SWITCHING IN WH- QUESTION: INTONATIONAL CONVERGENCE IN LANGUAGE MIXING PRODUCTION

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CODE-SWITCHING PRODUCTION

- Code-switching (CS) is the linguistic phenomenon when more than one language is used in one utterance.
- In comparison to a monolingual discourse, it is reported in a line of studies that more complex processes are involved the production, recognition and comprehension of CS utterances.

CODE-SWITCHING PRODUCTION

- Grainger and Beauvillain's study (1987) performance costs was reported in their lexical decision task when bilingual participants are involved in switching languages when recognizing lexical items.
- Soares & Grosjean (1984) reported the bilingual speakers who can perform similar to monolinguals in monolingual context still showed a slower lexicon access in the bilingual speech.

CODE-SWITCHING PRODUCTION

- Some studies reported opposite results suggesting that there's no difference between phonetic productions in monolingual versus code-switching utterances (Grosjean & Miller, 1994).
- Fricke, Kroll and Dussias (2016) report subtle shifts in voice onset time (VOT) before English-to-Spanish code-switches.

CODE-SWITCHING PRODUCTION

- Piccinini and Garellek (2014) report subtle shifts in intonation prior to code-switches in either direction.
- They further found that bilingual listeners use shifts in VOT and intonation as cues to anticipate code-switches. Phonetic cues to upcoming code-switches ('code-switching pronunciation') may thus mitigate switch cost.

3 MECHANISMS

- 'Blending' mechanism: code-switching pronunciation might represent a blend of the phonetic features of both languages (Grosjean, 2012; Olson, 2013): the matrix language may come to sound more like the switch language, or vice versa. For example, Piccinini and Garellek (2014) observed that stressed syllable pitch patterns in Spanish/ English code-switched contexts were intermediate between those observed in unilingual contexts in either language.
- 'Preparation' mechanism: code-switching pronunciation might reflect articulatory gestures that are preparatory to the production of a specific code-switched target.
- A third possibility is that code-switching pronunciation might reflect global cognitive costs of code-switching: if code-switching incurs a processing cost for the speaker, that increased processing load might cause an overall slowed speaking rate, for example.

WH- QUESTION IN ENGLISH VS IN SPANISH

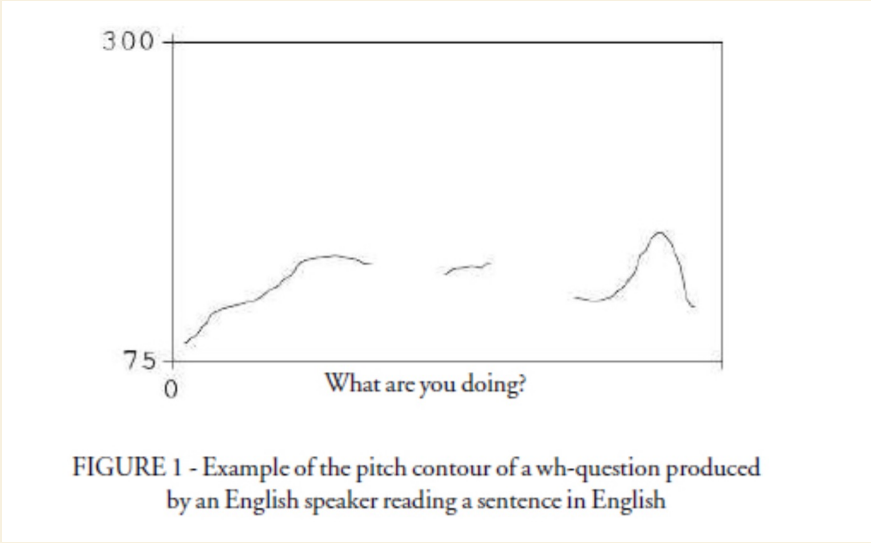
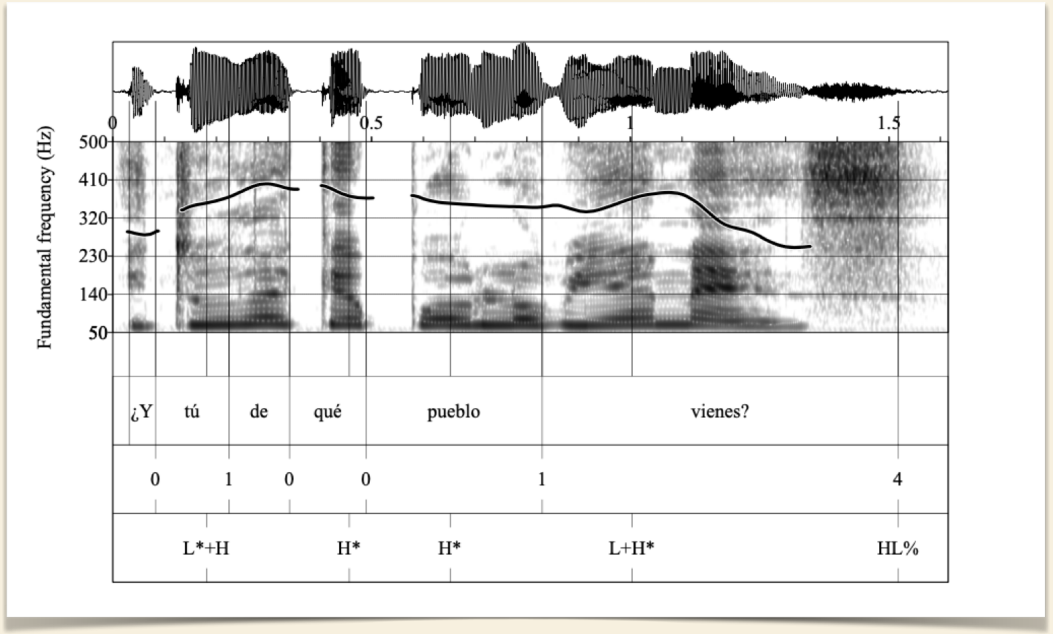


FIGURE 1 - Example of the pitch contour of a wh-question produced by an English speaker reading a sentence in English



INTONATIONAL CHANGE IN ENGLISH AND SPANISH

- Since Spanish is a language with a narrow variation in intonation, English learners may tend to transfer their pitch patterns into English, resulting in a “flat” sound (Celce-Murcia et al., 1996).
- In Bowen’s study (1956), it was suggested that Spanish speakers reading utterances in English will negatively transfer the intonation patterns of their L1, for example, a Spanish emphatic sentence, such as "he does eat pasta" (El sí come pasta).

INTONATIONAL CHANGE IN ENGLISH AND SPANISH

- Farías in her production study (2013) tested' tag questions, wh-questions, inverted questions, and repetition questions among native English speakers and ESL Spanish speakers (Chile, Venezuela, Peru, and Ecuador).
- More than half (66%) of the L1 Spanish speakers: falling contour.
- Spanish wh-questions: tend to end with rising intonation, as opposed to the falling contour given by the Spanish speakers to English sentences.
- Mean pitch: 180Hz when they are producing English target items and 143Hz in Spanish.

INTONATIONAL CHANGE IN ENGLISH AND SPANISH

- In Piccinini & Garellek's (2014) study, they analyzed the code-switched sentences' intonational contour as a whole and showed that the intonation of the whole CS sentence was different from the unilingual utterances.
- Olsen (2012) reported that insertional code-switched tokens are produced with a degree of hyper-articulation, evidenced by an increase in pitch height and duration.

RQ

- How Mexican Spanish heritage Speakers in USA produce code-switched wh-questions that started in English and ends in Spanish in a bilingual context ?
- F0 contour?
- Matrix part?
- Embedded part?

HYPOTHESIS

- The F0 contour of the whole CS sentence will go through some change.
- Matrix language (English) will be affected by the embedded language (Spanish), resulting in a flatter F0 contour.
- The switched item will show a more salient rising-falling contour as in matrix language's intonation pattern rather than the relatively flatter one in Mexican Spanish (De la Mota, Butragueño, & Prieto, 2010).

METHODOLOGY

- Read out task (Farías, 2013)
- Heritage speakers of Spanish, randomly divided into 2 groups
- Acquisition of both language before age of 6

METHODOLOGY

- Material: unilingual EN, unilingual ES, bilingual EN-ES
- 10 sentences each type, embedded in a context
- Single word CS, 5 sentences types
- What-Qué Who-Quién Where- Dónde How-Cómo When-Cuándo

RESULT ANALYSIS

- The mean F0
- The normalized stressed syllables F0 contour
- The normalized whole sentence F0 contour

(Piccinini & Garellek, 2014)

RESULT ANALYSIS

- The normalized stressed syllables F0 contour
- F0 values were taken at 5% increments, starting at 0% into the stressed syllable up to 100%, resulting in a total of 21 measurements per stressed syllable.
- The first stressed syllable (and thus, first pitch accent) in the Intonation Phrase
- Intonation Phrase-medial stressed syllable
- Final stressed syllable (i.e., the nuclear-pitch-accent syllable) in an intermediate phrase (and thus, also the Intonation Phrase)

RESULT ANALYSIS

- The normalized whole sentence F0 contour
- F0 values were extracted at 1% increments, starting at 0% into the sentence up to 100% into the sentence, resulting in a total of 101 measurements per sentence.
- Whole sentence
- Matrix part
- Embedded part

PREDICTION

- CS utterances mean pitch: in between the English and the Spanish
- F0 contour of the whole sentence: midground of English and Spanish
- Each part of the CS utterances:
- the mean F0 and F0 contour of the matrix language and the embedded language will be drawn towards each other.
- i.e. flatter flatter English and curvier Spanish

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