

Variation in Ejective Stops in Harar Oromo

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Acoustic studies on ejectives have yielded inconsistent results, so that it is still unclear how systematically their acoustic characteristics define them cross-linguistically. Kingston (1985) proposed a two-way typological classification system of stiff and slack ejectives based on differences in measurements of voice onset time (VOT), burst amplitude, and F0 perturbation, jitter perturbation, and rise time in intensity of the following vowel.

However, more recent studies have found this dichotomy to be problematic. Warner (1996) compared six acoustic measurements of ejectives in Ingush with 4 other languages, to find that no two languages patterned the same. Further studies have shown that even within a single language, ejectives differ in whether they would be traditionally classified as stiff or slack. Wright et al. (2002) found inter-speaker variation in the acoustic characteristics of the Witsuwit'en ejectives, suggesting that different speakers employ different strategies to differentiate ejectives from plosives. Vicenik (2010) also found variation in the acoustic characteristics of Georgian ejectives: intra-speaker, positional variation due to syntagmatic strengthening of consonants in higher prosodic positions. This brings yet another aspect into the complexities of describing ejective consonants.

Based on these findings, this paper investigates the acoustic characteristics of ejectives and their pulmonic counterparts in Harar Oromo, a Cushitic language. It hypothesizes that Oromo ejectives are distinguished from plosives by a combination of the acoustic characteristics that differentiate the two laryngeal types in other languages. It also hypothesizes that, following Wright et al. (2002) and Vicenik (2010), the characteristics will show variation across speakers and word-positions.

To test this hypothesis, acoustic analysis of word-initial and word-medial bilabial, dental, and velar ejective, aspirated, and voiced stops of eight speakers of Eastern Oromo is being done. Measurements of the consonants' VOT, closure duration, and burst amplitude are being made as well as measurements of F0 perturbation, rise time, and jitter perturbation of the consonants' following vowels.

Preliminary results indicated that, overall, VOT significantly differentiates ejective, aspirated, and voiced stops. Ejectives had the longest VOT, followed by aspirated stops, then voiced stops, which have negative VOT. Consistent with Vicenik (2010), positional variation was also apparent in VOT, with word-initial stops having greater VOT. Rise time results did not significantly differentiate the stops' laryngeal type, but did show significant positional variation. The intensity of the vowels following the stops rose more slowly word-initially than word-medially. F0 perturbation was also measured and results indicated that pitch was significantly higher following ejectives than following voiced and aspirated stops, despite Oromo using tone for grammatical purposes. Results for burst amplitude and jitter perturbation are forthcoming, as are more detailed statistical analyses for each measurement for individual speakers.

The results of this study provide detailed phonetic descriptions of consonants in Harar Oromo, which did not previously exist for the language. These data also contribute to the typology of ejectives by helping us understand what sort of cross-linguistic and intra-language variation exists in the acoustic characteristics that differentiate ejective from pulmonic stops so that a more refined account of ejectives can be devised.

References

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