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], [tc], [tch], 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; [ç], [z], [t], [th], [dz], and [ŋ] are alveo-palatales; [g], [ts], and [tsh] are retroflex initials; and [h] 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
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1. Adag pa | tak¹³² pa⁵⁴ | mud
2. brag phug | tsha?¹³² phu?³² | cave
3. rdo | to¹² | store
4. me | me¹² | fire
5. ltgas | tça?⁵² | iron
6. du ba | tho¹⁴ | smoke
7. çar | çå³³ | east
8. gcag dkar | çå⁵⁴ ka⁵⁵ | tin
9. nup | nu?¹³² | west
10. mdun | tši³⁴ lo?¹³² | before
11. phji loga | thy¹³² | outside
12. dus | tçï?⁵² ka³⁴ | time
13. dpjid ka | kyi¹⁴ ka³⁴ | spring
14. dgun ka | ni³² ma¹² | winter
15. ni ma | ka³⁵ ma¹² | sun
16. skar ma | tsu?¹³² ke³² | star
17. abrug skad | tši³⁵ pa⁵⁴ | thunder
18. sprin pa | tcha³⁵ pa⁵⁴ | cloud
19. tshar pa | chak³² pa³⁴ | rain
20. khjags pa | pha¹² mo¹² | ice
21. ba mo | tši³⁴ | frost
22. rdziŋ | tsho³⁴ | pond
23. mtsho | ca³² tsho³⁴ | lake
24. rgja mtsho | la¹² | sea
25. la | tšhe³⁵ | mountain
26. fphred | tšan³⁵ | horizontal
27. tshag | nga¹² | plain
28. nga | tsho¹² gï³³ | I
29. gro zip | khe³³ ma¹² | flour
30. mkhal ma | ko¹² nga¹² | kidney
31. sgo nga | tšy¹⁴ | egg
32. shroul | tšhe³⁵ | snake
33. hattrad | tšhe³⁵ khü³³ o³³ | will owe
34. mtshang khuq og | caŋ¹⁴ caŋ¹⁴ | armpit
35. zang zang | tšhy³³ khø³³ | uncle
36. fphrul khor | tho³⁴ | machine
37. mtho | tšha¹² | span
38. dza | re³³ | tea
39. red |
II. Now look at the following forms. How do they change your analysis?

40. smag tsha  
41. lna  
43. mnaen po  
44. gnam  
45. dnuil  
46. las sla po  
47. srab po  
48. rlag  
49. smug pa

nak\textsuperscript{52} tsha\textsuperscript{54}  
\etaa\textsuperscript{54}  
\eta\textsuperscript{55} po\textsuperscript{54}  
nam\textsuperscript{55}  
\etay\textsuperscript{55}  
l\textsuperscript{7132} la\textsuperscript{54} po\textsuperscript{54}  
tse\textsuperscript{52} po\textsuperscript{54}  
l\textsuperscript{752}  
muk\textsuperscript{52} pa\textsuperscript{54}  

ink  
five  
soft  
sky  
money  
easy  
thin  
lose(smthg)  
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.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