**Effects of cross-linguistic phonetic overlap on lexical co-activation in bilinguals**
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**BACKGROUND**
- Auditory cross-linguistic lexical activation occurs when bilinguals listen to words in one of their languages, and activate words in their other language ( Marian & Spivey, 1999).
- Variation in degree of co-activation may be due to choice of stimuli in past studies (Ju & Luce, 2004). For example, across English and Spanish, obstruents within the same phonemic category are realized with different voice onset times.
- Language proficiency of the participants may also account for differences (van Hell & Tanner, 2012).

**RESEARCH QUESTIONS**
1. Will English native speakers who learned Spanish as a second language co-activate Spanish words with sonorant vs obstruent onsets differently when listening in English?
2. Will English-Spanish bilinguals show different co-activation for words that share obstruent onsets matched phonetically vs. those matched phonemically across the languages?
3. Will language proficiency/experience predict the strength of co-activation?

**CONDITIONS**

<table>
<thead>
<tr>
<th>Sonorant</th>
<th>Target</th>
<th>Spanish Competitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obstruent</td>
<td>bowl (~0 VOT)</td>
<td>nopal (cactus)</td>
</tr>
<tr>
<td></td>
<td>muñeca (doll)</td>
<td>pollo (chicken)</td>
</tr>
<tr>
<td>No Overlap</td>
<td>seahorse</td>
<td>nopal (cactus)</td>
</tr>
</tbody>
</table>

**RESULTS**

**EXPERIMENT 1**
- (bowl-phonic match)

<table>
<thead>
<tr>
<th>Sonorant</th>
<th>Obstruent</th>
<th>No Overlap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of competition (ms)</td>
<td></td>
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**EXPERIMENT 2**
- (bowl-phonic match)

<table>
<thead>
<tr>
<th>Sonorant</th>
<th>Obstruent</th>
<th>No Overlap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of competition (ms)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EYE TRACKING VISUAL WORLD PARADIGM**

**Target:** moon
**Competitor:** muñeca (doll)

**DISCUSSION**
- Cross-linguistic activation (from English-L1 to Spanish-L2) was found for sonorant-onset but not obstruent-onset words in L2 speakers of Spanish.
- Neither phonemic (Experiment 1) nor phonetic (Experiment 2) matching of obstruent-onset words across English and Spanish led to significant co-activation. However, there was a trend for phonetic matching to be associated with more activation than phonemic matching.
- Age of Spanish acquisition but not Spanish proficiency significantly predicted the amount of co-activation, such that those who acquired Spanish later showed more activation for sonorant onset words.
- It is possible that participants who began acquiring Spanish later in life (and thus closer to the time of testing) continued to rely on their L1 when processing the L2.
- It is also possible that the L1 of the participants who began acquiring Spanish later in life was still undergoing restructuring at the time of testing, and was thus more vulnerable to the influences of the L2.

**CONCLUSION**

The presence or absence of cross-linguistic co-activation in bilinguals when listening in the L1 depends on both the degree of onset overlap and age of L2 acquisition.

**ACKNOWLEDGMENTS**

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