

Language distance effects on trilingual lexical processing

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Bilingual lexical access occurs in a language non-selective manner, i.e., both languages are activated simultaneously during processing. These findings extend to trilingual lexical processing, with trilinguals experiencing co-activation of all three languages regardless of whether these languages are *close* [1] or *distant* [2]. Still, language co-activation has previously been found to be modulated by cross-language similarity in trilinguals [3], but the extent to which this occurs remains understudied.

To address this gap, we explored language distance effects on trilinguals' language selectivity during L2/L3 written word recognition, by comparing 31 Azerbaijani-Turkish-English trilinguals' performance in a *close* (Turkish) and *distant* (English) L2/L3. Participants lived in Turkey at the time of testing, and completed semantic relatedness tasks – a Turkish session and an English session – in which they decided whether two words were related in meaning. Experimental trials included interlingual homographs (IHs), words that share spelling and differ in meaning across languages (e.g., *elm*, meaning *science* in Azerbaijani). We compared (1) critical trials, where IHs appeared with words related to their L1 meaning (e.g., *theory-elm*) and (2) control trials, with IHs and unrelated words (e.g., *asylum-elm*). L2/L3 proficiency were measured with LexTALE [4] and LexTurk [5], a newly-created Turkish LexTALE.

Linear mixed-effects models revealed slower RTs and lower accuracy in the Turkish session than in the English session. Trilinguals displayed lower accuracy in the (1) critical condition than the (2) control condition in both sessions ($b = -0.71$, 95% CI [-0.94, -0.49], $SE = 0.11$, $z = -6.23$, $p < .001$). Trilinguals were slower in the (1) critical than the (2) control condition in the Turkish session but not in the English session, a marginally significant effect ($p = .055$). Initial analysis suggested that accuracy effects were larger in the Turkish session than in the English session; this effect approached significance in the final analysis ($p = .06$).

These findings show that trilinguals immersed in an L2 context experienced L1 activation during L2 and L3 word recognition. Language non-selectivity might have been partially modulated by language distance; however, this evidence is inconclusive due to low statistical power and differences in word length across items. We call for work on language distance effects on L2/L3 processing in understudied populations with more controlled methods.

References

- [1] Kristin Lemhöfer, Ton Dijkstra, & Marije Michel. Three languages, one ECHO: Cognate effects in trilingual word recognition. *Language and Cognitive Processes*, 19(5), 585–611. <https://doi.org/10.1080/01690960444000007>, 2004.
- [2] Jung-Hyun Lim & Hee-Don Ann. Trilingual word recognition: Phonological priming effects in trilingual with different-script languages. *Korean Journal of English Language and Linguistics*, 24, 921–933. <https://doi.org/10.15738/kjell.24..202409.921>, 2024.
- [3] Walter J. B. van Heuven, Kathy Conklin, Emily L. Coderre, Taomei Guo, & Ton Dijkstra. The influence of cross-language similarity on within- and between-language Stroop effects in trilinguals. *Frontiers in Psychology*, 2. <https://doi.org/10.3389/fpsyg.2011.00374>, 2011.
- [4] Kristin Lemhöfer, & Mirjam Broersma. Introducing LexTALE: A quick and valid Lexical Test for Advanced Learners of English. *Behavior Research Methods*, 44(2), 325–343. <https://doi.org/10.3758/s13428-011-0146-0>, 2012.
- [5] Lara M. Kelly-Iturriaga, Levent Uzun, Umut M. Salihoğlu, & Uğur R. Çetinavcı. *Introducing LexTurk: A quick lexical test for learners of Turkish*. PsyArXiv. https://osf.io/preprints/psyarxiv/tbhgv_v1, 2026.

Figures

Figure 1: Azerbaijani-Turkish-English trilinguals' accuracy in the English and Turkish sessions by condition (IH critical/control) and L2/L3 proficiency level.

