Introduction

Previous eye tracking during listening studies of bilinguals found that words from both languages were activated simultaneously, even in a monolingual language environment\(^1\), suggesting that bilingual lexical access is language-nonselective\(^2\). Some monolingual research suggests that if a sentence context is sufficiently constraining towards one meaning of a word, the second meaning will never become activated\(^3\). Thus, adding a linguistic context that biases the meaning of a word in the target language only may suppress lexical activation in the nontarget language.

Experiments

Experiment 1 presented Spanish/English bilinguals with English instructions, such as “Look at the moon.” Four objects appeared on the screen at target word onset; the participant was asked to click on the mentioned object.

1. Actual English object
   - MOON “luna”
2. Spanish phonological competitor
   - DOLL “muñeca”
3. and 4. two fillers unrelated in phonology
   - PILLOW ‘almohada’
   - ROCK ‘piedra’

Spanish phonological competitors matched English targets in initial phonological overlap according to aspiration, place and manner of articulation.

We expected to extend previous findings of multiple language activation to both languages by age 8. Ten adults in Experiment 1 and fourteen in Experiment 2 were paid for participation.

Experiment 2 presented participants with two types of sentences:
- Block 1: Conceptually biasing context: “Jimmy has always been curious about the vastness of our galaxy, and was most interested in the MOON.”
- Block 2: Neutral context: “Look at the MOON.”

We expected activation of the Spanish competitor (muñeca) in the neutral context, but not the biasing context.

Participants

After the eyetracking portion of the experiment, all participants completed a questionnaire\(^4\), an English picture naming task, and a Spanish picture naming task.

All participants were fluent in both English and Spanish and had learned both languages by age 8. Ten adults in Experiment 1 and fourteen in Experiment 2 were paid for participation.

Results

To measure activation of Spanish, the probability of looks towards the Spanish competitor was compared to looks to nontarget items by chance.

Experiment 1: Time course of fixations to critical objects

- The Spanish competitor received no more fixations than chance at any interval in any context
- Context only affected looks to actual target, not looks to competitor: biased context increased looks to actual target from 500-600 ms

Experiment 2: Time course of fixations to critical objects comparing biasing and neutral contexts

- The Spanish competitor received no more fixations than chance at any interval in any context
- Effects of context found only at fixation 3: biased context decreases actual looks and increases competitor looks

Conclusions and discussion

Experiment 1: As expected, when listening to a conceptually neutral instruction in English, bilinguals nonetheless activated the inappropriate language (Spanish), replicating Marian et al.\(^1\).

Experiment 2: Activation of the Spanish competitor was not replicated in the neutral contexts (Block 2), nor was there activation of the Spanish competitor in the biasing contexts (Block 1). Two factors may have contributed to the null effect in the neutral context:
- Bilinguals had higher vocabulary scores in English in Experiment 2 than in Experiment 1
- Semantically biasing context in Block 1 of Experiment 2 may have induced greater language selectivity

We found no evidence that the Spanish competitor was activated in biasing context. However, we also found reason to doubt the robustness of Spanish competitor activation in neutral contexts.

References