'

(1c) *zhige geu yilo ren-ha nio-zhili*
this dog always people-ACC bite-REAL
'This dog always bites people.'

(1d) *yu xa-shi we ye qi-li*
rain fall-SUBORD 1SG also go-IRR
'I'll go even if it rains.'

[2] The orthography used in the present paper was developed by the author and is based on the pinyin system for transcribing Standard Chinese. A few modifications have been made that better reflect the sounds of Gān'gōu. See section 3 for more details on pronunciation.

(1e) *ta* *tuixeu-ha-lio* *bai*
3SG retire-HA-PRF PTCL
'He is retired.'

Phonologically, the contact-induced changes are somewhat less radical than those in the morphosyntactic domain. Like the morphosyntactic changes, the phonological changes result from Sprachbund effects, as defined by Andersson, Sayeed, and Vaux (2017). This means that the changes in Gān'gōu have come about through the adoption of features found in adjacent, genetically unrelated languages, rather than through lexical borrowings (which are relatively few in Gān'gōu, the vocabulary being overwhelmingly Sinitic) or through the borrowing of phonological rules. Typologically, the phonologies of the languages of Amdo have converged, but they can still be divided roughly into a Bodic and a Sinitic type (Janhunen 2006). It will be shown in this paper that Gān'gōu is of the Sinitic type while at the same time sharing many features with other Amdo languages that are characteristic of the Sprachbund.

Looking at the history of Sinitic-speaking peoples in Qīnghǎi, Dede (2003, 2007: 873) suggests that the development of the Chinese varieties spoken in Qīnghǎi started in the Ming era (1368–1644) when speakers of Chinese started to settle more permanently in the area. As indicated by Coblin (2007), we have a fairly good understanding of what the phonology of the standard language, or Guanhua (官话 'officials' language'), spoken during the Ming era looked like thanks to contemporary descriptions[3]. It is therefore interesting to enquire how the phonology of Gān'gōu has changed compared to this predecessor of the modern Mandarin languages. Another question asked is, how does the phonology of Gān'gōu relate to the other Sinitic languages within Amdo? It will be shown that most of the innovations in Gān'gōu as compared to other Mandarin varieties, of which the best-known example is Standard Chinese, are characteristic of the languages of the Amdo Sprachbund, most of them being contact-induced changes while one, the retention of the initial nasal, is likely an archaism.

Previous research on Gān'gōu is scarce and mostly confined to morphosyntax. Feng and Stuart (1992) provide an ethnographic overview of the Gān'gōu-speaking community along with a brief description of the language. The study by Zhu et al. (1997) is the first extensive linguistic study of Gān'gōu and examines aspects of Gān'gōu morphosyntax from a comparative perspective. Yang Yonglong has published several articles covering different parts of Gān'gōu morphosyntax (Yang 2013 on word order, Yang 2014a on the case marker *-ha*, Yang 2014b on the plural marker *-mu*, and Yang 2015 on the reflexive-possessive marker *-nang*). In her master's thesis, Zhao Lüyuan studies the verbal morphology of Gān'gōu (Zhao 2015). Two articles have recently been published by Yang Yonglong and Zhang Jingting (Yang and Zhang (2016) on the case system and Yang and Zhang (2017) on subordinate clause marker *-shi*). See also Peyraube (2017) on the case system of Gān'gōu. Kerbs' 2019 master's thesis provides an account of the phonology of Gān'gōu.

The structure of the paper is as follows. Following a brief description of the data and methodology used for this paper in section 2, section 3 outlines the segmental phonology of Gān'gōu. In section 4, some phonological innovations of Gān'gōu are presented with comparison to other

[3] The Ming-era standard language was likely a koiné based on several different speech varieties spoken in the Central Plains of China, perhaps principally on the Nanjing dialect, but contemporary sources include information on both standard and actual pronunciations, which in several cases differed (Coblin 2000, 2007; Ho 2016). See Coblin (2000a) for a detailed phonological description and sources.

Northwest Mandarin languages and Standard Chinese. Section 5 is a discussion of the findings including some suggestions for further research.

## 2 Data and Methods

The Gān'gōu data used for this paper consists of the author's field data collected with three speakers, one female speaker of Tu ethnicity and two male speakers of Han ethnicity in Gān'gōu and Xīníng during a one-month stay in August–September 2017. Due to the small number of speakers, it has not been possible to cover the phonological variation that likely exists among Gān'gōu speakers in this article. In several aspects, the description provided here may be representative of only part of the speech community.

During the interview sessions, the consultants were given words in Standard Chinese and were then requested to provide the Gān'gōu equivalents for those words. Most of the words were given orally, but a few words, such as place names, were pronounced based on written Chinese characters. Target words were also inserted in frame sentences, given in Standard Mandarin, and the consultants were asked to translate them into Gān'gōu. Pictures were also used to minimize potential influence from Standard Mandarin. The data thus includes both individual words and whole sentences, and the analysis is based on both data types. The data recordings were later annotated and analyzed using ELAN and Praat.

Data for other Sinitic languages are from the following sources unless otherwise specified: Wǔtún from Sandman (2016), Tángwāng from Xu (2017), Xīníng from Dede (2006), Xúnhuà from Dwyer (1995). Data for other Northwest Mandarin varieties are from Zhang (1984), which contains data from fourteen different forms of Mandarin, including the Běijīng and Xī'ān varieties and twelve varieties spoken in Qīnghǎi and Gānsù provinces of northwestern China.

## 3 Syllable Structure and Phonemic Inventory of Gān'gōu

A distinctively Sinitic feature of Gān'gōu phonology is the CMVF syllable structure, where C stands for initial consonant, M for medial glide, V for nuclear vowel, and F for final nasal or rhotic. Gān'gōu also has two to three tones, depending on the syllable type. Due to the as yet incomplete understanding of the tonal system, tones are left unmarked in this paper, except in section 4.4.4 (see that section for further details). Most words in Gān'gōu are monosyllabic or disyllabic, but there are also some polysyllabic words. Below are some examples of different syllable structures in Gān'gōu:

(2a) *la* [la] 'hot, spicy' (SM *là*)
(2b) *lia* [lʲa] *dualis marker* (SM *liǎ*)
(2c) *lan* [læ̃] 'blue' (SM *lán*)
(2d) *lai* [lɛ] 'come' (SM *lái*)
(2e) *lian* [lʲæ̃] 'face (n.)' (SM *liǎn*)
(2f) *zhunr* [t͡ʂʷə] 'cup' (SM *zhōngr*)
(2g) *gangeu* [kæ̃.kɯ] 'Gangou' (SM *gān'gōu*)
(2h) *dadana* [ta.ta.na] 'butterfly'

The following subsections present, in turn, the initials, vowels, medials, and finals of Gān'gōu. These are compared with corresponding segments in Standard Mandarin and Northwest Mandarin varieties.

### *3.1 Initials*

Table 1 below shows the initial consonants of Gān'gōu.

| | Labial | Labiodental | Alveolar | Retroflex | Palatal | Velar |
|---|---|---|---|---|---|---|
| Stop | *p* [pʰ] | | *t* [tʰ] | | | *k* [kʰ] |
| | *b* [p] | | *d* [t] | | | *g* [k] |
| Affricate | | | *c* [t͡sʰ] | *ch* [ʈ͡ʂʰ] | *q* [t͡ɕʰ] | |
| | | | *z* [t͡s] | *zh* [ʈ͡ʂ] | *j* [t͡ɕ] | |
| Fricative | | *f* [f] | *s* [s] | *sh* [ʂ] | *x* [ɕ] | *h* [x] |
| Nasal | *m* [m] | | *n* [n] | | | |
| Approximant | | *w* [ʋ] | | | *y* [j] | |
| Liquid | | | *l* [l] | *r* [ɻ] | | |

Table 1. Gān'gōu initials (adapted from Kerbs 2019: 20)[4]

The consonantal inventory of Gān'gōu is typical of Mandarin Chinese, perhaps the most characteristically Mandarin features being the two-way contrast between aspirated and unaspirated obstruents and affricates (voicing is non-phonemic in Gān'gōu as in Mandarin in general) and the four retroflex initials. In (3) are some examples of Gān'gōu obstruents and retroflex initials. Apart from the initials shown in table 1, there is also a zero initial /Ø/, which is realized as a glottal stop [ʔ], as in the word *an* [ʔæ̃] 'dark'.

(3a) *ga* [ka] 'small'
(3b) *kang* [kʰɑ̃] 'thirsty; heatable brick bed'
(3c) *zhuzhu* [ʈ͡ʂʏ̩.ʈ͡ʂʏ̩] 'spider' (SM *zhūzhu*)
(3d) *chabei* [ʈ͡ʂʰa.pi] 'teacup' (SM *chábēi*)

Another typical Mandarin feature is the alveolo-palatal initials *x* [ɕ], *j* [t͡ɕ] and *q* [t͡ɕʰ], which in Kerbs (2019) is analyzed as allophones of *s, z,* and *c,* respectively, by positing the underlying sequences /sj, tsj, tshj/, that is, *s, z,* and *c* followed by the palatal medial glide. The postulation of *x, j,* and *q* as separate phonemes, however, allows for a simpler analysis, which is at the same time closer to the phonetic reality of the language. For example, the syllables *xi, ji*, and *qi* can be analyzed simply

[4] This table contains the addition of *x, j,* and *q* as separate phonemes (see discussion in this section), and omits the initial *yu*, which is analyzed as a sequence of the palatal initial *y* and the nuclear vowel *u*, not as a monophonemic initial as in the original study.

as /xi, ji, qi/, rather than /sji, tsji, tshji/, with a palatal medial followed by /i/. Also, syllables such as *quan* can be analyzed as /quan/, containing one medial rather than two, as in /tsjuan/, which has a palatal medial /j/ followed by a labiovelar medial /u/. In words with a palato-alveolar initial, such as *xo* 'small' and *xang* 'think' (SM[5] *xiǎo, xiǎng*), which once likely had a palatal medial glide, a glide can no longer be heard (see section 4.4.2). Below are some examples of the alveolo-palatal initials:

(4a) *jer* [t͡ɕəɻ] 'chicken' (SM *jī*)
(4b) *xangjo* [ɕɑ̃.t͡ɕəu̯] 'banana' (SM *xiāngjiāo*)
(4c) *maqor* [ma.t͡ɕʰɔɻ] 'bird' (SM *máquè*)

A characteristic of Sinitic languages spoken in the Amdo Sprachbund, which separates them from other Northwest Mandarin varieties, is the tendency to have *f* where Standard Mandarin has *sh* followed by the labiovelar glide, as in the Gān'gōu words *fei* [fi] 'water' (SM *shuǐ*), *fue* [fʷə] 'say; *quotative/hearsay marker*' (SM *shuō*). According to Dede (2003: 335), the presence of *f* in such words in Xīníng is a characteristic of Han speech, while Hui speakers have [ʂu] in these cases, as in Standard Mandarin. Sandman (2016: 29-30) notes that the occurrence of the initial *f* is marginal in Wǔtún, and that it only occurs in words of Sinitic origin, which indicates that the presence of *f* is a Sinitic trait.

Similar to other Sinitic languages of the Amdo Sprachbund, Gān'gōu shows some variation in the presence versus absence of aspiration on obstruents compared to Standard Mandarin. Variation exists also in Wǔtún: [pʰe] 'white' (SM *bái*), [pʰə] 'thin' (SM *bó*), [kʰuɛ̃] 'wide' (SM *guǎng*), and in Tángwāng: [phu] 'step' (SM *bù*), [khuɪ] 'cabinet' (SM *guì*), [phi] 'wall' (SM *bì*) (Xu 2017: 50). Also note the aspiration of the initial *s* in Wǔtún (probably a Bodic trait) in words such as *se* [sʰə], 'four; to die' (Sandman 2016: 28-29). Below are two examples from Gān'gōu:

(5a) *yepa* [je.pʰa] 'tail' (SM *wěiba*)
(5b) *luepu* [lʷə.pʰu̯] 'radish' (SM *luóbo*)

In Tángwāng, as noted by Xu (2017), syllables that have acquired aspiration correspond to syllables with the "falling" tone in Standard Mandarin (the Middle Chinese "departing" tone category, or syllables from the Middle Chinese "entering" tone category that have acquired a falling tone in modern Standard Mandarin). In Wǔtún and Gān'gōu, on the other hand, judging from the few examples observed, the correspondence with the tone system of Standard Mandarin seems less obvious. Due to the scarce number of examples, it is unclear whether this can be considered an areal feature of the Amdo Sprachbund.

As can be seen, the initial inventory of Gān'gōu is rather typical of Mandarin in general. Next, we turn to the vowels, where more radical changes have occurred.

## *3.2 Vowels*

Table 2 shows the nine vowels of Gān'gōu:

[5] Standard Mandarin

| | Front | Central | Back |
|---|---|---|---|
| High | *i* [ɻ̩~ʐ̩], *y* [ɻ̩ʷ~ʐ̩ʷ]<br>*ei* [i] | | *eu* [ɯ~ʉ̩] *u* [ʊ̩] |
| Mid | *ai* [ɛ] | *e* [ə, e] | *o* [ɔu̯] |
| Low | *a* [a] | | |

Table 2. Gān'gōu vowel phonemes (adapted from Kerbs 2019: 36)

As is evident from table 2, the vowel inventory of Gān'gōu is larger than that of Standard Mandarin due to the monophthongization of original diphthongs. The monophthongized diphthongs are *ei, ai, eu* (corresponding to pinyin *ou*), and *o* (corresponding to pinyin *ao*), pronounced as [ei̯, ai̯, ɔu̯, au̯] respectively in Standard Mandarin. In this regard, Gān'gōu exhibits a strong Northwest Mandarin orientation, whereas diphthongal off-glides are characteristic of Sinitic varieties outside of this branch. See section 4.4.1 for further discussion and examples on monophthongization.

A typologically distinct feature of the Gān'gōu vowel system which is shared with many Mandarin varieties is the "buzzing" pronunciation of the vowel *i*, when followed by the sibilants *s* and *sh*, or by the affricates *z, c, zh,* and *ch.* A feature that seems to be confined to the Amdo Sprachbund, however, is the "spirantization" of *i, u*, and *y*, in other words, the pronunciation of *i*, *u* and *y* as syllabic fricatives or near-fricatives [ɻ̩~ʐ̩, ʊ̩, ɻ̩ʷ~ʐ̩ʷ], also following other initials than the six fricatives and affricates mentioned above. See section 4.2.1 for further discussion and examples.

Note also that the vowel *e* has the allophones [e], occurring after the palatal medial /j/ and the alveolo-palatal initials (see example (6e)), and [ə], occurring elsewhere (example (6d)). The vowel *eu* [ʉ̩] is slightly more rounded than the normal [ɯ], as indicated by the diacritic, and perhaps somewhat more fronted. Below are examples of the nine vowels of Gān'gōu:

(6a) *reu* [ɻ̩ɯ] 'meat' (SM *ròu*)
(6b) *lo* [lɔu̯] 'old' (SM *lǎo*)
(6c) *kai* [kʰɛ] 'open' (SM *kāi*)
(6d) *re* [ɻ̩ə] 'hot' (SM *rè*)
(6e) *qe* [tɕʰe] 'cut' (SM *qiē*)
(6f) *gei* [ki] 'give' (SM *gěi*)
(6g) *mabu* [ma.pʊ̩] 'rag, dust cloth'
(6h) *ni* [nʐ̩] 'you' (SM *nǐ*)
(6i) *nyren* [nʐ̩ʷ..ɻ̃ɪ̃] 'woman' (SM *nǚrén*)

## *3.3 Medials*

Three medials are posited for Gān'gōu: /j, w, y/. The phonemic status of /y/, however, is not firmly established, since it seems to be in complementary distribution with /w/, occurring only after the palatalized initials *x, j,* and *q* in the data. The existence in Gān'gōu of syllables such as Standard Mandarin *lüe*, which would seem to require the establishment of /y/ as a separate medial, has not been confirmed.

As in all Mandarin varieties, there are distributional restrictions on all the medials in Gān'gōu related to the initial and the nuclear vowel. The palatal medial does not occur with the velar initials, for example, and, for dissimilatory reasons, the labiovelar medial does not occur with the labials, etcetera. Furthermore, each of the medials is more common with certain initials or nuclear vowels than others. The following examples show the medials of Gān'gōu:

(7a) *lieu* [lʲɯ] 'six' (SM *liù*)
(7b) *gua* [kʷa] 'dumpling'
(7c) *juede* [t͡ɕʷe.tə] 'feel, think' (SM *juéde*)

As shown in section 4.4.2 below, there is a tendency, albeit marginal, for medials to occasionally be left out or, more frequently, fuse with the preceding initial. See section 4.4.2 for further discussion and examples.

## *3.4 Finals*

There are two types of finals in Gān'gōu: a nasal and a rhotic final. As for the former, Gān'gōu can be analyzed as having one final /-N/, which occurs with the vowels *a, ai, e, i, u,* and *y*. The phoneme sequence /aN/ is written as *-ang* (example (8a)) while the sequence /aiN/ is written as *-an* (example (8b)). The surface realization is a nasalized vowel rather than a vowel followed by a nasal segment, as in other Sinitic languages. The six nasalized vowels are exemplified in (8). For more details on the nasal finals, see section 4.1 below.

(8a) *chang* [t͡ʂʰɑ̃] 'long (of length)' (SM *cháng*)
(8b) *kan* [kʰæ̃] 'look, read' (SM *kàn*)
(8c) *damen* [ta.mɪ̃] 'door' (SM *dàmén*)
(8d) *senlin* [sɪ̃.lɪ̃] 'forest' (SM *sēnlín*)
(8e) *cun* [t͡sʰũ] 'village' (SM *cūn*)
(8f) *xun* [ɕỹ] 'bear (n.)' (SM *xióng*)

Gān'gōu has three rhotacized vowels: [ɚ, ɚ˞, a˞]. Rhotazication, known as *érhuà* in Chinese, involves the addition of a rhotic coda /-er/ imbricating onto to the end of the syllable. It is characteristic of Northern Sinitic, especially the area around Běijīng (Duanmu 2007: 212), but its occurrence is less regular among Northwest Mandarin varieties. Janhunen (2006: 264) notes that the loss of the retroflex final is an areal trend in the Amdo region. In Gān'gōu and Mangghuer, however, the phenomenon is still common. It exists marginally in Santa (Kim 2003: 349), but judging from the data in the available sources, the phenomenon does not seem to be widespread in languages such as Wǔtún, Tángwāng or Xīníng. For example, in Zhang's (1984) study, the syllable *er* 兒 'child, son' (from which the rhotic coda originates) is transcribed as [ɚ˞] only for Běijīng, Xī'ān, Xúnhuà, Mínhé, and Ménguán, while the other eleven Chinese varieties in the study lack rhotacization. The words for 'two' and 'ear', both represented by the syllable *er* in Standard Mandarin, are pronounced as [ɛ] in Tángwāng (Xu 2017: 53), which could be indicative of the absence of rhotacization in Tángwāng. In Gān'gōu, however, rhotacization occurs frequently, and this can be regarded as a Sinitic feature of this language. Rhotacization can be observed in the examples in (9), for which only a rhotacized form

was given by the speakers (for some words, such as *jir* [t͡ɕəɚ] 'chicken', an alternative non-rhotacized form *ji* [t͡ɕɻ̩] also occurs in the data).

(9a) *maqor* [ma.t͡ɕʰɔɚ] 'bird' (compare with Wǔtún: *macio* [mats$^{hi}$o])
(9b) *xifur* [ɕi.fəɚ] 'woman, wife'
(9c) *ber* [pəɚ] *classifier for books*
(9d) *mianyar* [mʲæ̃.jaɚ] 'noodles'

Next, we turn to some properties of the Gān'gōu sound system that sets it apart from Standard Mandarin and other Mandarin varieties.

## 4 Phonological Features Characteristic of the Amdo Sprachbund in Gān'gōu

In the introduction to this paper, it was stated that the phonology of Gān'gōu has a Sinitic-type phonology, as opposed to the Bodic-type phonology, with Wǔtún as its Sinitic representative. On the other hand, Gān'gōu exhibits some features that are absent from most Mandarin varieties, but which it shares with the Sinitic languages of the Amdo Sprachbund. In this section, seven such features are examined. It is interesting to note that, as noted by Andersson, Sayeed, and Vaux (2017), language contact does not always result in simplification, as some have suggested, and indeed frequently leads to the emergence of more marked features, at least when it comes to phonology. In Gān'gōu, the contact-induced sound phenomena discussed in this section include both (more or less) marked features, such as vowel nasalization (section 4.1), spirantization (section 4.2), and an initial nasal (section 4.3). Instances of syllable simplification are described in section 4.4. These phenomena are presented in turn below.

### *4.1 Vowel Nasalization*

Nasal vowels are a common feature shared by all the Northwest Mandarin varieties. Gān'gōu has the six nasalized vowels [ɑ̃, æ̃, ĩ, ɪ̃, ũ, ỹ]. Cognates of words containing nasalized vowels in Northwest Mandarin have a final nasal segment in other Mandarin varieties such as Standard Mandarin. Nasalized vowels are also found in borrowings, such as in the non-Sinitic words *niezhang* in (10a) and *gansan* in (10b) below:

(10a) *niezhang* [nʲe.ʈ͡ʂɑ̃] 'poor'
(10b) *gansan* [kæ̃.sæ̃] 'beautiful, handsome'
(10c) *sun* [sũ] 'send' (SM *sòng*)
(10d) *jun* [t͡ɕỹ] 'handsome, pretty' (SM *jùn*)
(10e) *nanren* [næ̃.ɻɪ̃] 'man' (SM *nánrén*)
(10f) *minzu* [mĩ.t͡sʊ̹] 'ethnicity, minority group' (SM *mínzú*)

Vowel nasalization is also present in many non-Sinitic languages of the Amdo Sprachbund. Historically, the distinction between the three Middle Chinese nasal finals /-n/, /-m/, and /-ŋ/ remained intact in the Ming-era standard, although /-m/ had already merged with /-n/ in everyday speech (Coblin 2000). They are still distinguished in southern varieties of Sinitic, whereas most

northern varieties distinguish only between /-n/ and /-ŋ/ (e.g., Handel 2016; Szeto 2019). In Sinitic languages of the Amdo Sprachbund, the original final nasal is realized as nasalization of the nuclear vowel rather than as a separate final segment involving closure (or near closure) of the oral cavity. Compare, for example, the syllable *jing*; in Běijīng and Xī'ān it is pronounced as [tɕiŋ], while in Lánzhōu, Lèdū, and Xīníng, it is pronounced as [tɕiə̃] (Zhang 1984), in Gān'gōu as [t͡ɕĩ].

In Kerbs (2019), it is argued for two different final nasals in Gān'gōu, both realized phonetically as nasalization on the vowel. This is due to the presence of the nasalized vowels [æ̃] and [ a ˜ ], analyzed as /an/ and /aŋ/ respectively. A similar analysis is made by Xu (2017) for Tángwāng. An alternative view is presented by Sandman (2016) for Wǔtún, where [æ̃] is analyzed as /aiN/ and [ɑ̃] as /aN/, reducing the final nasal to one archiphonemic nasal /-N/. Regardless of the phonological analysis pursued, the phonetic reality seems to be largely the same in all three varieties, which indicates that vowel nasalization is a feature characteristic of Sinitic languages of the Amdo Sprachbund. Tángwāng, like Gān'gōu, has six while Wǔtún has five nasalized vowels, as shown in Table 3 below:

| SM (pinyin) | Gān'gōu | Wǔtún | Tángwāng |
|---|---|---|---|
| *-ang* | [jɑ̃] 'sheep' | [jɑ̃] 'sheep' | [jɑ̃] 'sheep' |
| *-an* | [t͡ʂæ̃] 'stand' | [ʈʂɛ̃] 'stand' | [fɛ̃] 'meal' |
| *-en* | [ɻĩ] 'person' | [ʐə̃] 'person' | [ɻə̃] 'person' |
| *-in* | [tʰɯ.mĩ] 'first' | [lĩ] 'forest' | [ĩtʂhŋ] 'thus' |
| *-ong* | [t͡ʂũ] 'middle' | [ʈʂõ] 'swell' | [tʂõ] 'cultivate' |
| *-ün* | [jỹ] 'use' | | *tɕhyŋ* 'poor' (pronounced as [-ỹ]; Xu 2017: 64) |

Table 3. Nasalized vowels in Gān'gōu, Wǔtún, and Tángwāng

In the regional varieties examined by Zhang (1984), four different nasalized vowels seem to be in evidence: ɔ̃, ã, ə̃, and ɛ̃. Consider, for example, the data in table 4 from Zhang (1984), where each variety has three different nasalized vowels. ɔ̃ is shared by all three varieties; ã is found in Xīníng and Xúnhuà, ə̃ in Xīníng and Lánzhōu, and ɛ̃ in Lánzhōu and Xúnhuà.

| SM (pinyin) | Xīníng | Lánzhōu | Xúnhuà |
|---|---|---|---|
| *guāng* 'light (n.)' | kuɔ̃ | kuɔ̃ | kɔ̃ |
| *quán* 'whole' | ts'uã | tɕ'yɛ̃ | tɕ'yã |
| *gēn* 'root' | kə̃ | kə̃ | kɛ̃ |
| *jīng* 'spirit' | tɕiə̃ | tɕiə̃ | tɕiɛ̃ |
| *dōng* 'east' | tuə̃ | tuə̃ | tuɛ̃ |

Table 4. Nasalized vowels in Xīníng, Lánzhōu, and Xúnhuà

As can be seen, vowel nasalization is a widespread phenomenon stretching at least from Xīníng in the northwest to Lánzhōu in the southeast.

## *4.2 Spirantization*

Another notable feature of Gān'gōu is the spirantization of the vowels *i, u*, and *y*, and the palatal medial glides *j* and *w*. Spirantization can be defined as a phenomenon that causes the aforementioned segments to be pronounced as fricatives. It may be considered as a "consonantal spreading phenomenon" (Dwyer 2007: 199). This means that the fricativity of the preceding consonant spreads on to the vowel, as in *chi* [tʂʰʐ̩] 'eat', or more broadly (when the preceding initial is not a fricative or affricate), it can be seen as a spread of the feature [-sonorant] to the vowel, partly "desonorizing" it. At any rate, the result is a fricative or near-fricative vowel, as shown in examples (11) through (15) below. Data from languages of the Amdo Sprachbund seem to suggest that spirantization, like nasalization, is common in this region.

### *4.2.1 Spirantization of the Vowels* i, u, *and* y

The so-called apical vowels occur in many Sinitic languages as well as in siniticized phonologies of the Amdo Sprachbund. The term "apical" indicates that the tip of the tongue is engaged in the production of these vowels. However, these vowels in Gān'gōu are also characterized by fricativity and could thus be called fricative vowels. Strictly speaking, apical vowels are less constricted than fricative vowels, and the degree of constriction seems to vary across dialects and languages. In Gān'gōu, there is usually a high degree of constriction and these vowels may thus be regarded as a type of spirantized vowels (that is, syllabic fricatives). They occur after initial fricatives and affricates and are realized as homorganic, typically voiced, fricatives or near fricatives. Pronunciations such as the following are common in Amdo languages exhibiting a Sinitic-type phonology:

(11a) *chi* 'eat' Gān'gōu [t͡ʂʰʐ̩], Tángwāng [tʂʰʅ]
(11b) *si* 'four; die' Gān'gōu [sʐ̩], Tángwāng [sʅ]

Compare the examples in (11) with their cognates in Wǔtún, a Bodic-type language, where spirantization does not occur: *qe* [ʈɕʰə] 'eat', *se* [sʰə] 'four; die'.

As mentioned above and in contrast to Standard Mandarin, many phonologically Sinitic languages of the Amdo Sprachbund exhibit spirantization regardless of the type of the preceding consonant. In Gān'gōu, the vowel *i* when preceded by non-fricative consonants such as *b, p, m, l*, and *n* is pronounced as a syllabic [j̩~ʐ̩], *y* as [j̩ʷ~ʐ̩ʷ], and *u* as [ʋ̩~ʏ̩]:

(12a) *qanbi* [t͡ɕʰæ̃.pʐ̩][6] 'pencil' (SM *qiānbǐ*)
(12b) *mimo* [mʐ̩.mɔu̯] 'eyebrow' (SM *méimao*)
(12c) *lu* [ɬʋ̩][7] 'deer' (SM *lù*)
(12d) *ly* [lʐ̩ʷ] 'donkey' (SM *lǘ*)

Judging from the presentation of similar data in studies of other Northwest Chinese varieties, spirantization of *i* and *u* seems to be present to some degree in most of them, Wǔtún being one exception. Compare, for example, Tángwāng [pi/psi] 'compare' (SM *bǐ*), [kʼvtsʐ̩] 'pants' (SM *kùzi*),

[6] Compare this pronunciation to that of *chabei* 'tea cup': [t͡ʂʰa.pi] (SM [t͡ʂʰa.pei̯]).
[7] For one Han speaker, the *l* was notably velarized preceding *u*.

and Xúnhuà [mʒi] 'rice' (Dwyer 1995)[8]. It may further be noted that, in Gān'gōu, the syllables *yi, yu,* and *wu* are realized as syllabic fricatives, as shown in the examples below. A similar spirantization is likewise reported for other languages, such as Xúnhuà (Dwyer 1995: 150-151), and the transcription of such syllables by Zhang (1984) seem to indicate a similar development at least in Xīníng, Lèdū, and Línxìa, for which the syllable *yi* 'garment' is transcribed as [j], [zɿ], and [j][9] respectively, and the syllable *wu* 'black' is transcribed as [ɣ] for all three. The syllable *yu* 'fish' is transcribed by Zhang as [y] for all the varieties surveyed. Compare with the examples (13a) to (13c) from Gān'gōu:

(13a) *yi* [ʐ̩] 'one' (SM *yī*)
(13b) *wu* [ʋ̩] 'five' (SM *wǔ*)
(13c) *yu* [ʐ̩ʷ] 'fish' (SM *yú*)

In the case of *i* or *u* following an aspirated initial, affricate, or a fricative, the vowel may be devoiced, especially in fast speech and following aspirated stops, turning the vowels into syllabic voiceless fricatives. Vowel devoicing seems to be fairly widespread in the languages of the Amdo Sprachbund, for example in Mangghuer and Salar, as reported by Slater (2003) and Dwyer (2007) respectively. Example (14) shows devoicing of the vowel *u* in *ku*:

(14a) *ku* [kʰʋ̩] 'cry' (SM *kū*)
(14b) *ku-zhili* [kʰʋ̥.t͡ʂʐ̩.lʐ̩] '[cry-REAL] is crying'

When preceded by the dentals *d* and *t*, the vowel *i* is often pronounced as [ʐ̩]. This has resulted in a merger of the Standard Mandarin syllables *di* and *zi*, and of *ti* and *ci* in Gān'gōu, a merger reported also for Tángwāng. Consider the Gān'gōu examples in (15):

(15a) *xundi* [ɕỹ.t͡sʐ̩] 'little brother' (SM *xiōngdì*)
(15b) *maizi* [mɛ.t͡sʐ̩] 'wheat' (SM *màizi*)
(15c) *titian* [t͡ʂʰ.tʰj̃ɛ̃~t͡ɕʰɛ̃] 'terraced field' (SM *tītián*)
(15d) *ci* [t͡ʂʰ] 'word' (SM *cí*)

### *4.2.2 Spirantization of Medials*

Another related characteristic of Gān'gōu is the optional spirantization of medial *j* following the initials *d* and *t,* which results in a merger of syllables such as *dian* and *jan*, pronounced as [t͡ɕæ̃], and of *tian* and *qan*, pronounced as [t͡ɕʰæ̃]. Spirantization of medial *j* also occurs after aspirated stops, aspirated affricates, and fricatives. The tendency is for the glide not to be pronounced as a semivocalic glide, as it would after initials that do not cause spirantization, but rather as a fricative. In Gān'gōu, this type of spirantization (and accompanying palatalization) seems to be subject to both intra- and inter-speaker variation and is less salient for the unaspirated initial *d* [t] than for the aspirated counterpart *t* [tʰ]. Perceptually, the merger of *tian* and *qan* into [t͡ɕʰæ̃] thus does not appear to be complete for all speakers and in all contexts, and the merger of *dian* and *jan* into [t͡ɕæ̃] even less so.

[8] Dwyer (1995: 146-147, footnote 10) notes that the vowels *i* and *u* are "highly spirantized" and that "these 'buzzy' vowels are […] the result of the spreading of Amdo-Tibetan type features of the preceding consonantal onset."
[9] Note that where Zhang (1984) has [j, -j] for Xunhua; Dwyer (1995) transcribes it as [ʒi, -ʒi].

Xu, on the other hand, reports a systematic spirantization of [t] and [th] in Tángwāng when these are followed by the palatal medial, leading to a merger of syllables such as *tian* and *qian* (both pronounced [tɕhiɛ̃] in Tángwāng), as exemplified by the phrase *Tiantian de qian* 'Tiantian's money', where all the syllables except *de* are pronounced the same way (Xu 2017: 51). The same phenomenon, a systematic palatalization of dentals, is reported also for Xúnhuà (Dwyer 1995: 147) and Santa (Kim 2003: 350).

A related phenomenon, which has also been called spirantization, is the "unusually high stridency" of aspirated obstruents (Dwyer 2007: 190), yielding pronunciations such as those in (16) below. As can be seen, the aspiration is realized with a higher stridency than that of a plain [h].

(16a) SM *tóu* 'head': Gān'gōu [tˣɯ]
(16b) SM *piào* 'ticket': Gān'gōu [pˡɔu̯], Xúnhuà [pᵠ'iɔ]
(16c) SM *kū* 'cry': Gān'gōu [kᵠu̯], Xúnhuà: [kᵠ'u]

Spirantization seems to be a primarily phonetic phenomenon with little bearings on the phonological system of Gān'gōu. Systematic affrication of *d* and *t* in front of medial *j*, however, may have implications on the phonological level if the result is a merger of such sequences and corresponding affricates, a process which is reportedly complete at least in some Amdo languages, as mentioned above.

### *4.3 Preservation of Initial* ng

Another widespread feature of Amdo Sinitic is the preservation of the Middle Chinese initial velar nasal (the 疑 initial), realized in the modern languages variously as a velar, palatal, or dental nasal. As noted by Sandman (2016: 31), initial /ng/ is a characteristic of Northwest Mandarin not found in Standard Mandarin, where the velar nasal is confined to syllable-final position. As shown in (17), initial *ng* is present in many of the Northwest Mandarin languages, although the presence of the nasal seems rather unpredictable, as shown in (17):

(17a) SM *è* 'hungry': Gān'gōu [nʷə], Xúnhuà [ŋə], Tángwāng [nuə], but Wǔtún [ə]
(17b) SM *yáchi* 'tooth': Wǔtún [niaʈʂʰa] 'tooth', but Gān'gōu [ja.t͡ʂʰʐ̩]
(17c) SM *yǎnjing* 'eye': Gān'gōu [ŋ̍æ̃.t͡ɕĩ], Xúnhuà [ŋ̍iã.tɕĩ]

It is interesting to note that the nasal seems to be only optionally present in Gān'gōu. Some words were spontaneously pronounced both with and without an initial nasal. It is possible that in Gān'gōu word pairs such as *yanjing* and *nianjing* 'eye', the more conservative nasalized variant may be losing ground to its non-nasal counterpart due to influence from prestige varieties of Chinese that lack this nasal. It may further be noted that the word for 'I', which in Gān'gōu is *we* [ʊʷə], was never pronounced with an initial nasal by informants. According to Zhang (1984), of the sixteen Qīnghǎi–Gānsù Chinese varieties examined, only Lánzhōu and Lèdū (and the Běijīng variety used as comparand) do not have a nasal initial in the word for 'I'. For Mínhé, both [və] and [nuə] are given (Zhang 1984). Of the local varieties, only Wǔtún has an initial nasal in this word while in Tángwāng (and Gān'gōu) the nasal is lost.

## *4.4 Syllable-simplification Phenomena*

Syllable simplification, especially with regards to the final position of the syllable, is a widely observed tendency in the Sinitic languages of the Amdo Sprachbund (see Janhunen 2006). As noted in section 3 above, the typical Sinitic syllable structure has four segmental slots, CMVF, and a tone. As shown in the following subsections, syllables can undergo simplification through the loss of a medial or final segment.

### *4.4.1 Monophthongization*

As noted by Xu (2017: 36), among others, the monophthongization of original diphthongs is a widespread phenomenon among the Sinitic languages of the Amdo Sprachbund. As can be seen in (18), diphthongs in other modern Sinitic varieties as well as in reconstructed earlier standard varieties of Sinitic, such as Early and Middle Mandarin (e.g., Pulleyblank 1991; Coblin 2000, 2007), have phonetically become monophthongs or near-monophthongs in Gān'gōu.

(18a) *lai* [lɛ] 'come' (SM *lái*)
(18b) *lei* [li] 'tired' (SM *lèi*)
(18c) *leu* [lɯ] 'building' (SM *lóu*)
(18d) *lo* [lɔ~lɔu̯] 'old' (SM *lǎo*)

Monophthongization has occurred, to various extents, in all Sinitic languages of the Amdo Sprachbund. Gān'gōu, Wǔtún, and Tángwāng have very few or no diphthongal off-glides, while Xīníng, Lánzhōu, and Línxìa have retained some diphthongs. First, compare the former three languages:

| SM (pinyin) | Gān'gōu | Wǔtún | Tángwāng |
|---|---|---|---|
| *-ai* | [mɛ] 'sell' | [netsə] 'milk' | [mɛ] 'sell' |
| *-ei* | [ki] 'give' | [ɦi] 'black' | [kɪ] 'give' |
| *-ao* | [xɔu̯] 'good' | [ho] 'good' | [kɔ] 'high' |
| *-ou* | [jɯ] 'have' | [ɻəˠ] 'meat' | [jəu] 'have' |

Table 5. Monophthongization in Gān'gōu, Wǔtún, and Tángwāng

Below are some examples from Xīníng, Lánzhōu, and Línxìa (data from Zhang 1984):

| SM (pinyin) | Xīníng | Lánzhōu | Línxìa |
|---|---|---|---|
| *-ai* | [lɛ] 'come' | [mə] 'wheat' | [mei] 'wheat' |
| *-ei* | [pɪ.tsɻ][10] 'cup' | [fei] 'water' | [fei] 'water' |
| *-ao* | [liɔ] *perfect marker* | [pɔ] 'bag' | [pɔ] 'bag' |
| *-ou* | [iɯ][11] 'have' | [kəu] 'dog' | [kɯ] 'dog' |

Table 6. Monophthongization in Xīníng, Lánzhōu, and Línxìa

[10] Zhang (1984) gives the pronunciation [fei] 'water', belonging to the same rhyme as [pɪ(tsɻ)], for Xīníng.
[11] Dede (2006) reports a merger of the codas -u and -ou in Xining. As noted by Dede (2006: 324), [-ɯ] is an "interdialect", more recently introduced pronunciation of -ou. The older pronunciation [-ɣ] corresponds to both -u and -ou in Standard Mandarin, whereas the innovation [-ɯ] for -ou (by analogy with Standard Mandarin, where a contrast between the two codas is made), is reported for some, predominantly urban, speakers.

Based on the phonologies of the languages of the Amdo Sprachbund, there is some evidence suggesting that the presence of diphthongs in Amdo could be an influence from Sinitic. In Bao'an Tu (Mongolic), for example, as reported by Fried (2010), the occurrence of the diphthong *ao* is restricted to words of Sinitic origin, and some speakers pronounce it as [ɔ]. On the other hand, diphthongs seem to occur in Mangghuer (Mongolic), which could likewise be an influence from Chinese.

### *4.4.2 Loss of Segmental Medials*

As shown in section 3.3 above, Gān'gōu has three medials, *j, w,* and *y*, occurring between the initial (C) and the vowel (V) positions of the syllable. A limited tendency has been observed for the palatal and labial medials to either be left out completely or form a monophonemic unit with the initial, simplifying the syllable structure of the affected words. The labial glide *w* is sometimes left out altogether in Gān'gōu. Consider the following examples:

(19a) *gaigun* [kɛ.kũ] 'walking stick' (SM *guǎigùn*)
(19b) *danwuje* [tæ̃.ʋ.t͡ɕe] 'Dragon Boat Festival' (SM *duānwǔjié*)

The phenomenon is known in other Sinitic languages as well. In (20a) through (20d), it is the labiovelar medial that has been dropped, while in (20e), it is the palatal medial of *biáo*, which is a contraction of *búyào*, that has been dropped.

(20a) Xīníng: [yãyã/yãtsʐ̩] 'yard' (SM *yuàn*)
(20b) Xúnhuà: [zɔ] 'do', [dɔ] 'all' (SM *zuò, duō*)
(20c) Wǔtún: [ko.'ʈsə] 'fruit' (SM *guǒzi*)
(20d) Tángwāng: [ɕixɛ̃] 'like (v.)' (SM *xǐhuān*)
(20e) Xúnhuà/Xīníng: [pɔ] (Dwyer 1995, *búyào* > *biáo* 'don't')

The palatal medial is rarely dropped, although examples of this can be found. Interestingly, the Xúnhuà examples [xa] 'descend' (SM *xià*) and [xai] 'shoes' (SM *xié*) mentioned by Dwyer (1995: 148) lack a palatal just as they do in Gān'gōu and other varieties of Amdo Chinese as well as in Middle Chinese, whereas Standard Chinese has developed a medial in these words. Most often, however, the palatal medial *j* combines with a preceding initial to form a monophonemic unit rather than a phonetically audible initial-glide sequence. For example, in Kerbs (2019) it is suggested that the syllables corresponding to Standard Mandarin *jian*, *qian* etcetera be rendered orthographically as *jan*, *qan* etcetera respectively to reflect this fact. Also see sections 3.3 on the medials and 4.2.2, where the related phenomenon of spirantization of the medial *j* is discussed, for further examples.

On the other hand, the labiovelar glide is present in some words where Standard Mandarin lacks a medial, such as in Xīníng in the first syllable of [nui.tsʅ] (SM *nèidì*) 'interior' (Dede 2003: 338) and in Gān'gōu in the syllable *lui* of *nianlui* [ȵæ̃.lʷi] (SM *yǎnlèi*) 'tears'.

### *4.4.3 Loss of Final Nasal*

A few examples where original final nasality has been lost have been observed in Gān'gōu. The loss of the nasal can be seen when comparing with corresponding words in Standard Mandarin (see examples below). This complete loss of nasality contrasts with the change whereby a final nasal segment is realized as nasality on the vowel (see Section 4.1). The phenomenon does not seem to be widespread among Amdo languages but, for example, Tángwāng also has the word [puə.luə.ke] for 'knee', which has a final nasal on the second syllable in Standard Mandarin. This word is exemplified in (21d) for Gān'gōu along with three other examples:

(21a) *yangyade* [jɑ̃.ja.tə] 'all kinds of' (SM *yàngyàngde*)
(21b) *qa* [t͡ɕʰa] 'money' (SM *qián*)
(21c) *loha* [lɔu̯.xa] 'Han people/person' (SM *lǎohàn*)
(21d) *bueleiga* [pʷə.li.ka] 'knee' (SM *bōlenggài*)

### *4.4.4 Tone Reduction*

Sinitic languages of the Amdo Sprachbund generally have fewer tones, and likely a higher number of toneless syllables, than Sinitic varieties outside Amdo and older varieties such as Middle and Early Mandarin. Four tones were present in the Ming-era standard (Coblin 2000, 2007), and for Standard Mandarin, four tones are generally posited as well. Southern Sinitic varieties exhibit an even higher number of tones. As for Gān'gōu, the understanding of its tones is at present rudimentary, and more research would be required for a more detailed description of the tonology of this language. What seems to be clear is that, in monosyllabic words uttered in isolation, there are two tones, a high tone and a low-rising tone. This is illustrated by the following examples:

(22a) *tang*$^{24}$ [tʰɑ̃ʌ] 'soup' cf. SM *tāng*
(22b) *tang*$^{24}$ [tʰɑ̃ʌ] 'sugar' cf. SM *táng*
(22c) *tang*$^{24}$ [tʰɑ̃ʌ] 'lie down' cf. SM *tǎng*
(22d) *tang*$^{55}$ [tʰɑ̃ɿ] 'hot' cf. SM *tàng*

The situation is somewhat more complex in words containing more than one syllable. Three tones have been observed, at least on the phonetic level: a high, a rising, and a low tone. This is based on the observation of tones of the first syllable of disyllabic words. The examples below contain a verb with the particle *-lio* (SM *liǎo/le*), which indicates perfect aspect. The first syllables seem to reflect a contrast between three underlying tones, which is reduced to a two-tone contrast in monosyllables, as shown in example (22) above for the syllable *tang*. The particle *-lio*, on the other hand, appears to be a toneless syllable, because its phonetic realization—which can be either low-rising, high or low, as evident from the examples in (23)—depends on the tone of the preceding syllable. The loss of tone can be regarded as a syllable-simplification phenomenon. Consider the following examples:

(23a) *hue*$^{11}$*-lio*$^{24}$ [xʷəɬ.lʲɔu̯ʌ] 'has drunk' (SM *hēle*)
(23b) *lai*$^{24}$*-lio*$^{55}$ [lɛʌ.lʲɔu̯ɿ] 'has come' (SM *láile*)
(23c) *ho*$^{11}$*-lio*$^{24}$ [xɔu̯ɬ.lʲɔu̯ʌ] 'has become good, has recovered' (SM *hǎole*)

(23d) *jan*$^{55}$*-lio*$^{11}$ [t͡ɕæ̃˥.lʲɔu̯˩] 'has seen' (SM *jiànle*)

Looking at the first syllables in the examples in (23), *hue, lai,* and *ho* would all be pronounced with a low-rising tone when uttered in isolation, while *jan* would be pronounced with a high tone. Due to being in non-final position, *hue* and *ho* are pronounced with a low tone, while the syllables *lai* and *jan* have the same tonal values in isolated and non-final position, being pronounced with a low-rising and high tone respectively. It is not clear at present, however, whether this three-way contrast is phonemic or whether the tonal system of Gān'gōu could be reduced to a two-tone system. Xu (2017) also posits two parallel systems for Tángwāng, one for monosyllables and one for other word types (there is also a difference between Hui and Han speech). Tone sandhi phenomena could further complicate the picture.

A confirmation of the statement that the tone system of Gān'gōu is reduced would seem to rely on the existence of toneless syllables. If Gān'gōu has a two or three-tone system, this fact alone does not make Gān'gōu less tonal than Standard Mandarin with its four tones. If, on the other hand, the existence of toneless syllables can be confirmed, the tonal system of Gān'gōu can be considered to be reduced compared to Mandarin varieties outside Amdo. In such a tone system, the tonal domain could be larger than the syllable meaning that the first syllable in a tonal domain is specified for tone while the remaining domain-internal syllables are underlyingly toneless. (For example, in (23a), *hue* is the tone-bearing unit in the tonal domain *hue-lio*.) A similar tone system exists, for example, in Shanghai Chinese.

## 5 Conclusion

The present article has presented some aspects of Gān'gōu phonology and shown that the sound system of Gān'gōu is Sinitic but also exhibits many of the features that are characteristic of Northwest Mandarin. It has been established that Gān'gōu has a Sinitic-type phonology with its CMVF syllable structure and an inventory of initials typical of Mandarin Chinese. Innovations in Gān'gōu include vowel nasalization, spirantization, and four types of syllable-simplification phenomena: monophthongization, loss of medials, loss of final nasals, and a reduction of the tone system. The retention of an initial nasal corresponding to the Middle Chinese 疑 initial is a conservative trait of Gān'gōu. Rhotacization, on the other hand, is a feature that Gān'gōu seems to share with only a few other languages in the Amdo Sprachbund. Some of the sound changes discussed, such as the loss of medials and final nasals and the preservation of an initial nasal, are relatively sporadic while other changes such as monophthongization, vowel nasalization, and spirantization are more systematic. It has further been established that the sound changes in Gān'gōu are areal, meaning that the phonology of Gān'gōu has converged towards a common Amdo prototype.

Further comparative research is needed on the phonologies of the languages of the Amdo Sprachbund. Although many sound-related features, such as those discussed in the present article, may have little impact on a phonological level in individual languages, further study of the spread of these features, that is a more exact determination of the range of each isogloss, could nevertheless reveal interesting facts about the internal relationship between the languages, both Sinitic and non-Sinitic, in this region. Also, further study of the speech of different ethnic groups would provide a more complete picture of the phonologies of these languages. Given the differences between the speech of people belonging to the Hui ethnic group and that of non-Hui speakers that have been

reported in the literature, such as for Xīníng and Tángwāng, a division seems highly possible also for Gān'gōu. A more detailed study is also needed on the tone system of Gān'gōu and other languages within the Amdo Sprachbund. The trend so far has been a reduction of the tone systems. For example, according to Xu (2017), a system of four tones was reported for Tángwāng by Chen Yuanlong in 1985, while Xu (2017) reports a two-tone system in monosyllables for the modern language (and a loss of tones for speakers of Hui ethnicity). Will the trend continue, or will the influence of highly tonal prestige varieties of Mandarin prevent tones from disappearing altogether? Significant phonological changes have occurred in the languages of the Amdo Sprachbund over just a few decades, as is evident from the literature, and it will be interesting to see what the linguistic reality of Amdo Qīnghǎi will look like in the future.

## Abbreviations

| | | | |
|---|---|---|---|
| 1P | first person | PL | plural |
| 3SG | third person singular | PRF | perfect |
| ACC | accusative | PTCL | particle |
| HA | verbal marker ha | REAL | realis |
| INSTR | instrumental marker | SUBORD | subordinate clause marker |
| IRR | irrealis | | |

## References

Andersson, Samuel; Sayeed, Oliver; & Vaux, Bert. 2017. "The phonology of language contact". *Free online Oxford Handbooks*. https://doi.org/10.1093/oxfordhb/9780199935345.013.55

Coblin, W. South. 2000a. "A diachronic study of Míng Guānhuá phonology". *Monumenta Serica* 48.1: 267-335. https://www.jstor.org/stable/40727264

Coblin, W. South. 2000b. "A brief history of Mandarin". *Journal of the American Oriental Society* 120.4: 537-552. https://doi.org/10.2307/606615

Coblin, W. South. 2007. *Modern Chinese phonology: from Guanhua to Mandarin*. Collection des Cahiers Linguistique Asie Orientale, no. 11. Paris: École des Hautes Études in Sciences Sociales.

Dede, Keith R. S. 2003. "The Chinese language in Qinghai". *Studia Orientalia Electronica* 95: 321-346. https://journal.fi/store/article/view/41670. Accessed Jun 23, 2021.

Dede, Keith R. S. 2006. "Standard Chinese and the Xining dialect. The rise of an interdialectal standard". *Journal of Asian Pacific Communication* 16.2: 319-334. https://doi.org/10.1075/japc.16.2.10ded

Dede, Keith R. S. 2007. "The origin of the anti-ergative [xa] in Huangshui Chinese". *Language and Linguistics* 8.4: 863-881. http://www.ling.sinica.edu.tw/Files/LL/Docments/Journals/8.4/j2007_4_02_8426.pdf. Accessed Jun 23, 2021.

Duanmu, San. 2007. *The phonology of Standard Chinese* 2nd ed. Oxford: Oxford University Press.

Dwyer, Arienne M. 1995. "From the Northwest China Sprachbund: Xúnhuà Chinese dialect data". *Yuen Ren Society Treasury of Chinese Dialect Data* 1: 148-182.

Dwyer, Arienne M. 2007. *Salar: A study in Inner Asian language contact processes. Part I: Phonology.* Wiesbaden: Harrassowitz Verlag.

Fried, Robert W. 2010. *A grammar of Bao'an Tu, a Mongolic language of northwest China.* Ph.D. diss, State University of New York at Buffalo. https://www.acsu.buffalo.edu/~dryer/FriedBaoanTu.pdf. Accessed Jun 23, 2021.

Handel, Zev. 2016. "The Sinitic languages: phonology". In: LaPolla, Randy J; and Thurgood, Graham (eds.) *The Sino-Tibetan languages* 2nd ed., 85-113. London: Routledge. https://doi.org/10.4324/9781315399508

Ho, Dah-an. 2016. "The characteristics of Mandarin dialects". In: LaPolla, Randy J; & Thurgood, Graham (eds.) *The Sino-Tibetan languages* 2nd ed., 85-113. London: Routledge. https://doi.org/10.4324/9781315399508

Janhunen, Juha. 2006. "Sinitic and non-Sinitic phonology in the languages of Amdo Qinghai". In: Anderl, Christoph; & Eifring, Halvor (eds.), *Studies in Chinese language and culture. Festschrift in Honour of Christoph Harbsmeier on the Occasion of his 60th Birthday*, 261-268. Oslo: Hermes Academic Publishing.

Janhunen, Juha. 2007. "Typological interaction in the Qinghai linguistic complex". *Studia Orientalia* 101: 85-102. https://journal.fi/store/article/view/52610. Accessed Jun 30, 2021.

Kerbs, Richard. 2019. *The Phonology of Gangou: A Chinese Variety of the Amdo Sprachbund.* MA thesis, University of Helsinki. http://urn.fi/URN:NBN:fi:hulib-201905212054

Kim, Stephen S. 2003. "Santa". In: Janhunen, Juha (ed.), *The Mongolic Languages*, 346-363. London and New York: Routledge. https://doi.org/10.4324/9780203987919

Norman, Jerry. 1988. *Chinese.* Cambridge: Cambridge University Press.

Peyraube, Alain. 2017. "The case system in three Sinitic languages of the Qinghai-Gansu linguistic area". In: Xu, Dan; & Li, Hui (eds.), *Languages and Genes in Northwestern China and Adjacent Regions*, 121-139. Singapore: Springer Nature. https://doi.org/10.1007/978-981-10-4169-3

Pulleyblank, E. G. 1991. *Lexicon of reconstructed pronunciation in Early Middle Chinese, Late Middle Chinese, and Early Mandarin*. Vancouver: UBC Press.

Sandman, Erika. 2016. *A grammar of Wutun*. PhD. diss, University of Helsinki. http://urn.fi/URN:ISBN:978-951-51-2634-4

Slater, Keith W. 2003. *A grammar of Mangghuer: A Mongolic language of the Qinghai-Gansu Sprachbund*. London and New York: Routledge Curzon. https://doi.org/10.4324/9780203987629

Szeto, Pui Yiu. 2019. *Typological variation across Sinitic languages: contact and convergence.* Ph.D. diss, University of Hong Kong. https://doi.org/10.5353/th_991044158788203414

Xu, Dan. 2017. *The Tangwang language: an interdisciplinary case study in Northwest China.* Cham: Springer International Publishing AG. https://doi.org/10.1007/978-3-319-59229-9

Yang, Yonglong. 2013. "Gangouhua de yuxu leixing" (Word order in Gangou Chinese dialect). *Minzu Yuwen* 6: 15-30.

Yang, Yonglong. 2014a. "Qinghai Minhe Gangouhua de duo gongneng ge biaoji 'ha'" (The multi-functional case marker -xa in Gangou Chinese Dialect in Minhe Hui and Monguor County, Qinghai Province). *Fangyan* 3: 230-351.

Yang, Yonglong. 2014b. "Qinghai Gangouhua fushu biaoji 'mu' de leixing tezheng ji lishi bijiao" (The typological feature and a diachronical comparison study of the plural marker -mu in Gangou dialect of Qinghai province). *Lishi Yuyan Xue Yanjiu* 8, 239-254.

Yang, Yonglong. 2015. "Qinghai Gangouhua de fansheng lingshu biaoji 'nang' – 'zhuanyong daozhi de ganrao' de gean yanjiu" (The reflexive possessive marker -nang in Gangou Chinese dialect in Qinghai province: a case of shift-induced interference in language contact). *Yuyan Yanjiu* 35.3: 48-56.

Yang, Yonglong; & Zhang Jingting. 2016. "Qinghai Minhe Gangouhua de ge biaoji xitong" (Case-marking system in Gangou Chinese dialect in Qinghai province). *Minzu Yuwen* 5: 25-38.

Yang, Yonglong; & Zhang, Jingting. 2017. "Qinghai Minhe Gangouhua de zhuangyu congju biaoji 'shi' ji qi laiyuan" (The adverbial subordinate clause marker -shi and its origin in Gangou dialect of Qinghai province). *Yuwen Yanjiu* 2: 53-59.

Zhang, Chengcai. 1984. "Qinghai sheng hanyu fangyan de fenqu" (The classification of the Chinese dialects of Qinghai province). *Fangyan* 3: 186-196.

Zhao, Lüyuan. 2015. *Gangou fangyan de dongci houfu chengfen – jianlun jiechu beijing xia de shiti xitong* (Postverb supplementaries of Gangou dialect and the tense-aspect system in a language contact context). MA thesis, University of Chinese Academy of Social Sciences.

Zhu, Yongzhong; Chuluu, Üjiyediin; Slater, Keith W; & Stuart, Kevin. 1997. "Gangou Chinese Dialect: a comparative study of a strongly altaicized Chinese dialect and its Mongolic neighbor". *Anthropos* 92: 433-450. http://www.jstor.org/stable/40464681

Richard Kerbs
richard.kerbs@helsinki.fi