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# THE PHONOLOGY OF VOICING AND ASPIRATION IN AMDO TIBETAN*

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**Abstract:** Rebgong Amdo Tibetan is that variety of Amdo Tibetan (ISO 639-3 code adx) spoken in Tongren County, Huangnan Tibetan Autonomous Prefecture, Qinghai Province, in north-west China. Most analyses of Amdo Tibetan dialects report a marginal three-way contrast between voiced, voiceless unaspirated, and voiceless aspirated stops and affricates at each place of articulation. The present analysis posits only two contrastive series for Rebgong Amdo Tibetan, in agreement with Janhunen & Kalsang Norbu's (1999) analysis of rDo-sbis Amdo Tibetan. Reports that many other Amdo dialects show the same restrictions on the distribution of these sounds suggest that this analysis might likewise apply to other varieties of Amdo Tibetan. Comparison with discussions of Classical Tibetan and Proto-Tibeto-Burman further suggest that Amdo Tibetan may have always only had this two-way contrast.

**Keywords**: Amdo Tibetan, phonology, voicing, aspiration.

## 1. INTRODUCTION

This is a phonological account of obstruent voicing and aspiration in Amdo Tibetan, based on data from the Rebgong dialect. Rebgong Amdo Tibetan is that variety of Amdo Tibetan (ISO 639-3 code adx) spoken in Tongren County, Huangnan Tibetan Autonomous Prefecture, Qinghai Province 青海省黄南藏族自治州同仁县, in north-west China. The Tibetan languages belong to the Bodish branch of the Bodic group of the Tibeto-Burman language family; they are descended from Old Tibetan[1] and their speakers have traditionally used Literary Tibetan as their common literary language (Tournadre 2005:16). Amdo Tibetan, spoken in most of Qinghai province and parts of Sichuan and Gansu, is one of the

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[1] This statement is not as circular as it sounds, since much is known about Old Tibetan. For example, unlike other Tibeto-Burman languages, the words for 'seven' in Old Tibetan and its descendants are cognate to **bdun* (Beyer 1992:7).

three major Tibetan dialect groups in China. Amdo Tibetan dialects are divided broadly into Farmer dialects and Nomad dialects (Zhang 1996), and Rebgong Amdo Tibetan is classified as a Farmer dialect, or more narrowly as a "half Farmer half Nomad dialect".[2]

The word Rebgong (Tibetan རེབ་གོང་། <reb gong>[3]) is the traditional Tibetan name for the area administered from what is now called Longwu township.[4] The romanization "Rebkong" is also seen (e.g. Roerich 1958, Caplow 2009). The same dialect is referred to in Chinese sources by the name of the county, Tongren 同仁 (e.g. Hua 2002).

Amdo Tibetan dialects are widely reported to be very similar; Sung and lHa.byams rGyal (2005: xviii) give a typical report: "[T]he sub-dialects within the Amdo region display remarkable uniformity. Any two people from different places inside the Amdo region can usually communicate with little or no difficulty." My own experience with Amdo speakers from different regions[5] supports this: there is a significant amount of similarity among the Amdo dialects. As such, research on the phonologies of other Amdo dialects will be considered herein as it pertains to the analysis of Rebgong Amdo Tibetan, and, likewise, conclusions made about Rebgong Amdo Tibetan stand a good chance of applying to other Amdo dialects as well.

There have been a number of previous studies of the sounds of Amdo Tibetan dialects. Rebgong itself is described in Roerich 1958, Hua 2002, Caplow 2009, and Cham.tshang Padma lHun.grub 2009. The data in Roerich 1958 seem to be based on a reading pronunciation instead of the normal colloquial pronunciation; see Denwood 1999: 25, 38-39 and Makley et al. 1999: 104 for discussions of the prevalence of this phenomenon in early Tibetan linguistic studies. The data and analysis in Hua 2002 are quite good, but the phonological description is brief and inaccessible to scholars who cannot read Chinese. Cham.tshang Padma lHun.grub 2009 is likewise a valuable contribution to the study of Amdo dialects, and Rebgong in particular, and likewise inaccessible to scholars who cannot read Tibetan. Caplow 2009 focuses on the stress system in Rebgong Amdo, and its discussion of the rest of the phonology is brief and, in her words, preliminary (109). Cham.tshang Padma lHun.grub discusses the reasons why Rebgong has

[2] This term finds its way into English in various ways; see the English edition of CASS et al. 1987: C11 and Denwood 1999: 28. In Chinese, the term is 半农半牧区土话; the Tibetan term is རོང་མ་འབྲོག་གི་སྐད། <rong ma 'brog gi skad>.

[3] When Tibetan script data appears herein, I also provide a transliteration into Wylie romanization (following Wylie 1959). The transliterations appear in angle brackets.

[4] The Chinese name 隆务 is a sinicization of the Tibetan name [roŋwo] རོང་བོ། <rong bo>.

[5] I have worked most extensively with Rebgong Amdo speakers, as detailed herein. I have also had the opportunity to work with a male speaker in his late twenties from the Farmer dialect area in Jianzha County, a male speaker in his late twenties from the Nomad dialect area in Ndzorge, and a male speaker in his fifties from the Nomad dialect area in Tongde County. As part of another research project (Green 2012), I conducted over one hundred intelligibility tests and sociolinguistic interviews with Amdo speakers from Hualong, Tongren, Zeku, Tongde, and Ruo'ergai counties.

attracted so much attention, and why this is appropriate (2009: 208-211, 215-216).

The present study concerns the phonology of obstruent voicing and aspiration in Amdo Tibetan, specifically by presenting a new analysis of those phenomena in Rebgong Amdo Tibetan. I hope to contribute as explicitly phonological a discussion of Rebgong Amdo Tibetan as Hua (2002) and Cham.tshang Padma lHun.grub (2009) have done, and as Sun (1986) did for Ndzorge Amdo Tibetan, Janhunen & Kalsang Norbu (1999) did for rDo-sbis Amdo Tibetan, Makley et al. (1999) did for Labrang Amdo Tibetan, Haller (2004) did for Themchen Amdo Tibetan, and Peet did in his (2007) study of one phenomenon in a number of Amdo varieties, along with all the data necessary to justify my analysis. This growing collection of phonological analyses of Amdo Tibetan dialects contributes to an understanding of the phonological characteristics of the Amdo dialect group in general, and facilitates the investigation of variation from one variety to another. In addition, the identification of shared features among Amdo Tibetan phonological systems has implications for the study of Tibetan historical phonology in general.

The sources for my data are three female Tibetans from Longwu township (one in her late twenties and the others in their fifties), and one male Tibetan from Jiawu township[6] who is in his mid-twenties. All speakers grew up speaking Rebgong Amdo Tibetan in their homes and at school, and moved to Xining city as adults, though they live and work in environments where much of their daily speech is still in Amdo Tibetan. They all also speak both Qinghai Chinese and, to varying degrees, Standard Mandarin Chinese, and they are all literate in both Tibetan and, to varying degrees, in Chinese. The data all come from recordings of stories and conversations I had with these speakers.

In order to mitigate the tendency of literate Tibetans to provide a formal reading pronunciation, none of my data comes from speakers reading to me: conversations are, of course, completely oral in nature, and the stories I recorded were told without reference to any written materials.

Another danger is that sources may speak in a "standard" or "regional" variety of the language, instead of that of their hometown. For example, Janhunen & Kalsang Norbu (1999: 261) report substantial differences between the local dialect of rDo-sbis (in Qinghai's Haidong Region, Xunhua Salar Autonomous County, which borders Tongren County) and the "regional norm". To be sure, my data contains speech in a range of registers, from slightly formal "standard Amdo Tibetan" to pure colloquialisms recognizable as specifically Rebgong Amdo Tibetan to speakers of other Amdo Tibetan varieties. I have observed lexical and grammatical variations from one register to another, but little to no variation in the phonology. Longwu township, as the seat of government for both the county

[6] 加吾镇, a sinicization of the Tibetan name [ɦɟjawo] རྒྱལ་པོ། <rgyal po>.

and prefecture, is likely the source of any regional norm of Amdo Tibetan spoken in Tongren County and parts of the surrounding counties as well.[7]

## 2. OVERVIEW OF REBGONG PHONOLOGY

### *2.1. Syllable canon*

Following the notation used by Janhunen & Kalsang Norbu (1999: 250-251), the Rebgong Amdo Tibetan syllable canon can be represented as ((H)C)V(F), where V represents the vowel, the only obligatory element in a Rebgong Amdo Tibetan syllable, C represents the root consonant, H represents the preradical consonant, and F represents the final consonant. Root consonant, preradical, and final are useful categories commonly used in the description of Tibetan languages. All of the consonants in the language may occur in the root slot, C, as discussed in Section 2.2.1. The set of consonants which may occur in the final,[8] or coda, slot, F, is more restricted, as discussed in Section 2.3.2. And the preradical slot, discussed in Section 2.2.2, is symbolized by H as an indication that preaspiration is one of the very few features which can occur in this slot. The vowel slot, V, is discussed further in Section 2.3.1.

The optionality of the root consonant slot is questioned by Cham.tshang Padma lHun.grub on the grounds that vowel-initial syllables pronounced in isolation are invariably preceded by [ʔ] (2009: 203-204, 245); compare these transcriptions of Rebgong /oma/ ‘milk’ འོ་མ། <'o ma>:

| | |
|---|---|
| [ʔo ma] | Cham.tshang Padma lHun.grub 2009: 245 |
| [o.ˈma] | Caplow 2009: 118 |
| [o ma] | Hua 2002: 54 |

*Table 1: Transcriptions of /oma/ 'milk'.*

I have no disagreement with Cham.tshang Padma lHun.grub’s phonetics, though because the distribution of [ʔ] is predictable, I take issue with his decision to include /ʔ/ among the Rebgong phoneme inventory (c.f. 2009: 212, 215, 219-220). It appears safe to say that phonologically vowel-initial syllables are permitted in Amdo Tibetan, and in Rebgong in particular.

Caplow’s inventory of Rebgong syllable types (2009: 117) includes, in addition to the above, syllables with three consonants in the onset (CCCVC), syllables with diphthongs (CCVV and CVVC), and syllables with two consonants in the coda (CVCC). She gives no examples of CCCVC syllables, and neither her

[7] I take the mention of Rebgong by Kalsang Norbu et al. (2000: 1) to support this. See also Caplow 2009: 15.

[8] The term “final” is commonly used in Chinese linguistics to mean “rhyme”. Likewise, the term “initial” is used to mean “onset”. I use the Chinese and Western terms interchangeably. Note that here, however, I use the term “final consonant” to mean the consonantal slot in the final (or, rhyme), namely, the coda.

complex onset inventory (113) nor her data (554-572) list anything that I would call CCC. Her diphthongs, [ai] and [ɔi], correspond to [ɛ] and [o] in my data, respectively. As for CVCC, her example is [xkarn.da] 'shooting star' (119), which I syllabify as [xkar.nda] on the basis of unambiguous CCV syllables,[9] and see as cognate to སྐར་མདའ། <skar mda'>, not སྐར་ཟླ། <skar zla>.

Table 2 contains examples of the complete set of syllable types.

| | | | | |
|---|---|---|---|---|
| V | [(ʔ)oma] | འོ་མ།[10] | <'o ma> | milk |
| VF | [(ʔ)øl] | འོད། | <'od> | light |
| CV | [k$^{h}$a] | ཁ། | <kha> | mouth |
| CVF | [tʂɨx] | དྲུག | <drug> | six |
| HCV | [ɦŋa] | ལྔ། | <lnga> | five |
| HCVF | [ɦiloχ] | གློག | <glog> | electricity |

*Table 2: Examples of Rebgong syllable types.*

## *2.2 Onsets*

### *2.2.1. Simple onsets*

All Rebgong Amdo Tibetan consonant phonemes may occur in simple onset position. Table 3 below can be considered as a starting point in the discussion of Rebgong simple consonant phonemes.

The voiceless lateral is typically reported as a fricative, as I have chosen to do here, though it does not seem to carry much friction in my data. Hua (2002: 30) lists it in the same row as the other voiceless unaspirated fricatives, and this may turn out to have been an insightful move given its apparent participation in the word-medial deaspiration process described in Section 3.2.2, below, c.f. ཡུལ་ལྷ། <yul lha> 'local god' /ju ɬa/ [jula] as reported by Cham.tshang Padma lHun.grub (2009: 224). Further study of this phoneme is beyond the scope of the present work.

See Cham.tshang Padma lHun.grub (2009: 162-164, 220) for detailed discussion of the sound I symbolize by /ɕ$^{h}$/ (his /ʂ$^{h}$/, Hua (2002: 30)'s /x$^{h}$/). Its usual pronunciation as a simple onset in my data is [x$^{h}$].

For the uvulars, see Cham.tshang Padma lHun.grub's discussion (2009: 96-99, 166-167) of the choice of /ʁ/ in place of Hua (2002:30)'s /ɣ/, and see also his argument (2009: 96-99, 220-221) for the inclusion of /χ/ on the basis of native

[9] Peet (2007: 228-229) argues that prenasalized stops are complex onsets in Amdo Tibetan.

[10] In lists of spoken Amdo Tibetan data herein, the Tibetan script representations follow Geng et al. 2006 unless otherwise noted. These spellings do not always match attested Literary Tibetan forms; they are intended instead to demonstrate a viable approach to the spelling of spoken Amdo Tibetan.

words such as དཔེ་ཆ། <dpe cha> ‘book’ [χwetɕa] ([hwe tɕha] in Hua’s data (2002:128)), in addition to the loan words mentioned by Hua (2002: 31). It might be possible to analyze [χ] and [h] as representatives of a single phoneme: there is free variation between the two simple onsets in the word for ‘pig’ ཕག <phag> in my data, i.e. [hɐχ] ~ [χɐχ], though the pronunciation [χ] is preferred in the complex onset [χw] which corresponds to Literary Tibetan དཔ- <dp->.

| | bilab. | alv. | retro. | alv.-pal. | pal. | vel. | uvular | glottal |
|---|---|---|---|---|---|---|---|---|
| vl. unasp. stop | p | t | | | | k | | |
| vl. asp. stop | $p^h$ | $t^h$ | | | | $k^h$ | | |
| vd. stop | b | d | | | | g | | |
| vl. unasp. affricate | | ts | ʈʂ | tɕ | cç | | | |
| vl. asp. affricate | | $ts^h$ | $ʈʂ^h$ | $tɕ^h$ | $cç^h$ | | | |
| vd. affricate | | dz | dz̢ | dʑ | ɟʝ | | | |
| vl. unasp. fricative | | s | ʂ | ɕ | | | χ | h |
| vl. asp. fricative | | $s^h$ | | | $ç^h$ | | | |
| vd. fricative | | z | | ʑ | | | ʁ | |
| nasal | m | n | | ȵ | | ŋ | | |
| vl. lateral | | ɬ | | | | | | |
| vd. lateral | | l | | | | | | |
| rhotic | | r | | | | | | |
| approximant | w | | | | j | | | |

*Table 3: Preliminary inventory of Rebgong simple consonant phonemes.*

Finally, see also Cham.tshang Padma lHun.grub’s justification for including /dz/ and /dʑ/ (2009: 221-222), in contrast to Hua’s decision to omit them from the phoneme inventory (2002: 30-31).

The contrast between alveolo-palatal and palatal affricates is not universal in Amdo Tibetan, but it is typically reported for Rebgong. The palatal affricates correspond to Literary Tibetan onsets containing a medial <-y->, and some with a medial <-r->, in contrast to the alveolo-palatals, which correspond to Literary Tibetan simple palatal onsets (ཅ་ཆ་ཇ་ཉ། <c ch j ny>). The palatal series is pronounced farther forward than what I consider a typical palatal articulation. Ladefoged & Maddieson (1996: 33) mention the existence of “intermediate cases” between palatals and alveolo-palatals; perhaps the Rebgong Amdo palatals are good candidates for that label. See Section 2.2.5 of Cham.tshang Padma lHun.grub 2009 for further discussion of these series in Amdo dialects.

### *2.2.2. Complex onsets*

In general, only two phonemes may occur in a syllable's preradical slot, one oral and one nasal. Aside from the feature of nasality, the phonetic quality of these preradicals is entirely conditioned by the following consonant.

The oral preradical lacks contrastive place features, so I identify it as the phoneme /h/. The oral preradical may be followed by any of the voiced or voiceless (but not aspirated) stops and affricates, the voiced fricatives, voiceless fricatives [s] and [ɕ], the nasals, the voiced lateral, and the semivowels.

Before voiceless obstruents, the oral preradical is pronounced as a light fricative, usually somewhere in the velar to alveolo-palatal range, often at the place of articulation of the following consonant (c.f. Sun 2003: 774), or as [s̥] (c.f. Cham.tshang Padma lHun.grub 2009: 229). For convenience, such complex onsets are at times referred to as "preaspirated"; such a label is not intended herein to imply that they are not complex onsets. In word-medial position following an open syllable, the oral preradical resyllabifies as the preceding syllable's coda and is pronounced as [r] (Hua 2002: 31). Word-medially following a closed syllable, and also in word-initial position following another word within the same prosodic phrase, unless special emphasis is applied to the relevant syllable, the oral preradical is not pronounced, with the result that these voiceless complex onsets sound the same as their simple counterparts.

More must be said about the inclusion of [s] and [ɕ] among the consonants which may co-occur with the oral preradical. Hua (2002: 30) and Caplow (2009: 113) both list complex onsets consisting of the voiceless fricatives [s] and [ɕ] preceded by the oral preradical. Cham.tshang Padma lHun.grub (2009: 231-232) subsumes those two complex onsets under the simple onsets /s/ and /ɕ/, as do Janhunen & Kalsang Norbu in their analysis of the nearby dialect rDo-sbis (1999: 268).

In agreement with Cham.tshang Padma lHun.grub, and contra Caplow and Hua, in my data, in phrase-initial position, the Rebgong correspondents of Literary Tibetan **Cs* and **Cɕ* are pronounced as simple voiceless unaspirated fricatives, just as the correspondents of simple onsets **z* and **ʑ* are:

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Cs | [səm] | གསུམ། | <gsum> | three | | *z | [sama] | ཟ་མ། | <za ma> | food |
| *Cɕ | [ɕɛ(l)] | བཤད། | <bshad> | speak | | *ʑ | [ɕa] | ཞྭ། | <zhwa> | hat |

*Table 4: Rebgong word-initial voiceless fricatives.*

In word-medial position, however, there is a difference between the Rebgong correspondents of **Cs* and **Cɕ* on the one hand, and those of **z* and **ʑ* on the other:

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Cs | [səm] | གསུམ། | <gsum> | three | [tɕəxsəm] | བཅུ་གསུམ། | <bcu gsum> | thirteen |
| *Cɕ | [ɕɛ(l)] | བཤད། | <bshad> | speak | [lɐχɕɛ(l)] | ལེགས་བཤད། | <legs bshad> | proverb |
| *z | [sama] | ཟ་མ། | <za ma> | food | [wøzi] | བོད་ཟས། | <bod zas> | Tibetan food |
| *ʑ | [ɕa] | ཞྭ། | <zhwa> | hat | [ʁaʑa] | ཝ་ཞྭ། | <wa zhwa> | fox fur hat |

*Table 5: Word-initial and word-medial Rebgong correspondents of *Cɕ, *Cs with *ʑ, *z.*

The words for ‘thirteen’ and ‘proverb’ contain word-medial voiceless fricatives corresponding to the Old Tibetan **s-* and **ɕ-*, respectively. In contrast, the Rebgong correspondents of **z-* and **ʑ-* are voiced in word-medial position. We shall return to this voicing alternation in Section 3, below; for now, it suffices to note that the Rebgong correspondents of complex onsets with voiceless fricative root letters behave differently in word-medial position than those of the simple voiced fricative onsets. Moreover, following an open syllable, as in the word for ‘thirteen’ above, we see correspondents of both parts of the Old Tibetan complex onset, that is, **gs-* > [xs]. In word-initial position, this contrast is neutralized, which is understandable given the difficulty of perceiving a contrast between [s] and [xs] or [ɕs], for example. On the basis of this word-medial data, contra Cham.tshang Padma lHun.grub, and in agreement with Hua and Caplow, I include [s] and [ɕ] among the segments which may occur after the oral preradical.

Returning to the pronunciations of the oral preradical: in word-initial position, before voiced consonants except /w/, the oral preradical is realized with voicing as [ɦ], symbolized [ʱ] or [ʰʱ] by Caplow (2009: 119-121) and [h] by Hua and Cham.tshang Padma lHun.grub, both of whom discuss the choice of this symbol over the alternatives (Hua 2002: 29, Cham.tshang Padma lHun.grub 2009: 59, 177). Watters (2002: 3-11) refers to these onsets as “prevoiced”. Caplow observes, “[w]hen such words are produced within the sentence frame, these initial vocalic fragments often disappear” (2009: 121). And Cham.tshang Padma lHun.grub (2009: 132, 216-217, 227) echoes Hua (2002: 31) in his report that this prevoicing is pronounced whenever voiced obstruents /b d g dz dz̪ dʑ ɟʝ/ occur word-initially, and never in word-medial position (and this is also true for /z ʑ/; see Section 3, below). Said another way, phonetic simple voiced obstruent onsets only occur in phrase-medial (including word-medial) position; their prevoiced counterparts only occur phrase-initially (including word-initially, when the word is pronounced in isolation or otherwise finds itself at the beginning of a prosodic phrase). We shall return to this in Section 3, below. The exception to this is when a voiced obstruent complex onset occurs in word-medial position following an open syllable, as for example in the word དགེ་རྒན། <dge rgan> ‘teacher’, consisting (at least diachronically) of the morphemes /hge/ and /hgan/: in my data it shows variation between pronunciations [(ɦ)geɾgɛn] and [(ɦ)geɣɛn]. The word-medial [ɾ] reflects the second syllable’s oral preradical, as observed by Hua (2002: 31).

Before /w/, the oral preradical is pronounced [χ], as discussed above, unless the onset [χw] is seen not as /hw/ but as /χw/, in which case it belongs in the discussion of postradical /-w/, to which we turn presently.

The onset [kw] is found in words like [kwa] བཀའ། <bka'> ‘decree, word.HON’. This onset does not fit the patterns established so far; to make it fit, either [kw] must be seen as a single phoneme, or the [k] here fills the preradical consonant slot (as in Cham.tshang Padma lHun.grub’s analysis (2009: 245-246)), or the /w/ does, on the condition that preradical /w/ is interpreted only as labialization. An alternative analysis posits a postradical slot just for /w/, like that found in analyses of some other Amdo dialects, e.g. Themchen (Haller 2004: 28) and those discussed in Cham.tshang Padma lHun.grub (2009: 67-68, 175-178, and c.f. 229-230 regarding Rebgong).

There are morphemes in my database which might be analyzed as containing a preradical /b/; consider this data:

| | | | | |
|---|---|---|---|---|
| [ɦzowa] | /hzowa/ | བཟོ་བ། | <bzo ba> | worker |
| [xʰɐŋ] | /xʰaŋ/ | ཤིང་། | <shing> | wood |
| [xʰɐŋzo] | /xʰaŋzo/ | ཤིང་བཟོ། | <shing bzo> | woodworker, carpenter |
| [ɦdo] | /hdo/ | རྡོ། | <rdo> | stone |
| [ɦdobzo] | /hdobzo/ | རྡོ་བཟོ། | <rdo bzo> | stoneworker, mason |

*Table 6: The Rebgong morpheme hzo~bzo 'work(er)'.*

The word-medial [b] in ‘stoneworker, mason’ is clearly a reflex of the ***b* at the beginning of the Literary Tibetan morpheme བཟོ། <bzo> ‘work(er)’. I see this as a case of allomorphy in Rebgong Amdo Tibetan:[11] ‘worker’ is /hzo/ word-initially, but /-b.zo/ word-medially, and the /-b/ is deleted following a closed syllable, as in ‘woodworker, carpenter’ in Table 6.

The nasal preradical is the phoneme /n/. It exhibits exactly the same alternations as coda /n/, and presumably as simple onset /n/ would if it ever occurred in the right environment. This is apparently not the case in rDo-sbis Amdo Tibetan, for which Janhunen & Kalsang Norbu (1999: 263) report that the nasal preradical “is not strictly speaking identical with any one of the nasal phonemes.”

Following preradical /n/, any of (and only) the voiced or aspirated oral stops or affricates may occur. For those syllables which have a nasal preradical preceding a voiceless (aspirated) consonant, such nasals are pronounced only in word-medial position (Hua 2002: 31). One of my informants reports that not all speakers even pronounce them then: for some, word-medial nasal preradicals

[11] Thanks are due to an anonymous reviewer for this suggestion. This same idea could also help account for the oral preradical’s word-medial [r] pronunciation and the pronunciations of /hs/ and /hɕ/, discussed above.

preceding voiceless consonants are only pronounced following an open syllable (i.e. when the nasal can resyllabify as the preceding syllable's coda). In line with the allomorphy analysis of *bz-*, above, it could well be that the prenasal does not occur before voiceless consonants in word-initial position.

Phonetically, the prenasal agrees with the place of articulation of the following consonant, except in word-medial position when it is preceded by a nasal or /-b/. When a word-medial prenasal is preceded by a nasal, the prenasal is deleted, as in [som] 'pine' + [nda] 'arrow' → [somda] གསོམ་མདའ། <gsom mda'> 'pine arrow'. When a word-medial prenasal is preceded by /-b/, the two segments merge as [m], as in /ɬob ndzaŋ/ [ɬomdzaŋ] སློབ་འབྲང་། <slob 'brang> 'middle school'.

Table 7 summarizes the possible complex onsets in Rebgong Amdo Tibetan:

| | $p^h$ | $t^h$ | $k^h$ | $ts^h$ | $ʈʂ^h$ | $tɕ^h$ | $cç^h$ | p | t | k | ts | ʈʂ | tɕ | cç |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| /h-/ | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| /n-/ | * | * | * | * | * | * | * | | | | | | | |

| | b | d | g | dz | dz̩ | dʑ | ɟʝ | s | ɕ | z | ʑ | m | n | ɳ | ŋ | l | w | j |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| /h-/ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | * | * | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | χw? | ✓ |
| /n-/ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | | |

Other: kw, bz?

* As discussed above, there is evidence for prenasalized voiceless complex onsets [$mp^h$] etc., and preaspirated voiceless fricatives [xs] etc. only in word-medial position.

*Table 7: Rebgong Amdo Tibetan complex onsets.*

## *2.3. Rhymes*

Rebgong Amdo Tibetan has six vowel phonemes, and seven of the consonant phonemes can occur in coda position. As noted for rDo-sbis by Janhunen & Kalsang Norbu (1999: 271), not all combinations of vowel and coda consonant can occur.

### *2.3.1. Open syllables*

In open syllables we find six contrastive vowel phonemes:

| | | |
|---|---|---|
| i | | u |
| e | ə | o |
| | a | |

*Table 8: Rebgong vowel phonemes.*

*Examples*

| | | | | |
|---|---|---|---|---|
| /a/ | [tɕʰa] | འཆའ། | <'cha'> | to chew, bite |
| /e/ | [tɕʰe] | ཆེ། | <che> | big |
| /ə/ | [tɕʰə] | ཆུ། | <chu> | water |
| /i/ | [tɕʰi] | ཆོས། | <chos> | religion |
| | [cɕʰi̯] | འཁྱིས། | <'khyis> | curl, coil.INTR |
| | [tʂz̩] | བྲིས། | <bris> | write.PFV |
| /o/ | [tɕʰo] | མཆེ།[12] | <mcho> | fang |
| /u/ | [tɕʰy̩ʷ] | འཆོལ། | <'chol> | entrust.IMPV |

*Table 9: Examples of Rebgong vowel phonemes.*

/a/ is a central to slightly-fronted low unrounded vowel. It has allophones [ɐ] and [ɛ] before certain codas. The allophone [ɛ] sometimes sounds like it occurs in an open syllable (which would mean it contrasts with /a/ and is thus a phoneme in its own right, as in Hua (2002: 31) and Cham.tshang Padma lHun.grub (2009: 234-235)); see Section 2.3.2, below, for my justification for positing a phonological coda on those syllables.

/e/ is a mid-high front unrounded vowel. It can vary in quality as high as [i], but never with the friction that often accompanies /i/.

/ə/ is a mid central unrounded vowel. It has the allophone [ɨ] before /g/.

/i/ is a high front unrounded vowel, which often occurs with fricative quality. Janhunen & Kalsang Norbu observe the same vowels in rDo-sbis Amdo, and their description of them is apropos:

> The two fricative vowels[13] . . . may correspondingly be described as palatal or even sibilant [ij iʑ], on the one hand, and bilabial or dentilabial [uw uv], on the other. When following a continuant initial, including affricates and glides, a fricative vowel is often pronounced as a syllabic continuation of the consonant, very much like the fricative vowels in Chinese.[14] (1999: 272, footnotes mine)

[12] For the word for 'fang', Hua & Klu.'bum rGyal (1993: 198) give the pronunciation [tɕʰo], but they spell it མཆེ་བ། <mche ba> as in Literary Tibetan. The pronunciation they give matches my data, so I suggest the spelling མཆེ། <mcho> above as a useful way to represent the word in colloquial Amdo. One of my sources saw this spelling and immediately identified the meaning correctly as 'fang'. See Hua 2002: 6-7 for a discussion of the merger of the historical suffix with the root, and the resultant vowel changes.

[13] My /i/ and /u/.

[14] To clarify, the fricative vowels referred to here are not the apical vowels of Standard Mandarin, but the friction-carrying /i/ and /u/ vowels of Northwest Mandarin (J. Janhunen, p.c.).

/o/ is a mid-high back rounded vowel. It has the allophone [ø][15] ~ [wø] before certain codas, as discussed in Section 2.3.2, below.

/u/ is a high back rounded vowel. It almost always occurs with a fricative quality, specifically, with friction produced between the lower lip and upper teeth as in [v], simultaneously articulated with rounded lips and the tongue back raised towards the velum, as in [u]. I will symbolize this by [ʋ̞ʷ].

This inventory is the same as that given by Caplow (2009: 113), and essentially the same as that given by Sung & lHa.byams rGyal (2005: 32-33)[16] as a regional or standarized pronunciation.

Roerich (1958: 15) reports eight vowels for Rebgong: “a, o, u, ï, e, i, ỏ, ü”. His ï and ỏ correspond to my /ə/ (ï being the [ɨ] allophone) and his ü is my [ø], an allophone of /o/. Hua (2002: 31) and Cham.tshang Padma lHun.grub (2009: 234-235) also report eight vowels for Rebgong: the same six as I find, plus [ɛ] and [ø] ([ɔ] for Cham.tshang Padma lHun.grub) which I see as allophones of /a/ and /o/, respectively.

Sun (1986: 91-93) notes significant vowel changes in the dative case in Ndzorge Amdo; in Rebgong Amdo, the only change is that /ə/ becomes /e/.

### *2.3.2. Closed syllables*

Rebgong Amdo Tibetan has seven consonant phonemes which can occur in the coda slot in a syllable: /b d g m n ŋ r/. This is compatible with what is reported in the analyses of Rebgong by Roerich (1958: 18-21), Hua (2002: 31), and Cham.tshang Padma lHun.grub (2009: 236-242), and with the regional or standard pronunciation taught by Sung & lHa.byams rGyal (2005: 36), except that those reports list the obstruents as voiceless. Sun (1986: 35ff) analyzes the coda obstruents of Ndzorge Amdo as underlyingly voiced, on the basis of their alternations. The same evidence leads to the same conclusion here.

/b/ is normally realized as a voiceless bilabial stop [p] in coda position. Occasionally, for some speakers, and maybe only in some words, it occurs as a fricative ([f] or [ɸ]) instead.

/d/ is very lightly pronounced as a voiced alveolar lateral [l], if it is pronounced at all. I analyze it as underlyingly /d/ instead of /l/ because it patterns with the other obstruent codas in being followed by the voiceless form of the suffixes [-ba]~[-pa]~[-wa] and [-bo]~[-po]~[-(w)o], which begin with [b] following non-velar nasals, [p] following non-velar obstruents, and are [-wa] and [-wo] or [-o] respectively following velars, /-r/, and vowels:

---

[15] Perhaps a better symbol for this allophone would be [ɵ]. As noted by Roerich (1958: 17), this vowel in Rebgong is not as far forward as the [ø] in Lhasa Tibetan.

[16] Sung & lHa.byams rGyal (2005: 32-33) report a seven-vowel inventory, including /ɨ/ in addition to these six vowels, perhaps because they hear it in the word [sʰɨ] སུའི། <su'i> ‘whose’ (2005: 33), which is /sʰi/ [sʰi] in Rebgong Amdo Tibetan. Otherwise, their [ɨ] is described as an allophone of [ə] before coda /g/ (2005: 33).

| | | | | |
|---|---|---|---|---|
| /-n/ | [ɦmɛmba] | སྨན་པ། | <sman pa> | (medical) doctor |
| | [ɦnømbo] | རྣོན་པོ། | <rnon po> | sharp |
| /-m/ | [səmba] | གསུམ་པ། | <gsum pa> | third |
| /-g/ | [rɔχwa] | རོགས་པ། | <rogs pa> | friend, companion |
| | [ɦjɔχo] | གཡོག་པོ། | <g.yog po> | servant |
| /-ŋ/ | [xtoŋwa] | སྟོང་པ། | <stong pa> | empty |
| /-a/ | [tʂawa] | གྲྭ་པ། | <grwa pa> | Buddhist monk |
| | [ɦɟjawo] | རྒྱལ་པོ། | <rgyal po> | king |
| /-o/ | [xtsowo] | གཙོ་བོ། | <gtso bo> | lord; most important |
| /-r/ | [waɾwa] | བར་པ། | <bar ba> | mediator |
| | [ɦmaɾo] | དམར་པོ། | <dmar po> | red |
| /-b/ | [xtsəpo] | རྩུབ་པོ། | <rtsub po> | rough, coarse |
| /-d/ | [xkəpa] | སྐུད་པ། | <skud pa> | thread |
| | [ɦgapo] | རྒད་པོ། | <rgad po> | husband |

*Table 10: Rebgong codas and the suffixes -ba/pa/wa and -bo/po/(w)o.*

The pronunciation of /d/ codas is one of the features that distinguishes Nomad pronunciation from Farmer pronunciation: Nomad speakers are reported to pronounce all of their /d/ codas very clearly (either as [l] or [t], depending on the dialect); some Farmer dialects do not contain this coda at all (c.f. Cham.tshang Padma lHun.grub 2009: 191ff, Ebihara 2005: 14, Janhunen & Kalsang Norbu 1999: 261). The situation in Rebgong appears to be somewhere in between: even in cases where this coda is silent for a Rebgong speaker, the underlyingly onsetless dative postposition and non-final verb conjunctions are both pronounced with initial [l] following such words, as shown in Table 11, below. Likewise, the effect this coda has on preceding vowels, discussed below, is evidence for its presence in underlying forms. The postposition and conjunctions under consideration are underlined in the phonetic transcriptions.

| | | | |
|---|---|---|---|
| [sonɐm] | བསོད་ནམས། | <bsod nams> | Sonam (name) |
| [sonɐma] | བསོད་ནམས་མ།[17] | <bsod nams ma> | Sonam.DAT |
| [sonɐmcçə] | བསོད་ནམས་སྐྱིད། | <bsod nams skyid> | Sonam Jil (name) |
| [sonɐmcçəla] | བསོད་ནམས་སྐྱིད་ལ། | <bsod nams skyid la> | Sonam Jil.DAT |
| [cç$^{h}$eɾax$^{h}$oχ] | ཁྱེར་ར་ཤོག | <khyer ra shog> | Bring it here! |
| [cç$^{h}$əlax$^{h}$oχ] | འཁྱིད་ལ་ཤོག | <'khyid la shog> | Follow me! |

*Table 11: Rebgong /-a/ postpositions following coda consonants.*

/g/ is normally realized either as a voiceless velar fricative [x] (most common) or stop [k]. Regularly for some speakers and less often for others, /g/ is realized as a voiceless uvular fricative [χ] after the vowels /a/ and /o/. Word-medially before a voiced segment, it often retains its voicing and comes out [ɣ] (or [ʁ] after /a/ and /o/), though this also varies from speaker to speaker.

/n/ assimilates word-internally to the place of articulation of a following consonant; word-finally it is a voiced alveolar nasal [n]. It is deleted word-medially before a nasal in the root consonant slot. For example:

| | | | |
|---|---|---|---|
| [p$^{h}$ɛmba] | ཕན་པ། | <phan pa> | benefit |
| [ndzəŋgəjo] | འཛིན་གི་ཡོད། | <ndzin gi yod> | grab=IPFV=VOL |
| [ndzəməp$^{h}$ə(p)kə] | འཛིན་མི་ཐུབ་གི | <ndzin mi thub gi> | unable to grab |

*Table 12: Examples of Rebgong coda /-n/.*

/m ŋ/ are realized as voiced bilabial and velar nasals [m ŋ], respectively. They do not participate in place assimilation or deletion the way /n/ does.

/r/ varies between an alveolar flap and trill, and it can be either voiced or voiceless. As far as I can tell, this is a case of free variation, as it is in Ndzorge Amdo (Sun 1986: 40). Word-medially, coda /r/ occasionally drops out, as in [ɦgomo] /hgor mo/ སྒོར་མོ། <sgor mo> 'money'.

Not all of the vowels that occur in open syllables occur in closed syllables: /i/ and /u/ can only occur in open syllables, because they have developed from closed rhymes, as evidenced by their correspondences in Classical Tibetan.

/a/ is pronounced [ɛ] before codas /d/ and /n/ and [ɐ] before all other codas. It is only pronounced [a] in open syllables.

/e/ does not occur before velar codas; it is pronounced [e] elsewhere.

/ə/ is pronounced [ɨ] before coda /g/ and [ə] elsewhere; it does not occur before coda /ŋ/.

[17] Here I have chosen to spell the dative postposition following Sung & lHa.byams rGyal 2005: it is spelled ས། <ma> in the first phrase above, and ལ། <la> in the second. I have done likewise for the verb conjunction in the middle of the latter two examples.

/o/ is usually pronounced [ø] ~ [wø] before codas /d/ and /n/, and [o] elsewhere.

*Examples*

| | | | | |
|---|---|---|---|---|
| /ab/ | [xkʁp] | སྐབས། | <skabs> | moment in time |
| /eb/ | [ndep] | འདེབས། | <'debs> | to bite |
| /əb/ | [ndzo̤p] | འགྲུབ། | <'grub> | succeed.PFV |
| /ob/ | [ɦɟo̤p] | བརྒྱོབ། | <brgyob> | hit.IMPV |
| /ad/ | [kʰa kɛ(l)] | ཁ་སྐད། | <kha skad> | colloquial language |
| /ed/ | [mɐ(l)] | མེད། | <med> | EXIST.NEG |
| /əd/ | [tʂʰə(l)] | འཁྲིད། | <'khrid> | teach, tutor, guide |
| /od/ | [ɾø(l)] | རོལ། | <rol> | to live (life) |
| /ag/ | [tsʰʁχpʁɾ] | ཚགས་པར། | <tshags par> | newspaper |
| /əg/ | [tsʰɨx] | ཚིག | <tshig> | word |
| /og/ | [cçʰoχ] | ཆོག | <chog> | ok |
| /am/ | [nʁm] | ནམ། | <nam> | when? |
| /em/ | [tem] | དེམ། | <dem> | pot, kettle |
| /əm/ | [ɦgəndzo̤m] | རྒུན་འབྲུམ། | <rgun 'brum> | grape |
| /om/ | [xkom] | སྐོམ། | <skom> | to be thirsty |
| /an/ | [ɦgegɛn] | དགེ་རྒན། | <dge rgan> | teacher |
| /en/ | [len] | ལེན། | <len> | to take (a photograph) |
| /ən/ | [ɦŋən] | སྔུན། | <sngun> | before, in front of |
| /on/ | [çcçøn] | སྐྱོན། | <skyon> | trouble |
| /aŋ/ | [tɕʰʁŋ] | ཆང་། | <chang> | alcohol |
| /oŋ/ | [tɕʰoŋ] | ཆུང་། | <chung> | small |
| /aɾ/ | [tsʰʁχpʁɾ] | ཚགས་པར། | <tshags par> | newspaper |
| /eɾ/ | [xteɾ] | སྟེར། | <ster> | to give |
| /əɾ/ | [səɾ] | ཟུར། | <zur> | corner |
| /oɾ/ | [oɾɣə] | འོར་གི | <'or gi> | again |

*Table 13: Examples of Rebgong closed syllable rhymes.*

Not all of the vowels that occur in open syllables occur in closed syllables: /i/ and /u/ can only occur in open syllables, because they have developed from closed rhymes, as evidenced by their correspondences in Classical Tibetan.

/a/ is pronounced [ɛ] before codas /d/ and /n/ and [ɐ] before all other codas. It is only pronounced [a] in open syllables.

/e/ does not occur before velar codas; it is pronounced [e] elsewhere.

/ə/ is pronounced [ɨ] before coda /g/ and [ə] elsewhere; it does not occur before coda /ŋ/.

/o/ is usually pronounced [ø] ~ [wø] before codas /d/ and /n/, and [o] elsewhere.

## 3. VOICING AND ASPIRATION ALTERNATIONS

Our preliminary inventory of simple obstruent onsets (Section 2.2.1) contains a three-way contrast at each place of articulation between voiced, voiceless unaspirated, and voiceless aspirated consonants. In complex onsets (Section 2.2.2), each of the oral and nasal preradicals occurs with only two of the three: the oral preradical co-occurs with voiced and voiceless unaspirated obstruents, but not with their voiceless aspirated counterparts, and the nasal preradical co-occurs with voiceless aspirated and voiced obstruents, but not with their voiceless unaspirated counterparts. Moreover, we have discussed that phonetic simple (i.e. non-prevoiced) voiced obstruents do not occur phrase-initially. These same restrictions on distribution are typically reported for other Amdo dialects; see for example Makley et al. on Labrang (1999: 109-110), Janhunen & Kalsang Norbu (1999: 263, 265), and Zhou on rMachu (2003: 25-28).

In this section it will be argued that this three-way distinction can be seen to reflect an underlying two-way contrast. The argument will proceed as follows: I show in Section 3.1 that word-initial simple voiced obstruent onsets are underlyingly complex. In Section 3.2 we turn to simple voiceless obstruent onsets. Data is presented in Section 3.2.1 to show that those word-initial simple voiceless obstruent onsets which cannot be seen as underlyingly complex alternate in word-medial position with their simple voiced counterparts, and thus can be seen as underlyingly voiced. In Section 3.2.2 we consider the alternation between word-initial voiceless aspirated obstruents and their unaspirated counterparts in word-medial position, to show that the remaining simple voiceless obstruent onsets, namely those which occur in word-medial position and which cannot be seen as underlyingly complex, can be seen as underlyingly aspirated. The only remaining need to posit an underlying set of simple voiceless obstruents is for the sake of voiceless complex obstruent onsets. I then consider verb stem alternations in Section 3.3 to argue that the root consonant of such onsets can also be seen as underlyingly aspirated. The resulting system thus contains a two-way distinction between underlyingly voiced obstruents and their underlyingly voiceless aspirated counterparts, instead of the three-way system typically reported for Amdo dialects.

### *3.1. Word-initial simple voiced obstruent onsets are underlyingly complex.*

In this section we consider an alternation between complex onsets which occur at the beginning of a prosodic phrase, and their simple counterparts in phrase-medial position.

Using the alveolar stops as an example, only the following occur phrase-initially (i.e. in word-initial position when that word is the first word in a prosodic phrase): [t], [$t^h$], [ɦd], [nd], [xt].

Consider the status of the voiced (but not prenasalized) member of the set, i.e. [ɦd]. Historically, these prevoiced obstruents correspond to an Old Tibetan voiced obstruent preceded by an oral preradical consonant. As mentioned above, the prevoicing disappears phrase-medially: phrase-initial [ɦd] alternates with phrase-medial [d], and, all cases of word-initial [d] are in phrase-medial position, and occur with prevoicing as [ɦd] when the same words occur in phrase-initial position.

The same can be said of preaspirated onsets: phrase-initial [xt] alternates with phrase-medial [t]. The question is whether these prevoiced/preaspirated obstruents remain structurally an onset cluster, as in Old Tibetan, or whether they are best seen synchronically as simple onsets.

Consider the parallel case of sonorant onsets:

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [mɛn] | /man/ | མན། | <man> | after, below | | [ɦmɛn] | /hman/ | སྨན། | <sman> | medicine |
| [jɐr] | /jar/ | ཡར། | <yar> | above | | [ɦjɐr] | /hjar/ | གཡར། | <g.yar> | to borrow |

*Table 14: Rebgong sonorant onsets with and without prevoicing.*

With sonorants, there is a clear contrast between simple voiced onsets and prevoiced onsets in phrase-initial position. Phrase-medially, the contrast is neutralized and prevoiced sonorants appear as simple voiced sonorants, exactly as discussed for obstruents. Also as with the obstruents, historically, modern prevoiced sonorants correspond to complex onsets, specifically a sonorant preceded by an oral preradical. Given the contrast in phrase-initial position between the two types of sonorant onsets, it is appropriate to analyze the present situation in light of the diachronic data: prevoiced sonorants are complex onsets in Rebgong Amdo Tibetan.

I propose to apply the same observation to the obstruents: because phrase-medial word-initial [d] alternates with phrase-initial [ɦd], I suggest that this onset is the underlyingly complex /hd/. Likewise, those cases of phrase-medial word-initial [t] which alternate with phrase-initial [xt] are analyzed as underlyingly complex.

This is the only relevant alternation which depends on position in the prosodic phrase. For ease of exposition, all further discussion presupposes phrase-initial position.

### *3.2. Concerning simple voiceless obstruent onsets.*

#### *3.2.1. Word-initial simple voiceless obstruent onsets are underlyingly voiced.*

Janhunen & Kalsang Norbu (1999: 252-253, 263, 265) observe a further case of complementary distribution involving the simple voiced obstruent onsets: word-medial simple voiced obstruent onsets /b d g dz dz̥ dʑ ɟj z ʑ/ alternate in word-initial position with their simple voiceless unaspirated counterparts /p t k ts tʂ tɕ cç s ɕ/. Cham.tshang Padma lHun.grub observes this same alternation in Rebgong Amdo Tibetan (2009: 223), as do I:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| [tɐɾ] | དར། | <dar> | flag | [ɦɟjadɐɾ] | རྒྱ་དར། | <rgya dar> | national flag |
| [tɕa] | ཇ། | <ja> | tea | [ʂtʂɨɣdʑa] | དཀྲུག་ཇ། | <dkrugs ja> | butter tea |
| [ɕa] | ཞྭ། | <zhwa> | hat | [ʁaʑa] | ཝ་ཞྭ། | <wa zhwa> | fox fur hat |
| (This example is reduplicated, but the single-syllable form does not occur in my data.) | | | | [kogoɾ] | གོར་གོར | <gor gor> | circular |

*Table 15: Examples of Rebgong simple obstruent onset voicing alternations.*

We saw above that all word-initial simple voiced obstruent onsets alternate with their prevoiced counterparts and thus can be analyzed as complex onsets. We also saw that the contrast between those complex onsets and their simple counterparts is neutralized in word-medial position following closed syllables. We see now that the remaining simple voiced obstruent onsets, namely those which occur in word-medial position and do not alternate with a word-initial complex onset, are pronounced without voicing when they occur in word-initial position. Contra Cham.tshang Padma lHun.grub's analysis that these are voiceless segments becoming voiced (2009: 223), I suggest that they are underlyingly voiced, and that they undergo a word-initial devoicing process. As seen in Section 2.3.2, above, they are devoiced in word-final position as well.

Those cases of word-initial simple voiceless unaspirated obstruent onsets which do not alternate with their voiced counterpart word-medially are only those which alternate with their preaspirated counterpart phrase-initially. That is, an occurrence of [t] in word-initial position will either be pronounced [xt] in phrase-initial position, or [d] in word-medial position.

#### *3.2.2. Word-medial simple voiceless obstruent onsets are underlyingly aspirated.*

Among voiceless obstruents, a deaspiration process is evident. Consider this data from Hua (2002: 31):

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| khu | ཁོལ། | <khol> | hot | tɕhə ku | ཆུ་ཁོལ། | <chu khol> | hot spring |
| tɕhə | ཆུ། | <chu> | water | hŋu tɕə | དྲྭལ་ཆུ། | <rngul chu> | sweat |
| thak | ཐག | <thag> | distance | tshe tak | ཚེ་ཐག | <tshe thag> | lifespan |
| tshaŋ | ཚང་། | <tshang> | home | za tsaŋ | བཟའ་ཚང་། | <bza' tshang> | family |

*Table 16: Examples of Rebgong simple obstruent onset aspiration alternations.*

In many words, simple voiceless aspirated obstruent onsets lose their aspiration when they occur in word-medial position. There appear to be exceptions:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| [kʰa] | ཁ། | <kha> | mouth | [tɕʰə ka] | ཆུ་ཁ། | <chu kha> | riverside |
| | | | | [tsʰo kʰa] | མཚོ་ཁ། | <mtsho kha> | lake side |

*Table 17: An apparent exception to word-medial deaspiration.*

One would expect ‘lake side’ to be pronounced *[tsʰo ka], following the pattern of ‘riverside’; instead we find [tsʰo kʰa]. Given Tibetan’s “elastic” morphosyntax (Tournadre 2005: 12), where [tsʰo kʰa] ‘lake mouth’ means the same thing as [tsʰo＝ɣə kʰa] ‘lake=GEN mouth’, it could be that native speakers consider ‘lake side’ to be two words, in contrast to ‘riverside’, which appears to be a single word because its second syllable undergoes deaspiration.[18]

This suggests that all cases of word-medial voiceless unaspirated obstruent onsets might be analyzed as underlyingly aspirated. E.g. [leka] ལས་ཀ <las ka> ‘work’ could be /lekʰa/,[19] and [ɦɟɟɛpa] བརྒྱད་པ། <brgyad pa> ‘eighth’ could be /hɟɟadpʰa/ (see Section 2.3.2, above, for discussion of the other alternations in this word).

Following this line of reasoning, consider [ɦʑə tɕə] བཞི་བཅུ། <bzhi bcu> ‘four ten (i.e. forty)’. If ‘forty’ is one word, then its second syllable could be analyzed as underlyingly /tɕʰə/, implying that there are two morphemes for ‘ten’ བཅུ། <bcu> (which is always pronounced [tɕə]): /dʑə/ in word-initial position, and /tɕʰə/ in word-medial position.[20] Such an situation would be an undesirable consequence of the present analysis, since morphemes like ‘ten’ are handled more elegantly in

[18] This raises the important question of what counts as a word in Amdo Tibetan. We saw in Section 2 that complex onsets and obstruent codas participate in certain alternations which are most simply explained on the basis of position within a word. The alternations discussed in this section provide further diagnostics. Another promising area of investigation would be an account of the stress system building on Caplow 2009.

[19] Contrast Cham.tshang Padma lHun.grub (2009: 224) whose data apparently reflects /le hkʰa/; on the underlying (post-)aspiration in the second syllable, see Section 3.3.

[20] In the proposed system, the evolution of the morpheme ‘ten’ would be seen as **btɕʰə* > **htɕʰə* > (word-initial) /dʑə/ and (word-medial) /tɕʰə/, both of which reflect the loss of the preradical and a reinterpretation in terms of the synchronic phonological system.

analyses that allow underlying forms like /tɕə/. If ‘forty’ is two words, ‘ten’ can always be analzyed as /dʑə/.

There are some cases of variation between aspirated and unaspirated (or deaspirated) voiceless stops in this position, e.g. [ɦiloka] ~ [ɦilokʰa] ‘pink’ སྨུག་ཁ། <glo kha> and [ɦjɐɾka] ~ [ɦjɐɾkʰa] ‘summer’ དབྱར་ཁ། <dbyar kha>. Perhaps their status as one word vs. two words varies from speaker to speaker, or from register to register for any given speaker.

It must be noted that this process applies only to voiceless aspirated obstruents in simple onsets. In particular, it does not apply when those obstruents occur in complex onsets with the nasal preradical, as in the agentive suffix /-nkʰan/ མཁན། <mkhan>:

| | | | |
|---|---|---|---|
| [ɦjaɾkʰɛn] | གཡར་མཁན། | <g.yar mkhan> | borrower |
| [ɕɛŋkʰɛn] | བཤད་མཁན། | <bshad mkhan> | (talented) speaker |

*Table 18: The agentive suffix /-nkʰan/.*

### *3.3. The root consonants of complex voiceless obstruent onsets are underlyingly aspirated.*

Recall which phonetic obstruents occur in which positions for phrase-initial words:

| | | Voiceless aspirated | Voiceless unaspirated | Voiced |
|---|---|---|---|---|
| Word-initial | Simple (C) | $t^h$ | t | |
| | Preaspirated/prevoiced | | xt | ɦd |
| | Prenasalized (nC) | | | nd |
| Word-medial | Simple (C) | | t | d |
| | Prenasalized (nC) | $nt^h$ | | nd |

*Table 19: Phrase-initial distribution of obstruent onsets.*

We have considered evidence that word-initial voiceless unaspirated obstruents are underlyingly voiced, and that word-medial voiceless unaspirated obstruents are underlyingly aspirated:

| | | Voiceless aspirated | Voiceless unaspirated | Voiced |
|---|---|---|---|---|
| Word-initial | Simple (C) | $t^h$ | [t] → /d/ | |
| | Preaspirated/prevoiced | | xt | ɦd |
| | Prenasalized (nC) | | | nd |
| Word-medial | Simple (C) | /$t^h$/ ← [t] | | d |
| | Prenasalized (nC) | $nt^h$ | | nd |

*Table 20: Analysis of simple voiceless unaspirated obstruent onsets.*

The only element left in the "voiceless unaspirated" column at this point is the word-initial preaspirated voiceless onset. Mazaudon (1977: 17) cites Li Fang-kuei's view and Robert Shafer's view that the root consonant in these onsets can be seen as underlyingly aspirated in or prior to Classical Tibetan: "original aspiration . . . has been lost in Old Bhotish due to the prefixes[21] occurring there – prefixes causing the dropping of aspiration." Note also DeLancey's comment (2003: 261) that, in Classical Tibetan, "[a]spirated root-initials can occur as initials or with the [nasal] prefixes. With any other prefix they are replaced by unaspirates."

The same process remains productive in Rebgong Amdo Tibetan; consider these verb stem alternations:

| *Imperative* | | | *Imperfective* | | | |
|---|---|---|---|---|---|---|
| [kʰɣʷ] | ཁོལ། | <khol> | [xkɣʷ] | བཀོལ། | <bkol> | use |
| [tɕʰoχ] | ཆོགས།[22] | <chogs> | [ɕtɕoχ] | གཅོག | <gcog> | break into pieces |
| [xʰø(l)][23] | ཤོད། | <shod> | [ɕɛ(l)] | བཤད། | <bshad> | speak |
| [sʰoχ] | སོག | <sog> | [soχ] | གསོག | <gsog> | store |

*Table 21: Rebgong verb onset alternations.*

Verbs provide many examples of this sort, where an aspirated imperative alternates with a preaspirated imperfective; see for example Haller 2007.

Like in Old Tibetan, preaspirated voiceless onsets in Rebgong Amdo Tibetan can be analyzed as underlyingly (post-)aspirated, and the conflict between two occurrences of aspiration in a single onset leads to deaspiration of the second segment. That is, for example, [xt] is /htʰ/, and the verb stem alternation in Table 21 can be seen as nothing more than the addition of a prefix /h-/ to derive the imperfective from the imperative:

| *Imperative* | | | | *Imperfective* | | | | |
|---|---|---|---|---|---|---|---|---|
| /kʰu/ | [kʰɣʷ] | ཁོལ། | <khol> | /h-kʰu/ | [xkɣʷ] | བཀོལ། | <bkol> | use |
| /tɕʰog/ | [tɕʰoχ] | ཆོགས། | <chogs> | /h-tɕʰog/ | [ɕtɕoχ] | གཅོག | <gcog> | break into pieces |
| /ɕʰod/ | [xʰø(l)] | ཤོད། | <shod> | /h-ɕʰad/ | [ɕɛ(l)] | བཤད། | <bshad> | speak |
| /sʰog/ | [sʰoχ] | སོག | <sog> | /h-sʰog/ | [soχ] | གསོག | <gsog> | store |

*Table 22: Analysis of Rebgong verb onset alternations.*

[21] The term "prefix" is often used in such literature not for morphological prefixes but for what I refer to as preradicals.

[22] The imperative of གཅོག <gcog> is spelled ཆོག <chog> by Zhang (1993: 3159), but ཆོགས། <chogs> as above by Padma rDo.rje (2008 [1979]: 214).

[23] Ablaut is another common stem alternation strategy in Amdo; see Haller 2007.

### *3.4. Summary*

This analysis results in a complete system containing two, not three, underlying series of obstruents – plain voiced, and voiceless aspirated – in three onset types: simple (/C/), preaspirated/prevoiced (underlyingly /hC/), and prenasalized (/nC/).

The lack of a word-initial prenasalized voiceless obstruent among the phonetic obstruents is explained by the absence of voiceless nasals in Rebgong Amdo Tibetan. Those Amdo dialects with voiceless nasals (e.g. Themchen, see Haller 2004) also allow (voicelessly) prenasalized voiceless aspirated obstruent onsets. In Rebgong Amdo, the underlying prenasal is deleted in this environment, neutralizing the contrast between this onset type and the simple onset type.

This leaves us with the following analysis of Rebgong Amdo Tibetan obstruent onsets; segments in parentheses occur in phrase-initial position:

| | | /$t^h$/ | /d/ |
|---|---|---|---|
| Word-initial | Simple (/C/) | [$t^h$] | [t] |
| | Preaspirated/prevoiced (/hC/) | [(x)t] | [(ɦ)d] |
| | Prenasalized (/nC/) | [$t^h$] | [nd] |
| Word-medial | Simple (/C/) | [t] | [d] |
| | Preaspirated/prevoiced (/hC/) | [t] | [d] |
| | Prenasalized (/nC/) | [$nt^h$] | [nd] |

*Table 23: Analysis of obstruent onsets.*

This analysis is equivalent to Janhunen & Kalsang Norbu's (1999) treatment of rDo-sbis Amdo Tibetan. They refer to a "strong" series and a "weak" series, consistently symbolizing the "strong" member of each series as a voiceless unaspirated obstruent, and the "weak" member as a voiced one, and explaining the phonetic realizations in each environment. I analyze their "weak" obstruents as underlyingly voiced (in agreement with their description of them as "latently voiced" (263)), and their "strong" obstruents as voiceless aspirates.

I have supported this analysis at times with reference to Classical Tibetan; see Mazaudon 1977: 16-17, DeLancey 2003: 257, and the thorough discussions by Hu (2003: 110ff) and Hill (2007) for more discussion of this issue in that language. Note also that Proto-Tibeto-Burman is reconstructed with two, not three, contrastive sets of obstruents (Matisoff 2003: 15).

## 4. CONCLUSION

In light of the analysis presented in Section 3, the inventory of simple onset phonemes in Rebgong Amdo Tibetan from Table 3 can be revised so that each voiced obstruent is paired with a voiceless aspirated counterpart, instead of taking part in a three-way contrast which also includes a voiceless unaspirated member:

| | bilab. | alv. | retro. | alv.-pal. | pal. | vel. | uvular | glottal |
|---|---|---|---|---|---|---|---|---|
| vl. asp. stop | $p^h$ | $t^h$ | | | | $k^h$ | | |
| vd. stop | b | d | | | | g | | |
| vl. asp. affricate | | $ts^h$ | $ʈʂ^h$ | $tɕ^h$ | $cç^h$ | | | |
| vd. affricate | | dz | dʐ | dʑ | ɟʝ | | | |
| vl. unasp. fricative | | | ʂ | | | | χ | h |
| vl. asp. fricative | | $s^h$ | | | $ç^h$ | | | |
| vd. fricative | | z | | ʑ | | | ʁ | |
| nasal | m | n | | ɲ | | ŋ | | |
| vl. lateral | | ɬ | | | | | | |
| vd. lateral | | l | | | | | | |
| rhotic | | r | | | | | | |
| approximant | w | | | | j | | | |

*Table 24: Revised inventory of Rebgong simple consonant phonemes.*

The aspirated counterpart to /ʑ/ is /$ç^h$/; the choice of symbols was discussed in Section 2.2.1.

The inventory of complex onsets from Section 2.2.2 is simplified in this analysis:

| | /$p^h$/ | /$t^h$/ | /$k^h$/ | /$ts^h$/ | /$ʈʂ^h$/ | /$tɕ^h$/ | /$cç^h$/ | /b/ | /d/ | /g/ | /dz/ | /dz̬/ | /dʑ/ | /ɟʝ/ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| /h-/ | xp | xt | xk | xts | ʂtʂ | ɕtɕ | çcç | ɦb | ɦd | ɦg | ɦdz | ɦdz̬ | ɦdʑ | ɦɟʝ |
| /n-/ | $mp^h$ | $nt^h$ | $ŋk^h$ | $nts^h$ | $nʈʂ^h$ | $ntɕ^h$ | $ɲcç^h$ | mb | nd | ŋg | ndz | ndz̬ | ndʑ | ɲɟʝ |

[24]

| | /$s^h$/ | /$ç^h$/ | /z/ | /ʑ/ | /m/ | /n/ | /ɲ/ | /ŋ/ | /l/ | /w/ | /j/ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| /h-/ | s | ɕ | ɦz | ɦʑ | ɦm | ɦn | ɦɲ | ɦŋ | ɦl | χw? | ɦj |
| /n-/ | (does not co-occur in complex onsets with these root consonants) | | | | | | | | | | |
| Other: | kw, bz? | | | | | | | | | | |

*Table 25: Rebgong Amdo Tibetan complex onsets.*

Data which applies this analysis to demonstrate the full set of onset contrasts in Rebgong Amdo Tibetan is presented in the Appendix.

Other Amdo Tibetan dialects are reported to feature exactly the same distribution restrictions and alternations discussed herein for Rebgong Amdo. In particular, simple phonetically voiced obstruent onsets occur with prevoicing

[24] Recall from Section 2.2.2 that the prenasalized voiceless onsets occur only word-medially; in word-initial position, the contrast between these and plain voiceless (aspirated) onsets is neutralized.

(Cham.tshang Padma lHun.grub 2009: 58; see also the references given at the beginning of Section 3) and thus can be seen as phonemically complex onsets; word-initial simple voiceless unaspirated obstruent onsets alternate with their voiced counterparts word-medially "in contemporary Amdo" (Cham.tshang Padma lHun.grub 2009: 223-225);[25] simple voiceless aspirated onsets are reported ("usually") to deaspirate word-medially in "the majority of Amdo dialects" (Cham.tshang Padma lHun.grub 2009: 222),[26] moreover note that this same alternation is reported for Old Tibetan (Hill 2007: 489); and, finally, the complementary distribution of voiceless obstruents onsets wherein the root consonant of complex onsets with the oral preradical can be seen as underlyingly aspirated is a feature of Literary Tibetan, and thus a feature of those modern dialects which retain such complex onsets by virtue of their evolution. Therefore, other Amdo dialects might well submit to this same analysis. This two-way contrast could be an important feature of the Amdo dialect group.

From the diachronic point of view, we have noted that Proto-Tibeto-Burman is reconstructed with only a two-way voicing/aspiration contrast among the obstruents (Matisoff 2003: 15). Proto-Tibetan is also thought to have had only a two-way contrast among obstruents, specifically lacking the voiceless unaspirated set (DeLancey 2003: 257). It seems that, at the time when Amdo Tibetan split off from the rest of the Tibetan family (with or without the Western Tibetan varieties[27]), the phonemic system contained only this two-way contrast.[28] Amdo Tibetan then maintained exactly this aspect of the proto-language right down to perhaps all but the most innovative of the present-day Amdo dialects.

## ABBREVIATIONS

| | | | |
|---|---|---|---|
| 2S | 2nd person singular | IMPV | imperative |
| 1S | 1st person singular | INTR | intransitive |
| ABS | absolutive | IPFV | imperfective |
| DAT | dative | NEG | negative |
| DM | decade marker[29] | ORD | ordinal |
| EXIST | existential | PFV | perfective |
| GEN | genitive | VOL | volitional |
| HON | honorific | | |

[25] In his words, "དེང་རབས་ཨམ་སྐད་དུ།"

[26] In his words, "སྐབས་འགྱུར་ལུགས་འདི་རིགས་ཨམ་སྐད་མང་ཞས་སུ་རྒྱུན་དུ་འབྱུང་[།]"

[27] The analysis and reconstruction by Backstrom (1994) does not appear to support the idea of applying the present analysis to the Western Tibetan varieties. The paucity of prenasalization in those varieties complicates the situation: many instances of word-initial simple voiced stops and affricates in Backstrom's wordlists correspond to prenasalized onsets in Classical Tibetan and Amdo. Further analysis based on more data might paint a different picture.

[28] See Hu 2003:105-109 for the view that this split occurred before the advent of the Tibetan writing system.

[29] "Decade marker" is the term used by Sung & lHa.byams rGyal (2005: 165) for particles which appear in numbers of two or more digits between the words for a tens digit between two and nine, and a non-zero ones digit. For example, བརྒྱད་བཅུ་ཀ་གསུམ། <brgyad bcu gya gsum> [ɦɟɟɛ tɕə cça səm] 'eight ten DM three' = '83'.

# APPENDIX

*Examples of simple onset phonemes.*

| | | | | | |
|---|---|---|---|---|---|
| /pʰ/ | [pʰaloŋ] | /pʰaloŋ/ | ཕ་ལོང་། | <pha long> | large rock |
| | [apa] | /apʰa/ | ཨ་ཕ། | <a pha> | father |
| | [xkəpa] | /hkʰəd-pʰa/[30] | སྐུད་པ། | <skud pa> | thread |
| /b/ | [pa je] | /ba jed/ | པ་ཡེད། | <pa yed> | to kiss (said to children) |
| | [səmba] | /hsʰəm-ba/[31] | གསུམ་པ། | <gsum pa> | third |
| | [ɦɟjɐβa] | /hɟjab-a/ | རྒྱབ་བ། | <rgyab ba> | back-DAT |
| /m/ | [mane] | /mane/ | མ་ནེ། | <ma ne> | chin |
| | [kʰama] | /kʰama/ | ཁ་མ། | <kha ma> | place, location |
| /w/ | [wama] | /wama/ | བ་མ། | <ba ma> | cooking pot |
| | [və(l)][32] | /wəd/ | བྱད། | <bud> | to depart |
| | [ɦʑəwa] | /hʑə-wa/ | བཞི་བ། | <bzhi ba> | fourth |
| /tʰ/ | [tʰa tsʰo] | /tʰa tsʰo/ | ཐ་ཚོད། | <tha tshod> | moment, time |
| | [ɕe tʰɐŋ] | /ʑe tʰaŋ/ | བྱེ་ཐང་། | <bye thang> | desert, beach |
| | [metoχ] | /metʰog/[33] | མེ་ཏོག | <me tog> | flower |
| /d/ | [ta] | /da/ | ད། | <da> | now |
| | [ɕi tɐχ] | /ʑe dag/ | ཞེ་དག | <zhe dag> | truly |
| /tsʰ/ | [tsʰɐɾ] | /tsʰaɾ/ | ཚར། | <tshar> | to finish |
| | [ɦzatsɐŋ] | /hza tsʰaŋ/ | བཟའ་ཚང་། | <bza' tshang> | family |
| /dz/ | [tsaja] | /dzaja/ | ཛ་ཡ།[34] | <dza ya> | excellent, first class |

[30] Evidence for the final /-d/ on this word's first syllable comes from the fact that the suffix is not */-wa/; this suffix is discussed in Section 2.3.2. Also, when the same morpheme occurs without the suffix, a final [-l] is sometimes heard, as in [ɦiloχ kə(l)] 'electrical wire' གློག་སྐུད། <glog skud>.

[31] The ordinal number suffix is discussed in Section 2.3.2. This word is made of the morphemes /hsʰəm/ 'three' + /pʰa/ 'ORD', and it enters the postlexical phonology as /hsʰəmba/. The same suffix appears as /-wa/ in the word 'fourth', in the /w/ section of this table.

[32] /w/ is often pronounced as [v] before all vowels except /a/. The parentheses in this word indicate that its coda [l] is pronounced very lightly, and sometimes not pronounced at all, as discussed in Section 2.3.2. For words where the spelling suggests a coda [l] but for which I have no evidence that the Rebgong word contains this coda, I leave this "(l)" off. More research would clarify these words' phonological forms.

[33] In support of underlying /tʰ/ in this word, see Hill 2007: 480.

[34] Geng et al. (2006: 618) spell this word ཙ་ཡ། <tsa ja>; I suggest ཛ་ཡ། <dza ja> following a possible Literary Tibetan cognate (rNam.rgyal Tshe.ring 2001: 457), itself a borrowing from Sanskrit.

| | | | | | |
|---|---|---|---|---|---|
| /sʰ/ | [sʰa] | /sʰa/ | ས། | <sa> | dirt, ground |
| | [ɲa sʰa] | /ɲa sʰa/ | ཉལ་ས། | <nyal sa> | sleeping place, bedroom |
| /z/ | [sa] | /za/ | ཟ། | <za> | to eat |
| | [sama sa sʰa] | /zama za sʰa/ | ཟ་མ་ཟ་ས། | <za ma za sa> | eating place, dining room |
| | [wøzi] | /wod zi/ | བོད་ཟས། | <bod zas> | Tibetan food |
| /n/ | [na] | /na/ | ན། | <na> | if; sick, ill |
| | [mane] | /mane/ | མ་ནེ། | <ma ne> | chin |
| /ɬ/ | [ɬa] | /ɬa/ | ལྷ། | <lha> | god |
| | [jula] | /ju ɬa/ | ཡུལ་ལྷ། | <yul lha> | local god |
| /l/ | [la sʰeɾ] | /la sʰeɾ/ | ལ་སེར། | <la ser> | carrot |
| | [wø la] | /wod la/ | བོད་ལྭ། | <bod lwa> | (Amdo-style) Tibetan clothing |
| /ɾ/ | [ɾa] | /ɾa/ | ར། | <ra> | and, also |
| | [ɦga ɾoχ] | /hga ɾog/ | དགའ་རོགས། | <dga' rogs> | boy-/girlfriend |
| | [xkoɾtʂa] | /hkʰoɾ = ɾa/ | སྐོར་ར། | <skor ra> | turn.IMPV=IMPV |
| /tɕʰ/ | [tɕʰə] | /tɕʰə/ | ཆུ། | <chu> | water, river |
| | [χwetɕa] | /χwe tɕʰa/ | དཔེ་ཆ། | <dpe cha> | book |
| /dʑ/ | [tɕa] | /dʑa/ | ཇ། | <ja> | tea |
| | [ʂtʂɨɣdʑa] | /htʂʰəg dʑa/ | དཀྲུགས་ཇ། | <dkrugs ja> | butter tea |
| /ɕʰ/ | [xʰa] | /ɕʰa/ | ཤ | <sha> | meat |
| | [ɲa xʰa] | /ɲa ɕʰa/ | ཉ་ཤ | <nya sha> | fish (meat) |
| /ʑ/ | [ɕa] | /ʑa/ | བྱ། | <bya> | bird |
| | [ʁaʑa] | /ʁa ʑa/ | ཝ་ཞྭ། | <wa zhwa> | fox fur hat |
| /ɲ/ | [ɲa] | /ɲa/ | ཉ། | <nya> | fish |
| | [ɕə ɲən] | /ʑə ɲən/ | ཕྱི་ཉིན། | <phyi nyin> | the next day |
| /cɕʰ/ | [cɕʰo] | /cɕʰo/ | ཁྱོད། | <khyod> | you (2S.ABS) |
| | [cɕʰa cɕʰa] | /cɕʰa cɕʰa/ | ཁྱ་ཁྱ། | <khya khya> | colourful |
| /ɟʝ/ | [cɕa] | /ɟʝa/ | རྒྱ། | <gya> | 81-89 DM |
| | [wɐɾɟʝɐŋ] | /war ɟʝaŋ/ | བར་རྒྱང་། | <bar gyang> | dividing wall |
| /j/ | [jaɾ] | /jaɾ/ | ཡར། | <yar> | above |
| | [tsaja] | /dzaja/ | ཙ་ཡ། | <tsa ya> | excellent, first class |
| /tʂʰ/ | [tʂʰə] | /tʂʰə/ | ཁྲི། | <khri> | ten thousand |

| | | | | | |
|---|---|---|---|---|---|
| | [sʰa tʂʰa] | /sʰa tʂʰa/ | ས་ཁྲ། | <sa khra> | map |
| /dz̧/ | [tʂama] | /dz̧ama/ | ཟྲ་མ། | <dra ma> | window |
| | [kwadz̧ən tɕʰe] | /gwadz̧ən tɕʰe/ | བཀའ་དྲིན་ཆེ། | <bka' drin che> | thank you |
| /ʂ/ | [ʂa] | /ʂa/ | ཧྲ། | <hra> | good |
| | [ma ʂo] | /ma ʂo/ | མལ་སྲོ།[35] | <mal sro> | to rest, take a break |
| /kʰ/ | [kʰa] | /kʰa/ | ཁ། | <kha> | mouth, opening |
| | [ɦilo k(ʰ)a][36] | /hlo kʰa/ | གློ་ཁ། | <glo kha> | pink |
| | [leka] | /lekʰa/ | ལས་ཀ | <las ka> | work, job |
| /g/ | [ka] | /ga/ | ཀ[37] | <ka> | pillar |
| | [apaɣə] | /apʰa = gə/ | ཨ་ཕ་གི | <a pha gi> | father=GEN |
| | [xʰoʁə] | /çʰogə/ | ཤོག་གུ། | <shog gu> | paper |
| /ŋ/ | [ŋa] | /ŋa/ | ང་། | <nga> | I, me (1S.ABS) |
| | [sɐŋa] | /zaŋa/ | ཟངས་ང་། | <zangs nga> | skillet, pan |
| /χ/ | [χe cçə] | /χe ʄjə/ | (n/a) | (n/a) | scissors (Mongolian loan word [Hua & Klu.'bum rGyal 1992: 629]) |
| /ʁ/ | [ʁa] | /ʁa/ | ཝ། | <wa> | fox |
| | [ɾɐŋ ʁɐŋ] | /ɾaŋ ʁaŋ/ | རང་དབང་། | <rang dbang> | freedom |
| /h/ | [ha ha] | /ha ha/ | ཧ་ཧ། | <ha ha> | sound of laughter |

*Examples of complex onsets.*

| | | | | | |
|---|---|---|---|---|---|
| /hpʰ/ | [xpu lɐŋ] | /hpʰu laŋ/ | སྤུ་ལངས། | <spo langs> | to be angry |
| /hb/ | [ɦibawa] | /hbawa/ | སྦལ་བ། | <sbal ba> | frog |
| /htʰ/ | [xta] | /htʰa/ | ཏྟ། | <rta> | horse |
| /hd/ | [ɦido] | /hdo/ | རྡོ། | <rdo> | stone, pebble |
| /hkʰ/ | [xka] | /hkʰa/ | དཀའ། | <dka'> | difficult, expensive |
| /hg/ | [ɦiga] | /hga/ | དགའ། | <dga'> | happy |
| /htsʰ/ | [xtsa] | /htsʰa/ | རྩྭ། | <rtswa> | grass |
| /hdz/ | [ɦidzəma] | /hdzəma/ | རྫུན་མ། | <rdzun ma> | false, pretend |

[35] Geng et al. (2006: 585) spell ‘to rest, take a break’ as མལ་གསོ། <mal gso>; above, I follow the spelling from Hua & Klu.'bum rGyal (1993: 399), as it captures the Amdo pronunciation better.
[36] The second syllable in this word is not consistently aspirated; see Section 3.2.2.
[37] Geng et al. (2006: 1) only include the two-syllable version of the word for ‘pillar’: ཀ་བ། <ka ba>; Hua & Klu.'bum rGyal (1993: 1) also only include the two-syllable spelling, but they say it is pronounced as the single syllable [ka], as it is in my data.

| | | | | | |
|---|---|---|---|---|---|
| /htɕʰ/ | [ɕtɕe] | /htɕʰe/ | ལྕེ། | <lce> | tongue |
| /hdʑ/ | [ɦdʑe] | /hdʑe/ | བརྗེད། | <brjed> | to forget |
| /htʂʰ/ | [ʂtʂɨx] | /htʂʰəg/ | དཀྲུག | <dkrug> | stir, mix |
| /hdzˌ/ | [ɦdzˌa] | /hdzˌa/ | སྒྲ། | <sgra> | noise, sound |
| /hcçʰ/ | [çcça] | /hcçʰa/ | རྐྱལ། | <rkyal> | to swim |
| /hɟˌ/ | [ɦɟˌjɐχ] | /hɟˌjag/ | རྒྱག | <rgyag> | to hit |
| /hsʰ/ | [səm] | /hsʰəm/ | གསུམ། | <gsum> | three |
| | [tɕəxsəm] | /dʑə hsʰəm/ | བཅུ་གསུམ། | <bcu gsum> | thirteen |
| /hz/ | [ɦzowa] | /hzowa/ | བཟོ་བ། | <bzo ba> | worker |
| /hçʰ/ | [ɕɛl] | /hçʰad/ | བཤད། | <bshad> | to speak |
| | [lɐχɕɛl] | /lag hçʰad/ | ལེགས་བཤད། | <legs bshad> | proverb |
| /hʑ/ | [ɦʑə] | /hʑə/ | བཞི། | <bzhi> | four |
| /hm/ | [ɦma] | /hma/ | དམའ | <dma'> | low |
| /hn/ | [ɦna] | /hna/ | སྣ། | <sna> | nose |
| /hɲ/ | [ɦɲɐŋ] | /hnaŋ/ | སྙིང་། | <snying> | heart (organ) |
| /hŋ/ | [ɦŋama] | /hŋama/ | རྔ་མ། | <rnga ma> | tail |
| /hl/ | [ɦlɛ(l)] | /hlad/ | གླད། | <klad> | top, on top of |
| /hj/ | [ɦjaɾk(ʰ)a] | /hjaɾ kʰa/ | དབྱར་ཁ། | <dbyar kha> | summer |
| /npʰ/ | [xtampʰoŋ] | /htʰa npʰoŋ/ | རྟ་འཕོངས། | <rta 'phongs> | horse’s back, hip |
| /nb/ | [mbə] | /nbə/ | འབུ། | <'bu> | bug, insect |
| /ntʰ/ | [xkoɾntʰa] | /hkʰoɾ ntʰa/ | སྐོར་མཐའ། | <skor mtha'> | place for circumambulating |
| /nd/ | [nda] | /nda/ | མདའ། | <mda'> | arrow |
| /nkʰ/ | [ɕɛŋkʰɛn] | /ʑad nkhan/ | བཤད་མཁན། | <bshad mkhan> | (talented) speaker |
| /ng/ | [ŋgo] | /ngo/ | མགོ | <mgo> | head |
| /ntsʰ/ | [sʰantsʰɐm] | /sʰa ntsʰam/ | ས་མཚམས། | <sa mtshams> | boundary on land |
| /ndz/ | [ndzən] | /ndzən/ | འཛིན། | <'dzin> | to grasp, hold |
| /ntɕʰ/ | [ʂtʂøntɕʰɐm] | /htʂʰo ntɕʰam/ | སྤྲོ་འཆམས།[38] | <spro 'chams> | outing for enjoyment |
| /ndʑ/ | [ndʑa] | /ndʑa/ | འཇའ། | <'ja'> | rainbow |
| /ntʂʰ/ | [tʰamtʂʰɨx] | /ntʰab ntʂʰəg/ | འཐབ་འཁྲུག | <'thab 'khrug> | war |
| /ndzˌ/ | [ndzˌoχwa] | /ndzˌog-wa/ | འབྲོག་པ། | <'brog pa> | nomad, herder |

[38] This word is not in Geng et al. 2006 or Hua & Klu.'bum rGyal 1993.

| | | | | | |
|---|---|---|---|---|---|
| /ncç$^{h}$/ | [tɕ$^{h}$əncç$^{h}$ɐχ] | /tɕ$^{h}$ə ncç$^{h}$ag/ | ཆུ་འཁྱགས། | <chu 'khyags> | cold water |
| /nʑj/ | [nʑjoχ] | /nʑjog/ | མགྱོགས། | <mgyogs> | fast, quick |
| /χw/? | [χwetɕa] | /χwe tɕ$^{h}$a/? | དཔེ་ཆ། | <dpe cha> | book |
| /gw/? | [kwa] | /gwa/? | བཀའ། | <bka'> | decree, word.HON |

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