Patterns of (de)glottalization in Nivaclé


Nivaclé is the only Mataguayan language where laryngealization or creakiness in vowels has been reported as a contrastive feature. Specifically, Stell (1989:97) postulates a phonemic distinction between plain vowels /i e a o u/ and ‘glottalized’ vowels /iʔ eʔ aʔ oʔ uʔ/. As well, she treats the glottal stop as an independent consonantal phoneme in the language /ʔ/. In contrast, I argue that Nivaclé ‘glottalized vowels’ should be analyzed as underlying sequences of vowel-glottal stop /Vʔ/, where the glottal stop is specified only for constricted glottis ([c.g.]). This postulated /Vʔ/ sequence has two different surface realizations, depending on prosodic context: (i) rearticulated/creaky vowels, represented variably as [vʔ̩] (careful speech) ~ [y] (casual speech) (Figures 1 and 2, respectively) and (ii) vowel-glottal coda, represented as [Vʔ] (Figure 3). Note: all Figures represent the same speaker, male, FR.

What crucially differentiates the variant realizations in Figures 1 and 2 from the consistent [Vʔ] realization in Figure 3 is the prosodic context: if an immediately following consonant is parsed to coda position – e.g., [ʃ] in Fig. 1 and 2. – then the [c.g.] feature will be realized as a rearticulated vowel or as 'creak' in the adjacent vowel. If there is no following consonant, the [c.g.] will be parsed as a coda. There are two important consequences of this analysis. First, contra Stell, glottalized vowels are not phonemically contrastive. Secondly, the patterning of coda glottal stop is shown to be systematically related. Specifically, all three phonetic variants - rearticulated [vʔ̩], creaky [y], and [ʔ] coda - are underlyingly non-distinctive, their variant surface realization being dependent on prosodic parsing into the syllable.

Concomitantly, and based on the observation that glottalized vowels are consistently stressed in Nivaclé, I further propose that the [c.g.] feature is licensed by an underlying mora – coda consonants other than the glottal stop are not heavy. This mora can either attach to the nucleus of the syllable or to the syllable, in coda position (cf. Figure 4, below). Unifying these several properties, my proposal is that
Nivače glottalized vowels are underlyingly bimoraic and are licensed by the head of an iambic foot; the Nivače language has a quantity-sensitive stress system.

<table>
<thead>
<tr>
<th>rearticulated/creaky vowel</th>
<th>vowel-glottal coda</th>
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-āʔ [c.g.] - sāʔ jīāʔ

Figure 4. Prosodic representation of Nivacle glottalized vowels

The proposed analysis offers a principled explanation of two prosodic properties related to the distribution and characteristics of Nivače glottalized vowels. First, duration is a statistically significant acoustic property that differentiates glottalized from modal vowels in Nivače; the non-modal vowels are (almost) twice as long as their modal counterparts. A one-sided t-test confirmed that the glottalized vowels (M=186, SD=34) were longer than the modal vowels [M=80, SD=21; t(56.33)=15.4, p<0.001]. Second, glottalized vowels consistently deglottalize, that is, they lose their [c.g.] feature (and thus shorten) in unstressed/non-head position. In the alienable nominal data in (1)-(3), iambic feet are formed from the rightmost edge. Whereas [c.g.] is licensed by stress in the final syllables in the (a) forms, the underlying [c.g.] feature is lost in the (b) forms where primary stress has shifted rightward.

1) a. k’utsáx  
   ‘lier’
   b. k’utsax[ī]s  
   ‘lier-PL’
   c. *k’utsxág.x[ī]s/ k’utsá.x[ī]s
   ‘liers’

2) a. t’aklōk  
   ‘weeds’
   b. t’aklōk- tôat  
   ‘a bunch of weeds/scrubland’
   c. *t’aklōk-tōat/ t’aklōk-tōat
   ‘weeds-COL’

3) a. jekl̊d̊ʔ  
   ‘wood’
   b. jekl̊-nīl  
   ‘made of wood’
   c. * jekl̊d̊ʔ-nīl / jekl̊d̊ʔ-nīl
   ‘made of wood’

In sum, the proposed analysis of Nivače glottalized vowels as underlying /vʔ/, where [c.g.] is licensed by a mora, carries theoretical implications on the role of syllable-internal constituency.

Selected references