

## IRT in R: Exercises 2

1. Compare the PCM and GPCM fits to the TIMSS data in the previous exercises using an LRT and interpret the results. Do the information criteria agree with this result?
2. Test the fit of the GPCM using the  $M_2^*$  statistic. Interpret your result.
3. Use the  $S-X^2$  statistic to locate any items that appear to be poorly accounted for by the GPCM. Should any such items be present, re-fit the GPCM without these items. Does this improve the fit?
4. A possible source of the poor fits is DIF. Use items 1, 3, 4 and 10 as anchors and test the remaining items for uniform DIF using a LRT. (*Note:* Items 1, 3, 4 and 10 were selected, because they were best fit by a single group model. In applications, this should be replaced with a data-driven method.)