

Phonetic interference in the production of stops by Western Armenian bilinguals
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Background: Armenian is a relatively understudied language that constitutes an independent branch of the Indo-European language family. It has two standard dialects today: Western Armenian is spoken mainly in the diaspora (WA); while its counterpart, Eastern Armenian, is mainly spoken in Armenia, Russia, and Iran (EA). The most salient differences between the production of WA and EA primarily include laryngeal contrasts in stops and affricates. EA traditionally has a 3-way laryngeal contrast in stops and affricates (voiced vs. voiceless vs. voiceless aspirated), while WA has a 2-way contrast (voiced vs. voiceless aspirated) [1,2]. Voice onset time (VOT) is an established acoustic property that distinguishes the laryngeal contrasts in different languages [3,4]. Bilingual speakers have shown that they produce language-specific VOT differences in voicing, even if they sound like monolinguals [5]. While VOT is a property distinguishing how L1 and L2 can phonetically interfere with one another, the degree and direction of the interference is not always the same for each bilingual population [6].

Research questions: The present study aimed to investigate VOT differences in the stops produced by Western Armenian simultaneous bilinguals raised in Canada (L2 English; short lag vs. long lag VOT) and Lebanon (L2 Arabic; lead vs. short lag VOT), and how each L2 could influence the VOT of WA, in unilingual and code-switching conditions.

Methods: In a reading task, a total of thirty participants produced word-initial stops /t^h,d,k^h,g/ followed by the low vowel /a/. Target words were read in carrier phrases in initial and medial positions, in unilingual and code-switching conditions (e.g. reading an Armenian target word in an English carrier phrase or vice versa).

Results: Armenian-English bilinguals ($n = 13$) showed some VOT differences between the unilingual conditions – a higher long lag VOT for voiceless stops in English than Armenian and a similar long negative VOT for voiced stops in English and Armenian. Armenian-Arabic bilinguals ($n = 17$) did not show significant voicing differences between their L1 and L2 – producing a contrast between lead and short lag in both languages (as shown in Table 1). Importantly, in code-switching conditions, Armenian-English bilinguals produced no significant shifts in VOT, despite showing a tendency towards higher voiceless VOT in English contexts. Some limited statistically significant differences between code-switching conditions were observed (~ 3ms difference, $p < .05$) for Armenian-Arabic bilinguals, though those results must be treated cautiously.

Table 1. Mean VOT (ms) in Western Armenian bilinguals – unilingual conditions

	<i>Arabic</i>	<i>WA (Lebanon)</i>	<i>WA (Canada)</i>	<i>English</i>
<i>Vd. stops</i>	-70	-99	-94	-76
<i>Vls. asp. stops</i>	+31	+40	+73	+96

Conclusion: These results addressed that the degree of phonetic contrast between L1 and L2 affects the realization of phonetic interference – leading to different patterns in the two Western Armenian bilingual groups – and that phonetic interference does not always occur in the speech of simultaneous bilinguals. Importantly, in WA bilinguals who code-switch, the influence of English might be more evident than the influence of Arabic, since WA spoken in Canada and English are phonetically different, while WA spoken in Lebanon and Arabic are not.

References

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