Improving the Assessment of Individual Phoneme Discrimination Performance

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[*] *Both Maartje and Duco will act as presenters during this presentation*

Suggested talk duration (15-60 minutes): 20 minutes

Summary

Through research in infant development, substantial insight has been gained in all kinds of (non-linguistic) developmental processes and changes. For instance, we know that newborns start out life as language-general listeners and become language-specific listeners. Such findings, however, are based on group results that often include high variation in listening times and a limited number of test trials. This makes it difficult to interpret the data, especially when small sample groups are used. In the current study with 6 to 10-month-old Dutch infants a design is used that previously allowed the assessment of discrimination of different speech stimuli by infants. In contrast to the previous findings, in our study the individual analyses using a linear regression model with autoregressive (AR1) error structure did not yield the expected results of finding discrimination of speech stimuli. This whilst at a group level the effect was found. We show an alternative way of analyzing the data by means of a Hierarchical Bayesian analysis so that we can assess the group level effects and the individual effects simultaneously. By doing so we can include information from the group level in the individual assessments thereby substantially reducing the noise so that we can gain a better perspective on whether the individual infants can discriminate different speech stimuli.

Relevance to conference theme

The presentation will provide an illustration of a real-life small sample size issue and a potential solution (using Bayesian hierarchical modelling).

Keywords (max. 3)

Discrimination of speech stimuli, Individual analyses, Hierarchical Bayesian analyses.