

Productivity of the Buriat dorsal-zero alternation

Buriat presents a potential case of dorsal epenthesis that challenges the existing theories of phonological markedness (Rice, 2008; Morley, 2015; Vaux & Samuels, 2015). The analysis of the relevant alternations has been debated (de Lacy, 2006; de Lacy & Kingston, 2013). This paper presents new fieldwork and experimental evidence showing that the reported epenthesis pattern fails to be generalized to novel morphemes. The results support the analysis of Buriat dorsal-zero alternation as morphologically-restricted deletion or phonologically-conditioned suppletion (de Lacy, 2006; de Lacy & Kingston, 2013; Uffmann, 2014). The present results are also consistent with a bias against generalizing unnatural or marked processes (Zuraw, 2007; Becker *et al.*, 2011; Baer-Henney & van de Vijver, 2012; White, 2014; Hayes & White, 2015).

Problem. The data come from a field investigation of the Barguzin dialect of Buriat where the dorsal-zero alternation largely matches the previous descriptions (Sanžeev, 1941; Poppe, 1960; Sanžeev *et al.*, 1962). This abstract adopts an IPA transcription. Buriat /g/, both 'epenthetic' and underlying, varies allophonically with vowel harmony class of the word: dorsal [g] in front-vowel words and uvular [ɣ/ʁ] in back-vowel words. The dorsal-zero alternation is traditionally described as a general epenthesis process (Poppe, 1960) occurring between two bimoraic nuclei, illustrated in (1a). Hiatus with short vowels is resolved via vowel deletion (1b).

(1) Hiatus resolution in Buriat (under the insertion analysis)

- a. /bu:-A:r/ [bu:ɣa:r] 'rifle-INSTR'; /xʌlʲe:-A:/ [xʌlʲə:gə:] 'wait-IPF'
- b. /nabʃa-A:r/ [nabʃa:r] 'leaves-INSTR'

The dorsal-zero alternation is fairly general: it applies with the majority of /V:/-initial affixes both in Standard Buriat (Morley, 2015) and in the studied dialect, although there are a few exceptional suffixes, e.g. the accusative and the reflexive possessive.

However the existence of epenthetic dorsals goes against the emergence of the unmarked theory of epenthesis (Lombardi, 2002; de Lacy, 2006), since dorsals are assumed to be more marked than coronals and glottals. Furthermore, the reported dorsal epenthesis arguably involves a non-minimal perceptual change since vowel sequences are most similar to V-glide-V sequences (Delattre *et al.*, 1955; O'Connor *et al.*, 1957), and Buriat has glides. Thus dorsal epenthesis would be disfavored by the P-map learning bias (Hayes & White, 2015).

Indeed, de Lacy (2006) and de Lacy & Kingston (2013) argue that the alternations in (1a) can be analyzed as phonologically-conditioned suppletive allomorphy. To expand on this account, the relative generality of the alternation could be captured by postulating a floating /^g/ as part of the relevant suffixes. These *morphological accounts* maintain that the alternating dorsal is prespecified as part of the relevant affixes.

While both accounts capture the Buriat dorsal-zero alternation equally well, they make different predictions with respect to the generality of epenthesis. These predictions were tested in the present experimental study.

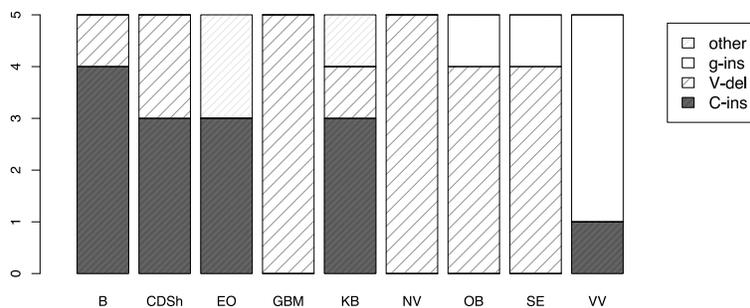
Method. The experiment involved teaching the participants a new affix /A:bA/ with an augmentative meaning. Phonologically similar affixes or native augmentatives are absent in Buriat. The phonological insertion account predicts that the new affix would trigger dorsal/uvular epenthesis when attached to native /V:/-final stems. However, on the morphological accounts no dorsal epenthesis is predicted, because the participants are given no

evidence to postulate a floating dorsal on the affix. According to the morphological accounts, the native data present no clear evidence of a general hiatus resolution strategy between two bimoraic nuclei. Hence the speakers are expected to either apply vowel deletion (the strategy applicable with short vowels) or perhaps to try and guess the floating segment that the new suffix might have.

At the training phase the participants were presented pairs of pictures representing the C-final stems with and without the new augmentative suffix. The stimuli were presented both orthographically and auditorily within the frame sentence 'This is X'. In the test phase, the participants were presented with pictures of objects, and asked to form the name of a corresponding big object (presented in a separate picture), using the new morpheme that they learned before. 7 C-final stems were interspersed with 5 stems ending in a long vowel or diphthong in the test phase. Importantly, many consonant-final nominal stems in the Buriat vocabulary end in /l,r/ and this tendency was also present in the stimuli. In total, 45 cases of potential hiatus resolution were recorded from 9 speakers of Barguzin Buriat (data from 2 additional speakers were discarded since the novel affix was not used).

Results. The participants understood the task and correctly applied the frontness harmony to the novel affix. The hiatus resolution strategies were usually consistent within each speaker.

(2) Hiatus resolution responses with the novel affix by speaker



Only one speaker (VV) consistently used dorsal insertion to resolve hiatus with the novel affix. Among the other speakers, the number of dorsal insertions was only two, not significantly different from zero (Fisher's exact test, $p=0.25$). The strategies used by other speakers were consistent with the predictions of morphological accounts. Four speakers mostly used vowel deletion and four other speakers tended to insert a non-dorsal consonant between the two vowels (coded as 'C-insertion' in (2)). The inserted non-dorsal consonants were [r] (two speakers), [l] (one speaker), and [b] (one speaker). The relevant affix most often occurred with /r, l/-final stems in the training data. Since Buriat has no geminate liquids, liquid insertion is consistent with the assumption that speakers were guessing the floating segment on the affix. Finally, all other responses consisted in inserting a CVC sequence.

Discussion. The results are suggestive of the morphological accounts for the Buriat dorsal-zero alternation. With the exception of speaker VV, the purported dorsal insertion was not employed with the novel affix. Instead the responses are consistent with a situation where all native bimoraic vowel sequences are resolved by morphologically restricted processes. The typical hiatus strategies were either vowel deletion or insertion of /r, l/, which could be postulated as a floating part of the novel affix based on the training data. These results are thus consistent with the view that dorsal consonants are marked (Lombardi, 2002; de Lacy, 2006) as well as with a learning bias against saltatory alternations (White, 2014; Hayes & White, 2015).