THE DIRECTIONALITY OF THE VOICING ALTERNATION IN TIBETAN

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Abstract
This paper provides arguments in favor of the hypothesis that in two voice alternations in Tibetan (marking transitivity and TAME, respectively), the unvoiced form is primary, and its voiced counterpart the derived form. This hypothesis has consequences for the history of the voicing alternation in Trans-Himalayan in general, and also for the reconstruction of voiced affricates vs. fricatives in pre-Tibetan.

Keywords: Tibetan; voicing alternation; affricates; fricatives; voicing

ISO 639-3 codes: bod

1 Introduction
Nearly all languages in the Trans-Himalayan family, including Old Chinese (Handel 2012), Tibetan (Uray 1953, Zhang 2009, Hill 2014a), Kiranti (Jacques 2015a), Lolo-Burmese (Gerner 2007), Jingpo (Dái & Xú 1992: 78), Bodo-Garo (Basumatary 2017) and other languages, have a voicing alternation correlated with transitivity, whereby an intransitive verb with a voiced onset has a transitive counterpart with a voiced onset (Conrady 1896). In addition, in Tibetan, the voicing alternation occurs in the conjugation of transitive verbs, the voiced forms occurring in the present and future, and the voiceless ones in the past and imperative (Li 1933, Coblin 1976).

In the case of Chinese, the interpretation of this alternation is not straightforward and has been the object of an intense debate (Mei 2012, Sagart & Baxter 2012). However, there is strong evidence from Rgyalrongic languages that this voicing alternation is in fact an intransitivising (more precisely, anti-causative) derivation, and that the voiced (in some languages, voiced prenasalized) intransitive verb derives from the transitive one (Jacques 2015b, Gong 2017, Gates et al. forthcoming).

In Tibetan, Shefts-Chang (1971) has argued that the causative prefix s- had a devoicing effect and that it was responsible for at least some of the voicing alternations in the verbal system. This idea, which has inspired some specialists of Chinese (Mei 2012), is however demonstrably wrong (Jacques 2020). Most of the scholars who have worked on Tibetan verbal morphology remain non-committal (at least in print) as to the directionality of the derivation (Li 1933, Uray 1953, Zhang 2009, Coblin 1976, Hill 2014a, 2019). Even Bialek (2020:267), who supports the idea that the voiced stems derive from the voiceless ones, however believes that “the question of which roots, transitive K or intransitive G, were primary and which derivational, cannot be answered on the grounds of Tibetan data only”.

The aim of this paper is precisely to show direct evidence for the directionality of the voicing alternation (from voiceless to voiced) in the Tibetan verbal system. First, I provide some background information on the internal reconstruction of voiced affricates (what Hill 2014b, 2019 calls ‘Schiefner’s law’), which is necessary to support the rest of the discussion. Second, I show that the voicing alternation between present/future and past/imperative in the transitive paradigms cannot be explained if one supposes that the latter derive from the former, and that the hypothesis of a voiceless to voiced alternation is the only
one compatible with all the data. Third, I present evidence that the same is true of the voicing alternation between transitive and intransitive verbs and that Tibetan data is congruent with Rgyalrongic languages in this regard.

2 Schiefner’s law

With a handful of exceptions, voiced fricatives and voiced affricates in Tibetan are in complementary distribution, as illustrated in Table 1.

**Table 1: Complementary distribution of voiced fricatives and affricates in Tibetan**

<table>
<thead>
<tr>
<th>Absolute</th>
<th>b-</th>
<th>g-</th>
<th>r-</th>
<th>n-</th>
<th>m-</th>
</tr>
</thead>
<tbody>
<tr>
<td>z-</td>
<td>bz-</td>
<td>gz-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(dz-)</td>
<td>rz-</td>
<td>n-</td>
<td>rdz-</td>
<td>mdz-</td>
<td></td>
</tr>
<tr>
<td>z-</td>
<td>b-</td>
<td>gz-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(dz-)</td>
<td>rz-</td>
<td>n-</td>
<td>rdz-</td>
<td>mdz-</td>
<td></td>
</tr>
</tbody>
</table>

In the verbal system, there is a systematic alternation between voiced fricatives and voiced affricates, the former occurring when the past b- and future g- prefixes are present or in the unprefixed imperative, and the latter in the present with the prenasalization n prefix, as illustrated in Table 2.

**Table 2: Alternation between voiced fricatives and affricates**

<table>
<thead>
<tr>
<th>Meaning</th>
<th>Present</th>
<th>Past</th>
<th>Future</th>
<th>Imperative</th>
</tr>
</thead>
<tbody>
<tr>
<td>put</td>
<td>dzog</td>
<td>bzag</td>
<td>gzag</td>
<td>zogs</td>
</tr>
<tr>
<td>give way</td>
<td>dzur</td>
<td>bzur</td>
<td>gzur</td>
<td>zur</td>
</tr>
</tbody>
</table>

In absolute initial position, there are nearly no examples of voiced affricates. Exceptions include mainly loanwords from Sanskrit (in the case of dz-) or Chinese, and ideophones. The only word with a voiced affricate in absolute initial position is the bound form dz-i-, which appears in compounds interrogatives such as བོོང་ dz-i.ltar ‘how’, and is related to the form ཉི tei found in ཉི tei.ltar ‘how’ with voiceless affricate.2

If we put aside these limited exceptions, the complementary distribution implies that voiced fricatives and affricates have a common origin. Li (1933) and Coblin (1976) reconstruct voiced fricatives and hypothesize that a stop element was inserted when the fricative was preceded by a sonorant (1).

(1) *(r,N)z/z- → (r,N)dz/dz-

Schiefner (1852) proposed the opposite sound change (2), which removed all word-initial voiced affricates, before the gap was filled by ideophones and loanwords.3

(2) *dz/dz- → z/z- / #__, [b-/g-]__

Hill (2014b) further supported it with comparative data from Chinese and Rgyalrongic, but most importantly from the existence of alternations between voiced fricatives and voiceless affricates, that is between z and ts on the one hand, and between z and t in the other hand. He cites ཚོང་ zoŋ ‘ware, goods’, a noun related to the verb བཙོང་ ntsʰoŋ ‘sell’ (བཙོངས་ btsongs), whose root is *tsoŋ. If one supposes that z- in zoŋ ‘ware, goods’

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2 Note the presence of a voiceless unaspirated affricate is also irregular, and that a form ཉི tei ‘what’ is also found in some dialects.

3 Exceptions such as ཉི dz-i.ltar ‘how’ remain unexplained in view of this sound change, but are extremely marginal.
comes from *dz-, the relationship between the noun and the verb becomes easier to account for (a voicing alternation).

Against Schiefner and Hill’s solution, Bialek (2020: 280) proposes typological arguments: “This argument is supported by the systemic consideration that for a language to have voiced affricates ([ʣ] and [ʥ]) without having voiced fricatives ([z], [ʑ]) is not a plausible scenario.” However, while it is true that fricatives are cross-linguistically more frequent than the corresponding affricates (Grossmann & Nikolaev 2018: 565-566), a search in the PHOIBLE database (Moran & McCloy 2019) reveals no fewer than 193 languages with at least one voiced affricate without the corresponding voiced fricative in their phonological system, of which 124 have only voiced affricates without voiced fricatives, so that phonological typological is not an argument against Schiefner’s law. Moreover, deaffrication is a widely attested type of sound change (Kümmel 2007:67–75).

In any case, whether one adopts the Li and Coblin’s (1) views, or Schiefner and Hill’s (2), there was no contrast between voiced affricates and voiced fricatives in pre-Tibetan; this is the crucial point that will be relevant in the following discussion.

3 The voicing alternation in the transitive conjugations
A subclass of transitive verbs exhibits alternation between voiced and voice-less stem (Li 1933, Coblin 1976), the former in the present and future (for instance ལོགས་ “-geb-s, ལོག དགབ་ ‘cover’) and the latter in the past an imperative (བཀབ་ b-kab and མི་ kʰob). Table 3 illustrates a certain number of representative examples.

Table 3: Voicing alternation and the contrast between fricatives and aspirates.

<table>
<thead>
<tr>
<th>Meaning</th>
<th>Present</th>
<th>Past</th>
<th>Future</th>
<th>Imperative</th>
</tr>
</thead>
<tbody>
<tr>
<td>cover</td>
<td>ལོགས་</td>
<td>ལོག</td>
<td>ལོག</td>
<td>མི་</td>
</tr>
<tr>
<td>put in</td>
<td>ལོགས་</td>
<td>ལོག</td>
<td>ལོག</td>
<td>མི་</td>
</tr>
<tr>
<td>insert, plant</td>
<td>ལོགས་</td>
<td>ལོག</td>
<td>ལོག</td>
<td>མི་</td>
</tr>
<tr>
<td>destroy</td>
<td>ལོགས་</td>
<td>ལོག</td>
<td>ལོག</td>
<td>མི་</td>
</tr>
</tbody>
</table>

When the present form has a voiced affricate dz- or dz-, in addition to the pattern found in Table 2 above (where the voiced affricate alternates with voiced fricatives due to Schiefner’s law), in Table 3 we observe two distinct alternating patterns: the voiced affricates and fricatives alternate with voiceless affricates in the case of ‘put in’ and ‘insert (henceforth ‘pattern A’), but with voiceless fricatives in the case of ‘destroy’ (henceforth ‘pattern B’).

On the exclusive basis of verbs with stop onsets like ‘cover’, the directionality of the voicing alternation is unclear. In principle, one could propose two alternative hypotheses (3) and (4), both involving prefixes (here noted X₁ and X₂) that devoice or voice the following segment, respectively.

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4 An example of such a language is Lushootseed, which has dz and d̠ʒ but no corresponding z and ʒ (Bates et al. 1994). The data were extracted from the development version of PHOIBLE by Dmitry Nikolaev. The extraction script is available at https://github.com/macleggin/phoible-affricate-extraction.

5 The contrast between aspirated and unaspirated stops and affricates is secondary, see Hill (2007).

6 An anonymous reviewer pointed out that these two hypotheses are not necessarily mutually exclusive: Zemp (2016) in particular proposes a model combining both voicing and devoicing. However, such a hypothesis would be unnecessarily complex and does not need to be considered unless comparative evidence provides strong evidence for it.

7 For the reconstruction of the prefixes and vowel alternation, see Coblin (1976) and Jacques (2012b).
(3) Hypothesis I: devoicing segment *X₁ (Present/Future stems are primary)
Past: *b-X₁-gab → bkab
Imperative: *X₁-gab-o → kʰob

Zemp (2016:93, fn. 13) proposes a variant of Hypothesis I without positing a *X₁ devoicing element, as this author believes that the past prefix ‘had a devoicing effect on the following initial’. This view is however decisively demolished by Sangsrgyas Tshering’s (2020) discovery that Past b- actually causes progressive voicing of the following initial consonant in Thebo:⁸ the Thebo evidence indicates that the Past tense prefix b- originates from a voiced segment in proto-Tibetan, and therefore one cannot argue that it has devoiced the following obstruent on its own.

(4) Hypothesis II: voicing segment *X₂ (Past/Imperative stems are primary)
Present: *N-X₂-kab-ed → *gebs
Future: *d/g-X₂-kab → dgab

Both (3) and (4) could also equally account for Pattern A verbs, as shown in (5) and (6).

(5) Hypothesis I: devoicing segment *X₁
Past: *b-X₁-dzug → bteug
Imperative: *X₁-dzug-s-o → teʰug

(6) Hypothesis II: voicing segment *X₂
Present: *N-X₂-teug → *dzug
Future: *d/g-X₂-teug → gżug

However, in the case of pattern B verbs, only hypothesis II is possible: since there was no contrast between voiced affricates and voiced fricatives in pre- Tibetan, dʑ/-ʑ- can serve as the voiced counterpart of both the voiceless affricate tɕ- and the voiceless fricative ɕ-, and if one supposes that the voicing alternation is caused by a prefix *X₂ which voices the onset, one simply needs to specify that *X₂ɕ- and *X₂s- respectively merge with *dʑ- and *dz-,⁹ a hypothesis all the more probable if X₂ is to be interpreted as homorganic prenasalization (Jacques 2012b).¹⁰

(7) Hypothesis II: voicing segment *X₂
Present: *N-X₂-eig → *dzig
Future: *d/g-X₂-eig → gżig

By contrast, the one way to salvage hypothesis I to explain the paradigm of such verbs would be to posit a contrast between voiced affricates *ʑ / *z and affricates *dʑ / *dz in proto-Tibetan, merging in all contexts except when preceded by *X₁, whose only purpose would be to account for this conjugation pattern. For instance, in (5), this would imply positing a proto-form *zig distinct from *dzig.

(8) Hypothesis I: devoicing segment *X₁
Past: *b-X₁-zig → beig
Imperative: *X₁-zig-s-o → eigs

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⁸ Sangsrgyas Tshering’s law also applies to verbs with labial initials, where the *b-prefix is internally reconstructed by Coblin 1976 but has been lost even in Old Tibetan. It incidentally proves that Thebo is more archaic than Old Tibetan at least in this respect.
⁹ In this hypothesis, it is not necessary to suppose that there ever was a phonemic contrast between the outcomes of *X₂ɕ- and *X₂s- after the voicing sound law took place.
¹⁰ The development in (7) shows that the conjugation of the verb ‘destroy’ is not a counter-argument to Schiefner’s law, contra Bialek (2020:280).
Thus, regardless whether one favors Li and Coblin’s views (1), or Schiefner and Hill’s (2), hypothesis II is superior to hypothesis I from a strictly Tibetan-internal point of view: hypothesis I implies adding three elements to the phonemic inventory of pre-Tibetan (*X₁, *z and *ʑ), while hypothesis II only requires one (*X₂), with the same explanatory power.

3 The voicing alternation and transitivity

The same argument can be applied to the voicing alternation between in-transitive voiced verbs and transitive voiceless ones (Hill 2014a’s type A and B respectively).

Alongside examples like (9) with an intransitive A verb in voiced fricative, alternating with a transitive B verb with a voiceless affricate (at least in the past and imperative stems), we also find cases like (10) and (11), where the voiced fricative in the A verb alternates instead with a voiceless fricative.

(9)  
  A: ངག་ zug ‘pierce, penetrate’  
  B: འོགས་ ndzugs (past ལྟོགས་ btsugs) ‘plant’

(10)  
  A: དབ་ zub ‘be blocked, disappear (be wiped out)’  
  B: དབ་ sub (past བྲོགས་ bsubs) ‘wipe, stop up, block (a road)’

(11)  
  A: ཞག་ zag ‘be torn, be split’  
  B: བོད་ geog (past བོགས་ beags, root *eag) ‘cleave, split’

Under hypothesis II, one can account for the above verbs in the following manner, without adding any proto-phonemes other than *X₂:

(12)  
  *X₂-tsug → ངག་ zug ‘pierce, penetrate’  
  *X₂-sub → དབ་ zub ‘be blocked’  
  *X₂-eag → ཞག་ zag ‘be torn, be split’

By contrast, adopting hypothesis I would require reconstructing different series of onsets *dz- and *dz- vs. *z- and *z- in addition to *X₁ to be able to account for the corresponding transitive verbs, thus complexifying the inventory of pre-Tibetan by three elements.

(13)  
  *b-X₁-dzugs → ལྟོགས་ btsugs ‘plant’  
  *X₁-zub → དབ་ sub ‘wipe, stop up, block (a road)’  
  *b-X₁-zag-s → བོད་ beags ‘cleave, split’

4 Conclusion

As shown in the above sections, the hypothesis that the voicing alternation in Tibetan (whether within the transitive paradigm or between transitive and intransitive verbs) results from the voicing of voiceless obstruents rather than the opposite is considerably more economical that the opposite view.

Tibetan-external evidence, in particular Rgyalrongic (Gates et al. forthcoming), is also in favor of this idea, despite being based on an unrelated set of data.

Since moreover attempts to account for the voicing alternation as being due to the alleged devoicing effect of the causative s-prefix have been shown to be misleading (Jacques 2020), claims that the voicing alternation is due to devoicing in other subbranches of Trans-Himalayan, including Chinese (Mei 2012) and Lolo-Burmese (Gerner 2007), will have to be revised in the light of Rgyalrongic (Gong 2017, Zhang et al. 2019) and Tibetan data.

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References


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