INTRODUCTION

-q In a previous study (Llanos & Francis, 2014), we showed that a significant amount of Spanish-English bilingual experience can alter the mechanism of processing voicing in English-accented Spanish.

-q Listeners with different amounts of Spanish-English bilingual experience made voicing decisions (e.g., 'nibo' vs. 'papa' [paw]) in a Spanish-English-accented Spanish context with no exemplars of bilabial stops.

-q The group with the highest amount of bilingual experience processed bilabial stops in a Spanish or English mode of phonetic processing, triggered by contextual accent.

METHODS

SUBJECTS

-q 16 native speakers of Spanish were recruited and tested in Madrid, Spain (Mages = 30.71).

-q All of them had some familiarity with English.

-q The amount of English experience was determined by the time spent in an English-speaking country (mean = 0.58 years) and the degree of English contact, on a scale from 1 to 5 at home, at work and socially (mean = 1.31).

-q Tukey HSD analyses of time spent and English contact show that participants’ English experience is not significantly different from the one reported by Llanos & Francis (2014) for the low-experience group, but it is significantly different from the one reported for the high-experience group.

RECORDINGS

-q Recordings took place in a sound attenuated booth.

-q One native speaker of Spanish was recorded.

-q Stimuli recorded consisted of Spanish CV/CVC trochaic nouns:

1. Target words: vaso ['glass'], paso ['step']

2. Precursors:

   - [ba]: vaso ['no parking area'], bardo ['clay'], vale ['ticket'], vale ['valley'], vala ['fence'], baza ['deck']

   - [pa]: pana ['vine'], palo ['stick'], pano ['unemployment'], paja ['straw'], pana ['clothing'], pala ['shovel']

3. Foils: sala ['room'], mesa ['table'], silla ['chair'], mano ['hand'], lomo ['pocket'], lana ['wool'], faro ['lighthouse'], cera ['wax']

-q [ba] precursors have no Spanish minimal pairs with [p], respectively. Also, they did not include exemplars of stops other than the bilabial stops in initial position.

-q Foils did not include exemplars of stops.

-q For the sake of resynthesis, the first consonant of the word was pronounced as [p] during recording. For the same reason, [b]s/ps and [p]s in precursors were pronounced as [b].

STIMULI

-q All words were recalibrated for intensity to match the RMS of the target word vaso.

-q Target words were resynthesized into a series of 13 VOT tokens ranging from vaso (-60ms VOT) to paso (60ms VOT) in 10ms steps.

-q Precursors:

   - Control condition: [b] and [p] tokens were resynthesized to match prototypical Spanish VOTs of -90ms and 10ms, respectively (Dimitrieva et al., under review).

   - Experimental condition: [b] and [p] tokens were resynthesized to match prototypical English VOTs of 10ms and 60ms, respectively.

ANALYSIS

-q Before the perceptual task, familiarity of each word was assessed for each participant by means of a verbal scale:

   1. 'I’ve never heard this word' (2). 'I’ve heard this word just a few times in my life' (3). 'I’m familiar with this word' (4). This is a very frequent word.

-q The assessment also included 4 frequent nouns (casa ['house'], caso ['case'], año ['year'], vida ['life']) and 4 infrequent nouns (bata ['boots'], baje ['bay'], bata ['saw'], sayo ['saw']).

-q All participants were highly familiar with all experimental words.

-q Frequent words: 3.85

-q Experimental words: 3.65

-q Unfrequent words: 1.60

RESULTS

-q The t-test reveals a significant difference between VOT boundaries across conditions (mean[vowel] = -4.38ms, mean[voiced] = 6.23ms; T(11) = 5.15, p < 0.001).

-q The power analysis reveals an effect size of d = 2.58 and a power of 99%.

-q Post-hoc analyses (Tukey HSD) did not reveal significant differences of VOT boundaries across blocks in each condition.

DISCUSSION

-q Results of the t-test show that participants in the experimental condition showed a significantly higher VOT boundary than participants in the control condition.

-q This suggests that voicing decisions were affected by contextual VOT, and thus supports the hypothesis that listeners may accommodate to foreign-accented speech words by perceptual recalibration.

-q Interestingly, VOT boundary does not significantly change across blocks. This suggests that perceptual calibration occurs quickly, within the 1st block of trials.

-q Given that the context used in the task was the same, the new neutral, the present results does not tell much about the role of other linguistic aspects (e.g., semantics) in the accommodation to accented speech. This aspect is however being explored in a new experiment.

REFERENCES

