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Bilinguals are affected by form-related priming when reading sentences in L2.

Competition between form-related words in bilingual sentence reading: Effects of language proficiency.

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BACKGROUND

- Form-related priming leads to inhibitory effects in monolingual sentence reading (Paterson et al., 2009).
- These effects are affected by the distance between prime and target and by reading skills (Frisson et al., 2014).
- We extended this to bilinguals.

METHODS

48 Norwegian-English bilinguals (advanced)

128 sentence pairs with form-related or unrelated prime, manipulating target-prime distance and overlap

Short – End	The scary house was brown [blue] with a golden CROWN painted over the door.
Short – Begin	He counted up to seven [eight] knights that could SEVER the dragon's head.
Long – End	The alarm had a red patch [stamp] that I noticed far too late after opening the HATCH to the cellar of the house.
Long – Begin	Drinking the old paint [juice] caused Leif to experience lasting and severe stomach PAINS and he was rushed to the hospital.

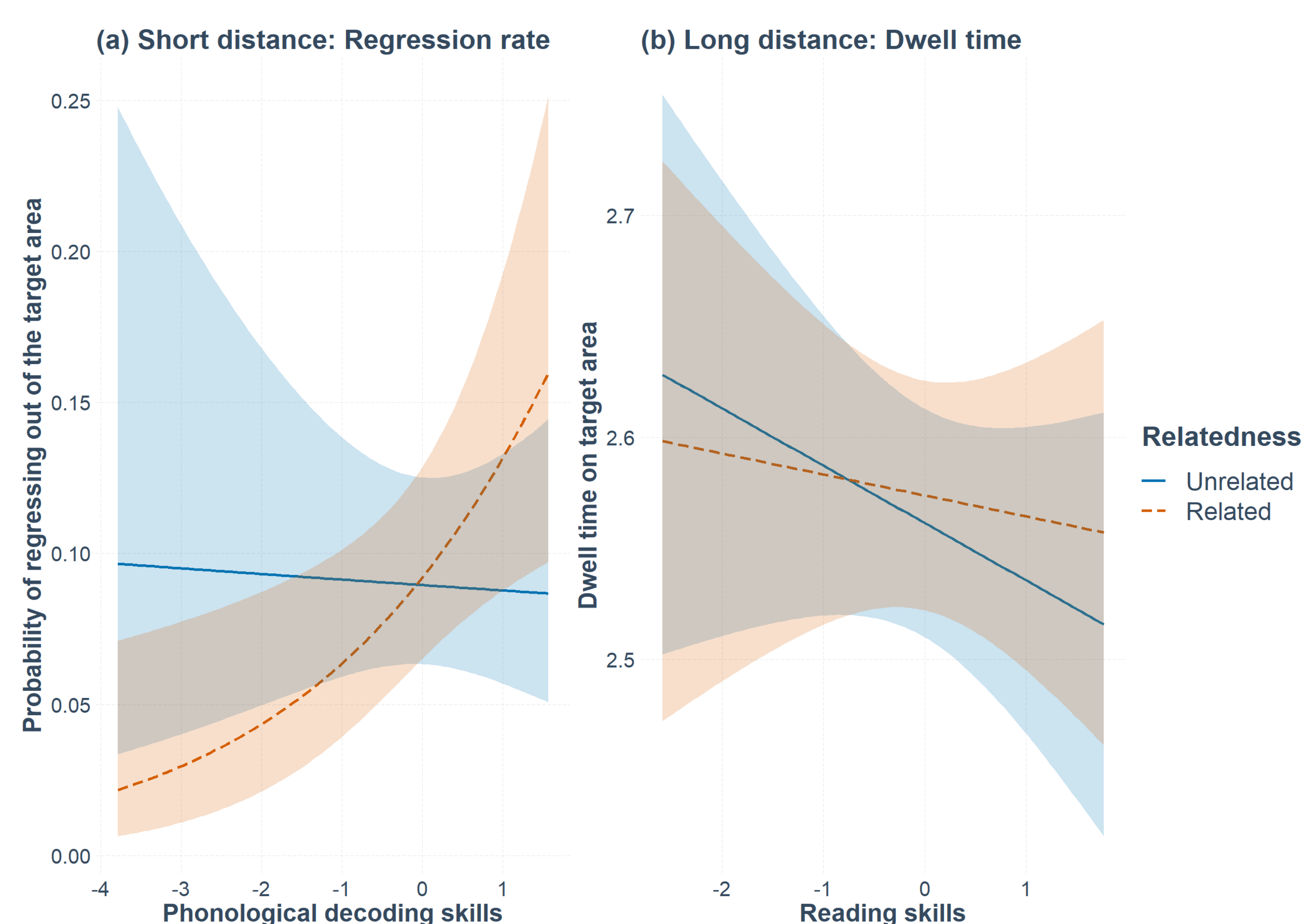


Eye-tracking while reading + proficiency measures

Reading skills ¹ (RS)	British Vocabulary Picture Scale 3 (Dunn et al., 1982)
	York Assessment of Reading for Comprehension (Snowling et al., 2009)
	Sentence acceptability judgment
Phonological decoding skills (PS)	Gray Silent Reading test (Wiederholt & Blalock, 2000)
	Non-word repetition test
	Elision test

¹ Classification in 2 components obtained by PCA. Cumulative variance explained with two components: 0.71.

Reading skills and phonological decoding skills affect priming effects in L2 reading.



RESULTS

- L2 readers are affected by form-related priming.
- In short-distance condition, better phonological decoders show earlier effects (regression rate out of target area, PS x relatedness: $\beta = 0.42$, 95% CI [0.14; 0.70], $p = .004$)
- Only good readers show effects in long-distance condition (dwell time in target area, RS x relatedness: $\beta = 0.02$, 95% CI [0.001; 0.031], $p = .03$; regression out of spillover area: relatedness x RS x overlap, $\beta = 0.56$, 95% CI [0.029; 1.10], $p = .04$).

DISCUSSION

- Replication of monolingual results: form-related priming in sentence reading is a robust effect.
- Explained by competition models as competition between word candidates.
- The effect is influenced by reading skills, but phonological skills are also crucial.

REFERENCES & ACKNOWLEDGMENTS

Dunn, L. M., Dunn, L. M. & Whetton, C. (1982). *The British Picture Vocabulary Scale*. NFER-Nelson
 Frisson, S., Koole, H., Hughes, L., Olson, A. & Wheeldon, L. (2014). Competition between orthographically and phonologically similar words during sentence reading: Evidence from eye movements. *Journal of Memory and Language* 73(1), 148–173. doi: 10.1016/j.jml.2014.03.004
 Paterson, K. B., Liversedge, S. P. & Davis, C. J. (2009). Inhibitory neighbor priming effects in eye movements during reading. *Psychonomic Bulletin and Review* 16(1), 43–50. doi: 10.3758/PBR.16.1.43
 Snowling, M. J., Stothard, S., Clarke, P., Bowyer-Crane, C., Harrington, A., Truelove, E., Nation, K. & Hulme, C. (2009). YARC York Assessment of Reading for Comprehension. GL Publishers. <https://www.worldcat.org/title/york-assessment-of-reading-for-comprehension-complete-set/oclc/873011477>
 Wiederholt, J. & Blalock, G. (2000). GSRT: Gray Silent Reading Tests. PROED Inc. <https://www.proedinc.com/Products/9190/gsr-gray-silent-reading-tests.aspx?bCategory=lralread>

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