

Glottalized lateral in Rikvani Andi: an acoustic study

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Glottalized sonorants are a cross-linguistically rare sound type. In Maddieson's (Maddieson 2013) sample, only 31 out of 567 languages have glottalized sonorants in their consonantal inventories. Languages of the Caucasus are known to use glottalization in consonant production (Catford 1977, Comrie 2008, Grawunder 2017), but the glottalized lateral /lʔ/ in the Rikvani dialect of Andi (Andic, East Caucasian) is, to the best of our present knowledge, the only glottalized sonorant attested in the Caucasus. The sound is the only glottalized sonorant in the inventory, which is cross-linguistically uncommon. Historically, the sound results from decomposition of the proto-Avar-Andic weak (non-geminate as opposed to geminate) ejective lateral into a lateral with a glottal gesture.

The aim of this study is to place the sound within the parametric space of cross-linguistic variation of glottalized sonorants. We observe and confirm the importance of all the cues previously discussed, including creaky voice (aperiodicity) and intensity (amplitude), similarly to what was suggested by Plauché et al (1998) for Coatlàn-Loxicha Zapotec and Yowlumne; duration, as observed for Nuuchahnulth (Nootka) by Esling et al (2005) and for Yapese by Maddieson and Larson (2002); and spectral tilt, as suggested for glottalized vowels by Gordon and Ladefoged (2001). As opposed to most data in previous research, we use both productions of recorded word lists and spontaneous texts, which provide a more detailed account of variation in acoustic cues. The differences seem to decrease in free narratives, which we take as an indication of a loss in progress.

We consider previous generalizations that suggest that glottalized sonorants show a preference for pre-glottalization in general (Sapir 1938) or in the onset of a syllable (e.g. Um 2001), with a functional explanation suggested by Plauché et al (1998), following Silverman (1995). In order to test this expectation, we annotated glottal pulses within each vowel-lateral-vowel segment to locate the longest interval between two consecutive glottal pulses as a proxy to the strongest glottal constriction. In Fig. 1, the positions of these intervals within each vowel-lateral-vowel segment and their duration are shown in milliseconds. The x-axis in the figures shows normalized timing of the sounds, where [0; 1] corresponds to a lateral. Fig. 1 shows that creak (the dot hovers high over the horizontal dashed line showing the 'threshold' calculated as the average maximum interval for the modal laterals in the same speaker), present in some though not all speakers, almost disappears in free narratives. In terms of timing of glottalization, contrary to the expectations based on cross-linguistic evidence, the syllable-initial glottalized lateral in Andi tends to be mid- to (rarely) post-glottalized. Indeed, where the creak is present, the dot tends to fall in between the two vertical dotted lines showing the middle section of the lateral.

We discuss two possible motivations for this apparent mis-behavior, one systemic and one diachronic, that may in fact co-operate to produce this deviation.

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Appendix.

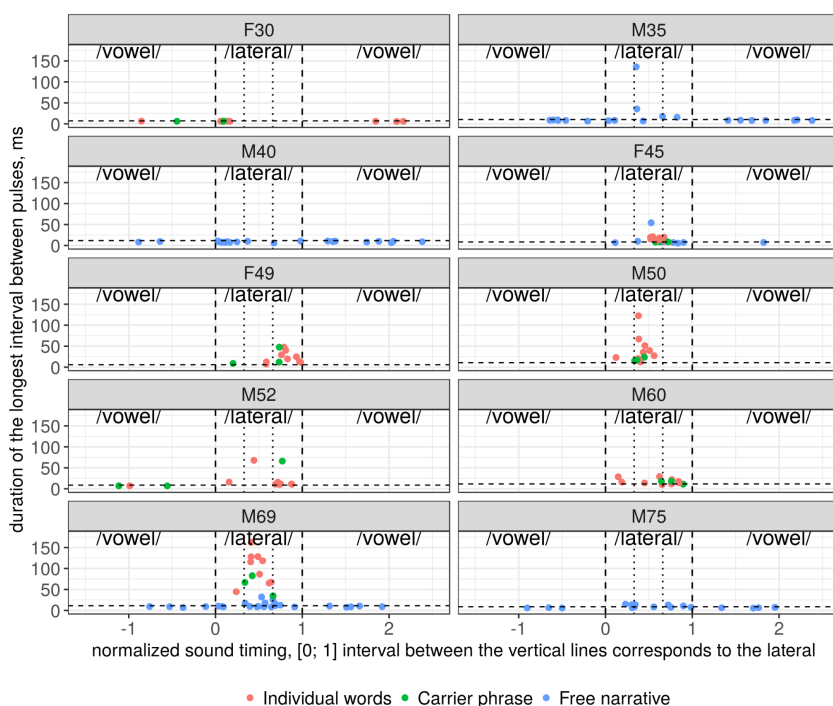


Fig. 1. Timing of the longest interval between glottal pulses for the glottalized lateral