

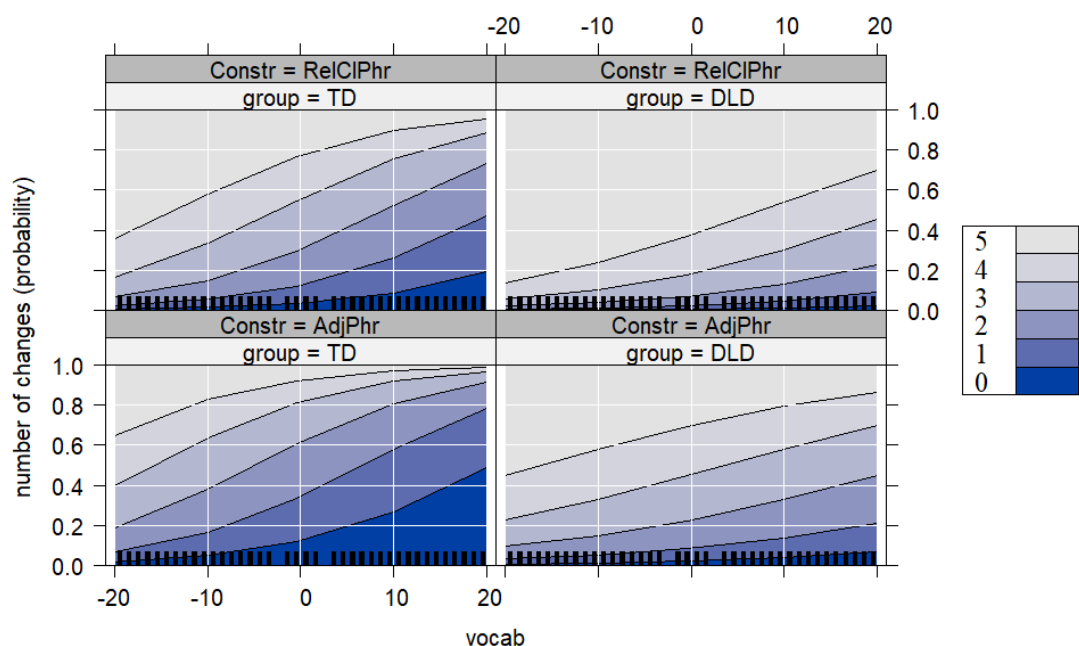
Working memory and language knowledge in sentence imitation: Evidence from Czech children with developmental language disorder

While sentence imitation (SI) is widely used in research and clinical assessment, the exact contributions of language skills and working memory remain debated (Riches, 2012). These contributions may vary with sentence morphosyntactic complexity and between children with and without developmental language disorder (DLD; Frizelle & Fletcher, 2015). This study examines how general language knowledge (receptive vocabulary), knowledge of syntactic structures targeted in SI (truth-value judgment task, elicited production), and working memory – phonological storage (nonword repetition) and the central executive (listening span) – relate to SI performance, measured by the number of changes. Participants were 63 Czech children with DLD (6;5–9;6) and gender- and vocabulary-matched typically developing (TD) children (3;7–6;7). Target structures were relative clauses and simple sentences with adjectival phrases, which differ in morphosyntactic complexity but share inflectional features in Czech, a highly inflectional language. Cumulative link mixed models showed that better phonological storage ($z = -3.07$, $p = .002$) and knowledge of specific syntactic structures improved SI in both groups. Central executive capacity contributed marginally less to SI performance in children with DLD than in TD children (listening span $\times$ group: $z = 1.88$, $p = .06$), possibly reflecting difficulties in efficiently engaging the central executive during repetition or insufficient entrenchment of syntactic representations in long-term memory. General language skills also had weaker effects in children with DLD, but better vocabulary improved recall of relative clauses in these children (vocabulary $\times$ group: $z = 2.03$, $p = .04$), highlighting the role of language knowledge in more complex structures. Working memory contributions did not differ across sentence types, possibly because morphological complexity increases central executive demands. Overall, sentence imitation in Czech, a morphologically rich language, reflects both phonological storage and central executive functioning, regardless of sentence type, and is a marker of general and specific language skills.

Keywords: developmental language disorder, sentence imitation, Czech, working memory, relative clause

Figure

Relations between imitation of relative clauses and simple sentences with nominal phrases with adjectives, vocabulary and group.



The darkest and lightest bands show the probability of zero-change or five-plus change responses, respectively. Increases in the dark blue bands indicate an increase in the probability of imitations with fewer changes.

Table

Relations between imitation of relative clauses and simple sentences with nominal phrases with adjectives and their use in elicited production and truth value judgement task.

Predictors	SI (RelCIs)		SI (AdjPhrs)	
	z-value	p-value	z-value	p-value
group [DLD]	1.84	0.067	2.19	0.028
Truth value judgement task – AdjPhrs	-1.01	0.314	-2.17	0.030
Truth value judgement task RCs	-2.77	0.006	-3.44	<0.001
Elicited production AdjPhrs	-0.14	0.888	-0.18	0.857
Elicited production RCs	-5.26	<0.001	-4.55	<0.001

RelCIs = relative clauses; AdjPhrs = simple sentences with nominal phrases with adjectives.

References

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- Riches, N. G. (2012). Sentence repetition in children with specific language impairment: An investigation of underlying mechanisms. *International Journal of Language and Communication Disorders*, 47(5), 499–510.