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A pan-dialectal survey of the Horpa preinitial systems

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ABSTRACT

This study presents a pan-dialectal synchronic survey and documentation of preinitials in the Horpa cluster (West Gyalrongic). Based on fieldwork and analysis of earlier Horpa scholarship, the study describes the preinitial systems of ten Horpa varieties covering all proposed branches of the Horpa cluster. It also identifies four critical parameters of variation in the preinitial systems: the presence or absence of 1. guttural, 2. sigmatic, and 3. liquid contrasts in addition to the presence and absence of 4. weakened semivowel preinitials. The study contributes to the ongoing documentation and analysis of Horpa varieties, many of which are now endangered. Given the phonological conservatism of the Gyalrongic languages, the Horpa preinitialed consonant clusters offer insights and new perspectives for investigating Sino-Tibetan diachronic phonology.

KEYWORDS

Horpa, Gyalrongic, consonant clusters, preinitial consonants, syllable onset

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1 Introduction

This paper offers a pan-dialectal survey of the preinitial systems attested in Horpa (West Gyalrongic < Gyalrongic < Sino-Tibetan/Trans-Himalayan). The study's objectives, sources, and methodology are discussed in 1.1. In 1.2, the notion of 'preinitial' (frequently encountered in Gyalrongic studies) is defined, together with an overview of the onset structure of Horpa. The study follows a synchronic descriptive approach to preinitials. Hence, the historical correspondences between the preinitials are not analyzed in detail since this exceeds the scope of the present paper. The authors address the diachronic side of preinitial development in a separate dedicated study (Honkasalo et al., in press). Nevertheless, brief historical remarks are included when diachrony is essential for understanding the current systems.

1.1 *Background: objectives, sources, and methodology*

This paper presents a pan-dialectal description and analysis of Horpa preinitials. It aims to provide a synchronic overview of the preinitial systems identifiable in all major Horpa branches established as Eastern, Central, Northern, Northwestern, and Western by Sun (2019). All hitherto described Horpa lects contain complex consonant clusters in the syllable onset position, which is, in turn, balanced by their relatively simple codas with only single consonants allowed.[1] This syllable structure reflects a typological tendency of asymmetry where the codas are frequently simpler and with less elaborate phonological structures than the onsets (Easterday 2019: 6-7). As defined below, the preinitials constitute one of the two major types of cluster-forming consonants responsible for complex onsets in Horpa.[2]

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[1] Since differentiating between languages and dialects is a particularly challenging task in Horpa linguistics and involves various stakeholders, we refer to all varieties as "lects", rather than as languages.

[2] In Maddieson's (2013) typological classification, languages with three or more consonant clusters in the onset position, two or more in the coda position, or combinations of two consonants in the onset position, are categorized as having complex syllable structure. Also, Maddieson proposes a weak correlation between syllable structure complexity and the size of the consonant phoneme inventory, the two being mutually reinforcing, rather than offsetting. In other words, the more complex the syllable structure, the more consonant phonemes a language tends to have. Horpa lects with large consonant inventories follow this correlation.

Multiple examples of the investigated Horpa lects have been provided to illustrate the preinitial systems. This is because several of the endangered Horpa varieties are analyzed here for the first time, either from the viewpoint of preinitials or even as Horpa varieties at any level. Consequently, with new data from varieties, such as Dandong and Jiaju, this study contributes to increasing the available documentation of the Horpa languages. While the present study predominantly tackles preinitials from a synchronic perspective, the documentation also has diachronic value for Sino-Tibetan linguistics due to the phonological conservatism of the Gyalrongic languages.

In addition to the native inherited lexicon, preinitials frequently occur in Tibetan loanwords. To demonstrate the use of preinitials in inherited and borrowed lexicons, the present study marks all examples for which a Tibetic source can be identified. An overview of the Horpa preinitial systems is essential for future analysis of temporal layering in Tibetan borrowing and interaction with speakers of Tibetic languages. Besides the foundational study of Wang (1970 –1971) examining consonant clusters in Stau loanwords from Tibetan, this research topic remains largely unexplored in Horpa scholarship. While this paper does not aim to provide a comprehensive analysis of Tibetan loanwords in preinitialed Horpa consonant clusters, utilizing documentation and highlighting the distributions of Tibetan loanwords across the postulated preinitials, it shows the way for further studies dedicated to the topic.[3]

This study has a strong fieldwork focus, but it also incorporates and evaluates earlier scholarship on Horpa preinitials to offer an overview of Horpa preinitials that is cross-lectally as comprehensive as possible. Table 1 lists the used source types, and Figure 1 illustrates their approximate genealogical relationships. Due to accessibility issues, Puxi, a variety of Northern Horpa with no earlier preinitial studies, is analyzed based on publicly available source materials in the rGyalrongic Languages Database (Nagano and Prins 2013).[4]

No individual citation is offered for the sources of each of the presented word forms. The following general principles apply for attributing the sources throughout the paper: All Northern Horpa sources originate from the *rGyalrongic Languages Database* (Nagano and Prins 2013). Similarly, the Bawang, Bomei, and Zhangda word forms have been adopted from Van Way (2018), Van Way and Bkrashis Bzangpo (2018), Yang (2021), and Tunzhi (2019), respectively. We rely on our fieldwork on the remaining Horpa lects, namely Dandong, Geshiza, Jiaju, Poxi, Poxiu, and Erkai. In external comparison, Lai (2017) and Jacques (2021) have been used for Wobzi Khrosyabs and Japhug, respectively. These well-documented Gyalrongic languages with generally conservative phonologies often offer new insights for understanding the Horpa lects.

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[3] At present, a comprehensive pan-dialectal analysis of Tibetan loanwords in the Horpa lects remains impossible due to the limits of Horpa documentation. While new descriptive grammars have appeared in the past decade, especially in terms of the varieties that are more easily accessible to outsider researchers, a more comprehensive and dialectally balanced documentation of Horpa will require considerable time to be accomplished. Also, no dedicated Horpa lexicographic studies exist, which contrasts with East Gyalrongic, e.g., Jacques's (2015–2016) dictionary of Japhug. To illustrate some of the challenges, while the preinitial *r-* frequently occurs in Tibetan loanwords in Geshiza and is thus easy to identify, in contrast, the preinitial *l-* occurs highly infrequently in Tibetan loanwords in the language (see Honkasalo 2019a: 725 with three identified examples). Consequently, lexical databases of extensive scope covering all Horpa lects are needed to discover such rarities.

[4] Due to a sizeable body of new publications, knowledge concerning Horpa phonology has greatly advanced since the launch of the pioneering Database over a decade ago. Consequently, all source materials obtained from the Database have been retranscribed to correct the mistakes in the raw data, which is valuable for the comparative study of Gyalrongic languages.

| Variety	Classification	Used sources
Jiaju	Eastern Horpa	Personal fieldwork
Bawang	Eastern Horpa	Yang (2021)
Dandong	Central Horpa	Personal fieldwork
Geshiza	Central Horpa	Personal fieldwork, Honkasalo (2019a)
Poxi (Stau)[5]	Central Horpa	Personal fieldwork, Gates (2021)
Poxiu (Stau)	Central Horpa	Personal fieldwork
Zhangda (Stau)	Northwestern Horpa	Tunzhi (2019)
Erkai	Unclear, Central Horpa?	Personal fieldwork
Puxi	Northern Horpa	rGyalrongic Languages Database
Bomei	Western Horpa	Van Way (2018)

Table 1. Sources used in this study[6]
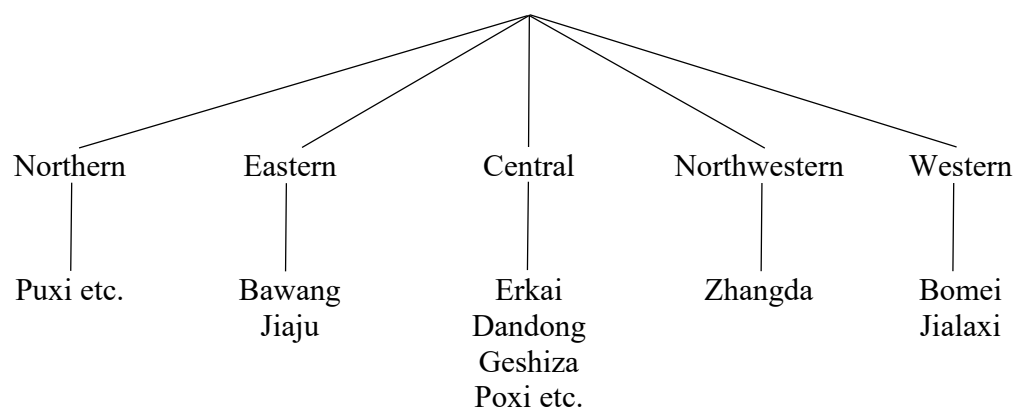
Figure 1. The Horpa cluster (modified from Honkasalo, in press)

Some adjustments in glossing practices have been implemented to make the presented data more uniform and comparable in this pan-dialectal study. First, since Dandong and Geshiza lack a contrast with the guttural fricatives [ɣ] and [ʁ] that stand in an allophonic relationship, ʁ has been adopted as the transcribed allophone. This decision enhances the visual comparability of Dandong

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[5] The name "Poxi" refers to the village name in Chinese where this Stau lect is spoken; Gates (2021) refers to it as "Mazur Stau". The terms "Puxi" and "Poxi" and "Poxiu" refer to distinct Horpa lects in this study and should not be confused with one another.

[6] While we strive to maximize transparency and availability of the source materials, this has not been possible in the context of the present article. Belonging to marginalized minorities and/or exile communities, many of the Horpa-speaking collaborators have explicitly forbidden sharing their voices online, and we are bound by research ethics to follow their wishes. Nevertheless, a considerable number of the words discussed are available in an audio format at the Gyalrong Languages Database, offering a supplement to the present article.

and Geshiza forms with those found in many other Horpa languages where a guttural contrast is retained. Second, we use *æ* for what Yang (2021: 52) transcribes as *ɐ* in Bawang, a cognate vowel to Dandong and Geshiza /æ/ articulated with a similar phonetic realization. This transcriptional convention makes Bawang data more comparable cross-dialectally. Furthermore, when no contrast exists between /a/ and /ɑ/, we adopt the more frequently used symbol a, as in Poxiu Stau.[7]

Sun (2019: 26) identifies a tonal contrast in Northern and Western Horpa. Tones are meaningful for the diachronic development of consonant clusters, yet they lack relevance for describing the synchronic systems of Horpa preinitials. Also, Van Way (2018: 6), in his study of Bomei (Western Horpa), argues that the lect lacks phonemic tonal contrasts. Since the investigation of tones would require a study greatly exceeding the scope of this paper, we have yet to make any attempts at tonal analysis or attribute tonal values to the cited Puxi Horpa examples.

1.2 *Horpa onset structure and defining preinitials*

The study of Gyalrongic languages, and Sino-Tibetan linguistics more generally, apply dedicated terminology to consonants of a syllable based on their position in the syllable and vis-à-vis each other. The key phonotactic terms comprise 'initial', 'medial', and 'preinitial'. Since they behave differently in various morphophonological phenomena, such as the addition of the causative prefix *s–* (see Gates et al. 2022: 220), the typologically rare and less recognized terms are nevertheless preferable to a simple enumeration of the consonant cluster members as C1C2C3, for instance.

An initial (C_i) is a single consonant typically followed by a vowel, as in Poxiu Stau *ɕi* (C_iV) 'barley'. Every Horpa CV syllable must thus have an initial. The initial may be optionally followed by a medial (C_m) from the set of *-l-, -r-, -w-, -j-* or consonants evolved from these, as in Poxiu Stau *zjæ* (C_iC_mV) 'heart' and *rji* (C_iC_mV) 'horse'. The present study does not focus on Horpa medials. Still, knowledge of their basic properties and behavior benefits the understanding of Horpa phonology and phonotactics directly relevant to the preinitials. Therefore, in what follows, the medials are briefly introduced. Two significant points stand out: medials have undergone fortition, and mergers and additional changes are attested.

First, some Horpa lects have undergone strengthening in their medials, such as Bawang where instances of the medial *-j-* have been subject to frequent fricativization or affrication, as in *zdʒə* 'sell' corresponding to Central Stau and Geshiza *zjə* 'sell'.[8] Table 2 offers additional examples illustrating the phenomenon.

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[7] Due to font design, the italic form of the character æ is occasionally displayed as *æ*. In this study, the two should be regarded as allographs of each other, rather than as symbols referring to distinct types of vowels. Likewise, the italic form of a is displayed as *a*.

[8] Following Jacques (2021a: 87-101), Japhug, an East Gyalrongic language, has also undergone fricativization in its medial system, which showcases the pan-Gyalrongic nature of the phenomenon. The language has a fricativized medial *-ɣ-* with various historical origins. In *ɕpʰɣo* 'to flee with', it clearly originates from an earlier *-j-, cf. Geshiza *pʰje* 'to escape'.

Central Stau	Geshiza	Bawang	Meaning
zjə	zjə	zdʒə	'to sell'
zjæ(r)	zjar	zdʒær	'heart'
zjo-si	zjəu-sʰi	zdʒəw-pʰo	'juniper tree'
ʁə-**zæ**	ʁuə-**zja**	ʁwə-**zdʒa**	'comb'
rjɛ	rjɛ	rdʒæj	'eight'
bjɛno	bjæno	mdʒæno	'meat'

Table 2. Medial affrication in Bawang

A researcher may adopt two distinct interpretations of such consonant clusters. First, in Bawang words, such as *mdʒæno* 'meat', *-dʒ-* serves as the fricativized realization of the medial reconstructed as *-j- as from comparative data, cf. Geshiza and Puxi *bjæno* 'meat'. As a benefit of the approach, it removes the need to establish any phonotactic changes, such as syllable restructuring: *mdʒæ.no* remains $C_iC_mV.C_iV$. The drawback of the interpretation is accepting that the medial is realized as an affricate that thus differs from the prototypical semivowel and liquid qualities of medials most frequently encountered in Horpa. An alternative approach argues that syllable restructuring has occurred. The erstwhile medial has shifted into the initial position, pushing, in turn, the original initial into the preinitial position. Thus, *mdʒæno* receives the alternative analysis of $C_pC_iV.C_iV$. Both approaches are methodologically valid, and their application depends on the researcher's aims. The present study follows the first approach, essentially matching that of Jacques (2021a: 87-101) from Japhug, accepting that preinitials do not always have to be realized as liquids and semivowels synchronically.

Second, mergers and additional changes are attested in the Horpa medial system. In Poxiu Stau, the two liquid medials *-l-* and *-r-* have merged into *-r-*, as shown in Table 3.[9] Such mergers do not affect the syllable structure. The Table shows that the medial systems in Zhangda and Bomei have evolved the furthest. To illustrate, the Poxi and Poxiu Stau forms *ɣrə* 'water' and *rji* 'horse' correspond to Bomei *ʒɔ* 'water' and *ʒi* 'horse', respectively, with a complete elimination of the erstwhile medials in *ɣrə 'water' and *rji 'horse'.

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[9] Gates (2021: 80–81) demonstrates that unlike Poxiu, Poxi retains the medial *-l-* in extremely rare cases, such as *plɛ* 'thigh', corresponding to Poxiu *brɛ* 'thigh'. The retentions are limited to the labial, velar, and uvular places of articulation. The medial is also rare in Geshiza with similar distributional restrictions, since most cases listed by Honkasalo (2019a: 183) can be reinterpreted as preinitialed consonant clusters. Despite its limited distribution, it is more likely that the medial *-l-* constitutes an archaism, rather than an innovation. In addition to Geshiza varieties, it occurs in Dandong, East Horpa (Jiaju and Bawang), and importantly, in the phonologically conservative Northern Horpa varieties (Puxi and Zongke). Therefore, we propose a medial merger joining the two liquid preinitials into *-r-* in some Stau varieties, such as Poxiu, rather than a split creating two liquid medials from one.

Medial	Poxiu	Zhangda	Bomei	Geshiza	Bawang	Puxi	Meaning
	zjæ(r)	zjɚ	no data[10]	zjar	zdʒær	n/a	'heart'
*-j-	rji	rji	ʒi	rji	rji	no data	'horse'
	n/a	rjəp	no data	rjəu	rjær	rɟæp	'wife'
	brɛ	vla[11]	vla	blæ	blæ	blæ	'thigh'
*-l-	mo-brɛ	n/a	no data	məu-blæ	məw-blæ	me(ɣ)-bla	'tears'
	n/a	qɔ	qu	qlo	qlu	qlu	'valley'
	pʰru	pʂʰo	tʂʰutʂʰu	pʰru	pʰru	pʰru	'white'
*-r-	ɣrə	ɣrə	qɔ	wrə	wrə	grə	'water'
	qrəmbə	qəbə	qɔ	qrə	qrə	qrə	'horn'

Table 3. Retention and merger of the medials in Horpa lects[12]

The initial may optionally be preceded by a preinitial (C_p) originating from a limited set of allowed consonants, the inventory of which varies across the Horpa lects, as this study demonstrates. From this, it follows that the initial consonant of a Horpa syllable is not always the first consonant in the syllable onset. Hill (2019: 122) highlights that the term "preinitial" superficially appears oxymoronic: "'initial' means 'first' and nothing precedes what is first." Nonetheless, this term has no widely accepted or commonly used alternatives.

Poxiu Stau has *zʁa* (C_pC_iV) 'ten' and *vdu* (C_pC_iV) 'to see' illustrate the functioning of the preinitials. A word may combine a preinitial and a medial simultaneously, which results in a tripartite consonant cluster with the phonotactic shape of $C_pC_iC_mV$, as in Poxiu Stau *mbjo* 'nest' and *skri* 'steps, stairs'.

As Sun (2007) and Van Way (2018) demonstrate, Western and Northern Horpa possess additional preinitials. These could be cumbersomely termed "pre-preinitials" or, more practically, numbered from right to left as preinitial 1 (C_{p1}), preinitial 2 (C_{p2}), etc.[13] Additional preinitials, however, remain outside the focus of the present paper that documents and analyzes only the preinitial systems in Horpa comprising a single consonant. To conclude, the frequently attested Horpa syllable types are summarized in Table 4.

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[10] Here and elsewhere, n/a indicates that the cognate word is not available in the given Horpa lect. In contrast, "no data" means that the word form is not included in the source materials of the authors, but it may exist. The distinction between the two aims to provide higher transparency.

[11] The proposed Zhangda and Bomei cognates could also be Tibetan loans from *brla* 'thigh', which would explain the unexpected sound value of the word's initial consonant and the retention of the medial.

[12] While cross-Horpa cognates for the medials *-j-, *-l-, and *-r- can be identified, the situation is more challenging for the medal *-w- that is nevertheless present in many Horpa lects. For instance, even though the Geshiza affirmative copula is *ŋwə* (transcribed as *ŋuə* by Honkasalo 2019a), the corresponding form in most Horpa lects lacks the medial, cf. Stau *ŋə*. Also, following Lai (2017: 79-80), Wobzi Kroskyabs has extremely few cases of the medial *-v-* besides its use in Chinese loanwords. In brief, the antiquity of *-w- requires further investigation, and many instances of the medial have late origins. This is exemplified by Bawang, where Yang (2021) documents a sizeable body of words with a non-etymological *-w-*, which also applies to Tibetan loanwords, e.g., *rmwæbja* 'peacock' from Tibetan *rma bya* 'peacock'.

[13] The feature of multiple preinitials is shared by Khroskyabs languages. Wobzi Khroskyabs possesses preinitialed clusters with up to five members (Lai 2017), thus manifesting typologically extreme onset complexity.

Cluster type	Central Stau	Geshiza	Puxi	Meaning
C_iV	ŋæ	ŋa	ŋə	'I, 1SG pronoun'
	ɲæ	ɲa	ɲa	'to be black'
C_iC_mV	bjɛno	bjæno	bjæno	'meat'
	ɣrə	wrə	grə	'water'[14]
C_pC_iV	sni	sni	snə	'nose'
	zʁe	zʁe	zʁe	'to cook'
$C_pC_iC_mV$	skʰro	skʰrəu	skʰre	'ant'
	zbri	zbri	zbrə	'to make sounds'[15]
$C_{p2}C_{p1}C_iC_mV$	not allowed	not allowed	nɣbjo	'to fly'
	not allowed	not allowed	fɬtsjæ	'to make put out a fire'

Table 4. Examples of common syllable types with onset clusters and no coda

Finally, prenasalized onsets must be addressed before discussing the preinitial systems of individual Horpa languages. Some East Gyalrongic languages, such as Japhug, possess a set of phonemic prenasalized onsets. They contrast with simple onsets, e.g., /mb/ vs. /b/, and host preinitial consonants, as in /ʐmbr/ (Jacques 2021: 48). In West Gyalrongic languages; however, we do not postulate prenasalized complex onsets as single phonemes, except for acknowledging the possibility of such interpretation in Zhangda Stau. For the following reasons, we prefer a compositional interpretation, where the phonetically nasal segment is considered a preinitial.

First, unlike in Japhug, segment sequences comprising nasals and non-nasals in most Horpa languages cannot combine with preceding phonological matter, resulting in clusters of the type */ʐmbr/ unattested. If prenasalized onsets were to be established as a separate series of phonemes, they would differ from all other consonant phonemes by disallowing preinitials. Zhangda Stau is a possible exception, the nature of which requires further investigation. Tunzhi's (2019) grammar, includes words such as /ɣⁿdɔ/ 'to put in a bag'. Therefore, a phonological interpretation for prenasalized stops must be considered for this Horpa variety, highlighting the possibility that the Horpa lects are not uniform in their phonological treatment of prenasalized onsets.

Second, as Honkasalo (2019a: 172) argues, the prenasalized interpretation would complicate the interpretations of Horpa phonemic inventories with little analytical benefit. More broadly, we

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[14] Some two-member Horpa consonant clusters are ambiguous regarding their internal composition. In other words, they are analyzable both as initial-medial (C_iC_m). and preinitial-initial (C_pC_i). As in Japhug (Jacques 2021a: 87–101), not all instances can be disambiguated. Dialectal comparison, however, provides occasional indications about the internal composition of such ambiguous consonant clusters. To illustrate, since *g-* is not a phonotactically allowed preinitial in Puxi (or in any other Horpa variety documented in this paper), *grə* 'water' must be a medial consonant cluster, which in turn supports the interpretation of Cenral Stau *ɣrə* 'water' and Geshiza *wrə* 'water' as medial clusters as well. Due to the historical and moderate phonological divergence of the Horpa lects, such a comparative approach should nevertheless be used cautiously and ideally as a supplement to other disambiguation methods.

[15] More exactly, the word means 'to play a wind instrument' in Geshiza and Stau. The words form a cognate with the Puxi *zbrə* 'to make sounds'. Note also Stau and Geshiza *sni* 'nose' where /i/ similarly corresponds to Puxi /ə/.

have been unable to find any analogs to Japhug's behavior among the analyzed Horpa lects: No consonant phonemes exist that only surface in a prenasalized form, providing evidence for the fact that prenasalized onsets should generally not be considered single phonemes on par with other consonant phonemes.

　　To conclude, phonological prenasalization is a phenomenon that requires attention in the future descriptions of understudied Horpa lects. While Zhangda Stau presents a plausible argument for considering prenasalized onsets as single phonemes, support from other Horpa lects is far less convincing. Consequently, the present study proceeds with the non-phonological interpretation as the default hypothesis.

2　Horpa preinitial systems

　　This section offers an overview of preinitials in Horpa lects from a contemporary synchronic perspective. It gives an overview of the preinitial systems in selected Horpa lects and includes the following brief case studies: Dandong and Geshiza (§2.1), Jiaju and Bawang (§2.2), Poxi and Poxiu (§2.3), Zhangda (§2.4), Erkai (§2.5), Puxi (§2.6) and Bomei (§2.7). To enhance readability, we have consolidated discussions of Horpa lects with highly similar preinitial systems. When the preinitialed cognate words differ, an upper index is used to differentiate them in the tables, such as *ndzu*[DA], *ndzo*[GE] 'to sit' in Dandong and Geshiza, respectively. The lack of such notation indicates that the word exists identically in the discussed lects.[16] Also, the varieties are labeled on a toponymic basis, which facilitates locating them on a map.

　　The preinitials in inherited and borrowed lexicons are illustrated in what follows. Tibetan preinitialed loanwords have been marked with (T) to distinguish between the two.[17] Sinitic loanwords in the Horpa lects do not appear with preinitials since this phonological feature is absent from (modern) Chinese with a simple syllable structure.[18]

2.1　*Dandong and Geshiza (Central Horpa)*

　　Dandong and Geshiza are non-tonal closely related Central Horpa lects spoken in the Northwestern end of Danba County (Ch. 丹巴县, Tib. *brag 'go*) with Dandong (Ch. 丹东, Tib. *mda'*

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[16] Occasionally, our sources only include a word in one of the discussed lects only, as in *jtsʰɛ*[JIA] 'Sichuan pepper'. When this is the case, it cannot be automatically deduced that the word does not exist in the other discussed Horpa variety of the relevant section. Rather, at least some of such cases are due to lacunae in the source materials.

[17] As an anonymous reviewer noted, additional possibilities for Tibetan borrowing are present in the datasets of this study, e.g., the word for 'eagle' originating from Tibetan *glang* 'eagle', itself a Mon-Khmer borrowing (see Benedict 1972: 75 and Matisoff 2003: 263). Consequently, a possibility remains that some words not marked as Tibetan loans will ultimately be shown to result from early borrowing. Once Horpa (and more broadly, macro-Gyalrongic) historical linguistics has progressed to a degree that reliable reconstructions and trajectories of sound change have been established, identifying early Tibetan loanwords will become easier.

[18] Besides Sinitic and Tibetic, the Gyalrongic languages have been in contact with other languages as well, although the nature of such contact has not been investigated in detail. In a brief but seminal proposal, Jacques (2021b) highlights that Gyalrongic languages (and "Qiangic" more broadly) share several words with Hmong-Mien. Besides contact with Tibetan, the present study nevertheless does not attempt to tackle the issue of earlier Horpa language contacts. Consequently, all non-Sinitic and non-Tibetan words in Horpa are classified as "native", even though future research will likely prove external origins for some of them.

mdo) as its historical and present-day center.[19] Dandong remains almost fully unresearched. To the west, Dangling (Ch. 党龄) provides a mountain route to Daofu (Ch. 道孚县, Tib. *rta'u rdzong*). Dandong also shares many non-Geshiza features with Stau, such as the retention of the palatal stops *c, cʰ, ɟ* that have evolved into affricates *tɕ, tɕʰ, dʑ* in Geshiza, e.g., Dandong *cɔ* 'to be pleasant', Stau *ca* 'to be pleasant', Geshiza *tɕɔ* 'to be pleasant' (Table 5). As the table demonstrates, however, not all instances of affricates in Geshiza result from weakening, and a set of original Horpa affricates shared between Dandong, Geshiza, and Stau exists.

Group	Dandong	Poxiu Stau	Geshiza	Meaning
*c, *cʰ	cɔ	ca	tɕɔ	'to be pleasant'
	vcə	vcə	vtɕə	'mouse'
	cʰæ	cʰɛ	tɕʰæ	'to be big'
	kʰə**cʰi**	cʰi	kʰæ**tɕʰi**	'below'
*ɟ	ɟi	ɟi	dʑi	'animate EXV'
	rɟæ	rɟɛ	rdʑæ	'Chinese (T)'
	vɟu	vɟɛvɟo, vɟo	dʑævdʑo	'bird'
	mɟə	vɟə	mdʑə	'saliva'
*tɕ, *tɕʰ	tɕæ	tɕɛ	tɕæ	'road'
	tɕe	tɕi	tɕe	'hat'
	ntɕə	ntɕə	ntɕə	'to slaughter'
	wtɕʰəu	ɣtɕʰo	wtɕʰəu	'six'
*dʑ	dʑi	dʑi	dʑi	'to be long'
	dʑədʑa	dʑədʑa	dʑidʑæ	'leather, animal skin'
	wdʑu	ɣdʑu	wdʑo	'flour, (Po.) tsampa'
	dʑəu	dʑo	dʑəu	'waist'

Table 5. Dandong and Stau stop conservatism vis-à-vis Geshiza innovations[20]

Dandong of Erdaoqiao Village (Ch. 二道桥村) has eight preinitials: *n-, m-, v-, s-, ʁ-, w-, l-,* and *r-*, illustrated in Table 6. Like many other Central Horpa varieties, yet unlike Stau, Dandong does not contrast velar and uvular fricatives. As discussed earlier, in the present article *ʁ-* is consequently chosen as the representative allophone for Dandong and all other Horpa lects lacking such contrast. This is because the measure facilitates inter-lectal comparison.

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[19] Dandong and Geshiza speakers converse with each other without resorting to the use of Sichuan Mandarin, the regional lingua franca. This was attested to during a field trip to Dandong. Importantly, Dandong and Geshiza speakers were not asked or encouraged to use their relative varieties but chose to do so naturally and independently. This underscores the close relationship between Dandong and Geshiza and their mutual comprehensibility to a high degree.

[20] The same patterns of fricativization are also attested in Bawang (see Yang 2021).

Dandong preinitials undergo regular voicing assimilation with the following consonant. For this reason, they can be listed under one allomorph only, a strategy adopted henceforth in the present paper, *instead* of showing the allophonic realizations that are fully predictable. To illustrate, *v-* has two major allomorphs, [f-] and [v-], of which [f-] is used with voiceless initials and [v-] with voiced ones, as in *vtsər* [ftsər] 'to be narrow', *vdzæ* [vdzæ] 'friend'. As can be seen from the other case studies below, most Horpa lects manifest identical behavior. Consequently, as a convention, the present paper marks the preinitials in their phonological form where the voiced allophone is chosen as the representative one, save in the case of *s-* where the voiceless one is adopted due to the necessity of preserving the symbol *z-* for another sigmatic preinitial present in some Horpa lects and discussed in the context of Stau in this article.[21] For instance, *sdumæ* and not *zdumæ* is used for the phonological transcription of the Dandong word 'cloud'. This convention emphasizing phonology rather than phonetic realization should be considered in the present study.

The Dandong preinitial *s-* is exceptional since voicing assimilation does not occur with nasal initials: *ɕɲe* 'seven'. Also, the nasal preinitial *n-* assimilates homorganically with the following consonant, contrasting with the other nasal preinitial m- that never assimilates: *n-* in *ndʐəvzɔ* [ɳɖʐəvzɔ] 'two years ago' vs. *m-* in *mkʰə(-lə)* [mkʰə(-lə)] 'smoke'. Due to the phonological predictability of the assimilated forms, we use *n-* in all circumstances for the assimilating nasal preinitial, and this convention equally applies to the other discussed Horpa varieties as well.

The Dandong materials of the rGyalrongic Languages Database (Nagano and Prins 2013) apparently recorded at Dandong Township differ slightly from those collected from Erdaoqiao Village by the authors of this study. Since Dandong Township lies north of Erdaoqiao, dialectal, rather than interspeaker variation, may explain the minor differences. Some words that Erdaoqiao speakers pronounce with the preinitial *l-* are pronounced with *r-*, as in Dandong Township *rŋɔ* 'child' vs. Erdaoqiao *lŋɔ* 'child'. Unlike in many Stau varieties discussed later in this paper, a complete merger of the two preinitials has not occurred. Dandong Township and Erdaoqiao have *lmə* for 'name', for instance. As an interim conclusion, some Dandong varieties appear more Stau-like than others, highlighting their connecting status between Geshiza and Stau at the opposite geographic ends, the link between the two passing through Dangling located between the Stau and Geshiza core areas.

In turn, Geshiza is spoken in Geshiza Valley (Ch. 革什扎, Tib. *dge bshes (r)tsa, dge bshes gra*) of Danba County. Notable studies of the lect include Honkasalo (2019a), a descriptive grammar, and Duo'erji (1998), a grammatical sketch in Chinese. Both descriptions focus on Horpa varieties of Geshiza Valley spoken in the relative proximity of Danba County Town (Ch. 章谷镇, Tib. *brag 'go*), the multilingual, regional, cultural, and political center where different ethnolinguistic groups of Danba County come in contact.

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[21] This convention was initiated by Gates (2021) in his description of Poxi Stau. As its major benefit, it keeps the transcription fully phonological at all positions of the syllable. On the other hand, it presupposes some understanding of Horpa phonology from the reader. In this, the convention thus somewhat resembles the Kunrei-shiki (訓令式) romanization of Japanese with internal systematicity (Hasegawa 2015: 55) emphasizing Japanese phonology and not phonetics.

Preinitial	Examples	Meaning	Examples	Meaning
n-	ntsʰə	'to think'	ndzu^{DA}, ndzo^{GE}	'to sit'
	ntɕə	'to slaughter'	ngə^{DA}, ngæ^{GE}	'nine'
	nvə	'to be soft'	ngə	'to eat'
	ndʐɔ^{DA}, ndʐa^{GE}	'to be same (T)'	ndʐolu^{GE}	'way of living (T)'
m-	mdʐɔ^{DA}, mdʐa^{GE}	'rainbow (T)'	mbrɛ	'rice (T)'
	mpʰri	'snake'	mɲa	'negative copula'
	mkʰə	'smoke'	mɟə^{DA}, mdʐə^{GE}	'saliva'
	mbru	'dragon (T)'	mdæ**mdu**^{DA}	'Dandong (T)'
v-	vcə^{DA}, vtɕə^{GE}	'mouse'	vdzi	'person, man'
	vɟæ^{DA}, vzæ^{GE}	'tongue'	vdʑæ	'friend'
	vɕæ	'to tell, speak (T)'	vje^{DA}, vzе^{GE}	'neck'
	vkrɔ^{DA}, vkra^{GE}	'have pattern (T)'	kʰævda^{DA}	'discussion (T)'
s-	sme	'woman'	sdumæ^{DA}, sdoma^{GE}	'cloud'
	sɲe	'seven'	sgre	'star'
	sta^{DA}, stɔ^{GE}	'tiger (T)'	spe	'incense (T)'
	smæn	'medicine (T)'	sdær	'plate (T)'
ʁ-	wrə-ʁjə^{DA}, ʁjə^{GE}	'fish'	ʁmor^{DA}, ʁmo^{GE}	'mouth'
	ʁtsʰə^{DA}	'earth'	ʁnæ	'to be dark'
	ʁmɔmə^{GE}	'soldier (T)'	ʁser^{DA}, ʁsær^{GE}	'gold (T)'
	ʁtsoŋ^{GE}	'to be clean (T)'	ʁja^{DA}, ʁjɔ^{GE}	'yak (T)'
w-	wɕi	'sweat'	wtsæ	'to be hot'
	wɕɔ^{DA}, wɕa^{GE}	'flatulence'	wne	'two'
	wmæ	'wound'	wre	'to be many'
	wrɔlɔ^{DA}, wlæ^{GE}	'wind'	wbə	'sun'
l-	lmə	'name'	lvɔ^{DA}, lva^{GE}	'shoulder'
	lbi	'urine'	lŋɔ^{DA}, lŋa^{GE}	'child'
	lmə	'hailstone'	lkəu	'elbow'
	lgupa^{GE}	'ninth month (T)'	snæ**lŋa**^{GE}	'five kinds (T)'
r-	rku^{DA}, rko^{GE}	'leg, foot'	rgæmæ^{DA}, rgævæ^{GE}	'stone'
	rkʰu^{DA}, rkʰo^{GE}	'to be cold'	rtsæ	'deer'
	rɲumæ^{DA}, rɲo^{GE}	'river'	rgergən	'teacher (T)'
	rŋəl^{DA}, rŋən^{GE}	'silver (T)'	rɟæ^{DA}, rdʑæ^{GE}	'Chinese (T)'

Table 6. Preinitials in Dandong of Erdaoqiao Village and Geshiza

Moving west and northwest along Geshiza Valley, several dialects can be identified. The analysis in this article is based on the easternmost varieties of Geshiza spoken around the villages of Balang (Ch. 巴郎村, Tib. *ba ra* and various other spellings), Buke (Ch. 布科村, Tib. *sbu khog),* and Dasang (Ch. 大桑, Tib. *stag gsum).*[22] Although the dialects share the same preinitial system, they are not identical, showing distinct features that primarily (but not exclusively) manifest in the lexical domain. Minor phonological differences can also be identified, but Geshiza varieties generally have high mutual comprehensibility.

Identical to Dandong, Geshiza has eight preinitials: *n–*, *m–*, *v–*, *s–*, *ʁ–*, *w–*, *l–*, and *r–*, illustrated in Table 6.[23] As the Table shows, the preinitial system is identical with that of Dandong, yet the phonological realization of many words is more innovative. The same assimilatory principles that are identifiable in Dandong also operate in Geshiza. Honkasalo has described the Geshiza preinitial system in detail (2019a: 169–182).

2.2 *Jiaju and Bawang (Eastern Horpa)*

The non-tonal Jiaju (Ch. 甲居, Tib, *brgya gcig*) and Bawang (Ch. 巴旺, Tib, *dba' dbang*) varieties make up the proposed Eastern Horpa branch that has been characterized as "aberrant" (Sun 2019: 26). The label is likely at least partially due to frequent preinitial vocalization present particularly in some Jiaju dialects, which makes them auditorily distinct.[24]

Jiaju is partially comprehensible with Geshiza spoken on the other side of the mountain range, but the comprehensibility is asymmetric. Jiaju speakers understand Geshiza more than vice versa, perhaps due to exposure to Geshiza in Danba County Town, which has a sizeable presence of Geshiza inhabitants and a workforce commuting from the nearby Geshiza villages. Also, the vocalization of preinitials in Jiaju likely renders many words harder to recognize for Geshiza speakers with no frequent exposure to Jiaju. Despite being the most accessible area of the Horpa-speaking area, no significant studies dedicated to Jiaju exist.[25]

The brief description here is based on the Jiaju Sancun (甲居三村) variety that contains eight preinitials: *n–*, *m–*, *v–*, *s–*, *ʁ–*, *w–*, *j–,* and *r–,* illustrated in Table 7. The system is almost identical to

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[22] Bian'er (Ch. 边耳, Tib. *bal ri*) falls geographically between the core areas of Dandong and Geshiza. Since Geshiza and Dandong seem to form a dialect continuum, categorizing the transitional forms, such as Bian'er, is somewhat arbitrary. Nevertheless, several features of Bian'er highlight a close affinity with Dandong, rather than with Geshiza. First, unlike Geshiza, Bian'er retains non-affricantized palatal stops in its consonant inventory, which aligns it with Dandong (and with Stau, see Table 5). Second, unlike Geshiza and identically with Dandong, the lect has raised the vowel /a/ to /ɔ/ in inherited lexicon, as in *lŋɔ* 'child' that corresponds to Geshiza *lŋa* 'child'.

[23] While we have intentionally chosen many everyday words as examples of the preinitials across the analyzed Horpa varieties in the tables of this chapter, the tables offer synchronic descriptions, rather than full cross-lectal cognate sets.

[24] We define preinitial vocalization as a type of lenition or consonant weakening whereby a preinitial acquires more vowel-like articulatory qualities while maintaining its phonotactic status as a consonant. The phenomenon is discussed in detail in a separate contribution by the authors. Vocalization is marked with a breve symbol placed under the vocalized segment expressed with a vowel symbol. To illustrate, some Jiaju Sancun speakers pronounce the word *zʁa* 'ten' with a vocalized preinitial as [e̯ʁa]. Since these articulations have not become phonologized (save in the semivowel-like articulations of the preinitials *w–* and *j–* historically originating from *ɣ- and *l-, respectively), we use the non-vocalized full forms as the representative allophones in this paper.

[25] Jiaju is situated next to Danba County Town with daily bus connections to Chengdu, the regional center of Sichuan. Jiaju has been branded into a major regional tourist attraction and the region is visited by many domestic and occasional foreign tourists (see also Jinba 2014).

that of Dandong and Geshiza, except that the preinitial *l-* has weakened into *j-*. Thus, the variety has two weakened semivowel preinitials since, like Dandong and Geshiza, it also possesses *w-* in its preinitial inventory.

Bawang is the second main variety of Eastern Horpa spoken north of Niega in Bawang and the surrounding area of Danba County. The variety has recently been documented by Yang (2021). The lect shares its system of eight preinitials (*n-*, *m-*, *v-*, *s-*, *ʁ-*, *w-*, *l-*, and *r-*) with Jiaju, as shown in Table 7.[26] In addition, Yang (2021) states that the prinitials *r-*, *v-*, and *ʁ-* do not assimilate, which goes against the general assimilatory principle of Horpa preinitials. In other words, with a voiceless initial, the expected allophones [r̥, ʂ], [f], and [χ] do not surface in Bawang.

Minor differences seem to exist in the nasal preinitials of Jiaju and Bawang. Generally, Bawang is more innovative by showing frequent assimilation from a historical *m- to *n-*, as in Jiaju *mpʰri* 'snake' vs. Bawang *npʰri* 'snake'. The same applies to the Tibetan loanword *'brug* 'thunder': Jiaju *mbru* vs. Bawang *nbru*. The scope and spread of this phenomenon in Bawang should be investigated.

Preinitial	Example 1	Meaning	Example 2	Meaning
n-	npʰri[BA]	'snake'	ndzu[JIA], ndzo[BA]	'to sit'
	ntʃə[BA]	'to slaughter'	ngæ	'nine'
	ntsʰə	'to think'	nbru[BA]	'dragon (T)'
	ndʐa~ndʐa	'same (T)'	ndʑulu[JIA]	'way for living (T)'
m-	mpʰri[JIA]	'snake'	mɲa	'negative copula'
	mdzo	'noon, lunch'	mdʒə	'saliva'
	mbrə[JIA]	'grain (T)'	mbru[JIA]	'thunder (T)'
	mtʰu[JIA], mtʰo[BA]	'to be high (T)'	mbrɛ	'rice (T)'
v-	vtʃə	'mouse'	vdzi	'man'
	vʒæ	'tongue'	vdʒæ(ʃi)	'friend'
	vdo	'to see'	vʒælə	'neck'
	vdɔpə[BA]	'master (T)'	vzə	'make, repair (T)'
s-	smi[JIA], sme[BA]	'woman'	sdomæ[JIA], sdomo[BA]	'cloud'
	sɲe	'seven'	sgre	'star'
	sni	'nose'	sʁa	'ten'
	smæn	'medicine (T)'	sdær[JIA], sdər[BA]	'plate (T)'
ʁ-	ʁji[JIA], ʁjə[BA]	'fish'	ʁmo	'mouth'
	ʁtsʰə	'earth'	ʁnæ	'to be dark'
	ʁpən[JIA]	'leader (T)	ʁsər	'gold (T)'
	ʁlu[JIA]	'song (T)	ʁja	'yak (T)'

[26] Yang (2021) transcribes the non-assimilating nasal preinitial as a superscript *N*, as in *ᴺdzo* 'to sit'. To follow the conventions of the present paper, these have been converted to *n-* used in the other discussed Horpa lects.

w-	wʃi	'sweat	wtsæ	'to be hot'
	wʃa	'flatulence	wne	'two'
	wsʰu	'three	wʒæ	'four'
	wlæ	'wind	wre	'to be many'
j-	jmə	'name	jva	'shoulder'
	jvi	'snow	jbala	'leaf'
	jmu	'hailstone	jkəw	'elbow'
	jtsʰɛ^JIA	'Sichuan pepper	jdzə	'fingernail'
r-	rku^JIA, rko^BA	'leg, foot	rgævæ	'stone'
	rkʰu^JIA, rkʰo^BA	'cold	rgu^JIA, rgo^BA	'cow'
	rɲu^JIA, rɲo^BA	'river	ʁge**rgæn**^BA	'teacher (T)'
	rɲi	'silver (T)	rdʒæ	'Chinese (T)'

Table 7. Preinitials in Jiaju and Bawang

2.3 Stau (Central Horpa)

Stau is a non-tonal Central Horpa lect spoken primarily in Daofu County, with Daofu County Town (Ch. 鲜水镇, Tib. *phyag ru*) as the epicenter of the Daofu language and culture. Central Stau is the most researched Horpa lect. Representative works include the descriptive grammars of Gates (2021) and Wengmu (2019), and Vanderveen (2015), a phonological description of Mazi Stau. The label "Central Stau" can be used to distinguish the varieties of Stau classified as Central Horpa from those classified as Northwestern Horpa and labeled "Northwestern Stau", analyzed in 2.4.

The description building on Gates (2021) follows the sound system of Poxi (Ch. 坡西, Tib. *spang shes*), a variety of Central Stau spoken in Mazi (Ch. 麻孜, Tib. *ma zur*). Eight preinitials can be identified in Poxi: *n-*, *m-*, *v-*, *s-*, *z-*, *ɣ-*, *ʁ-*, and *r-*, illustrated in Table 8. What has been stated about the nasal preinitials and voicing assimilation in the Horpa lects discussed above equally applies to Poxi, except for one major instance. Poxi contrasts two "sigmatic" preinitials, *s-* and *z-*. The preinitial *s-* assimilates regularly with non-nasal initials, such as *sdo* [zdo] 'cloud'. However, voicing assimilation with a nasal never occurs, as seen with *smi* [smi] 'woman'. This contrasts with *z-*, which always occurs in its voiced form and is phonotactically conditioned to co-occur with nasal initials (*m, n, ɲ, ŋ*) only, as in *zmi* 'crupper strap' (Gates 2021: 65). Such minimal pairs illustrate the necessity for establishing *s-* and *z-* as separate and contrasting preinitials in Stau.

Poxiu is another Central Stau variety spoken in Poxiu (Ch. 坡修 Tib. *phog sho*) village. The variety should not be confused with Poxi discussed above. While the two are phonologically and grammatically close, they are distinct varieties, most clearly visible in the lexical domain.

The preinitial system of the Poxiu overlaps entirely with that of Poxi. In the distribution of the preinitials across the lexicon, however, there are considerably more instances of *ɣ-* in Poxiu, which all correspond to a historical *l- preserved intact in Geshiza and the Northern Horpa varieties, such as Puxi, but merged into *r-* in most Stau varieties. As Table 9 shows, the noticeably higher amount of *ɣ-* preinitialed words in Poxiu vis-à-vis Poxi is due to a weakening of the postulated *l-.

Preinitial	Example 1	Meaning	Example 2	Meaning
n-	nkʰwo	'key'	ndzu	'to sit'
	ntɕə	'to slaughter'	ngə	'nine'
	ncʰə	'to hit'	ngə	'eat'
	ndʐæ	'to be same (T)'	ndʐupæ	'guest, visitor (T)'
m-	mpʰri	'snake'	mjæ^MA, mɲæ^PO	'negative copula'
	mkʰə	'smoke'	mdzu	'to be hungry'
	mtʰu^MA, mtʰo^MA	'to be high (T)'	mtsʰu	'lake (T)'
	mbru	'dragon (T)'	mbre	'rice (T)'
v-	vcə	'mouse'	vdzi	'person, man'
	vʐɛ	'tongue'	vdzə	'friend'
	vɕi	'must, want'	vʑi	'neck'
	vso^MA	'burnt offering (T)'	vɕokpæ^MA	'wing (T)'
s-	smi^MA, sme^PO	'woman'	sdo^MA, sdomə^PO	'cloud'
	stɛwu	'Stau'	sgri	'star'
	sta	'tiger (T)'	spu	'incense (T)'
	smɛn^MA, smɛ^PO	'medicine (T)'	sdɛr^MA, sdɛ^PO	'plate (T)'
z-	znə	'to dare'	zɲe	'seven'
	zmo	'wool'	zŋe^MA, zŋi^PO	'to lend'
	zmi^MA	'crupper strap'	zni	'to point, show way'
	zmə	'to name'	zŋo^MA	'to hang'
ɣ-	ɣɕi	'sweat'	ɣtsɛ	'to be hot'
	ɣɕæ	'flatulence'	ɣne	'two'
	ɣmɛ	'wound'	ɣdi	'to be flat'
	ɣsu	'three'	ɣri^MA, ɣre^PO	'to be much, many'
ʁ-	ʁjə	'fish'	ʁsəmbə^MA, ʁsəmə^PO	'all'
	ʁpurju	'wind'	ʁnɛ	'to be dark'
	ʁɲæ	'cow manure'	ʁser^MA, ʁse^PO	'gold (T)'
	ʁtsoŋ^MA	'to be clean (T)'	ʁja	'yak (T)'
r-	rko	'leg, foot'	rgəmɛ	'stone'
	rkʰu	'cold'	rtsɛ	'deer'
	rgə	'to sleep'	rŋəl^MA, rŋə^PO	'silver (T)'
	rgæ	'to love, like (T)'	rɟæ	'Chinese (T)'

Table 8. Preinitials in Central Stau (MA for Poxi aka. Mazi, PO for Poxiu)

Preinitial	Poxiu	Poxi	Geshiza	Meaning
*l-	ɣbi < *l-	rbi < *l-	lbi	'urine'
	ɣdæ < *l-	rdæ < *l-	n/a	'to hit with instruments'
	ɣvi < *l-	rvi < *l-	lvi	'Tibetan-style axe'
	ɣdzə < *l-	rdzə < *l-	ldzə	'pillar'
	ɣmo < *l-	rmo < *l-	lməu	'mushroom'
*ɣ-	ɣmə	ɣmə	wmə < *ɣ-	'fire'
	ɣmɛ	ɣmɛ	wmæ < *ɣ-	'wound'
	ɣlæ	ɣlæ	wla < *ɣ-	'eagle'
	ɣzi	ɣzi	wzi < *ɣ-	'Tibetan-style shoes'
	ɣʐə	ɣʐə	wzæ < *ɣ-	'four'

Table 9. Examples of the Poxiu preinitial *ɣ-* originating from **l-* and **ɣ-*

Not all cases of **l-* have weakened into *ɣ-* in Poxiu, as can be seen in *rʁamə* 'crazy person' corresponding to Geshiza *lʁamæ* 'crazy person.' The consonant cluster *ɣʁ-* does not exist in Stau. Consequently, in such cases, Poxiu has taken the path of Poxi, and the word is attested as *rʁamə*. In conclusion, the prevalence of this phenomenon must be investigated more broadly with speakers of other Stau varieties as well.[27]

2.4 Zhangda Stau (Northwestern Horpa)

Northwestern Stau is a non-tonal Northwestern Horpa lect spoken in southwestern parts of Luhuo County (Ch. 炉霍县, Tib. *brag 'go*) and in the closely adjacent Daofu areas. Previous scholarship has not defined in exact terms where Central Horpa ends and Northwestern Horpa begins. The two varieties may form a dialect continuum rather than being two separate Horpa sub-branches. While Northwestern and Central Stau are closely related, Northwestern Stau differs noticeably from Stau, spoken around Daofu Country Town. The difference is not only lexical but also phonological and grammatical. Northwestern Stau has been exposed to heavy Tibetan influence that is particularly visible in the language's lexicon. Besides Tunzhi (2019), a descriptive grammar of the Zhangda lect (Ch. 章达, Tib. *brag mda'*), the variety remains understudied and only partially known. Interestingly, Sun (2019) suggests that Hodgson's (1853) Horpa, the first mention and study on the Horpa language cluster, may refer to Northwestern Stau.

Depending on the adopted phonological interpretation, the preinitial system of Zhangda Stau comprises six or seven preinitials: *(n-), m-, v-, s-, ɣ-, ʁ-,* and *r-*, illustrated in Table 10.

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[27] The weakening phenomenon may be more widely spread in Stau dialects. To illustrate, in Poxi, *ɣpʰele* 'patch' is found, the word being formally identical with its Poxiu equivalent. However, Geshiza with the more conservative form *lpʰæle* 'patch' shows that the word originally had the preinitial *l-*. Therefore, Poxi includes at least one weakening, and more may possibly be identified in future studies.

Preinitial	Example 1	Meaning	Example 2	Meaning
(n-)	nɢolo	'big pot'	ndzo	'to sit'
	ntɕʰə	'to slaughter'	ngə	'nine'
	ngo	'to carry'	nɹɑmba	'mud (T)'
	ndʐa~ndʐa	'same (T)'	ndzeɣleŋ	'world (T)'
m-	mʈʂʰi	'snake'	mɲa	'negative copula'
	mkʰə	'smoke'	mdʑo	'to be hungry'
	mtʰo	'to be high (T)'	mtsʰo	'lake (T)'
	mdʐɨ	'dragon (T)'	mdʑɨ	'rice (T)'
v-	vko	'to give'	vdzi	'person, man'
	vɬe	'tongue'	vdz̢ə	'friend'
	vɕe	'to speak (T)'	vqa	'neck'
	vlama	'monk (T)'	vɕoxpa	'wing (T)'
s-	smi	'woman'	sgə	'to put in bed'
	stewu	'Stau'	snə	'to dare'
	stɑ(ʔ)	'tiger (T)'	sɲe	'seven'
	sci	'to give birth '(T)	ske	'language (T)'
ɣ-	ɣtse	'to be warm'	ɣtse	'hot'
	ɣbə	'Sun'	ɣni	'two'
	ɣso	'three'	ɣʈʂə	'four'
	ɣmamə	'army (T)'	ɣdʑɨləp	'procedures (T)'
ʁ-	ʁju	'fish'	ʁpərji	'wind'
	ʁtsə	'earth'	ʁze	'to cook'
	ʁɲa	'animal manure'	ʁsər	'gold (T)'
	ʁna	'long ago (T)'	ʁjɑ	'yak (T)'
r-	rmi	'name'	rgəme	'stone'
	rvə	'axe'	rgə	'to sleep'
	rdzi	'fingernail'	rzoŋ	'county (Z)'
	rɲama	'tail (T)'	rɹa	'Chinese (T)'

Table 10. Preinitials in Zhangda Stau

What has been stated about voicing assimilation of the preinitials in the context of the other introduced Horpa lects also applies to Zhangda. As a significant difference, Tunzhi (2019: 111) demonstrates that the preinitial *m-* frequently surfaces as an oral stop [p], as in *mt* [pt] and *mk* [pk]. This has, nevertheless, no relation to the number of phonological preinitials in the variety. As discussed earlier in this paper, the status of *n-* as a synchronic preinitial is a matter of interpretation,

and it is consequently shown in parenthesis in the table. Concerning *n-*, Tunzhi (2019: 109) argues that "prenasalized stops as /ⁿtʰi/ 'to be accepted' function as a single prenasalized consonant and can be preceded by a preinitial consonant as in /ɣⁿdɔ/ 'to put in a bag'." Following this interpretation results in removing *n-* from the synchronic preinitial inventory.

In an alternative interpretation, like in other Horpa varieties, *n-* can be established as an independent preinitial, at least historically. From Tunzhi's example, however, it follows that such an interpretation would require the recognition of pre-preinitials in Zhangda Stau, thus complicating the phonotactic interpretation of the variety. Because of the unclarity in the issue, *n-* has been placed inside parentheses in Table 10, which lists the preinitials of Zhangda Stau. The problem can only be resolved with additional investigation. Nevertheless, the variety is currently the most likely candidate for a Horpa lect with prenasalized consonants.

Finally, in comparison to Central Stau (Poxi, Poxiu) discussed above, phonemic contrast between the two sigmatic preinitials *s-* and *z-* does not exist in Zhangda Stau where *s-*, rather than *z-*, is present in words, such as *sɲi* 'seven' and *snə* 'to dare' (Tunzhi, personal communication on Nov 25, 2022) comparable with *zɲe* 'seven' and *znə* 'to dare' in Poxiu Stau, which includes a sigmatic contrast in its preinitial system.

Some of the Tibetan loanwords with *g-* as the preinitial in Written Tibetan are transcribed with both velar and uvular preinitials in Tunzhi's (2019) grammar, e.g., *ɣsər ~ ʁsər* 'gold' < Tib. *gser* 'gold'. Suppose this variation is not due to inconsistency in the transcriptional conventions. In that case, it may hint that the Tibetan loanwords with an original *g-* allow either of the guttural preinitials in their pronunciation in Zhangda Stau.

2.5   *Erkai (unclassified, possibly Central Horpa)*

Erkai is a non-tonal Horpa lect spoken in Erkai village (Ch. 二楷村, Tib. *g.yu rong* or *ri Ṣe*) of Western Jinchuan County (金川县). Erkai lies within the border of Wore Township, along the Wore River, shy of Daofu County to the south by a few kilometers. Erkai's inhabitants speak a speech variety that is unintelligible to their neighbors to the north, Khroskyabs (Huang 2007: 1), providing an unusually abrupt language break in West Gyalrongic dialect geography. To the south, west, and east of Erkai, the altitude climbs rapidly up to grasslands where there are speakers of varieties of nomadic Tibetan (a.k.a. Amdo).

When asked which variety was more like their own language, Zongke Township in Rangtang County over the pass to the west or up the Wore River, the people of Erkai replied that Zongke is more similar. Population statistics are hard to come by, but we estimate that there are only a few hundred speakers.

The lect remains almost entirely unstudied but appears to belong to the non-tonal Central Horpa rather than to the tonal Northern Horpa, showing similarity with Dandong, Geshiza, and Stau. Gates (2010) offers an initial analysis of the lect's phoneme inventory where the preinitials issue is not addressed. Eight preinitials can be identified in Erkai: *n-*, *m-*, *v-*, *s-*, *ɣ-*, *ʁ-*, *l-*, and *r-*, illustrated in Table 11. What has been stated about the contrasting nasal preinitials and voicing assimilation in Dandong also applies to Erkai.

Preinitial	Example 1	Meaning	Example 2	Meaning
n-	ntʰo	'meat'	ndzuræ	'house'
	nɹi~nɹi	'red'	ngə	'nine'
	ndvə	'to be soft'	ngə	'to eat'
	nda	'arrow (T)'	ntɕʰæm	'dance (T)'
m-	ʁæ-**mne**	'twelve'	vɹo-**mbjo**	'bird nest'
	lɹæ**mba**	'cheek'	mda	'color (T)'
	mtʰu	'to be high (T)'	mbre	'rice (T)'
	mtsʰu	'lake (T)'	mgəjima	'avaricious (T)'
v-	vcə	'mouse'	vɕæ	'ashes'
	vɕə	'seed'	vɹo	'bird'
	ʁæ-**vjə**	'fourteen'	vjæ	'tongue'
	vzæ	'cut hair'	ʁæ-**vrəw**	'eleven'
s-	sme	'young lady'	sdomə	'cloud'
	sni	'nose'	sɲe	'seven'
	stæn	'sitting mat (T)'	sdər	'plate (T)'
	smæn	'medicine (T)'	skarma	'star (T)'
ɣ-	ɣtɕʰə	'thorn'	ɣmə	'fire'
	ɣso	'three'	ɣjə	'four'
	ɣzi	'shoes'	ɣde	'to be flat'
	ɣlə	'wind'	ɣma	'to be low (T)'
ʁ-	ʁɕə	'excrement'	ʁrara	'to fight'
	ʁre	'bear'	ʁsər	'gold (T)'
	ʁtsoŋ	'to be clean (T)'	ʁja	'cattle (T)'
	ʁsəmbə	'alive (T)'	ʁzə	'bow (T)'
l-	ltʰə	'to be straight'	lva	'shoulder'
	lmə	'name'	ldzə	'fingernail'
	lbi	'urine'	lqe	'elbow'
	lvi	'axe'	lwo	'ice'
r-	rtɕʰa	'to bite'	rgama	'stone'
	də-**rkʰu**	'to be cold (PFV)'	rtsæ	'deer'
	rŋəl	'silver (T)'	rŋa	'face'
	rgæmbə	'box (T)'	rŋamoŋ	'camel (T)'

Table 11. Preinitials in Erkai

When giving quotation forms for words listed in the table, Erkai speakers sometimes end the word with a glottal stop. Rather than being fully a side-product of lexical elicitation, the syllable-final glottal stop might reflect an eroded coda since at least a part of the occurrences originates from a weakened stop coda reflected in various degrees in other Gyalrongic languages: cf. Erkai [lvaʔ] 'shoulder', Wobzi Khroskyabs *lváɣ* 'shoulder' and Japhug *tɯ-rpaʁ* 'shoulder'.[28] This issue has not been pursued further in the present study, focusing on the syllable onset position.

2.6 *Puxi (Northern Horpa)*

Puxi and Zongke are conservative tonal Northern Horpa lects spoken in Rangtang County (Ch. 壤塘县, Tib. *'dzam thamg*). Puxi is spoken in Puxi, Dayili, and Xiaoyili Villages of Puxi Township, and Zongke is used in Zongke Township (Sun 2000: 214)—the total population of speakers for these two lects unlikely to exceed 5,000 people. What follows focuses mainly on Puxi since Zongke remains virtually unstudied except for a word list in the rGyalrongic Languages Database.

Puxi includes nine preinitials: *n–, m–, v–, s–, z–, ɣ–, ʁ–, l–,* and *r–* (Table 12).[29] Based on the data from the rGyalrongic Languages Database, the same system also exists in Zongke. Like Stau, the conservative lects contrast *s–* and *z–*, as shown in *snʌ* 'kindle' vs. *znʌ* 'cause to burn' (data from Sun 2007).

Preinitial	Example 1	Meaning	Example 2	Meaning
n–	ntɕə	'to kill'	ngo	'nine'
	nə-**nvət**	'to be soft'	ncʰæl	'to play'
	nguno	'front	ndjæ	'to lick'
	də-**nɖʐæ**	'to be same (T)'	nde	'to like'
m–	mkʰə	'smoke'	mɲa	'negative copula'
	mtɕʰə	'mouth'	mdzur	'to get hungry'
	mgur	'carry on back'	mtsʰu	'lake (T)'
	mɖʐək	'thunder (T)'	mdo	'color (T)'
v–	vltʰə	'seed'	vdzi	'person'
	vldæ	'tongue'	vko	'to give'
	vʃi	'must, need'	vʃæ	'to say'
	vzlæ	'to study (T)'	vʃokpæ	'wing (T)'

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[28] See also Lai (2022) with *lvæˠɣ as the reconstruction for 'shoulder' in Pre-Khroskyabs.

[29] The word *znəˠ* 'to dare' has been adopted from Sun (2000: 215) to supplement the set of examples.

s-	smi	'woman'	sdo	'cloud'
	snə	'nose'	sʁæ	'ten'
	skærmæ	'star (T)'	stoŋbæ	'empty (T)'
	smæn	'cure (T)'	sgoŋa	'egg (T)'
z-	znəˠ	'to dare'	zɲeˠ	'seven'
ɣ-	ɣbjə	'sun'	ɣmə	'fire'
	ɣsju	'three'	ɣɲeˠ	'two'
	ɣtɕʰow	'six'	ɣldæ	'to be flat'
	də-**ɣtsæ**	'to be hot (PFV)'	ɣcəl	'between (T)'
ʁ-	grə-ʁji	'fish'	ʁpərjəˠ	'wind, to blow'
	ʁtsʰətsʰə	'to fight'	ʁbu	'many, much'
	ʁsənpə	'alive (T)'	ʁjær	'to be good (T)'
	ʁnæ	'previously (T)'	ʁlə	'song (T)'
l-	lmə	'name'	lvæ	'shoulder'
	lmi	'tail'	lbala	'leaf'
	lŋæ	'child'	lkow	'elbow'
	ltʰə	'milk'	ldzə	'fingernail'
r-	rcʰala	'to bite'	rgəmæ	'stone'
	rkʰu	'to be cold'	rtsʰo	'to kick'
	rgi	'to be hard'	rŋæ	'face'
	rŋu	'knee'	rɟæ	'Chinese (T)'

Table 12. Preinitials in Puxi

2.7 *Bomei Nyagrong Minyag (Western Horpa)*

Western Horpa or Nyagrong Minyag lects are spoken in Xinlong County (Ch. 新龙县, Tib. *nyag rong rdzong*) by approximately 1000 speakers (Van Way and Bzangpo 2016). Representative works on understudied Western Horpa include Suzuki (2009a, 2009b, 2013) on the Jialaxi (Ch. 甲拉西, Tib. *rgra ra shig*) dialect and Van Way (2018) on the phonology of the Bomei (Ch. 博美, Tib. *bang smad*) lect. Van Way (2018) identifies seven preinitials in Bomei: n–, *v*–, *ɣ*–, *ʁ*–, *ɦ*–, *j*–, and *r*–. that manifest voicing assimilation described elsewhere in this study.

The following two points require further focus. First, the postulated preinitial *j*– occurs in only two clusters: *jw*– and *jʁ*–, which makes its distribution highly marginal vis-à-vis the other preinitial clusters that often manifest twenty-fold more combinations. We propose that *jw*– is analyzable as an initial-medial sequence, as in *jwani* 'if'. Also, while *jʁ*– lacks any illustrations in (Van Way 2018), Van Way and Bzangpo (2018) list one instance of *jʁ*– as *jʁu* 'crazy' with the realizations of [ɦʁu] ~ [jʁu] ~ [jʁu]. Due to the allophonic realizations, this case can also be listed under the preinitial *ɦ*– without the need to postulate an additional preinitial. Furthermore, the historical sources of the preinitial *ɦ*– support this interpretation. A cross-Horpa comparison demonstrates that a part

of instances with Bomei *ɦ-* results from the weakening of the historical preinitial *l- retained in Geshiza and Puxi (Table 13).[30] In sum, we propose that the most parsimonious interpretation of Bomei can do away with *j-* as a preinitial. Even if it is included in the preinitial system, in the light of Van Way's data, its status is marginal.

Bomei	Geshiza	Bawang	Poxiu Stau	Puxi	Meaning
ɦimə	lmə	jmə	rmə	lmə	'name'
ɦimɛ	lməu	jməw	rmo	no data	'mushroom'
ɦiva	lva	jva	n/a	lvda	'shoulder'

Table 13. The partial sources of Bomei *ɦ-* from *l-

Second, Van Way (2018: 62) does not include *m-* as a separate preinitial and proposes an underspecified nasal preinitial *N-* that assimilates into its host consonant. Since exceptions with no nasal assimilation nevertheless occur, he proposes underlying forms with two preinitials (nasal and labio-dental) that mutate into a nasal surface form retaining the place of articulation of the fricative, as in *fndʑɔ* [ɱdʑɔ] 'saliva'. However, Honkasalo (2019b) argues, the irregular instances are interpretable as a separate nasal preinitial. This interpretation would also bring the Bomei system closer to other Horpa languages. In all, Table 14 summarizes our understanding of the Bomei preinitial system.

Preinitial	Example 1	Meaning	Example 2	Meaning
n-	nzy	'to sit'	ngɔ	'nine'
	ntɕʰə	'to hit'	ndʐu	'to be hungry'
	ngəju	'ring'	ndzəmbə	'guest (T)'
	ndʐa	'rainbow (T)'	nɖʐy	'dragon (T)'
m-	mtʂʰi	'snake'	mdzɔ	'saliva'
	mba	'to take away'	mdzɔ	'partner, friend'
	mbə	'to bake in oven'	mbaqʰə	'milk pot'
	mtɔ	'to knock'	mbərlɛ	'plane (tool) (T)'
v-	vtɕɔ	'mouse, rat'	vtsi	'husband, person'
	vɬʰɔ	'seed'	vli	'tongue'
	vtsʰu	'milk'	vʒəlɛ	'to peel'
	vʒɛ	'to cut hair (T)'	vlamu	'lama (T)'
ɣ-	ɣkəri	'to call, hail, yell'	ɣla	'wind'
	ɣtɕi	'to open'	ɣne	'seven'
	ɣtsə	'claw'	ɣmi	'daughter'
	ɣvu	'ice'	ɣni	'corpse'

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[30] The Bomei preinitial *ɦ-* has also additional sources, such as *s-.

ʁ-	ʁpu	'sand'	ʁtɕy	'tsampa'
	ʁke	'ladder'	ʁdɔlə	'pestle'
	ʁtsə	'earth'	ʁli	'to fall'
	ʁsu	'to feed (T)'	ʁzy	'excrement'
ɦ-	ɦpu	'move to a city'	ɦmə	'name'
	ɦpu	'sand'	ɦmə	'hailstone'
	ɦdi	'wall'	ɦmɛ	'mushroom'
	ɦmi	'daughter'	ɦva	'shoulder'
r-	rku	'leg'	rʁi	'to wash'
	rgɔ	'to sleep'	rkʰə	'to put in'
	rzɛ	'tiger'	rdʑi	'drum'
	rku	'to like, love (T)'	rtsə	'to count (T)'

Table 14. Preinitials in Bomei

3 A brief overview of historical correspondences

As mentioned earlier, the present study has a synchronic focus. In what follows, we offer an overview of the diachronic system (see Honkasalo et al., in press, for a more extensive treatment). The reconstructed preinitial system of Proto-Horpa is given in Table 15, which lists the common reflexes of the proto-preinitials. The reconstruction is based on 163 cognate sets, 100 of which are detailed in the study by Honkasalo et al. It should be noted that Western Horpa is not included in this diachronic overview due to limitations in the available source materials.

Proto-Form	Dandong-Geshiza	Eastern Horpa	Erkai	Zhangda/ NW Horpa	Central Stau	Northern Horpa
*n-	n-	n-	n-	n-	n-	n-
*m-	m-	m-	m-	m-	m-	m-
*v-	v-	v-	v-	v-	v-	v-
*s-	s-	s-	s-	s-	s-	s-
*z-	s-	s-	s-	s-	z-	z-
*ɣ-	w-	w-	ɣ-	ɣ-	ɣ-	ɣ-
*ʁ-	ʁ-	ʁ-	ʁ-	ʁ-	ʁ-	ʁ-
*l-	l-	j-	l-	r-	r-	l-
*r-	r-	r-	r-	r-	r-	r-

Table 15. Reconstructed preinitials of Proto-Horpa and their common reflexes (Honkasalo et al., in press)

As the table shows, all Horpa lects included in this paper preserve the proto-preinitial system relatively intact. Significant changes include the following: 1. Merger of *s- and *z- in all varieties

except Central Stau and Northern Horpa. 2. Weakening of *ɣ- in Dandong-Geshiza and Eastern Horpa. 3. Merger of *l- and *r- in Central and Northwestern Stau (Zhangda). These changes are illustrated with a set of cognates given in Table 16.

Preinitial	Geshiza	Bawang	Erkai	Zhangda	Poxi	Puxi	Meaning
*n-	ngæ	ngæ	ngə	ngə	ngə	ngo	'nine'
*m-	mɲa	mɲa	mja	mɲa	mjæ	mɲa	'NEG.COP'[31]
*v-	vʐæ	vʒæ	vjæ	vɬe	vʐɛ	vldæ	'tongue'
*s-	sme	sme	sme	smi	smi	smi	'female'
*z-	sɲe	sɲe	sɲe	sɲi	zɲe	zɲeˠ	'seven'
*ɣ-	wne	wne	ɣne	ɣni	ɣne	ɣneˠ	'two'
*ʁ-	ʁjə	ʁjə	n/a	ʁju	ʁjə	grə-ʁji	'fish'
*l-	lvo	jwæ	lvo	rvo-nono	rvo	lvo	'ice'
*r-	rgæ-væ	rgæ-væ	rga-ma	rgə-me	rgə-mæ	rgə-mæ	'stone'

Table 16. Set of cognates illustrating the development of the proto-preinitials

Finally, not all preinitialed clusters are conservative in stemming from Proto-Sino-Tibetan. For instance, Lai (2017: 51) analyzes Wobzi Khroskyabs *mkʰə́* 'fire' as a historical compound *ʁmə́-kʰə́*, literally 'fire-smoke'. Comparative analysis of other Tibeto-Burman languages, such as Burmese with မီးခိုး *mî khûi* 'fire', offers additional evidence for this hypothesis. Consequently, identifying the historical origins of innovative preinitialed clusters in the Horpa cluster constitutes an essential task for diachronic Horpa research.

4 Discussion and conclusion

This pan-dialectal survey described and analyzed the preinitial systems present in ten Horpa lects from all five branches of the Horpa cluster proposed by Sun (2019). While the sizes of the preinitial inventories vary between seven and nine, the systems remain similar. In all Horpa lects, three types of preinitials are attested: 1. nasals, 2. fricatives, 3. approximants, the last of these typically dominating. No stop preinitials were identified synchronically in any of the investigated lects.

Table 17 summarizes the synchronic systemic contrast features of the identified preinitial systems. All Horpa varieties in this study maintain a nasal contrast in their preinitial systems. Moreover, the majority showcase a guttural contrast between the velar (ɣ-) and uvular (ʁ-) preinitials absent in Dandong, Geshiza, and the Eastern Horpa varieties of Jiaju and Bawang. Only a minority have a sigmatic contrast between *s-* and *z-* that characterizes Northern Horpa (Puxi) and Central Stau (Poxi and Poxiu). Since this feature is absent from Northwestern Stau (Zhangda), it can be used as a criterion of dialectal differentiation in the Stau varieties in the core speaking area, which extends from Daofu to Luhuo. Furthermore, liquid contrasts between *l-* and *r-* surface only in Dandong,

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[31] In many Horpa lects, the pronunciation of the initial in the negative copula alternates between two forms, as in Geshiza *mɲa ~ mja*. This alternation is ignored in the table.

Geshiza, and Northern Horpa (Puxi). Finally, while most investigated Horpa lects lack weakened semivowel preinitials, Dandong and Geshiza possess one (*w-*), and the Eastern Horpa varieties of Jiaju and Bawang two (*w-*, *j-*).

Horpa variety	Nasal contrast	Guttural contrast	Sigmatic contrast	Liquid contrast	Semivowel preinitials
Dandong	✓	✗	✗	✓	✓ (1)
Geshiza	✓	✗	✗	✓	✓ (1)
Jiaju	✓	✗	✗	✗	✓ (2)
Bawang	✓	✗	✗	✗	✓ (2)
Erkai	✓	✓	✗	✗	✗
Bomei	✓	✓	✗	✗	✗
Zhangda Stau	✓	✓	✗	✗	✗
Poxi Stau	✓	✓	✓	✗	✗
Poxiu Stau	✓	✓	✓	✗	✗
Puxi	✓	✓	✓	✓	✗

Table 17. A summary of systemic preinitial features in the investigated Horpa varieties

As one of its limitations, the present study did not discuss the positional constraints of the preinitialed clusters. An earlier study of such nature can be found at Honkasalo (2019a: 168-169) for Geshiza. Excluding the positional constraints is primarily due to the need for more data for an exhaustive analysis. Some preinitialed clusters are phonological hapax legomena. At the same time, they are of great importance in phonological analysis. A near-exhaustive discovery of such cases in the style of Lai (2017) on Khroskyabs would require years of work on each Horpa variety, an impossibility for the present study. An analysis of the positional constraints is thus left for future research and awaits more in-depth fieldwork on the respective Horpa varieties.

In conclusion, besides their historical relevance in Sino-Tibetan studies, the Horpa lects also have the potential to contribute to the typological study of complex onsets that have recently been progressing with seminal studies, such as Easterday (2019). The authors hope that the present paper encourages further documentation of Horpa preinitial systems from the remaining Horpa varieties, such as Donggu (Ch. 东谷, Tib. *stong dgu)* that will further enhance our understanding of Horpa phonology and its cross-lectal variation.

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