

PHONETIC DEVELOPMENT OF TIBETAN*

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This exercise explores the historical relationship between tone, aspiration, prefixes and stem initial consonants in Tibetan. (The stem initial consonant is underlined in those words that have prefixes or initial clusters; [ts], [tsh], [tɕ], [tɕh], etc., all count as single consonants.) Other phonetic developments are also explored.

Written Tibetan (c. 9th cen AD) has a set of eight possible prefixes, some of which have clear grammatical functions, such as marking voice or tense. For this exercise it is not important how they function grammatically, only that they affected the phonological development of the Modern Lhasa Tibetan forms.

There are six phonemic tones in Modern Lhasa Tibetan. These can be grouped into two major categories: High (55, 54, and 52), and Low (12, 14, and 132). For the first part of this exercise, think only in terms of these broader categories.

Palatalization or retroflexion may have occurred in some forms. This does not affect the nature of the initial in terms of aspiration (which is marked with a following h) or voicing. In this exercise, [j] is a palatal glide; [y] is a front rounded vowel; [ɕ], [ʐ], [t], [th], [dz], and [ɲ] are alveo-palatals; [ʂ], [tʂ], and [tʂh] are retroflex initials; and [ʁ] is a voiced glottal fricative.

1. Examine the forms on the next page, and answer the following questions:

- (1) What factor accounts for tone height in the Modern Lhasa Tibetan forms?
- (2) Does the presence or absence of a prefix affect tone height?
- (3) Looking at the Modern Lhasa Tibetan forms, can you account for aspiration or the lack of it?
- (4) Can you find any regularity to the vowel changes from Written Tibetan to Modern Lhasa Tibetan? (Ignore #6, #36, and #47)

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Written Tibetan	Lhasa Tibetan	Gloss
1. <u>ā</u> dag pa	tak ¹³² pa ⁵⁴	mud
2. <u>brag</u> phug	tṣha ⁷¹³² phu ⁷⁵²	cave
3. <u>rd</u> o	to ¹²	store
4. <u>m</u> e	me ¹²	fire
5. <u>lṭ</u> gags	tṣa ⁷⁵²	iron
6. <u>du</u> ba	tho ¹⁴	smoke
7. <u>ṣ</u> ar	ṣa ⁵⁵	east
8. <u>g</u> gañ dkar	ṣa ⁵⁴ ka ⁵⁵	tin
9. <u>n</u> up	nu ⁷¹³²	west
10. <u>m</u> dun	tṣy ¹⁴	before
11. <u>ph</u> i logs	tṣhi ⁵⁴ lo ⁷¹³²	outside
12. <u>d</u> us	thy ¹³²	time
13. <u>dp</u> jid ka	tṣi ⁷⁵² ka ⁵⁴	spring
14. <u>d</u> gun ka	kṣy ¹⁴ ka ⁵⁴	winter
15. <u>ṅ</u> i ma	ṅi ¹² ma ¹²	sun
16. <u>s</u> kar ma	ka ⁵⁵ ma ¹²	star
17. <u>ḥ</u> brug skad	tṣu ⁷¹³² ke ⁷⁵²	thunder
18. <u>s</u> prin pa	tṣṭ ⁵⁵ pa ⁵⁴	cloud
19. <u>t</u> char pa	tṣha ⁵⁵ pa ⁵⁴	rain
20. <u>kh</u> jags pa	chak ⁵² pa ⁵⁴	ice
21. <u>ba</u> mo	pha ¹² mo ¹²	frost
22. <u>rd</u> ziṅ	tsiṅ ¹⁴	pond
23. <u>mt</u> sho	tsho ⁵⁴	lake
24. <u>rg</u> ja mtsho	ca ¹² tsho ⁵⁴	sea
25. <u>l</u> a	la ¹²	mountain
26. <u>ḥ</u> phred	tṣhe ⁷⁵²	horizontal
27. <u>th</u> aṅ	than ⁵⁵	plain
28. <u>ṅ</u> a	ṅa ¹²	l
29. <u>gro</u> zip	tṣho ¹² ṣi ⁷¹³²	flour
30. <u>m</u> khal ma	khe ⁵⁵ ma ¹²	kidney
31. <u>s</u> go ṅa	ko ¹² ṅa ¹²	egg
32. <u>s</u> brul	tṣy ¹⁴	snake
33. <u>ḥ</u> tchad	tṣhe ⁷⁵²	will owe
34. <u>mt</u> chan khun og	thē ⁵⁵ khū ⁵⁵ o ⁷¹³²	armpit
35. <u>zaṅ</u> zaṅ	ṣaṅ ¹⁴ ṣaṅ ¹⁴	uncle
36. <u>ḥ</u> phrul ḥkhor	tṣhy ⁵⁵ kho ⁵⁵	machine
37. <u>m</u> tho	tho ⁵⁴	span
38. <u>d</u> za	tṣha ¹²	tea
39. <u>re</u> d	re ⁷¹³²	copula

II. Now look at the following forms. How do they change your analysis?

40. snag tsha	nak ⁵² tsha ⁵⁴	ink
41. lga	ŋa ⁵⁴	five
43. mŋen po	ŋe ⁵⁵ po ⁵⁴	soft
44. gnam	nam ⁵⁵	sky
45. dŋul	ŋy ⁵⁵	money
46. las sja po	le ⁷¹³² la ⁵⁴ po ⁵⁴	easy
47. srap po	tsep ⁵² po ⁵⁴	thin
48. rlag	la ⁷⁵²	lose(smthg)
49. smug pa	muk ⁵² pa ⁵⁴	fog

III. Extra credit: Can you account for the three tonal contours within each of the broader tone categories? (Ignore *6)

NOTES TO INSTRUCTOR AND ANSWER SHEET

PRESUPPOSED: In order to do this problem, it is necessary that students have a basic idea of phonetic natural classes, such as obstruent, resonant, alveolar, and voiced, and be able to recognize these classes, even if they are not fully represented in the data. Helpful, but not necessary, would be some familiarity with the concepts of tone and prefixation. They would also need some awareness that languages change, and the factors that may influence that change. They of course would also have to be familiar with IPA.

RELEVANT CONCEPTS: By doing this exercise, the student will become aware of the factors that can lead to the development of tones, and what factors can shape the contours and height of those tones. There will be a reinforcement of the concept of natural classes, and how these natural classes interact in phonetic development. Because of the sometimes startling development between the two stages of Tibetan presented here, doing this exercise will also open the students' minds to just how broad the scope of possibilities is in doing historical linguistics, and awaken them to the beauty inherent in the regularity of sound change, and to how enjoyable solving the puzzle of historical development can be.

LEVEL OF DIFFICULTY: This problem could be used at almost any level beyond the most elementary, depending on the hints given, or could be tailored in terms of difficulty, as mentioned above, to fit the level of the students. The time involved would be relative to the level of the students. An advanced group should be able to do this in class, but it is probably more appropriate as a homework problem.

SHORT ANSWERS:

I.1. The voicing of the stem initial consonant determines tone height: voiced -> low tone; voiceless -> high tone. A vowel onset also -> low tone.

I.2. No. (At least not in the data on page 2.)

I.3. All forms that are aspirated in Written Tibetan are aspirated in Lhasa Tibetan; and forms that have a voiced stem-initial consonant and NO prefix in Written Tibetan are aspirated in Lhasa Tibetan.

I.4 [a] and [u], when followed by alveolar segments in Written Tibetan, are fronted to [ɛ] and [y] respectively.

II. The presence of a prefix causes a syllable that has a resonant initial in Written Tibetan to have a high tone in Lhasa Tibetan.

III. 55 and 14 if Written Tibetan final consonant is a resonant; 52 and 132 if Written Tibetan final consonant is obstruent. 54 and 12 otherwise.

TECHNIQUE: The students need to compare the older Tibetan forms with the newer forms, with an eye toward discerning what regularities there were in the development from the former to the latter. They would need to isolate out the various natural classes mentioned above in order to find those regularities.

Looking at the forms on page 2, the student will see that all of the forms that have a voiced stem-initial consonant or no initial consonant (i.e.: has a vowel onset) in the Written Tibetan form have a low tone in the Lhasa Tibetan form, and all of the forms with a voiceless or voiceless aspirated stem-initial consonant in the Written Tibetan form have a high tone in the Lhasa Tibetan form. This then is the answer to question I.1.

To answer question I.2, the students will then compare the Lhasa Tibetan forms with those forms in Written Tibetan that have prefixes to see if there is any influence on tone. There is none in the forms on page 2, so for now the answer is 'no'. It may seem that asking a question like this could be confusing, but the reason for it is that in Part II forms are given where there *is* influence on the tone by the prefix. This question will start the students thinking about tone and prefix without giving the answer away to Part II, and will

set them up for the answer to question I.3. If the teacher using this exercise chooses to make it a bit easier and faster, he/she could either white-out question I.2 and alter the question in Part II to ask specifically about the prefixes, or he/she could leave question I.2 as is, and simply change the question in Part II to read 'How do they change your answer to question I.2?'

To answer question I.3, the students will need to look at all of the Lhasa Tibetan forms with aspirated initial consonants, and determine what the common denominator is in the Written Tibetan forms. They will find that if the Written Tibetan form is aspirated, the Lhasa Tibetan form is always aspirated; and that when the Written Tibetan form has an initial voiced stop, the Lhasa Tibetan form is voiceless aspirated for all those words where the Written Tibetan form did *not* have a prefix. Those with a prefix in the Written Tibetan form have a voiceless unaspirated initial in the Lhasa Tibetan form.

To answer question I.4, the students will need to look down the two lists to see what vowel changes occur. What they will see is that when the Written Tibetan form has the non-front vowels [a] or [u], sometimes the Lhasa Tibetan form has the front vowels [ɛ] and [y] respectively, and they will need to recognize that this fronting occurs in all cases where the vowel is followed by any alveolar segment except [r] (that is, l, n, d, or s) in the Written Tibetan form. As there are not many examples of this change, it may be difficult for the students to come to the proper generalization, so if the teacher wants to make the problem easier, or save time, he/she can white-out this question. This question could also be placed in the EXTRA CREDIT section, as the answer to this question is unrelated to the other three questions, which focus on initial consonant and prefix rather than final consonant.

To answer the question in Part II, the students would need to be aware of the rule that a voiced initial in Written Tibetan corresponds with a low tone in Lhasa Tibetan, then notice that though the resonant stem-initials are all voiced in this new data, they have high tones. They would then need to go back and compare these new forms with the forms with resonant initials on page 2 to see what the difference is. They should then discover that it is the presence of a prefix in Written Tibetan that conditions the high tone of Lhasa Tibetan in these resonant-initial forms.

If the students then do the EXTRA CREDIT question, they should pay attention to not only whether or not there is a consonant final in the syllable, but what type of consonant it is. They will find that if the Written Tibetan final is a resonant ([-r], [-l], [-ŋ], or [-n]), the Lhasa Tibetan tone is 55 or 14; when the final consonant is an obstruent ([-g] [-d], [-b], or [-s]), the Lhasa Tibetan tone is 52 or 132. In syllables ending with a vowel or [ɦ], the tones are 54 and 12.