

Perception of ejectives in L1 and L2 speakers of Hul'q'umi'num'

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This study reports on an experiment which tests whether first (L1) and second (L2) language speakers of Hul'q'umi'num', a Salish language of British Columbia, Canada, use the same acoustic information as cues to the plain (e.g. /t/) and ejective (e.g. /t'/) stop contrast in their language, as differences are predicted based on production (Percival & Bird, 2018).

Participants were 7 Elders (L1) and 19 learners (L2) of Hul'q'umi'num'. Note that participant groups were not balanced since this was not possible as the language has only about 25 L1 speakers, all older than 65. Participants' task was to listen to sets of Hul'q'umi'num' words which differed only in one sound: a plain versus an ejective stop (e.g., *qulum'* 'eye' vs. *q'ulum'* 'to camp') and to decide which word they heard. Different acoustic features associated with the stops were manipulated in Praat (Boersma & Weenink, 2023) following Percival (2024) to see what information listeners paid most attention to in identifying the sounds. These manipulations were made based on acoustic characteristics of ejective and plain stops in Hul'q'umi'num' (Percival, 2019) and of ejective stops cross-linguistically (Kingston, 1985) and consisted of: presence versus absence of aspiration and silence during the release, release duration, baseline ejective versus baseline plain stop burst, burst intensity, baseline ejective versus baseline plain following vowel, and following vowel onset F0. Percents of ejective response were compared across different levels of each manipulation using logistic mixed effects regression modelling in R (R Core Team, 2017-2024).

Differences in cue use were found in L2 compared to L1 listeners. The primary cue to ejectives for L1 listeners was found to be the period of silence in the ejective release regardless of how short it was. L2 listeners, on the other hand, were also found to rely on the duration of the silence, not just its actual presence, suggesting that learners may have difficulty hearing silence unless it is very long and so more noticeable. Ejective baseline bursts, higher intensity bursts, and ejective baseline vowels were found to be secondary cues to ejectives. However, L2 speakers were not as sensitive to the baseline vowels as L1 speakers, suggesting that they are less sensitive to how vowels following ejectives can take on a different voice quality compared to the vowels following non-ejective stops and so provide coarticulatory information as to which type of stop is present. These results mirror production differences reported between L1 and L2 speakers of Hul'q'umi'num' (Percival & Bird, 2018), where L2 speakers produced vowels following stops without significant differences in correlates of voice quality at the vowels onsets. Production results also indicated that both L2 learners and their L1 teachers produce ejectives with a long release duration, something that is nonetheless not universally present in L1 ejectives (Percival, 2024). It is possible that L2 speakers being mainly exposed to a hyperarticulated speech style associated with classroom settings has resulted in them being more sensitive to cues associated with hyperarticulated ejectives and less so to cues associated with variant productions.

References

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