

# Effect of Instruction Language on English-Spanish Bilinguals' Speech Perception

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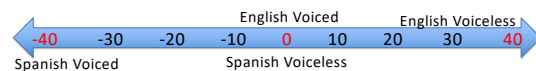


## INTRODUCTION

Phonemes are the smallest units of sound used to distinguish words (Reisberg, 2019). Phonemes can be categorized as voiced (i.e., sounds in which you can hear vocal cord vibrations) and voiceless (i.e., those that you cannot hear vocal cord vibrations; Reisberg, 2019). Pairs such as /b/ and /p/ sound like one another but differ such that /b/ is a voiced phoneme and /p/ is voiceless. These are measured using Voice Onset Time (VOT), which is the time between the initial phoneme sound to the beginning of the following vowel sound (Reisberg, 2019).

The purpose of this study was to determine **how bilinguals respond to auditory stimuli differently based on task instruction language.**

The Ganong Effect suggests that we are more likely to perceive stimuli as words compared to non-words when presented with ambiguous VOT stimuli (e.g., hearing *peace* instead of *beace*; Ganong, 1980). Thus, we predicted that participants who were given **English instructions** would give responses that follow the Ganong Effect, shifting the boundary between /b/ and /p/ towards the word endpoint (Ganong, 1980). Further, participants given **Spanish instructions** would be more likely give responses that are shifted towards the voiced endpoint due to differences in VOT between English and Spanish speakers (Lisker & Abramson, 1964).



## METHOD

Participants (N=22) listened to a series of recordings and reported what they perceived as the beginning sound of the word that they heard (e.g., the letter B or P). We created a continuum of VOTs from -40 to 40 for 3 pairs.

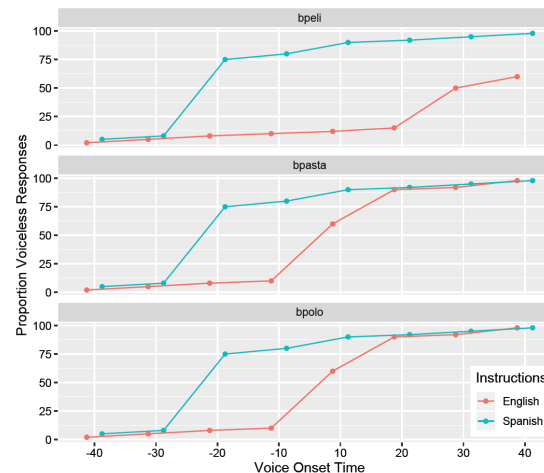
**Word Pairs:** For each continuum both endpoints were words in Spanish, but only one endpoint was a word in English. For example, the basta/pasta continuum consists of the Spanish word *basta* and the English word *pasta*, which is the same in Spanish.

**Auditory Stimuli:** 24 audio recordings were produced varying in voice onset time (VOT) from -40 to 40 ms in steps of 10 ms.

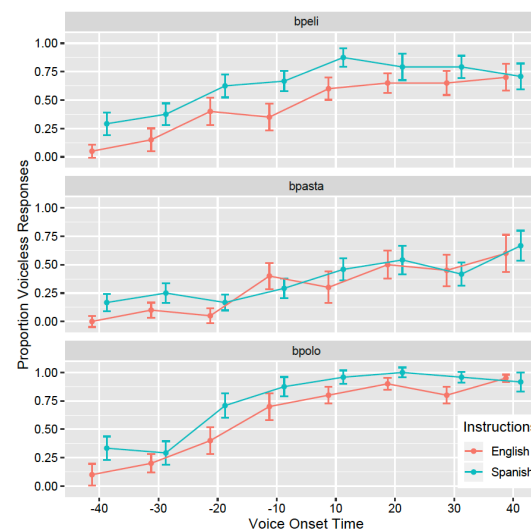
- 8 for the basta/pasta continuum
- 8 for the bolo/polo continuum
- 8 for the belly/peli continuum

**Design:** Participants received all instructions and consent form either in English or Spanish, and then completed 48 trials in a random order in the target language.

## PREDICTED RESULTS



## PRELIMINARY RESULTS



## DISCUSSION

We are still in the process of collecting data; however, if our results align with our initial predictions, those who were given English instructions should make more voiced responses than those given Spanish instructions for the belly/peli continuum because only "belly" is a word in English. For the basta/pasta continuum and the bolo/polo continuum, we would expect participants who were assigned to English instructions to make more voiceless responses sooner in the continuum because "pasta" and "polo" are words in English.

The data that we currently have follow the predictions for the belly/peli continuum, but not for the basta/pasta or bolo/polo continuum. Because data collection is still ongoing, more prominent differences may arise based on instruction language.

Should significant differences between responses to auditory stimuli arise, this could have implications regarding everyday auditory comprehension for bilinguals. Additionally, those who grow up as frequent informal translators may experience similar effects for auditory comprehension.

## FUTURE DIRECTIONS

Future studies should account for slang. Factors such as age, dialect, and location can impact one's understanding of slang words. For example, the belly/peli continuum uses the slang word "peli", which is short for the Spanish word *película* (movie).

## REFERENCES

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