

Modelling of response times

Background

When results from larger achievement tests like PISA, the Swedish admission test for universities (högskoleprovet), or Swedish national tests in school are evaluated, a model-based approach is often used. A model describes (e.g.) the probability for a correct answer to a specific question in a test given the ability of the examinee. Such models are called item response models.

Many tests are currently transferred to computer-based administration. Therefore, often also response times are collected, i.e. the time which an examinee used to answer the question. Models for jointly explaining the response and the response time have been proposed. Especially when new questions are pretested, it is of high interest to estimate both the probability for a correct answer as well as the usual time needed for giving an answer.

In this project, you are supposed to describe and compare different models for analysing response times. Based on existing methods, you might also develop new promising variants of models. Initially, a software package is available with facilitates analysis of response times based on a specific model. For other models proposed in literature or for own model developments, there is then the opportunity to write own analysis programs.

Data description

Responses and response times from Swedish national tests in mathematics are available from around 1500 examinees.

Research questions

- Which models for jointly describing responses and response times from achievement tests have been proposed? Are there promising new variants of these models?
- For which models can existing software been used? Can new programs be developed for models without existing software?
- Which of these models are suitable for analysis of response times?

Eligibility criteria

Interest in modelling data with non-standard models.

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