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The Geshiza Diphthong *əu* and its Cognate Rhymes in Horpa

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Abstract

The present article analyzes the diphthong *əu* in Geshiza and its cognates in the Horpa language cluster. Through a pan-Gyalrongic comparison, the study confirms the hypothesis of two distinct sources for the diphthong, namely *-Vk and *-Vp, both emerging due to final consonant weakening. The study also reveals that the analyzed Horpa varieties can be categorized into four grades regarding their respective degree of weakening in the two codas: 1. retention as a stop (-Vk, -Vp), 2. fricativization (-Vɣ, -Vv), 3. "vocalization" (-Vw, -Vu), and 4. full erosion as a consonant (-∅). In short, historical Horpa phonology remains inadequately explored, and this study offers an initial contribution towards comprehending the diachronic evolution of Horpa syllable rhyme types.

1. Introduction

The present study investigates the development of the Geshiza diphthong *əu* and the corresponding cognate rhymes in other Horpa languages, including a comparison with Khroskyabs and East Gyalrongic. Geshiza belongs to the internally diverse Horpa language cluster of West Gyalrongic, which in turn is a branch of Gyalrongic within the Sino-Tibetan language family. Horpa languages generally lack diphthongs, exemplified by Gates's (2021) observation of the absence of diphthong vowels in Poxi Stau[1], a Horpa variety partially intelligible with Geshiza. On the other hand, however, Honkasalo (2019) argues that Geshiza possesses a series of diphthongs, among which *əu* occurs with the highest frequency. Honkasalo further proposes that these diphthongs emerge from two older coda sources: *-Vk and *-Vp.

Through a Horpa comparison incorporating cognates from other Gyalrongic languages, the present study substantiates the validity of the proposal. Its primary contribution, however, lies in investigating the corresponding sound segments in other Horpa languages. From a pan-dialectal perspective, the study dissects how the segments that are cognates with the Geshiza diphthong *əu* have evolved. A comparison comprising Horpa varieties from all proposed branches of the language cluster reveals four distinct stages of coda erosion regarding *-Vk and *-Vp, namely 1. retention as a stop, 2. fricativization, 3. "vocalization" (i.e., further weakening with the acquisition of vowel or semivowel like qualities), and 4. full erosion as a consonant. In sum, the emergence of the Geshiza diphthong *əu* can be conclusively attributed to coda weakening, a phenomenon the study establishes to have occurred across the whole Horpa cluster. Different

[1] Gates (2021) calls the variety Mazur/Mazi Stau, which is a geographically based term. Since noticeable variation in Stau can be observed within the area of Mazi, the present paper adopts a more specific designation, referring to the variety described by Gates as Poxi Stau based on the primary village where his source materials originate from.

Horpa varieties exhibit varying degrees of progression in their coda weakening. The study demonstrates that weakening of the two historical codas has not always occurred in tandem and to the same degree. In other words, a Horpa variety may exhibit considerable erosion in one and high degree of retention in another.

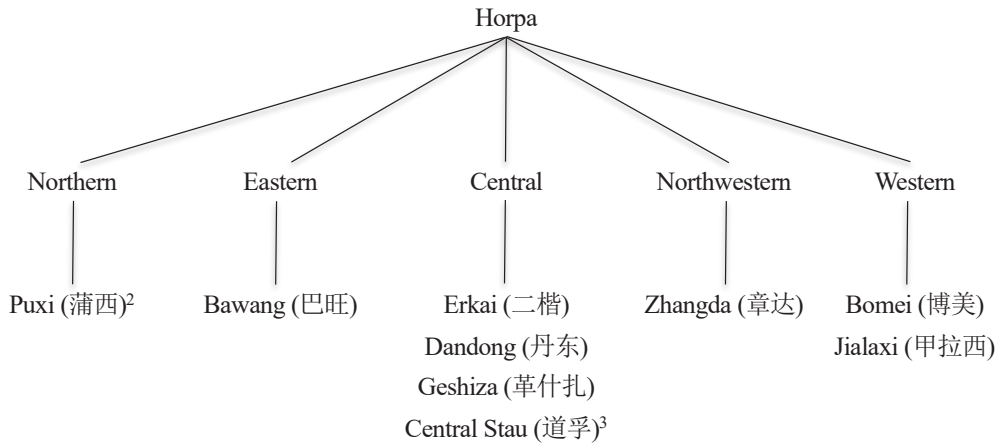

Figure 1. The Horpa cluster and the varieties discussed in the present study

Horpa and Khroskyabs form the West Gyalrongic sub-branch of Gyalrongic. West Gyalrongic languages share a more distant relationship with East Gyalrongic varieties, such as Japhug, Situ, Tsobdun, and Zbu. Relying on Sun's (2019) division of Horpa into five branches, Figure 1 above presents the divisions of the Horpa cluster. Only the Horpa varieties discussed in the present study have been included in the figure. Additionally, Central Stau exhibits noticeable dialectal variation, which also reflets the language's geographical distribution that is the widest among all Horpa varieties. The present study primarily refers to the varieties of Poxiu (坡修) and Poxi (坡西) with occasional additional remarks on Kongse (孔色) and Jiasikong (甲斯孔).

The study builds on the following sources: Beginning with Horpa, it relies on the author's fieldwork on Dandong, Geshiza and Poxiu. For Bawang, Bomei, Poxi, and Zhangda, Yang (2021), Van Way (2018), Gates (2021), and Tunzhi (2019) are utilized, respectively. Cognates from Puxi, Erkai, Kongse, Jiasikong, and Jialaxi have been identified from the rGyalrongic Language Database (Nagano and Prins 2013). The author has frequently re-transcribed the cognate words adopted from the database. Regarding Khroskyabs sources, Lai (2017), Huang (2007), and Yin (2007) are used for Wobzi, Guanyinqiao, and 'Jorogs, respectively. In turn, the Eastern Gyalrongic cognates are sourced from Jacques (2021) on Japhug and Prins (2017) on Jiaomuzu/Kyomkyo. Finally, all identified old Chinese cognates are from the pioneering comparative study of Zhang et al. (2019) and their discussion in Hill (2019).

[2] Despite the similarities in their Pinyinized forms, it is crucial to note that Poxi, Poxiu, and Puxi refer to three distinct Horpa varieties that should not be confused with one another.

[3] Zhangda from the Northwestern Horpa branch is sometimes discussed under the label 'Northwestern Stau'. To avoid confusion, the present study uses the term 'Central Stau' to narrowly refer to Stau varieties of the Central Horpa branch, thus excluding Zhangda.

2. The Geshiza diphthong *əu* and the codas *-Vk and *-Vp in Gyalrongic

Matisoff (2003) reconstructs nine coda consonants in Proto-Tibeto-Burman, featuring a group of three coda stops: *-Vk, *-Vt, and *-Vp. The inventory of at least nine final consonants is generally accepted among the specialists, with proposals tracing them further back to Proto-Sino-Tibetan (Jacques and Michaud 2011). The retention of the codas, however, varies widely in the daughter languages and simplifications in the coda system are commonly attested in Sino-Tibetan languages. For example, stop codas have eroded away in Standard Mandarin where in addition to syllables ending in a vowel, the language allows only nasal codas, such as in 山 *shān* 'mountain' and 忙 *máng* 'to be busy'. In contrast, Cantonese additionally preserves a complete set of three syllable-final unreleased stops *-k, -t, -p* (Matthews and Yip 2011: 25), as in 食 *sik*^{6} 'eat', 八 *baat*^{3} 'eight', and 十 *sap*^{6} 'ten', respectively.

It goes without saying that former coda erosion does not preclude their reintroduction into a language. Gates (2021: 103) argues how Poxi Stau has borrowed the coda consonants *-m, -t, -l,* and *-q* entirely from Tibetan. For example, Poxi *dom* 'bear' and *vɕoqpæ*[4] 'wing have been borrowed from Tibetan *dom* 'bear' and *bshog pa* 'wing', respectively (Gates 2021: 108–109). Contact with Tibetic languages and subsequent borrowing have thus reintroduced coda consonants back to Stau. The present study focuses on inherited lexicon and systematic correspondencies therein. Consequently, the issue of coda consonant reintroduction in the Horpa varieties is addressed only in contexts where it is necessary for a deeper understanding of coda evolution also in the native lexicon.

3. The diphthong *əu* originating from *-Vk

This section investigates the Geshiza diphthong *əu* as a result from a weakened coda *-Vk. In analyzing the cognate codas for the diphthong and their state of retention, it begins with other closely related Horpa varieties, it moves "bottom-up" to investigate more distantly related Horpa varieties and ultimately, other Gyalrongic languages.

A cross-Horpa comparison reveals that many instances of the Geshiza diphthong *əu* are traceable back to an eroded consonantal rhyme *-Vk. Table 1 on the following page presents a selection of cognates across four Central and Eastern Horpa varieties, all of which are argued to have evolved from *-Vk. A comparison with Khroskyabs varieties and East Gyalrongic languages further below in Table 4 offers more evidence for this.

Dandong and Geshiza exhibit identical behavior: *-əu* :: *-əu,* as in the shared identically word *skʰrəu* 'ant'. In turn, the somewhat more distantly related Bawang shows the correspondence *-əu* :: *-əw,* as in Geshiza *skʰrəu* 'ant', Bawang *skʰrəw* 'ant'. It is important to consider the possibility of this arising from different transcriptional practices followed by Honkasalo (2019) and Yang (2021), since the auditory impression of difference between Geshiza *-əu* and Bawang *-əw* is minute, and the transcriptional differences can be seen to concern mostly the authors' different phonological and phonotactic analysis in the present stages of the two Horpa varieties.

[4] The font Times New Roman does not distinguish <æ> and <œ> in the cursive, although the two are used as separate graphemes in the International Phonetic Alphabet. Consequently, <œ> should be considered an allograph of <æ> in the present paper, representing the near-open front unrounded vowel.

Table 1. *-Vk reflected in Horpa varieties

Geshiza	Dandong	Bawang	Poxi Stau	Meaning
wɛəu	*vɛəu*	*wʃəw*	*vɛo*	louse
pʰrəu	no data[5]	no data	*pʰro*	to leash (animal)
skʰrəu	*skʰrəu*	*skʰrəw*	*skʰro*	ant
zjəu-sʰi	*zjəu-sʰi*	*zdʒəw-pʰo*	*zjo*	juniper
zəu	no data	no data	*zo*	*Potentilla anserina*[6]
wtɛʰəu	*vtɛʰəu*[7]	*wtʃʰəw*	*xtɛʰo*	six
məu	*məu*	*məw*	*mo*	eye
rəu	*rəu*	*rəw*	*ro*	one
rzəu	no data	*rzəw*	*rzo*	panther, leopard
rtsʰəu	*rtsʰəu*	*rtsʰəw*	*rtsʰo*	joint
səu	*səu*	*səw*	*zmo*	wool
dzəu	*dzəu*	*dʒəw*	*tɛo*	waist
vəu	*vəu*	*vəw*	*vo*	stomach
(*vo*	*vu*	*wo*	n/a	alcohol)[8]
ləu[9]	*ləu*	*jməw*	*rmo*	mushroom

Moving to Central Stau, the variety shows correspondence *-əu* :: *-o* with Geshiza, as in Poxiu Stau *skʰro* 'ant' and Geshiza *skʰrəu* 'ant'. Other Central Stau varieties align with the pattern observed in Poxiu Stau, although occasionally with different vowel codas. Poxi, Poxiu, and Jiasikong Stau render the coda as *-o.* In contrast, the corresponding coda in Kongse Stau surfaces as *-u.* The variation in the coda position is summarized in Table 2 below with two patterns: Poxi-Poxiu-Jiasikong and Kongse. Regardless of the Central Stau variety under consideration, the focal point here revolves around the monophthong value of the coda corresponding to the diphthong *əu* in Geshiza.

[5] In the cognate sets 'no data' refers to the lack of source materials in the given set. Consequently, at least in some cases, further investigation may reveal that a corresponding word form exists. In turn 'n/a' indicates that the variety in question lacks a corresponding cognate in the cognate set.

[6] The word has been glossed earlier as 'ginseng' in Geshiza (Honkasalo 2019: 782) and as 'eatable root' in Poxi Stau (Gates 2021: 174). As Yunfan Lai (personal communication, March 5, 2024) points out, here the Chinese term 人参果 *rénshēnguǒ* does not refer to 'ginseng', but to a separate plant known as *Potentilla anserina.*

[7] The number *vtɛʰəu* 'six' exhibits unexpected behavior in Dandong in its preinitial consonant, departing from the expected realization as *w-,* which would render the numeral identical with its Geshiza cognate *wtɛʰəu.* Lai (2017: 175) has identified a parallel phenomenon in the Khroskyabs languages where Wobzi *ftɕú* 'six' corresponds to Siyuewu *xtɕêɣ* 'six' with a different preinitial. Lai attributes this discrepancy to the application of different numeral prefixes, namely *pꟹ- and *kꟹ-, to the two numerals. He interprets as productivity of the numeral prefixes in Proto-Khroskyabs. The parallel from Geshiza and Dandong raises the possibility the existence of similar productivity also in Proto-Horpa.

[8] See also Table 4. 'Alcohol' appears to be a probable regionally traveling Wanderwort. The word is also attested in Bawang, Zhangda, and Khroskyabs. In turn, Central Stau has borrowed *ara* 'alcohol' from the Tibetan *a rag* 'alcohol', further underlining the borrowability of terms referring to alcoholic drinks. In sum, the word does not follow the expected sound correspondences, which strongly suggests its status as a Wanderwort.

[9] Most Stau varieties have undergone a merger of the two liquid proto-preinitials *l- and *r-, yet the two are retained as distinct in Geshiza, Puxi, and Bawang, highlighting the antiquity of this distinction. In Bawang *l- has further weakened into *j-,* a phenomenon it shared with Jiaju, an Eastern Horpa variety not discussed in the present study.

Table 2. Inter-lectal variation in Central Stau in the reflexes of *-Vk

Poxi	Poxiu	Jiasikong	Kongse	Meaning
skʰro	*skʰro*	*skʰro*	*skʰru*	ant
xtɕʰo	*xtɕʰo*	no data	*xtɕʰu*	six
tɕo	*dzo*	*dzo*	*tɕu*[10]	waist
mo	*mo*	*mo*	*mu*	eye
rŋə-mo	*rŋə-mo*	*rŋə-mo*	*rŋə,* not applicable[11]	knee
ro	*ro*	no data	*ru*	one
vo	*vo*	*vo*	*vu*	belly

To explain the difference in the two distinct outcomes, a convenient approach would propose a vowel raising where Kongse has undergone a change from *o* to *u.* However, further dialectal comparison fails to substantiate this hypothesis. Table 3 below presents examples of regular sound correspondences between the back vowels *o* and *u* in four Stau varieties. Notably, all varieties maintain a systematic distinction between the two vowels, and no sound change *o* > *u* or vice versa can be postulated. Consequently, we propose that the last stage in the erosion of the final *-Vk happened independently along separate directories in two groups, namely 1. Kongse and 2. all remaining investigated Stau dialects. Specifically, the latter underwent a change *-Vk > *-Vɣ > *-Vw > *-o* while the corresponding development path in the Kongse is *-Vk > *-Vɣ > *-Vw > *-u.* In short, the development diverges only in its last stage. If this were not the case, one would expect all Stau varieties to exhibit *-o* as the outcome of the complete coda erosion.

Table 3. Examples of the vowels *o* and *u* in Central Stau dialects

Poxi	Poxiu	Jiasikong	Kongse	Meaning
no data	*zɣorœ*	n/a	*zɣorœ*	yawn
xpoŋ	*xpoŋ*	*xpoŋ*	*xpoŋ*	shoulder
qʰosto	*qʰosto*	n/a	*qʰosto*	back (body)
pjɛno	*pjɛno*	*pjɛno*	*pjɛno*	meat
ŋo	*ŋo*	*ŋo*	*ŋo*	to be painful
ɕu	*ɕu*	*ɕu*	*ɕu*	after (time)
cʰu	*cʰu*	*cʰu*	*cʰu*	to be hot
rvu	no data	*rvu*	*rvu*	breath
lupʰu	*ləpʰu*	*ləpʰu*	no data	tree[12]
χpurju	*χpurju*	*purju*	*purju*	wind

[10] Central Stau and Zhandga are spoken in adjacent areas. When transitioning northwest towards Zhangda in this area, it seems that voicing contrasts are gradually lost in the affricates and stops in the inherited lexicon when there is no preinitial that contributes to their retention. For instance, Khongse *tso* 'bridge' and *ci* 'animate existential verb' correspond to Poxiu Stau *dzo* 'bridge' and *ji* 'animate existential verb', respectively. Also, Gates (2021) transcribes 'waist' as *tɛo* in Poxi Stau.

[11] In many Horpa languages, both a short form akin to *rŋə* and a long compound form with 'eye' as the second component coexist for 'knee'. Only the short form is given for Kongse in the rGyalrongic Language Database.

[12] In the rGyalrongic language Database, the word is glossed as 'branch' in Stau dialects. Stau speakers from Poxiu have nevertheless taught the word's meaning as '(deciduous) tree' to the author, which aligns with the word's semantic identification provided by Gates (2021: 146).

In Northwestern Horpa classified as a separate branch by Sun (2019), Zhangda manifests *-ɯk* as the corresponding coda in words, such as *ɹɯk* 'one', *tɕɯk* 'waist', and *ɣtɕɯk* 'six', respectively. As explained in more detail below, this represents a conservative retention that has eroded away in most Horpa languages. At the same time, it underscores the difference between Central Stau and Zhangda that are nevertheless spoken in a geographically continuous area. In Northern Horpa, the corresponding Puxi coda takes a fricative form as *-Vɣ,* exemplified by words, such as *dʒəɣ* 'waist' and *meɣ* 'eye'. The frication, however, is not very strong, yet examples from existing work on the variety, such as Sun (1991) with *reɣ* 'one', support the fricative interpretation. In any case, future research should ascertain whether the fricativized coda type is the only outcome of *-Vk in Puxi, a task for which the recordings in the rGyalrongic Language Database are currently insufficient.

The behavior of Erkai is even more difficult to analyze due to limited data, but the variety seems to have undergone weakening similar to that of Geshiza, as in Geshiza *skʰrəu* 'ant', Erkai *skʰrəu* 'ant'; Geshiza *məu* 'eye', Erkai *məu* 'eye'. Finally, concluding with Western Horpa, Van Way (2018: 56) states that Bomei lacks phonological coda consonants, which also applies at least to the inherited vocabulary of Jialaxi, cf. Geshiza *məu* 'eye' and *dzəu* 'waist' vs. Jialaxi ˋ*me* 'eye' and ˋ[ʲw]*tɕi* 'waist', respectively.[13]

Table 4. Pan-Gyalrongic comparison of the coda

Khroskyabs			East Gyalrongic		
Wobzi	Guanyinqiao	'Jorogs	Japhug	Kyomkyo	Meaning
ɕáɣ	*ɕaɣ*^{55}	n/a	*zrɯɣ*	*soʔr* ?	louse
pʰráɣ	*pʰraɣ*^{55}	*pʰrek*^{55}	*βraʁ*[14]	no data	to leash
skʰrâɣ	*skhraɣ*^{53}	n/a	*qro* ?	*kʰoroʔk*	ant
sjâɣ-se	*sjaɣ*^{55} *se*^{33}	*ʂjok*^{55} *se*^{33}	*ɕɤɣ*	no data	juniper
zâɣ	*zaɣ*^{53}	*zok*^{55}	no data	no data	*Potentilla anserina*
ftɕú[15]	*xtɕu*^{55}	*xtɕok*^{55}	*ku-tʂɤɣ*	*kətʇoʔk*	six
mâɣ	*maɣ*^{53}	*mək*^{55}	*tɯ-mɲaʁ*	*təmɲaʔk*	eye
râɣ	*raɣ*^{53}	*rək*^{55}	*tɤɣ*	*kərek*	one
ʁzâɣ	*ʁrzaɣ*^{53}	*ʁrzək*^{55}	*kurtsɤɣ*	no data	large feline[16]
tsʰâɣ	*tsʰəɣ*^{53}	*tsʰək*^{55}	*tɯ-rɯrtsɤɣ*	no data	joint
tsʰɕé-smaɣ	*smaɣ*^{53}	*ʁjo33 smok*^{55}	*smɤɣ*	*təsmok*	wool
ɟâɣ	*ɟjaɣ*^{53}	*dzok*^{55}	*tɯ-mtʰɤɣ*	*təmtʰek*	waist
(*váɣ*	*vaɣ*^{55}	*vok*^{55}	n/a	n/a	alcohol)
lmáɣ	*lmaɣ*^{55}	*lmok*^{55}	*tɤ-jmɤɣ*	*təjmoʔk*	mushroom

[13] The Jialaxi materials in the rGyalrongic Languages Database provided by Hiroyuki Suzuki do not follow a broad phonemic, but rather a narrow phonetic transcription.

[14] While /ʁ/ and /ɣ/ stand in a phonemic contrast in Japhug, the two are in complimentary distribution in the syllable coda position /-aʁ/, /-oʁ/ vs. /-ɤɣ/, /-ɯɣ/ (Jacques 2004).

[15] Reconstructed as *k.teoːᵛk in Proto-Khroskyabs by Lai (personal communication, March 5, 2024). Also, as Lai points out, the 'Jorogs forms *so*^{33} *rɯ*^{55} 'louse' and *kʰo*^{33} *roq*^{55} 'ant' defying regular sound correspondence are likely borrowings from Situ, and they are consequently omitted from the table.

[16] Glossed as 'leopard' in Japhug (Jacques 2021) and as 'panthère' (French) in Wobzi (Lai 2017).

The original nature of the first cognate set corresponding to the Geshiza diphthong *əu* is more effectively confirmed from phonologically more conservative Gyalrongic languages. In a broader pan-Gyalrongic comparison, the coda is reflected as *-Vɣ* in Wobzi and Guanyinqiao Khroskyabs, as in *râɣ* 'one' and *skʰrâɣ* 'ant', corresponding to Geshiza *rəu* 'one' and *skʰrəu* 'ant', respectively. A correspondence of *-ɣ* :: *-k* is observed between Wobzi-Guanyinqiao and 'Jorogs. The East Gyalrongic languages of Japhug and Kyomkyo display a similar pattern of *-ɣ* :: *-(ʔ)k* where the Kyomkyo forms occasionally exhibit prefinal glottal stops that Prins (2017: 26) reports as phonemic with resulting minimal pairs. In short, 'Jorogs and Kyomkyo remain closest to the proto-coda *-Vk which has fricativized in Wobzi and Japhug. Also, seen against the summary of Proto-Gyalrongic codas proposed by Jacques (2004: 266) for the guttural codas, it becomes clear that a broad spectrum of reconstructed pre-coda vowels have been greatly simplified in the Horpa cluster. Similarly, among the Khroskyabs languages, Wobzi and Guanyinqiao have simplified their *-Vk distinctions. Where Siyuewu exhibits a tripartite distinction as *-œɣ, -aɣ*, and *-oɣ,* the two have merged the corresponding codas into *-aɣ* (Lai 2017: 12).

Comparing the cognate sets with Written Tibetan and Old Chinese, the corresponding coda is *-Vg* in the former with *-ig* as the most frequent value. To illustrate, *mig* 'eye', *gzig* 'leopard', and *drug* 'six' correspond to Geshiza *məu* 'eye', *rzəu* 'leopard', and *wtɕʰəu*, respectively. In turn, the correspondence with Old Chinese is *-k, as in 隻 *tek 'one', 節 *tsᶜik 'joint', and 帽 *mᶜuk-s 'hat' (see Sagart 2017 and the elaboration of Zhang et al. 2019: 80 for the connection between 'mushroom' and 'hat' in the history of this proposed etymon).

4. The erosion of the coda *-Vq[17]

Not all instances of erstwhile guttural coda consonants result in diphthongization in Geshiza. When the vowel is *a, the coda stop experiences complete erosion in Geshiza and all other Horpa languages investigated here, which underscores the antiquity of the change. To illustrate briefly, Zhangda, Erkai, and Puxi have *ɮa, ja,* and *lda* as 'hand', respectively, to be compared with Japhug *tɯ-jaʁ* 'hand'. The proposed sound change is as follows: *-aq> *-aʁ > -a. As Table 5 shows, the simplification of *-aʁ is reflected in the nucleus vowel that is *a* in Geshiza and Bawang, *ɔ* in Dandong, and *œ* in Central Stau.[18]

Geshiza exhibits both internally and externally motivated instances of historical guttural consonant coda erosion where the vowel *-ɔ* occurs instead of the expected *-a*. The most parsimonious explanation posits that the change *-aq > *-aʁ > -a was already concluded when a guttural coda re-entered the language. Geshiza has borrowed extensively from Tibetan, and Tibetan loanwords with the coda *-ag* correspond to *-ɔ* in the language (see Honkasalo 2019: 157 for a more detailed treatment). Had these words borrowed with the coda *-aʁ* when the coda *-aʁ still existed, they should have either been regularly reduced to *-a.* Instead, we find *stɔ* 'tiger' from the Tibetan *stag* 'tiger' in lieu of the expected †*sta*.[19] However, since by

[17] As an anonymous reviewer points out, instead of reconstructing *-Vq separate from *-Vk, the historical relationship between the two can be alternatively explained in terms of vowel-controlled allophony, similar to what is attested in Japhug. To pursue the issue further, more research into the history of the Gyalrongic vowel systems is necessary.

[18] Central Stau seems to have undergone a set of vowel shifts where *a was fronted into *œ* (cf. Poxi Stau *ɮœ* 'I' vs. Geshiza *ʑa* 'hand', and Puxi *lda* 'hand'). In turn, *æ was raised into *ɛ* (cf. Poxi Stau *tɛɛ* 'road' vs. Geshiza *tɛœ* 'road', and Puxi *tʃœ* 'road'). The changes possibly form a larger chain shift, a hypothesis that needs to be explored further.

[19] Since this article contains both reconstructed and non-attested erroneous forms, the asterisk (*) is used for the former and the dagger symbol (†) for the latter.

the time of extensive language contact with Tibetan *-aʁ had already been reduced to *-a, the second phase of coda simplification followed a distinct trajectory and rendered the outcome as *-ɔ*.

Table 5. *-Vq reflected in Horpa varieties

Geshiza	Dandong	Bawang	Poxi Stau	Meaning
wla[20]	no data	*wla*	*ɣlæ*	eagle
lva	*lvɔ*	*jva*	n/a	shoulder
va	*vɔ*	*va*	*væ*	pig
æ-rja	no data	*rja*	*æ-rjæ*	one night
spa	*spɔ*	*spa*	*spæ*	(to be) thirsty
dzua	no data	*dʒwa*	*dzwæ*	to swim
za[21]	*jɔ*	*ʒa*	*ɮæ*	arm, hand
nwa	no data	*Nwa*	*ndwæ*	brains
ɲa	*ɲɔ*	*ɲa*	*ɲæ*	(to be) black

Also, due to resyllabification in Geshiza, V-*q̲* sequences in the verbal system have yielded *-ɔ,* as in *gV-q̲arə-sʰi > *gɔ-rə-sʰi* '(The dog) barked' (Honkasalo 2019: 158).[22] Synchronically, what Honkasalo (2019) transcribes as *q̲* is an allophone of *-ɣ* [ɣ ~ ʁ]. Nevertheless, if we posit *-ɣ as the historical source in the resyllabification process above, the rules for the development of *-ɣ into a diphthong in Geshiza dictate that the expected outcome would have been the unattested form †*gəu-rə-sʰi* instead of *gɔ-rə-sʰi.*

Contemporary Geshiza lacks a phonemic contrast between the velar and uvular fricatives. However, such a contrast must be reconstructed to earlier stages of the language, aligning the language more closely with other Horpa varieties maintaining a velar contrast.[23] Thus, expanding the proposal above, both the Tibetan loanwords and the path of internal development involved *-ʁ instead of *-ɣ, which yields *-ɔ* in contemporary Geshiza, in harmony with case of the exemplified Tibetan loanwords. To refine the development trajectory above, it can be formulated as *gV-ʁrə-sʰi > *gV-q̲arə-sʰi > *gV-rə-sʰi > *gɔ-rə-sʰi.* In sum, Geshiza has undergone two historical processes of guttural coda simplification: 1. *-aq > *-aʁ > *-a* already likely at the stage of Proto-Horpa, and 2. *-V.ʁC > *-ɔ.q̲C > -ɔ.C (intersyllabic), *-aʁ > *-ɔʁ > *-ɔ* (coda position) considerably later in the history of the language, 2. occurring in the context of Tibetan loanwords and also resulting from vocalization language-internally.

[20] Geshiza and Bawang (together with Dandong and Jiaju) have undergone the preinitial sound change *ɣ- > *w-*, the consonant being retained in Stau. The historical change has been noticed *inter alia* by Gates in his reconstruction proposal for Proto-Stau-Geshiza (2021: 71).

[21] The Geshiza and Bawang forms have evolved via the voiced lateral fricative *ɮ retained in Stau.

[22] While in the broad sense, vocalization refers simply to the acquisition of vowel-like qualities, in the context of preinitial consonants, Honkasalo and Gates (2023) apply the term more precisely to a phenomenon whereby the preinitial acquires a more vowel or semivowel-like realization while maintaining its phonotactic status as a consonant in a consonant cluster, rather than a syllabic vowel. Vocalization may be represented with the breve symbol placed under a vowel.

[23] As the preinitial *w-* in contemporary Geshiza originates from the weakening of *ɣ-, cross-dialectal Horpa comparison shows that the preinitial *q̲* is best seen as a vocalized manifestation of *ʁ-,* both synchronically and diachronically. As a result, Proto-Geshiza appears identical to other Horpa varieties, such as Central Stau, that maintain a binary guttural contrast in their phonology. Unlike Honkasalo (2019), this paper follows the convention of transcribing the Geshiza guttural preinitial as *ʁ-* and not as *ɣ-*.

Table 6. Pan-Gyalrongic comparison of the coda

Khroskyabs			East Gyalrongic		
Wobzi	Guanyinqiao	'Jorogs	Japhug	Kyomkyo	Meaning
n/a	n/a	n/a	*qaliaʁ*	no data	eagle
rváɣ, lváɣ	*lvaɣ*^{55}	*rvak*^{55}, *lvaq*^{55}	*tɯ-rpaʁ*	*tarpaʔk*	shoulder
pʰâɣ	*pha*^{53}	*pʰək*^{55}	*paʁ*	*pak*	pig
â-rjaɣ	*ə*^{55} *rjaɣ*^{33}	*ə*^{55} *rjak*^{33}	*tɯ-rzaʁ*	no data	one night
sví	*svi(u)* ^{55}	*ɕvuk*^{55}	*ɕpaʁ*	*kəʃpaʔk*	(to be) thirsty
jdâ=ndza	no data	no data	*ndzaʁ*	no data	to swim
jáɣ	*jaɣ*^{55}	*jək*^{55}	*tɯ-jaʁ*	*tajiʔk*	arm, hand
náɣ	*naɣ*^{53}	*wu*^{33} *nok*^{55}	*tɯ-rnoʁ*	*tərnok*	brains
ɲá	*ɲa*^{55}	*ɲaʔq*^{55}	*ɲaʁ*	*kəneʔk*	(to be) black

Unlike Horpa, Khroskyabs and Eastern Gyalrongic languages retain traces of *-aq. Wobzi and Guanyinqiao generally show *-aɣ* as the outcome of the rhyme contrasting with the more conservative retention of *-V(ʔ)k* occurs in 'Jorogs. The details in the discrepancies are left to be worked out in Khroskyabs research. Also, a relation of *-ʁ* :: *-(ʔ)k* exists between Japhug and Kyomkyo. While Kyomkyo shows more variation in the vowel, in Japhug, the vowel in the cognate set surfaces systematically as *a,* with one exception, *tərnok* 'brains', which reflects a different proto-rhyme of *-oq (see Jacques 2004: 266 for a comparative table). Unlike other words discussed here 'brains' differs in one additional aspect, since it must be reconstructed with a uvular final *-q distinct from *-k in Proto-Sino-Tibetan, as evidenced by Chinese 腦 **n^{ʕ}uʔ* < **n^{ʕ}uq* 'brains (Hill 2019). Based on a survey of 21 contemporary Sino-Tibetan languages, Sagart (2017) proposes that Old Chinese is the only Sino-Tibetan language that retained a contrast between *-k and *-q. If this is the case, the *-k and *-q distinction in Proto-Gyalrongic constitutes a secondary development in the language branch. At the same time, its antiquity cannot be ruled out. It is particularly interesting that while Jacques (2004) interprets the Japhug coda consonants *-ɣ* and *-ʁ* as synchronic allophones, the former originates from *-k and the latter from *-q (see also Table 214 in Jacques 2004).

Written Tibetan shows a systematic *-ag* correspondence with the rhyme **-aq* in the investigated Gyalrongic words: *glag* 'eagle', *phrag* 'shoulder', *phag* 'pig', lag 'arm, hand', *nag* 'black'. The Chinese cognates, in turn, surface either with *-ak or *-ək , as in 膊 **pʰ^{ʕ}ak 'shoulder' and 胳 **[C.q]^{ʕ}ak 'arm, hand' vs. 富 **pək-s 'wealth' (cognate with 'pig') 慝 **n̥^{ʕ}ək 'black'. Of these two, the Old Chinese forms with both *a* and *ə* belong to an older stage in the Sino-Tibetan language family, since the two vowels have merged in Tibetan (see Hill 2019: 29–30).

5. The diphthong əu originating from *-Vp

Not all instances of the Geshiza diphthong *-əu* can be traced back to *-Vk. A comparison with related languages reveals that several words with the diphthong originate from *-Vp (Tables 7– 9). Horpa varieties exhibit varying degrees of retention and erosion concerning this coda type.

Table 7. *-Vp reflected in Horpa varieties

Geshiza	Dandong	Bawang	Poxi Stau	Meaning
kʰəu	no data	*kʰɐv*	*kʰɛv*	to draw water
gəu	no data	no data	n/a	leg, foot
nəu	no data	*nər~nər, nəv~nəv*	*nɛv*	(to be) deep
ltsʰəu	*ltsʰœv*	*jtsʰəv*	*rtsʰɛv*	Sichuan pepper
rjəu	*rjœv*	*rjɐr*	n/a	wife
rzəu	*rzœv*	*rzɐr*	*rzɛv*	(to be) spicy
vsəu	no data	*wsər*	no data	(to be) similar
ʁəu	no data	*ʁɐv, ʁɐr*	*ʁɑv*[24]	needle
zbləu	*zbləv*	*zblər*	no data	vapor
ʁrəu	no data	*ʁrəv*	*ɣrœmjœ*	shadow
snəu	*snœv*	*snɐv*	*snɛv*	nasal mucus

Geshiza manifests the reflex of the coda as *-əu,* which renders the outcome as identical with the reflex of *-Vk discussed above. In turn, Dandong is more conservative by retaining the coda as *-v,* as evidenced by Geshiza *rjəu* 'wife' vs. Dandong *rjœv* 'wife'. The variety of Dandong discussed in this paper originates from Erdaoqiao Village (二道桥村). However, the variety documented in the rGyalrongic Language Database appears to behave identically with Geshiza, undergoing vocalization instead, as in *rjəu* 'wife' and *ʁau* 'needle'. The available set of cognate words in the Database is too limited to draw any definitive conclusions, but this observation potentially highlights dialectal variation within Dandong.

Stau dialects also vary in terms of their retention of the coda consonant, as Table 8 illustrates, although only Poxi and Poxiu offer enough instances for a conclusive analysis. Among the dialects, Poxi retains a direct fricativized trace of the coda consonant as *-v* that has eroded away elsewhere. In other words, Poxiu (and seemingly Kongse and Jiasikong with limited source materials available) have lost the coda consonant altogether. Tentatively, the author's fieldwork on the County Town variety of Stau suggests that similar full erosion of *-Vp has also occurred in this relatively innovative variety spoken at the cultural and political epicenter of the Stau-speaking community, although speakers of various ages and backgrounds should be interviewed for a full confirmation of this hypothesis and its spread.

Finally, Bawang data shows that the language allows free variation between *-r* and *-v* in many instances. The rhotic alternation to the fricativized realization reported by Yang (2019) is not attested in other Horpa varieties analyzed in this paper.

[24] The vowel correspondence in Stau *ʁɑv* 'needle' is irregular at first sight. Nevertheless, as elucidated by Gates (2021: 105), this likely results from vowel lowering induced by the uvular initial. As Table 8 demonstrates, while the lowering is shared with Poxiu, it is notably absent in the dialects of Kongse and Jiasikong.

Table 8. Inter-lectal variation in Stau in the reflexes of **-Vp* in Stau

Poxi	Poxiu	Kongse	Jiasikong	Meaning
nɛv	*nɛ*	*ne*	*nə*	to be deep
ʁav	*ʁa*	*ʁe*	*ʁə*	needle
snɛv	*snɛ*	no data	no data	nasal mucus
rzɛv	*rzɛ*	no data	no data	to be spicy
rtsʰɛv	*rtsʰɛ*	no data	no data	Sichuan pepper

Zhangda exhibits a full retention of the coda consonant with cognates, such as *nəp* 'to be deep' and *kʰəp* 'fetch'. Similarly, Puxi also retains the coda as *-Vp,* providing yet another illustration of the variety's conservative nature, evidenced by words, such as *gæp* 'foot', *rɟæp* 'wife' and *nap* 'to be deep'.[25] In turn, Erkai shows identical retention, as in e.g., *gæp* 'foot', *rjæp* 'wife' and *nap* 'to be deep'. In Erkai and Puxi, the stop coda is often unreleased (for instance, [gæp̄]), drawing parallels with Southeast Asian languages where this articulatory feature is common, such as in Thai: พบ /pʰóp/ [pʰóp̄] 'to meet'.

Table 9. Pan-Gyalrongic comparison of the coda

Khroskyabs			East Gyalrongic		
Wobzi	Guanyinqiao	'Jorogs	Japhug	Kyomkyo	Meaning
no data	no data	no data	*kaβ*	no data	to draw water
gáv	*gav*^{53}	*gap*^{33} *tam*^{33} *pi*^{55}	n/a	n/a	leg, foot, 'Jo. lower leg
nɑ̂v	*nav*^{53}	*nop*^{55}	*rnaʁ*	*kərnaʔk*	(to be) deep
rtsʰáv	*rtsʰav*^{55}	*rtsʰap*^{55}	n/a	no data	Sichuan pepper
rjáv	*rjav*^{55}	*rjap*^{55}	*tɤ-rzaβ*	*tarɟaʔp*	(son's) wife
vzár[26]	*rzav*^{55}	*rzaʔp*^{55}	*mɤrtsaβ*	*mərtsap*	(to be) spicy[27]
çsɑ́v	*nsav*^{55}	n/a	*fse*	no data	(to be) similar
ʁɑ̂v	*ʁav*^{53}	*ʁap*^{55}	*taqaβ*	*tawaʔp*	needle
zblɑ́v	*zblɛv*^{53}	*zblop*^{55}	*tɤjlɤβ*	no data	vapor
zgrɑ̂v	no data	no data	*ta-ʁjuβ*	no data	shadow
χsnív	*snɨv*^{55}	*snep*^{55}	*tɯ-ɕnaβ*	no data	nasal mucus

Moving to Khroskyabs varieties, Wobzi and Guanyinqiao show systematic correspondence with *-Vv,* Wobzi *zblɑ́v* 'vapor', *rjáv* 'bride, son's wife', and *rtsʰáv* 'pepper', corresponding to Geshiza *zbləu* 'vapor', *rjəu* 'wife', and *ltsʰəu* 'Sichuan pepper', respectively. 'Jorogs retains the coda as *-p.* In East Gyalrongic languages, the corresponding coda is *-Vβ* in Japhug and *-(ʔ)p* in Kyomkyo.

[25] Additional examples from Puxi include Sun's (1991) documentation of *gɛp*^{53} 'leg' and *snap*^{53} *ɟqʰo*^{53} 'solid mucus' corresponding to Geshiza *gəu* 'leg' and *snæ-rqʰe* 'solid nasal mucus', respectively.

[26] As Lai (2017: 13) explains, the word results from the process of a regular metathesis which in this case concerns the respective order of *r* and *z*.

[27] As Jacques and d'Alpoim Guedes (2023) demonstrate, the words for 'Sichuan pepper' and 'to be spicy' are related in the Gyalrongic languages. The authors reconstruct the former as *rts(ʰ)æ$^{\text{v}}$p and the latter as *rndzæ$^{\text{v}}$p.

Comparing the cognate sets more distantly, the corresponding coda in Written Tibetan is *-b(s)* as in *khab* 'needle' and *snabs* 'nasal mucus' that share cognancy with Geshiza *ʁəu* 'needle' and *snəu* 'nasal mucus', respectively.[28]

6. Discussion and conclusion

This section concludes the paper. 6.1 discusses the generalizations that can be drawn from the findings, particularly in terms of proposing four distinct grades that the two historical coda stops have undergone to various extents in the Horpa languages. In turn. 6.2 discusses the limits of the study and proposes future trajectories.

6.1. Discussion

The study demonstrated that the Geshiza diphthong *əu* originates from two distinct rhyme sources, namely *-Vk and *-Vp.[29] At the same time, the proposed historical coda *-Vq has disappeared from all Horpa varieties where all that remains of the erstwhile coda type is an open or half-open vowel. The study offed a first step for analyzing the origin of syllable codas in the Horpa languages, a task that must be undertaken in future research to reach a usable reconstruction of East Gyalrongic, an important task in Sino-Tibetan linguistics.

The Horpa varieties discussed in the present paper are placed into four groups based on the degree to which they retain the historical coda consonants *-k and *-p. Four degrees can be identified: 1. full retention as a stop, 2. fricativization, 3. vocalization, and 4. full erosion. As this study has shown, the notion of 'full erosion' refers to the disappearance of the coda as a consonant, but as Central Stau varieties demonstrate, the erstwhile consonant can still be reflected in the vowel quality of the involved word. On the following page, Tables 10 and 11 summarize the four groups and place each analyzed Horpa variety to its corresponding grade regarding the two finals. It should be noted that the groupings are not intended for making any claims of genealogical classification, since coda weakening may have proceeded independently in the Horpa varieties.

[28] The velar-uvular discrepancy in 'needle' between the Gyalrongic languages and Tibetan is explainable through Peiros and Starostin's law that posits a uvular origin to Tibetan words the initial consonant of which corresponds to an uvular in Old Chinese and a zero onset in Burmese: *khab* < *kəp < *qəp 'needle' comparable with Burmese *ap* 'needle' and Old Chinese 鍼 *t.qəm 'needle' (Hill 2019: 32; see Peiros and Starostin 2006: vol 5: iii for the original proposal). The Gyalrongic languages maintain the original place, although not the manner, of articulation in this word.

[29] Duo'erji (1998) has conducted the first systematic investigation on Geshiza codas. In his examination, however, Duo'erji seems to conflate the two codas. Specifically, he uses a transcription system lacking etymological plausibility, such as for *rɑp* 'one' (Proto-Horpa*rek; here Duo'erji diverges from the expected) and for *rjɑp* 'wife' (Proto-Horpa *rjæp; here Duo'erji aligns with the expected). Taking Duo'erji's transcriptions at face value, a possible solution could involve postulating that *-k and *-p have merged into *-p in Duo'erji's native variety spoken somewhat towards west from Balang Geshiza described by Honkasalo (2019). The author of the present paper, however, is not aware of any Geshiza dialects where such a peculiar sound change has occurred.

Table 10. Summary of the four grades of development for *-k

1. Retention	2. Fricativization	3. Vocalization	4. Full erosion
-k	*-ɣ*	*-əu/-əw*	-∅
Zhangda	Puxi	Dandong	Poxi Stau[30]
		Geshiza	Poxiu Stau
		Bawang	Jialaxi
		Erkai	Bomei

Table 11. Summary of the four grades of development for *-p

1. Retention	2. Fricativization	3. Vocalization	4. Full erosion
-p	*-v*	*-əu/-əw*	-∅
Puxi	Bawang	Geshiza	Poxiu Stau
Erkai	Dandong[31]		Jialaxi
Zhangda	Poxi Stau		Bomei

Table 12 summarizes the reflexes of *-k and *-p in the ten Horpa varieties that have been featured most prominently in this paper. The table additionally includes the corresponding grades inside the parentheses and provides an average degree of erosion to offer a quick overview regarding how a given Horpa variety has evolved in terms of the two coda types. 'Average erosion' marks the average of the two grades present in a Horpa variety, and the possible range of values vary between 1 (full retention in both) and 4 (full erosion in both).

Table 12. Reflexes of *-k and *-p in the investigated Horpa varieties

Classification	Variety	Outcome of *-k	Outcome of *-p	Average erosion
Northwestern Horpa	Zhangda	*-uk* (grade 1)	*-p* (grade 1)	1
Northern Horpa	Puxi	*-ɣ* (grade 2)	*-p* (grade 1)	1.5
Central Horpa ?	Erkai	*-əu* (grade 3)	*-p* (grade 1)	2
Central Horpa	Bawang	*-əw* (grade 3)	*-Vv, -Vr* (grade 2)	2.5
Central Horpa	Dandong	*-əu* (grade 3)	*-Vv* (grade 2)	2.5
Central Horpa	Geshiza	*-əu* (grade 3)	*-əu* (grade 3)	3
Central Horpa	Poxi Stau	*-o* (grade 4)	*-Vv* (grade 2)	3
Central Horpa	Poxiu Stau	*-o* (grade 4)	-∅ (grade 4)	4
Western Horpa	Jialaxi	-∅ (grade 4)	-∅ (grade 4)	4
Western Horpa	Bomei	-∅ (grade 4)	-∅ (grade 4)	4

[30] In addition to Poxi and Poxiu included in the table, a full erosion has also occurred in other Central Stau varieties, such as Jiasikong and Kongse, analyzed briefly earlier in the present study.
[31] See Chapter 5 for apparent divergence among the Dandong dialects.

As the table illustrates, a Horpa variety may show both conservatism and innovation in the development of its coda consonants. For instance, while Poxi Stau has lost the coda *-k that is now only reflected in the nucleus vowel, the variety still retains the coda *-p in a fricativized form as *-v*. Based on Tunzhi's (2021) materials, Zhangda shows the lowest degree of coda erosion in the two coda types. The outcome is somewhat unexpected, given that the variety under considerable Tibetan influence is not known for a great degree of conservatism in phonology and morphosyntax. More in line with the general expectations, Puxi follows Zhangda in coda conservatism, being in turn closely followed by Erkai. Many Central Horpa varieties, such as Bawang, Dandong, Geshiza, and Poxi Stau, show a moderate degree of erosion. Finally, the Western Horpa varieties of Jialaxi and Bomei have progressed particularly far, having no trace of either of the two coda consonants.

It remains to be discussed how different Horpa varieties have moved between the grades in their diachronic development. The pathway of erosion with *-p presents a straightforward trajectory (1). The zero forms and the (semi)vocalized forms originate via a fricativized intermediary stage *-v,* which is still identifiable in many Horpa varieties. It is important to emphasize that the reconstructed forms below reflect the stage of Proto-Horpa, not Proto-Gyalrongic. As the example demonstrates, defricativization occurring at stage 3. systematically centralizes the word's vowel in Geshiza.

(1) *-p > -v > -əu/-əw/-Ø, as in * rzap 'to be spicy'[32]

Geshiza:	*rzæp	>	*rzæv	>	*rzəu*		
Poxi Stau:	*rzæp	>	*rzæv	>	*rzɛv*[33]		
Poxiu Stau:	*rzæp	>	*rzæv	>	*rzɛv*	>	*rzɛ*

In the erosion of *-k, the key question is whether full erosion necessarily went through the stage of vocalization or could have happened directly. This applies particularly to the formation of the reflexes *-o/u* in Central Stau Varieties, but also concerns Western Horpa where *-k has fully eroded. We offer two hypotheses with a focus on Central Stau as a more investigated variety. First, identical to Geshiza, Central Stau first underwent a semi-vowel weakening and had an intermediary stage with the coda *-w, which further simplified into a monophthong (2a). Alternatively, unlike Geshiza, Stau did not undergo an intermediary stage with a weakened (semi)vowel coda, as illustrated in (2b).

(2a) Hypothesis 1: Simplified path of coda erosion with *-k in Central Stau[34]

*-Vk > -Vɣ > -əu/-əw/-Vw > -Ø, as in *mek 'eye'

Poxi Stau:	*mek	>	*meɣ	>	*mow	>	*mo*
cf. Geshiza:	*mek	>	*meɣ	>	*məɣ	>	*məu*

[32] The reconstruction reflects the vowel value proposed by Jacques and d'Alpoim Guedes (2023).

[33] The change in the vowel quality in the last stage of Poxi Stau is due the vowel shift discussed briefly earlier in this paper. Also, we do not propose that regarding the reflexes of *-p, the zero grade must have always emerged via an earlier (semi)vocalizing grade although such a trajectory cannot be categorically denied either in some Horpa languages.

[34] This hypothesis largely matches with Lai and Zhang's (under review) recent interpretation of coda weakening in Central Stau: "Mazur Stau *ro* shares with Tangut and Geshiza the vocalisation of the coda *-ɣ, probably through a *-w stage: *-eɣ > *-ew > *-ow > -o." In the example, only *mow has been included for the *-w stage since it is currently challenging to time the vowel change that has accompanied coda erosion.

(2b) Hypothesis 2: Simplified path of coda erosion with *-k, in Central Stau
*-Vk > -Vɣ > -∅, as in *mek 'eye'

Poxi Stau:	*mek	>	*meɣ	>	*moɣ	>	*mo*
cf. Geshiza:	*mek	>	*meɣ	>	*məɣ	>	*məu*

The plausibility of the hypotheses deserves further discussion. First, Hill (2019: 21) posits a sound change *aw, *ew > *o,* as in *law* > *lo* 'talk, report' in the history of Tibetan. Consequently, (2a) presents a phonologically justified sound change that has happened also elsewhere in the Sino-Tibetan language family, but the value of this Tibetan sound change is naturally limited when investigating the historical development of the Horpa codas. Second, analyzing argument indexation properties in Central Horpa varieties contributes additional evidence to establish the most plausible development trajectory. Geshiza possesses a first person argument indexation suffix *-w*, the addition of which results in frequent stem vowel alternations and the formation of diphthongs (Honkasalo 2020). The diphthong *əu* emerges from four monophthong stem vowels: *ɔ, a, æ, e,* exemplified in forms, such as *ræ* 'to write', *rəu* 'I write' < *ræ-w. Conversely, in Poxi Stau, no diphthongs emerge in the corresponding forms that are realized with the vowel *o* instead. Consequently, *ræ* 'to write' changes into *ro* 'I write' in the first person, which suggests that an intermediary stage with *-w is behind the vowel *-o* in the eroded Stau codas, as elaborated below.

The present study posits that if the person indexation suffix had the shape of *-w* in Proto-Central Horpa covering both Stau and Geshiza, it necessarily follows that Stau has also possessed the coda *-w.* Since no *-w* codas exist in the language at present (see also Gates 2021: 103), however, it must have eroded away over time. The most parsimonious explanation suggests that the same phonological erosion responsible for the formation of *-o* in words like *ro* 'one' also formed the verb forms, such as *ro* 'I write'. Finally, the plausibility test must also consider the reflexes of *-k in Kongse discussed in Section 3, such as *mu* 'eye' and *ru* 'one'. The forms with a high back vowel suggest the influence of *-w*. In sum, the first hypothesis stands as highly plausible, and we propose that Stau has historically undergone a semivocalized stage akin to the reflex of *-k as *-əw/əu* in contemporary Dandong, Geshiza, and Bawang.

To support the possibility of alternative hypothesis at least in the contexts of some Horpa varieties, namely a direct erosion from the intermediary phase of *-ɣ, we may turn to Western Horpa. In Jialaxi, among others, the following words for which *-k is to be reconstructed can be found: ˇ*re* 'one', ˇ*me* 'eye', ˇ*tʰe* 'ant', ˇ*ɕje* 'louse', ˇ*tɕʰe* 'six' and ˀ*vu* 'belly'. Barring a vowel fronting that has occurred later in the history of the language, these words seem to suggest that a direct erosion of *-ɣ is also a possibility in the history of the Horpa languages. Also, since erosion has likely occurred independently in at least some Horpa varieties, the possibility of both hypotheses being correct cannot be ruled out. Be that as it may, the present study prefers the first hypothesis for explaining coda evolution in Stau.

6.2. Conclusion

This paper offered an example how the historical development of the Horpa varieties is revealed most fruitfully when they are discussed and compared together. The challenges inherent in tracing down the development trajectories are to a great extent mitigated due to their close genetic relationship with Khroskyabs and East Gyalrongic languages that generally preserve more conservative phonological

structures. Additionally, the study underscores the pitfalls of reaching overly broad generalizations from solely a single Horpa variety. For instance, the most extensively described Central Stau variety of Poxi emerges as an anomaly when it comes its conservative retention of the coda *-Vp that has eroded in all other Central Stau varieties analyzed in the present study. Therefore, in discussing Horpa, it is more fruitful to specify that e.g., Poxi Stau retains the coda as *-v* rather than to generalize into Central Stau as a whole.[35] Also, in the context of at least *-Vp it was demonstrated that coda consonant weakening can occur independently in Horpa varieties. To illustrate, *-Vp has eroded independently away both in Kongse and Geshiza, despite the former stemming from Proto-Stau and the latter from Proto-Geshiza. Some daughter languages of Proto-Stau preserve a reflex of *-Vp (e.g., Poxi) while others do not (e.g., Kongse, Poxiu). The logical conclusion suggests that the erosion transpired independently in Geshiza and Stau.

As its limits, this brief paper motivated by the Geshiza diphthong *ɔu* and its cognates does not address the development trajectory of the third stop proto-preinitial, namely *-t. A preliminary analysis reveals that Puxi and Erkai retain *-t intact in at least limited environments, as in *rjæt* 'eight' and *rɟæt* 'eight', respectively, which correspond to Japhug *kurcat* 'eight'. To conclude, this study aspires to function as a catalyst to encourage further exploration of the history of Horpa codas.

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[35] While the scholarly consciousness is gradually changing, overgeneralization and neglect of internal variation and diversity remains an issue in linguistic typology still frequently characterized with overgeneralized statements. For instance, Chinese, Hindi, and Indonesian are often treated as single linguistic monoliths, which ignores the considerable internal variety that exists.

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ゲシツァ語の二重母音/əu/及びそれに対応するホルパ諸語の末子音

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キーワード：ゲシツァ語、ホルパ諸語、ギャロン語群、末子音、歴史的音韻論

要旨

本稿はゲシツァ（革什扎/Geshiza）語の二重母音/əu/及びそれに対応するホルパ諸語の末子音を分析する。四川省西部で話されているホルパ諸語に属するゲシツァ語では/əu/という二重母音が頻繁に現れるが、多くのホルパ諸語の言語変種にはこの二重母音が存在しない。ゲシツァ語と近い系統関係を持つギャロン語群の言語との比較により、/əu/の起原は二種類の弱化した末子音に遡ることを証明し、それぞれはホルパ祖語において*-Vk 及び*-Vp であると提案する。また、ホルパ祖語からの音変化の過程を観察し、現在のホルパ諸語は上述の末子音に関して４つのグループに分類されると提案する。本論文ではこれらの段階を１．破裂音の残存（-Vk, -Vp）、２．摩擦音化（-Vɣ, -Vv）、３．半母音化または母音化（-Vw, -Vu）、及び４．脱落（-ø）と名付け、末子音弱化の程度は言語変種により異なることを明らかにする。ホルパ諸語は先行研究では歴史的音韻論の観点から十分に扱われていないため、未解決の問題が多く残っているが、本稿は*-Vk 及び*-Vp に焦点を当てることで、末子音の通時的な音変化をより明確にすることを目指している。

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