

Measuring the VOT of Blackfoot oral stops

Background

The IPA-based standard orthography for Blackfoot (Frantz 1978, 1993, 2017) contains several letters that are counterintuitive for speakers and learners whose literacy intuitions are based on English, complicating L2 Blackfoot learning and community acceptance of the orthography (Genee 2020). In this paper we address the oral stops /p t k/. In environments where English oral stops would be aspirated, Blackfoot oral stops are often perceived as /b, d, g/ and accordingly written as <b/bh, d/dh, g/gh>, as in *bee dah ghee* for *piitaakii* /pi:ta:ki/ 'eagle woman'. As a result of such spellings, L2 learners often produce oral stops that, according to fluent speakers, "sound more English than Blackfoot." This study provides an acoustic analysis of Blackfoot oral stops in order to have a firmer basis for pronunciation training.

Research questions

- What are mean VOT values of /p t k/ in the speech of fluent Blackfoot speakers in relevant phonetic environments?
- How do Blackfoot VOT values compare with the usual VOT of English oral stops?
- Do Blackfoot VOT patterns vary with speakers' demographics?

Methods

18 fluent speakers of Kainai and Siksika Blackfoot performed picture naming and translation tasks to elicit non-geminate oral stops in word-initial and word-medial positions followed by short stressed and unstressed, and long stressed and unstressed monophthongs. VOT values were extracted using Praat (Boersma & Weenink) by measuring the distance between the burst and the voice onset.

Preliminary results

- Mean VOT values for Blackfoot oral stops were found to be in the range intermediate between the corresponding VOT ranges for voiced and voiceless stops in English.
- A linear mixed effects model showed a significant effect for target, the following vowel, the stress pattern and the length of the following vowel.
- A negative correlation was found between the VOT values of word-initial /t/ and speakers' age.

References

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