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Form priming in German children with poor reading skills

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Background

- Lexical tuning hypothesis (Castles et al., 1999; 2007): children go from broadly to more finely tuned lexical representations as their reading experience grows.
- Supporting evidence from lexical decision tasks with masked priming paradigm: younger children identify words faster when primed by similar looking nonwords (2 letter substitution and transposed letters), because their lexical representations are still coarse grained (Castles et al., 2007).
- These form priming facilitation effects decrease as reading development advances and lexical representations become more fine-tuned (Castles et al., 2007).
- In French, a more regular orthography: same pattern at a later stage of reading development. Children rely on recoding strategies for a longer time and so lexical representations are fine-tuned at a later stage (Lété et al., 2013).

Research questions

Does lexical tuning occur even at a later stage of reading development in

- German, a predominantly regular orthography?

Hypothesis: Yes, in coherence with Lété et al. (2013)

- children with atypical reading development?
- Hypothesis: Yes, because poor readers have been shown to have difficulties in building orthographic knowledge (Coltheart, 2015)

Methods

Participants

	Typical readers		Poor readers ¹	
	<i>n</i>	<i>M</i> _{age} (<i>SD</i>)	<i>n</i>	<i>M</i> _{age} (<i>SD</i>)
Grade 3 and 4	18	8.93 (0.63)	27	9.01 (0.87)
Grade 5 and 6	32	11.03 (0.56)	12	11.08 (0.42)
Adults	10	25.54 (1.45)	-	-

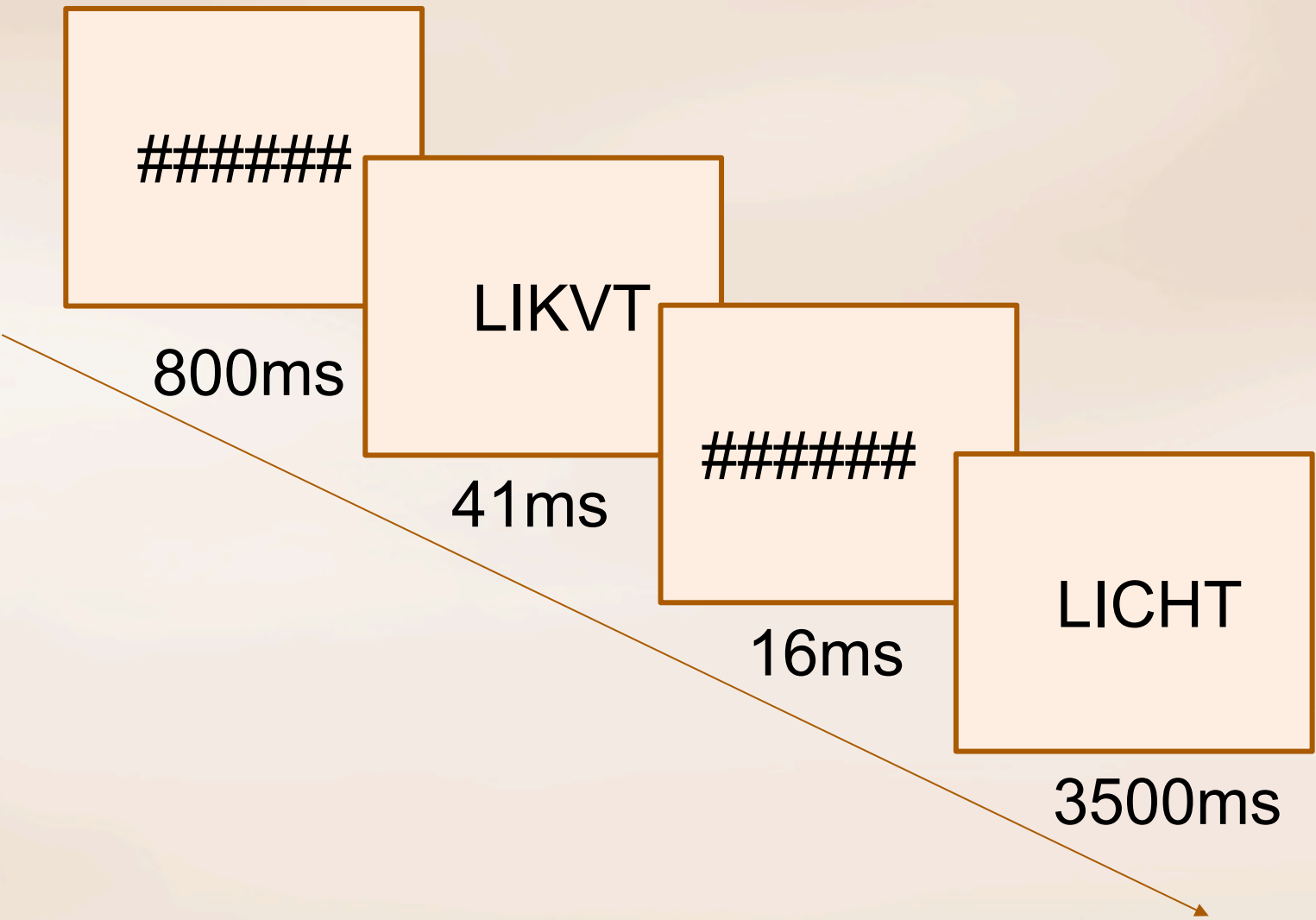
Note. ¹Participants with a performance below the 21st percentile on the SLRTII word efficiency reading test were defined as poor readers.

Materials

- 24 words and 24 nonwords e.g. LICHT
- 5-6 letters
 - High frequency words – *M*¹ 252.58
 - M* Neighborhoodsize 2.71
- 3 types of form primes
- 2 letter substitution e.g. LIKVT
 - Transposition e.g. LIHCT
 - All letter different e.g. GAKVD

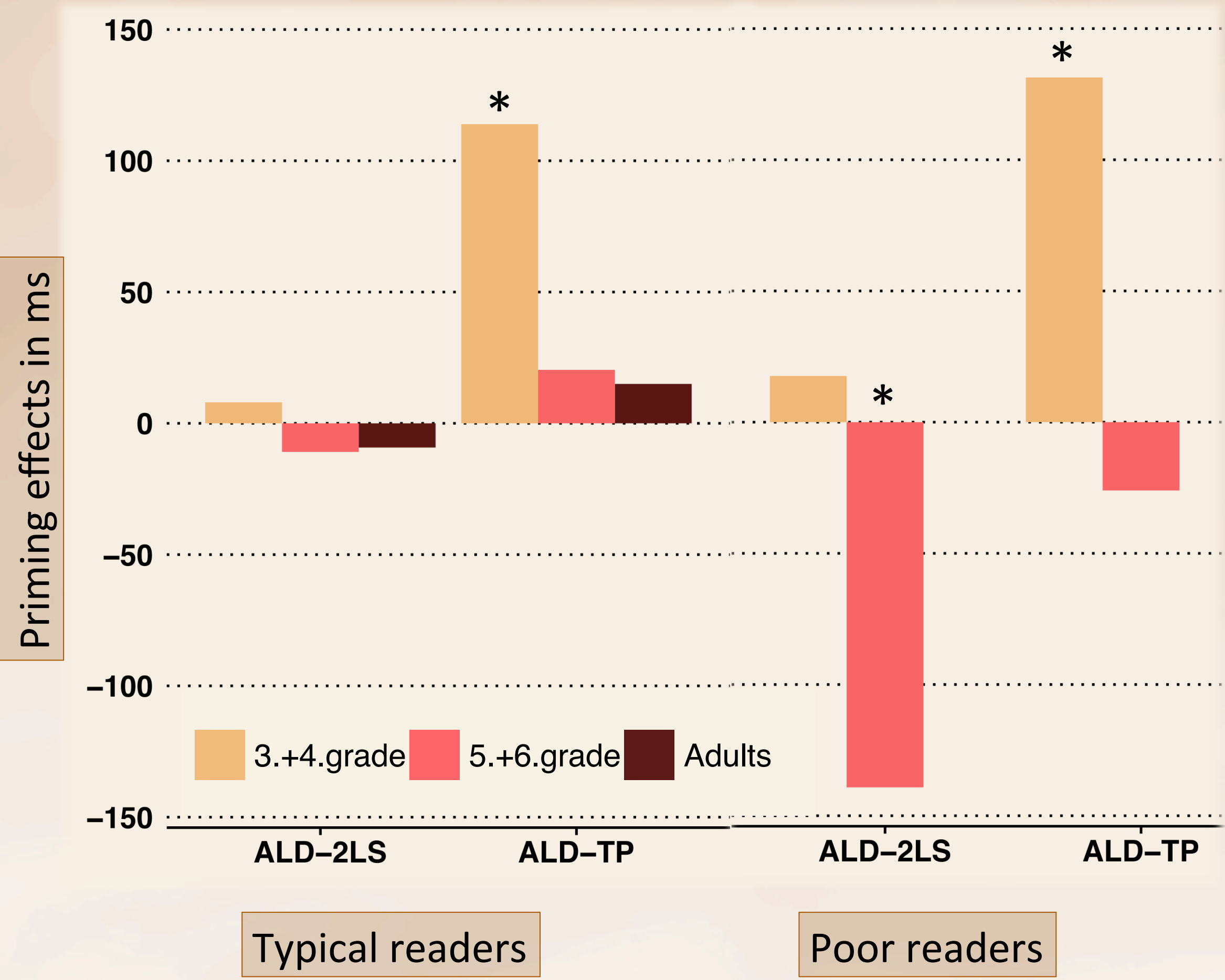
Note. ¹Normalized type frequency per million in database CHILDEX (2015)

Setting



Results

Priming effects based on accuracy measures



Note. ALD=All letter different prime; 2LS= 2 letter substitution prime; TP=Transposition prime; *p < .05

Conclusions

- Lexical tuning seems to occur at an earlier stage in a predominantly regular orthography, as German, than in more opaque orthographies as English.
- This finding contrasts with Leté et al. (2013) and opens new questions on the impact of orthographic depth on lexical tuning.
- Poor readers in grade 5-6 showed an inhibition instead of a facilitation form priming effect.
- This might be an indication of poor readers’ difficulties in inhibiting similar word forms.

