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Online implicit learning of nonadjacent dependencies in children with and without Specific Language Impairment

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Background
NADL: Nonadjacent dependency learning
Examples: He walks; Yesterday we walked

Sensitivity to NADs is fundamental to language acquisition[1]

Measuring implicit NADL in children:
> Offline: accuracy on grammaticality judgment task
> Online: response times (RT) to NAD-rule items versus non NAD-rule items reflect learning dynamics [2,3,4]

NADL in SLI:
> Offline: not as effective as in people without SLI [5]
> Online: no data available as yet

RQ: Do the speed and degree of learning nonadjacent dependencies differ between children with and without SLI?

Online Tests Phase (Word Monitoring)


Preliminary analysis (lmer): No evidence for a difference in RT between rule and no-rule blocks between TD and SLI group (Block*Sample: estimate = 89.57; z = 1.67). Large individual differences in both groups.

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References

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Recruitment SLI: Viertaal; Pento Amersfoort; Auris Leiden, Haarlem & Breda, FOSS Oudervereniging TOS. Recruitment and testing elementary schools TD: Binnenmeer, Startnest & Wheermolen, Darlene Keydeniers & Iris Broedelet

Mean = 0.52 (SD = 0.13)
Range = 0.25 - 0.87

Visual inspection: no evidence of learning in both groups. Wider range of scores obtained in TD group.

Preliminary analysis (glm): No evidence that children as a group scored above chance level (estimate = 51.4%; z = 0.80, p = 0.43) or that the groups differed in performance (estimate = 1.03 odds; z = 0.24; p = 0.81).

Conclusions
Visual inspection suggests different NADL dynamics between children with and without SLI. Preliminary analysis do not support this claim, however.

There exist large individual differences in children’s sensitivity to nonadjacent dependencies.

More research is needed to evaluate how NADL relates to language performance and developmental language disorders.

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References

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