**The effect of statistical learning and general cognitive skills on language processing:  
a structural equation modeling study**

# **Background and aims**

Our research is about how cognitive capacities shape language skills, and especially how statistical learning capacity is related to linguistic skills. Previous studies have shown that statistical learning capacity has a positive relationship with performance on tasks measuring various linguistic processes. However, to our knowledge there is no systematic study on this relationship and on the potential mediating cognitive capacities. In the present study, we investigated this question by targeting multiple statistical learning tasks and indices, multiple linguistic skills, and potential mediating cognitive factors. Specific indices from the statistical learning and language tasks are suitable for measuring predictive processing, so we could investigate the relationship between prediction efficiency in statistical learning and language.

# **Method**

We administered a test battery of statistical learning, mediator cognitive abilities, and language skills with a relatively large pool of adult participants. Statistical learning tests consisted of a speech segmentation and an artificial grammar learning task, and for both tasks, we administered online (*during learning*, measuring prediction), and offline (*post hoc*) tests. For mediator cognitive abilities, we tested processing speed and various measures of short term, working memory and cognitive control. For the language abilities, we examined receptive vocabulary, grammatical structure sensitivity, pragmatic sentence comprehension, the processing of syntactic and semantic violations, and the predictive processing of sentences.

# **Results**

(Bálint)

# **Discussion**

There are some questions raised by these results. First, what is the source of the remaining shared variance between performance on statistical learning and language tasks? And second, how can statistical learning capacity be defined?