

## The role of intonation in the perception of lexical stress in Spanish

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In Spanish, fundamental frequency (F0), duration and intensity are used in a complex fashion to mark lexical stress in declarative utterances (Quilis 1981). However, only duration and intensity can be used in yes/no questions such as ¿Dijo 'número'? (en. Did he say 'número?'), since F0 is used to express the interrogation. Nevertheless, previous studies showed that in the absence of some cues (F0, for example), listeners perceive stress by extracting the remaining information from the signal (duration and intensity); see e.g. Muñoz García 2010, Ortega-Llebaria 2009, Ortega-Llebaria/Prieto 2009).

The aim of the present research is twofold: 1) To examine to what extent the interrogative intonation – where F0 is not used to mark lexical stress – affects the identification of lexical stress by native Spanish listeners (and replicate the results reported Muñoz García 2010); 2) To study the effect of intonation variability in the perception of lexical stress by native Spanish listeners. We carried out two experiments in which we used triplets of trisyllabic Spanish stimuli, like *número*, *numero*, *numeró*, produced with a falling and a rising intonation. In the first experiment, the participants performed a stress identification task, in which they listened to the stimuli and had to indicate the stressed syllable. Half of the stimuli were produced with a falling intonation and the other half with a rising intonation. In the second experiment we used an Odd-One-Out task (Schwab/Dellwo 2016), in which the participants heard trials of three segmentally identical stimuli (e.g., *numero*) and had to indicate which stimulus was accentually different (i.e., the odd). Half of the trials was composed of stimuli produced only with the falling intonation pattern (without intonation variability), and half of them was composed of some stimuli with falling and some stimuli with rising intonation patterns (with intonation variability).

For the identification experiment, results showed that, although high, the performance for stimuli produced with a rising intonation was worse (90% correct) than for those produced with a falling intonation (96% correct). This finding, in disagreement with Muñoz García (2010), suggests that Spanish native listeners were hampered in their identification of stress, although to a small extent, by the absence of F0 as a cue to lexical stress. Regarding the Odd-One-Out experiment, results revealed that the accentual odd was more accurately detected in trials produced with only one intonation pattern than in trials produced with two intonation patterns (91% and 84%, respectively), which indicates that Spanish native listeners were affected by the presence of intonation variability in their detection of the accentual odd.

Taken together, these findings showed that the phonetic variation induced by the interrogative intonation affects the perception of lexical stress by Spanish native listeners. More specifically, they confirmed the important role of F0 in the perception of lexical stress, since the words with an interrogative intonation – where F0 was not a cue to the lexical stress – led to worse performance. Unlike previous research, the present study provides evidence that intonation plays a role in the perception of lexical stress in Spanish.

### References

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