

1) Overview

Question:

Has the prosody (rhythm and pitch) of Miami English been influenced by heavy Spanish contact in Miami?

- Miami is 65.6% Hispanic (U.S. Census, 2013)

Result:

Miami English monolingual speech has

- (1) a greater proportion of vocalic intervals (%V)
- (2) a lower f_0 range and standard deviation than non-Miami English. Parent language and neighborhood demographics are influencing factors.

Conclusion:

Miami English monolingual prosody has been influenced by heavy Spanish contact.

2) Participants & Task

10 participants (ages 18-30) of each:

- **IEM** (Ithaca English Monolingual)
Ithaca is 6.9% Hispanic (U.S. Census, 2013)
- **MEM** (Miami English Monolingual)
Speaks only English; from Miami
- **EB** (Early Spanish-English Bilingual)
Learned English before age 10; from Miami
- **LB** (Late Spanish-English Bilingual)
Learned English after age 10; born outside Miami



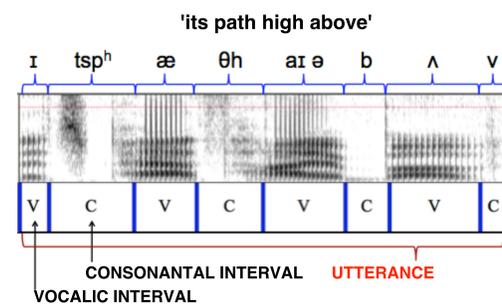
Participants read "The Rainbow Passage" and completed a language background questionnaire.

3) Analysis

Recordings were segmented into C, V intervals (Ramus et al., 1999).

New utterances began after a 200+ms pause (Butterworth, 1980).

The proportion of V intervals (%V) and standard deviation of C intervals (ΔC) of each utterance were calculated (Ramus et al., 1999).

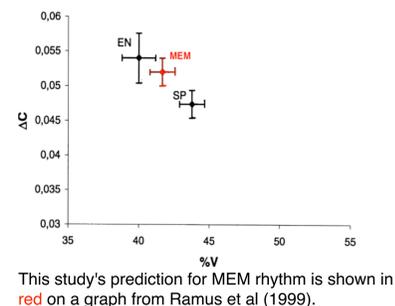


Pitch contours were obtained using RAPT algorithm (Talkin, 1995), implemented in Voicebox toolbox (Brookes, 1997) for MATLAB.

4) Hypotheses

Hypothesis 1: Miami English prosody has been influenced by heavy Spanish contact.

Prediction 1a - Rhythm:



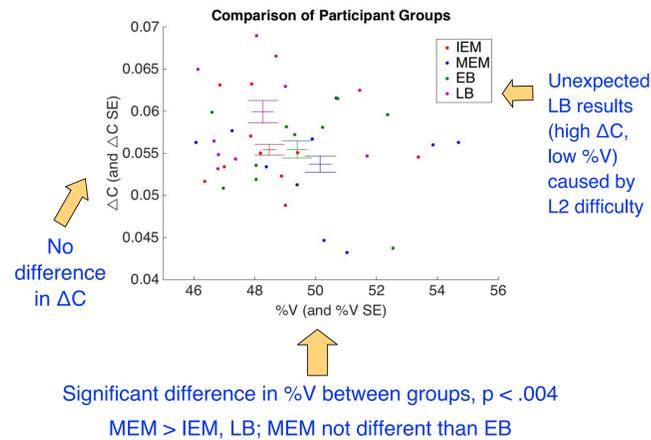
Prediction 1b - Pitch: (cf Kelm, 1995)
 f_0 range & standard deviation: MEM < IEM

Hypothesis 2: More Spanish-like prosody in speech of MEMs and EBs with greater Spanish input (parent language, neighborhood demographics)

Prediction 2: MEMs and EBs with greater Spanish input will have higher %V, lower ΔC .

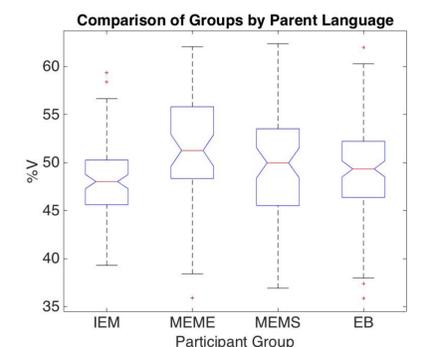
5) MEMs have Spanish-like rhythm

Participant groups differ in %V



MEMs with English-speaking parents have higher %V

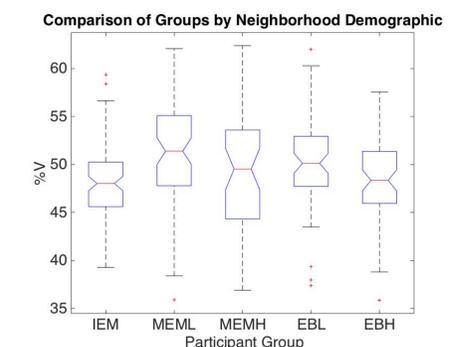
MEME: English-speaking parents MEMS: Spanish-speaking parents



MEME > IEM, $p = .000$ MEME > EB, $p = .011$
No difference in MEME & MEMS

MEMs, EBs from area <50% Hispanic have higher %V

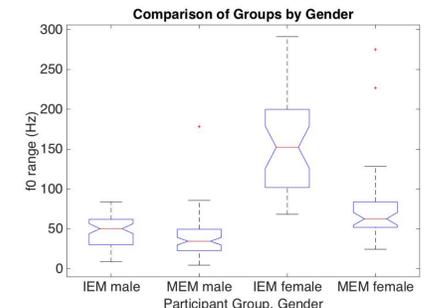
MEMH: high (>50%) Hispanic MEML: low (<50%) Hispanic



MEML > IEM, $p = .000$ EBL > IEM, $p = .007$
MEML > MEMH, $p = .062$ EBL > EBH, $p = .035$
MEML > EBH, $p = .001$

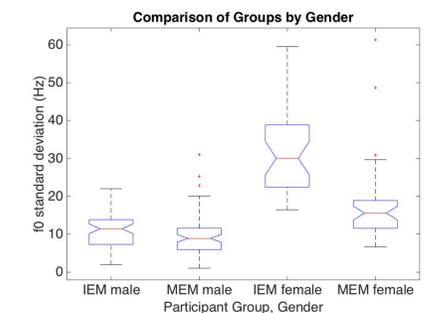
6) and Spanish/bilingual-like pitch

MEMs have a lower f_0 range



MEM female < IEM female, $p = .000$
MEM male < IEM male, $p = .036$

MEMs have a lower f_0 standard deviation



MEM female < IEM female, $p = .000$

7) Conclusions

MEM rhythm has Spanish characteristics.

MEM %V > IEM %V
MEM %V is similar to EB %V

MEM pitch has Spanish-English bilingual characteristics.

MEM f_0 range & standard deviation < IEM

MEM speech is becoming more like the surrounding, diverse speech community, differing from parents' speech (supporting Labov, 2014; Celata & Calamai, 2014).

MEMs and EBs with less Spanish input (MEME, MEML, EBL) are leading trend, with a higher %V.

SPANISH-INFLUENCED RHYTHM IN MIAMI ENGLISH

Naomi Enzinna

Cornell University
nre23@cornell.edu

<http://conf.ling.cornell.edu/nenzinna/>

This study found that monolingual English speakers from Miami speak a variety of English influenced by Spanish. Anecdotally, several news organizations (the Sun Sentinel, the Miami Herald, etc.) noted this variety in 2013 without empirical evidence to support their claims. In this study, read and spontaneous speech from Miami English Monolinguals (MEMs), Ithaca English Monolinguals (IEMs), and Early and Late Spanish-English Bilinguals (EB, LB) were collected, and rhythm metrics (Ramus et al., 1999) were compared between groups. Surprisingly, results suggest that MEMs with English-speaking parents (MEME) and from neighborhoods with a lower Hispanic population (MEML)—who likely have less direct contact with Spanish than MEMs with Spanish-speaking parents (MEMS) or from neighborhoods with a higher Hispanic population (MEMH)—may be leading this change. These results support Labov’s (2014) claim that children may reject features of their parent language (in this case, English) when the speech community is highly stratified.

In this study, 10 IEM, MEM, EB, and LB participants were recorded reading “A Rainbow Passage.” The recordings were analyzed for the proportion of vocalic intervals (%V) and the standard deviation of consonantal intervals (ΔC) (Ramus et al., 1999). According to these measures, English has a lower %V than Spanish, due to vowel reduction, and a greater ΔC than Spanish, due to greater syllable structure variation. I predicted that MEMs’ %V and ΔC would fall between English and Spanish.

Analyses of %V and ΔC show MEMs have a greater %V than IEMs ($p < .004$) but do not differ from EBs. These results suggest that MEMs’ %V is similar to that of EB speech. For all groups, there is no difference in ΔC . Regarding parent language, MEMEs have a greater %V than IEMs ($p < .000$), but MEMSs do not. Regarding neighborhood demographics, MEMLs have a greater %V than IEMs ($p < .062$), but MEMHs do not. These results suggest that MEMs with less Spanish contact are leading this trend.

Additionally, follow-up analyses of pitch show that IEMs have a greater f_0 standard deviation and range than MEMs. These results suggest that MEMs’ pitch is similar to that of Spanish-English bilingual speech because English has a greater f_0 standard deviation than Spanish, and native English speakers have a greater f_0 range than non-native English speakers (Kelm, 1995).

Miami is 65.6% Hispanic, and Spanish-speakers hold high social, economical, and political positions in Miami (U.S. Census, 2014; Lynch, 2000). This study argues that frequent contact between English and Spanish speakers in Miami, as well as the social prominence of Spanish, is causing Miami English to acquire Spanish-influenced prosodic properties. Further, it sheds light on how language contact can influence prosody in diverse speech communities.

Abbrev.	Participant Group	Description
EB	Early Spanish-English Bilingual	Lived in Miami majority of life; speaks Spanish, English; learned English before age 10
IEM	Ithaca English Monolingual	Lived in Ithaca 10+ years, speaks English, represents English monolingual group with low Spanish contact
LB	Late Spanish-English Bilingual	Born outside USA; speaks Spanish, English; learned English after age 10
MEM	Miami English Monolingual	Lived in Miami majority of life, speaks English
MEME	with English-speaking parents	Parents speak English
MEMS	with Spanish-speaking parents	Parents speak Spanish
MEMH	from high Hispanic population area	Miami neighborhood > 50% Hispanic
MEML	from low Hispanic population area	Miami neighborhood < 50% Hispanic

REFERENCES

- Arvaniti, A. (2012). The usefulness of metrics in the quantification of speech rhythm. *Journal of Phonetics*, 40(3):351 – 373.
- Carter, P. M. (2005). Prosodic variation in SLA: Rhythm in an urban North Carolina Hispanic community. *University of Pennsylvania Working Papers in Linguistics*, 11(2):4.
- Celata, C. & Calamai, S. (2014). Introduction: Sociophonetic perspectives on language variation. *Advances in Sociophonetics*. John Benjamins Publishing Company.
- Kelm, O. R. (1995). Acoustic measurement of Spanish and English pitch contours: Native and non-native speakers. *Hispanic Linguistics*, 6:435–448.
- Labov, W. (2014). The sociophonetic orientation of the language learner. *Advances in Sociophonetics*, 15:17.
- Lynch, A. (2000). Spanish-speaking Miami in sociolinguistic perspective: Bilingualism, recontact, and language maintenance among the Cuban-origin population. *Research on Spanish in the U.S.*
- Nava, E. A. (2010). *Connecting Phrasal and Rhythmic Events: Evidence from Second Language Speech*. ERIC.
- Ramus, F. (2002). Acoustic correlates of linguistic rhythm: Perspectives. In *Proceedings of Speech Prosody*, pages 115–120.
- Ramus, F., Nespors, M., & Mehler, J. (1999). Correlates of linguistic rhythm in the speech signal. *Cognition*, 73(3):265–292.
- Stockmal, V., Markus, D., & Bond, D. (2005). Measures of native and non-native rhythm in a quantity language. *Language and speech*, 48(1):55–63.
- Thomas, E. R. & Carter, P. M. (2006). Prosodic rhythm and African American English. *English World-Wide*, 27(3):331–355.
- Tilsen, S. & Johnson, K. (2008). Low-frequency Fourier analysis of speech rhythm. *The Journal of the Acoustical Society of America*, 124(2):EL34–EL39.