The vowel spaces of Southern Californian English and Mexican Spanish as produced by monolinguals and bilinguals

Criccely Grijalva¹, Page Piccinini¹ & Amalia Arvaniti¹,²

¹Department of Linguistics, University of California, San Diego
²Department of English Language and Linguistics, University of Kent

I. Introduction

BACKGROUND

- The investigation of vowel quality across the US has often not taken into account of dialectal variation focusing instead on "General American English" (e.g. Peterson & Barney, 1952; Hillenbrand et al, 1995).
- Research on vowel quality in parts of the US, especially the West, is rare; e.g. Hagiwara (1997) on Southern Californian English.
- Research is also lacking on the vowel spaces of other languages spoken in the US, such as Spanish, as work has focused on standard varieties (e.g. Castilian Spanish; Bradlow, 1995).

AIMS OF THE PRESENT STUDY

- To investigate the vowel spaces of Southern Californian English (henceforth SoCal English) and Mexican Spanish as spoken in the Tijuana-San Diego border (henceforth Border Spanish).
- To investigate differences between monolingual and bilingual speakers of the same languages.

II. Experimental Methods

MATERIALS

- Speakers were recorded reading a list of words as embedded in carrier phrases in Spanish and English.
- In English the words were bead, bid, bade, bad, bud, bod, bawd, boed, bird; in Spanish piso, peso, poso, poso, posu.
- The carrier phrase in English was "Say ___ more time"; in Spanish "Repite ___ con cuidado".

SPEAKERS

- 5 female and 5 male (N = 10) monolingual Southern Californian English speakers recording the English materials
- 5 female and 3 male (N = 8) monolingual Border Spanish speakers recording the Spanish materials
- 5 female and 5 male (N = 10) early English-Spanish bilinguals speaking the same dialects as the monolingual speakers and recording both English and Spanish materials

ACOUSTIC MEASUREMENTS

- F1, F2 and vowel durations extracted using Praat
- Formant values were normalized using the Lobanov Method in (1) Lobanov, 1971; Wikström, 2013.

(1) F\textsubscript{normal} = (F\textsubscript{original} - MEAN\textsubscript{N}) / S\textsubscript{N}

III. Results: English vs Spanish

- Monolingual Speakers’ Vowels: Averages and Standard Deviations
- Bilingual Speakers’ Vowels: Averages and Standard Deviations

F1: F1 was higher for at Spanish vowels
F2: F2 was lower for Spanish [i, e, u], but higher for Spanish /a/
Duration: Spanish vowels were shorter

Figure 1(a) and (b)

F1: F1 was higher for Spanish [a] for English vowels
F2: F2 was lower for Spanish [e, o, u], but higher for Spanish [a]
Duration: Spanish vowels were shorter

Figure 2(a) and (b)

IV. Results: Monolinguals vs Bilinguals

- English Vowels: Averages and Standard Deviations
- Spanish Vowels: Averages and Standard Deviations

F1: F1 was higher for bilinguals for English [i, e, u]
F2: F2 was lower for bilinguals for English [i, u], but lower for bilinguals for English [a]
Duration: No significant differences.

Figure 3

F1: F1 was lower for bilinguals for Spanish [a, o]
F2: F2 was lower for bilinguals for Spanish [i]
Duration: No significant difference.

Figure 4

Figure 5

Many SoCal English vowels are more fronted than General American English vowels [i, e, a, o, u], but [i, e, a, o, u] are also higher. Vowels in the present study are also less backed than past work on Southern Californian English for [o, u].

Border and Castilian Spanish show similar qualities for the front vowel. However, back vowels [o] and [u] are backed in Border Spanish compared to Castilian Spanish, while [a] is lower.

Figure 6

VI. Conclusion

- Border Spanish and SoCal English vowels remain distinct and showed different qualities than those based on standard varieties of these languages.
- In some cases bilinguals produced vowels differently than monolinguals. Whenever bilinguals’ productions differed from those of monolinguals the differences were due to bilinguals producing vowels with qualities closer to that of their other language. For example, when bilinguals produced [e] lower, it was due to Spanish being lower as compared to English.
- Despite bilinguals moving more towards the other language, bilinguals were still able to maintain separate vowel categories across languages.

VII. References


VIII. Acknowledgements

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