

Prosody facilitates memory recall in L1 but not L2

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Prosody and prosodic boundaries are crucial for language comprehension since they highlight and disambiguate underlying structures, demonstrate dependencies between units in lists, and thus reduce cognitive load. However, even highly proficient L2 learners struggle with prosody. Production studies have shown that the phonetic implementation of prosodic cues to boundaries produced by late bilingual L2 learners of English (henceforth BL) is not quite native-like, even when the phonological implementation is correct (Jun & Oh, 2000). In perception studies, BL learners are also significantly worse at using boundary cues than native speakers (Altenberg, 2005). Nonetheless, vocabulary, word frequency, and complexity of structures is always confounded in sentence recall and could explain some of the previous results. Consequently, this study looks at the recall of chunks of digits.

Research goals. This study tests the recall of *chunks of digits* in L1 and L2 with and without prosodic cues at chunk boundaries to determine 1) whether prosody helps memory recall to the same extent in L1 and L2 and 2) whether digit recall is language dependent.

Participants. 20 Greek-English BL and 20 L1 speakers of English. English L1 speakers served as a comparison due to the different numbers of syllables for digits in each language (English monosyllabic (apart from no. 7), Greek trisyllabic (apart from no. 3)).

Results. Our results demonstrated that prosody was a major facilitator of memory recall in native speakers, independent of their L1 (Fig. 1, right), but not in L2 (Fig. 1, left).

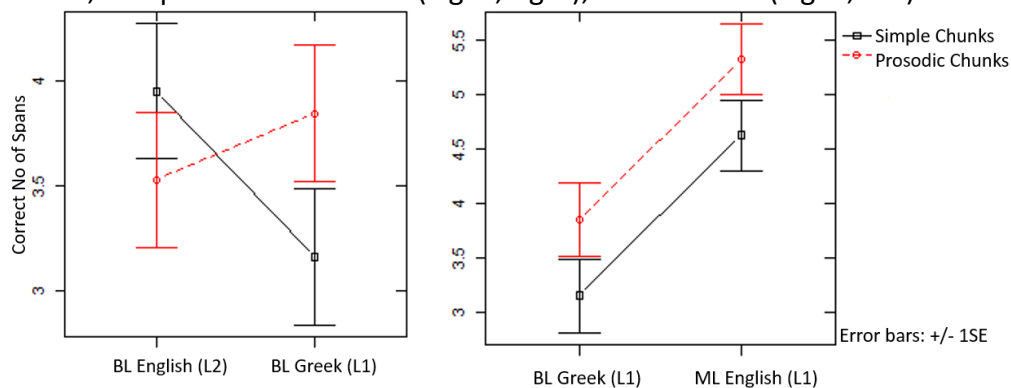


Fig. 1: Recall of simple and prosodic chunks in English and Greek by BL (left) and in the L1 of English ML and Greek BL

Discussion. We hypothesise that our findings suggest that even highly proficient BL have not mastered processing of language-specific prosodic boundaries in L2, i.e. the actual phonetic implementation of the interplay of duration, pitch, intensity, and pauses. This has severe implications for language comprehension. Additionally, our study showed language-specific differences in memory storage/ retrieval with comparable results for L1 and BL in English without prosody, but worse results for BL in their L1 Greek. Thus, it appears that digit recall is language dependent. This suggests that short-term memory recall is purely phonological so that the larger number of syllables in Greek digits are cognitively more demanding.

References

- Altenberg, E. P. (2005). The perception of word boundaries in a second language. *Second Language Research*, 21(4), 325-358.
- Jun, S. A., & Oh, M. (2000). Acquisition of second language intonation. *Interspeech*, (pp. 73-76).