



RESEARCH ARTICLE

ITEM RESPONSE THEORY

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Abstract— Item Response Theory is based on the application of related mathematical models to testing data. Because it is generally regarded as superior to classical test theory, it is the preferred method for developing scales, especially when optimal decisions are demanded, as in so-called high-stakes tests.

The term item is generic: covering all kinds of informative item. They might be multiple choice questions that have incorrect and correct responses, but are also commonly statements on questionnaires that allow respondents to indicate level of agreement (a rating or Likert scale), or patient symptoms scored as present/absent, or diagnostic information in complex systems.

IRT is based on the idea that the probability of a correct/keyed response to an item is a mathematical function of person and item parameters. The person parameter is construed as (usually) a single latent trait or dimension. Examples include general intelligence or the strength of an attitude.

Keywords – Item response theory; IRF; graphical analysis; newton raphson; CTT; future prospects

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