

Categorization and word extension in children with Developmental Language Disorder

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Background

- Children with DLD have **word learning deficits** (Kan & Windsor, 2010), and the underlying mechanisms remain unknown
- Inferences, and **category-based inferences** particularly, might help in learning semantic aspects of the words (Sloutsky et al., 2015)
- Data emerge regarding how children with DLD organize their semantic knowledge and categories (Collisson et al., 2015; Krzemienski et al., 2021), but *not how they use it to learn*
- Bayesian theories of learning offer an integrated framework to learn this phenomenon (Xu & Tenenbaum, 2007):
 - The learner draws inductive inferences by recruiting prior knowledge and statistical learning principles (detection of regularities)

Aims

- Can children with DLD draw inductive inferences when extending new words?
- Are their difficulties greater when less prior knowledge is available?

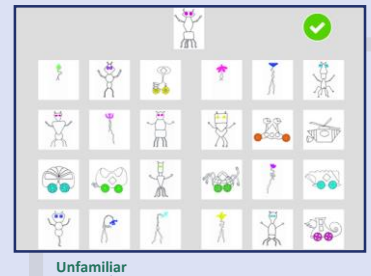
Methods

Participants

	DLD	TD children
n	13	15
age	6;11 to 9;2	7;4 to 9;2
NVIQ	96,77 (11,96)	96,6 (11,27)
Language Profile	Severe DLD	OK

Word extension task (inspired by Xu & Tenenbaum, 2007)

- 2 Conditions: familiar vs unfamiliar
- 3 semantic (pseudo)categories
- 4 types of items:



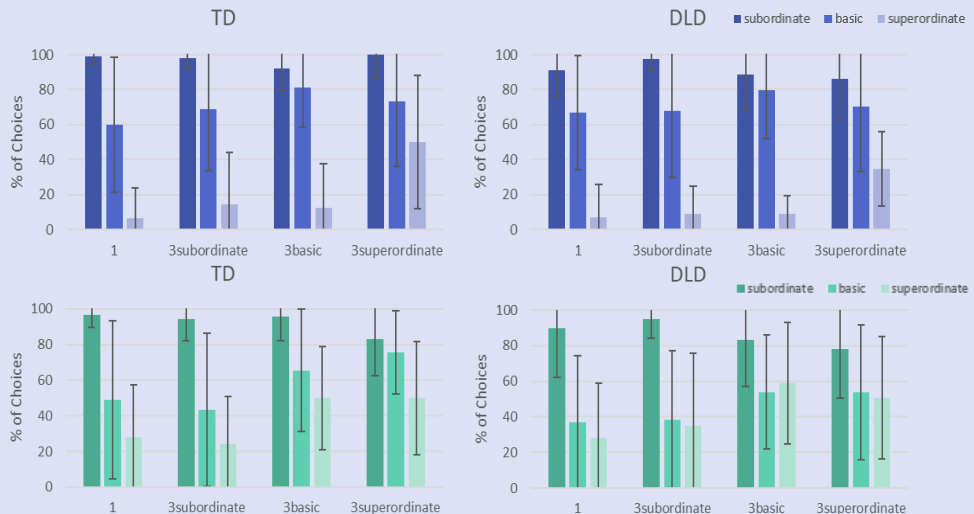
Look, this is *mopi*. Can you find other *mopi* at the bottom?

Results

In both conditions: gradients of responses change with the type of items

Familiar condition

- Evidence against a group effect ($BF_{excl} = 6,842$)



Unfamiliar condition

- Group effect is inconsistent
- Group * Level of taxonomy : $BF_{incl} = 3,292$

More children with DLD committed colour-based intrusions ($BF = 4,677$), but no differences for other types of intrusions ($BF = 0,765$)

Discussion

Familiar Condition

Preserved word extension abilities when prior knowledge is available

Unfamiliar Condition

- Difficulty* to organize into (sub)categories
- tracking regularities (statistical learning)?
 - visual processing, especially when less verbalizable? EF?

References: Collisson, B. A., Grela, B., Spaulding, T., Rueckl, J. G., & Magnuson, J. S. (2015). Individual differences in the shape bias in preschool children with specific language impairment and typical language development: Theoretical and clinical implications. *Developmental Science*, 18(3), 373-388. - Kan, P. F., & Windsor, J. (2010). Word Learning in Children With Primary Language Impairment: A Meta-Analysis. *Journal of Speech Language and Hearing Research*, 53(3), 739. - Krzemienski, M., Thibaut, J.-P., Jemel, B., Levaux, E., & Maillart, C. (2021). How do children with developmental language disorder extend novel nouns? *Journal of Experimental Child Psychology*, 202, 105010. - Sloutsky, V. M., Deng, W., Fisher, A. V., & Kloos, H. (2015). Conceptual influences on induction: A case for a late onset. *Cognitive Psychology*, 82, 1-31. - Xu, F., & Tenenbaum, J. B. (2007). Word learning as Bayesian inference. *Psychological Review*, 114(2), 245-272.