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A family of within-test operation-specific learning models

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Abstract

A family of within-test operation-specific learning models is presented, characterized by fixed-effect versus random-effect learning parameters and by modeling learning from all responses versus only from correct responses. The models, therefore, result from combining the estimation of contingent or non-contingent learning with the consideration or non-consideration of inter-individual variability in learning effects. A simulation study examines parameter recovery and model evaluation. The estimation was conducted by means of Markov chain Monte Carlo using the NUTS algorithm. Model evaluation was based on posterior predictive model checking, while model comparison and selection was based on WAIC and LOOIC. The results show good performance in parameter recovery and model evaluation. An empirical study illustrates the applicability of the models.

Keywords

item response theory, learning models

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