Number attraction effects on object-clitic agreement in Spanish: Evidence from native and non-native speakers

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Introduction

According to Ullman's Declarative/Procedural model [1], high-proficiency non-natives rely on the same grammatical/procedural mechanisms as those that underlie L1 grammar. High-proficiency non-native speakers process some aspects of syntax in a native-like way despite late L2 learning onset and L1 vs. L2 differences [2] [3]. We use number attraction effects (e.g., the key SG to the cabinetsPL is / *are) to investigate how high-proficiency non-native speakers process agreement structures in complex and error prone environments. We explored the time course of number attraction errors during Spanish object-clitic pronoun agreement processing in native and non-native speakers.

Methods and materials

Participants: 46 native Spanish and 32 highly proficient non-native Spanish bilinguals

Task: Grammaticality judgment task

Procedure: 48 experimental sentences (12 per condition) + 120 filler sentences presented word-by-word (350 ms, ISI = 250 ms) Data analysis: ERPs (32 electrodes, Electrocap, sampling rate 250 Hz, impedance below 5 kOhm, BrainRecorder)

Results

...la casa de la(s) montaña(s) LA/LAS visitó...

natives nonnatives

Behavioral results:

- All participants were significantly slower and less accurate in the mismatch conditions as compared to the match conditions.
- Natives and non-natives showed similar accuracy levels in all number matching conditions (93% vs. 92%).
- In ungrammatical conditions, non-natives showed significantly larger attraction effects in accuracy than natives (match-mismatch difference in non-natives: 25% vs. natives: 16%).

ERP results:

- Different grammaticality effect patterns in natives and non-natives.
- Natives showed a fronto-central negativity followed by a P600 in the match condition and only a P600 component in mismatch condition
- Non-natives showed only a broad negativity but no P600 in the number match condition, and no effect in the mismatch condition.

Discussion & Conclusions

Data from native speakers reveal behavioural and electrophysiological responses for object-clitic pronoun agreement (negativity + P600) similar to those found in subject-verb agreement [4] [5].

Also, in native speakers, attraction effects showed to have a deep impact on early (considered automatic) stages of agreement computation (as revealed by the presence of negativity in match conditions and its absence in mismatch conditions), but none on later comprehension processes (P600 unaffected).

However, high-proficiency non-natives were more prone to attraction errors than native speakers as shown by larger attraction effects in accuracy, and absence of either negativity or P600 components in mismatch conditions. These findings reveal that non-natives’ syntactic processing is weaker than the one of natives regardless their high L2 proficiency level.

References


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