Online Appendix

Figure 16 shows the estimates for count data with constant slopes and varying discrimination parameters for $I = 5$, $P = 200$ and $\sigma_\theta = 1$. The dots show the true values of the parameters. Note that there is no variation in the last discrimination parameter since it is fixed ($\alpha_5 = 1$). Figure 17 shows the estimates for data with varying slopes and fixed discrimination parameters ($I = 5$, $P = 200$, $\sigma_\theta = 1$). For illustration Figure 18 shows the estimates for the latter scenario if the number of persons is increased to $P = 400$, which means estimates are closer to the true values.
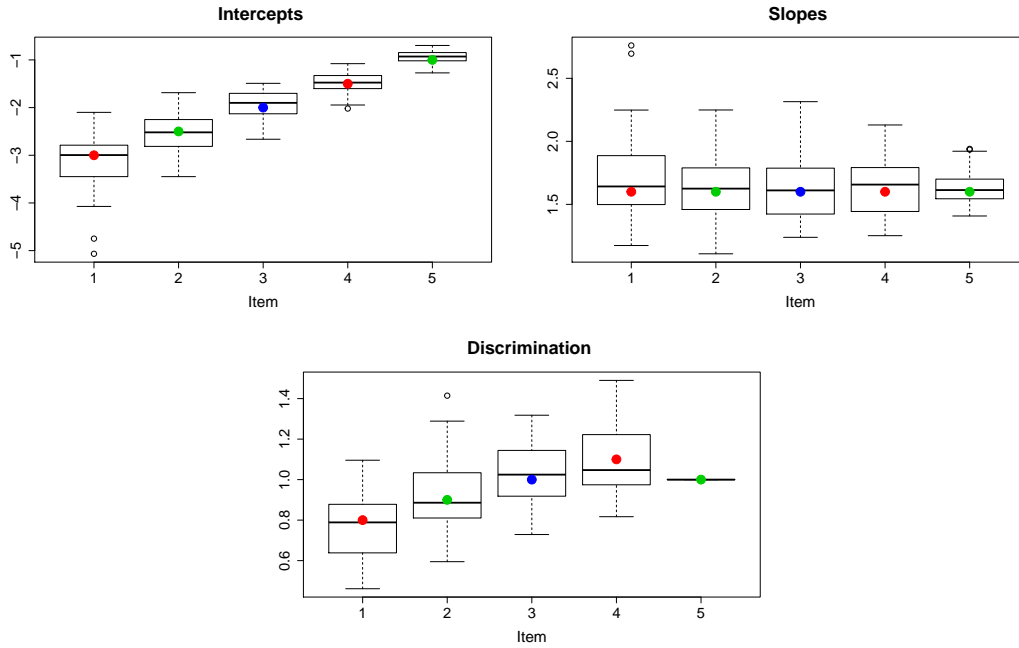

FIGURE 16: *Estimates for simulated count data with $I = 5$, $P = 200$ and $\sigma_\theta = 1$. The dots show the true values of the parameters.*
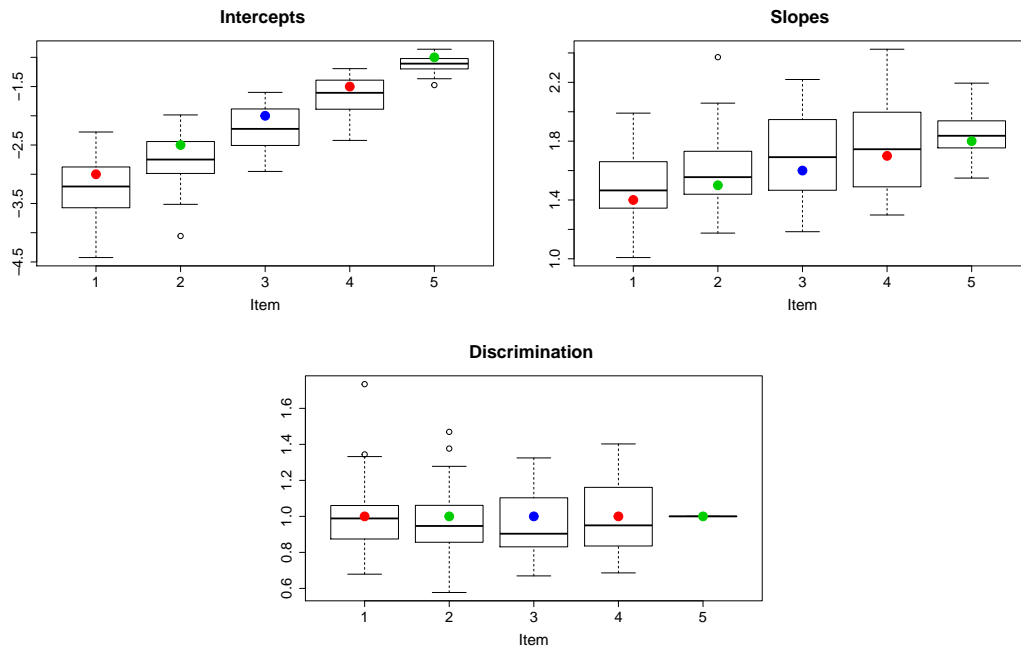
FIGURE 17: *Estimates for simulated count data with* $I = 5$, $P = 200$ *and* $\sigma_\theta = 1$. *The dots show the true values of the parameters.*
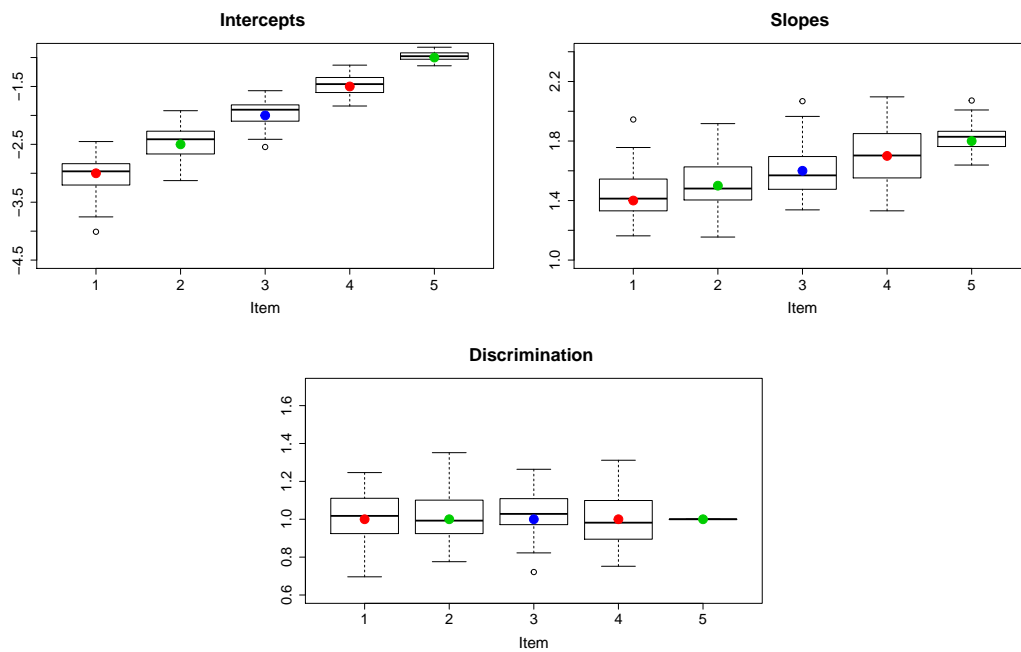

FIGURE 18: *Estimates for simulated count data with* $I = 5$, $P = 400$ *and* $\sigma_\theta = 1$. *The dots show the true values of the parameters.*