



Research

The aim of this study is to find a feasible method to determine item discrimination values within the Math Garden to detect deviant items.

What is the problem

- Sparse data
- Scaling
- Identifiability

Pragmatic solution

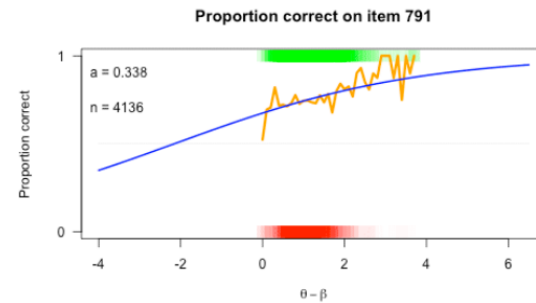
So there are some fundamental problems in estimating a . But can we at least have some pragmatic solution?

For fancy visuals see QR code

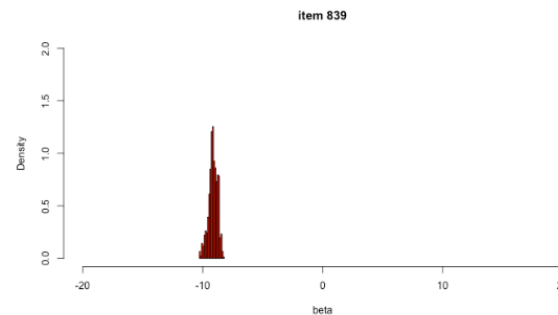


<https://goo.gl/a6ch6A>

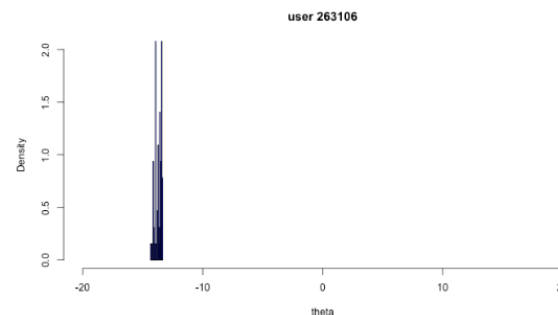
Discrimination



Item ratings



User Ratings



Method

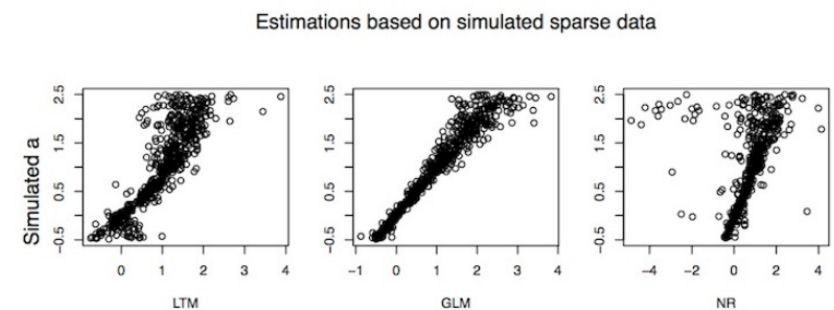
Simulations

Simulate responses and response times based on known θ 's, β 's and a -parameters. Look how well we can recover the a -parameter.

- Simulate full data
 - Estimate with LTM
 - GLM
 - Newton-Rapson
- Simulate sparse data
 - LTM
 - GLM
 - Newton-Rapson

Look at BIAS and SEM.

Preliminary Results



TO-DO

- $a = 1$
- $a \sim U(0, 3)$
- $a \sim U(-.5, 3)$
- Apply NR in Math Garden
- Inactivate bad items
- Apply to real data