IRT in R: Exercises 1

1. Load the data in the file "TimssData.Rdata". This contains scored responses from 1773 Australian and Taiwanese students to the mathematics items of the TIMSS study. This data is publicly available in the `TAM` R package.

2. The test responses are stored in the variable `timssData`. Fit this data using the PCM, GPCM and graded response models.

3. Plot the category probability curves for item 4 for each model. Comment on any differences. Do you think the PCM or GPCM provides a better fit to the data? Wny?

4. Compare the item parameter estimates between the PCM and GPCM. Use these to explain the differences between the two curves.

5. Estimate the abilities of the test takers using WLE and EAP using the GPCM fits of the item parameters. Graphically compare the estimates using the `plot` function.

6. Use the country information in `timssCovar` to plot histograms of the EAP estimates of ability. Do you think the histograms look similar? What do you think this means?