Examining the contribution of statistical learning to grammar and literacy acquisition

A study of Dutch children with and without dyslexia

In this dissertation, we investigate the hypothesis that a domain-general statistical learning mechanism supports the acquisition of language, both in its spoken and in its written form. Such a statistical learning mechanism allows for the learning of abstract patterns and rules based on the statistical properties of the input (i.e., language). Our investigation includes two separable lines of research: (1) the study of the correlation between individual differences in statistical learning ability and scores on grammar and literacy, and (2) the study of group differences between Dutch-speaking children with and without dyslexia. Moreover, it applies both experimental and meta-analytical techniques.

Taken together, the results presented in this dissertation do not provide evidence for (or against) a link between a domain-general statistical learning ability and the acquisition of language and literacy skills. Therefore, it cannot be excluded that the relationship between statistical learning and language and literacy acquisition may be less strong than hypothesized. Furthermore, individuals with dyslexia likely do not have a domain-general, extensive deficit in statistical learning. More research in the form of large-scale and pre-registered studies, as well as meta-analyses, is needed in order to reach definitive conclusions regarding the contribution of (domain-general) statistical learning ability to the acquisition of language and literacy skills, both in typical and in impaired populations.