1. Introduction

- Acoustic, aerodynamic, and articulatory data on final ejectivization in Eastern Armenian.
- The voiceless unaspirated stops are pronounced as ejectives in the word-final position (V_#).
- Ejectivization acts as a type of phonetic enhancement.

2. Background

- What is Eastern Armenian?
  - Armenian is an Indo-European language. It forms a separate branch in the IE family, with two standardized varieties (Western and Eastern) that differ in the laryngeal contrasts of stops and affricates [Adj09; [Vau88]; [Bar17]; [Kha96]; [Fle99].
  - Unlike Western, Eastern Armenian has a three-way contrast between voiced, voiceless unaspirated, and voiceless aspirated stops [Joh54; [Vau88]; [Lon96]; [Lon98]; [Lon99]; [Lon01].

- Phonological and phonetic studies that report ejectivization for word-final voiceless unaspirated stops [FS75; [Kha96]; [Fle99].
- Word-final voiceless unaspirated stops can undergo ejectivization and become ‘slightly ejective’ [LM96] in Armenian.
- Such ejectivization as the use of laryngeal movement during the production of stops.
- For example, the word հայրենի երրորդ = 'father' is typically pronounced with a word-final voiceless unaspirated stop [k]: k’a’t’ik.
- However, some speakers produce an ejective instead of a final voiceless pulmonic stop: k’at’ik.
- Unclear how widespread is the use of final ejectivization in EA.
- Some had participants who consistently used ejectivization [Ami17], never used ejectivization [Ami17], or a subset variably did [LM96, page 87].

3. Methodology

- Stimuli:
  - Speakers: 3 native speakers of EA, (age range 25-38, 2 from Armenia, 1 from Iran).
  - Speech: A word list of 51 words. Words were uttered in isolation without any carrier phrase or sentence.
  - Procedure: Each word had one or more of the following target stops: /p, t, k, s, t#, k#, b, d, g/. The stops were in different syllable positions.

- To get articulatory data, we used electroglottography (EGG) and EVA2 to get the aerodynamic data.

4. Results

VOT Results:

- All of the V_# tokens were ejectives. In all three syllabic positions, the VOT measurements were as expected (negative, zero and positive). Our stimuli lacked cases of word-final voiced stops.
- All three speakers pronounced word-final voiceless unaspirates as ejectivized or as ejectives.
- Below, the acoustic realization of the ejectivized /k/ in word final context.

5. Conclusion

- Eastern Armenian has a 3-way laryngeal contrast between voiced, voiceless unaspirated, and voiceless aspirated stops.
- Word-final ejectivization of voiceless unaspirated stops is a fortition process.
  - Glottal closure exists during the articulation of these final voiceless unaspirates.
  - The ejctivized stops have noise during release, and the amount of air flow is not great.
  - From an articulatory point of view, the glottis is closed during the production of these stops, thus triggering ejctivization.

- The ejctivized consonants are extensions of the voiceless unaspirated consonants.
- Simultaneously from an acoustic angle, the ejctivized consonants [p’, t’, k’, f’, s’, z’] are in contrast with their aspirated counterparts [p’, t’, k’, f’, s’, z’] in the word-final position.

References


