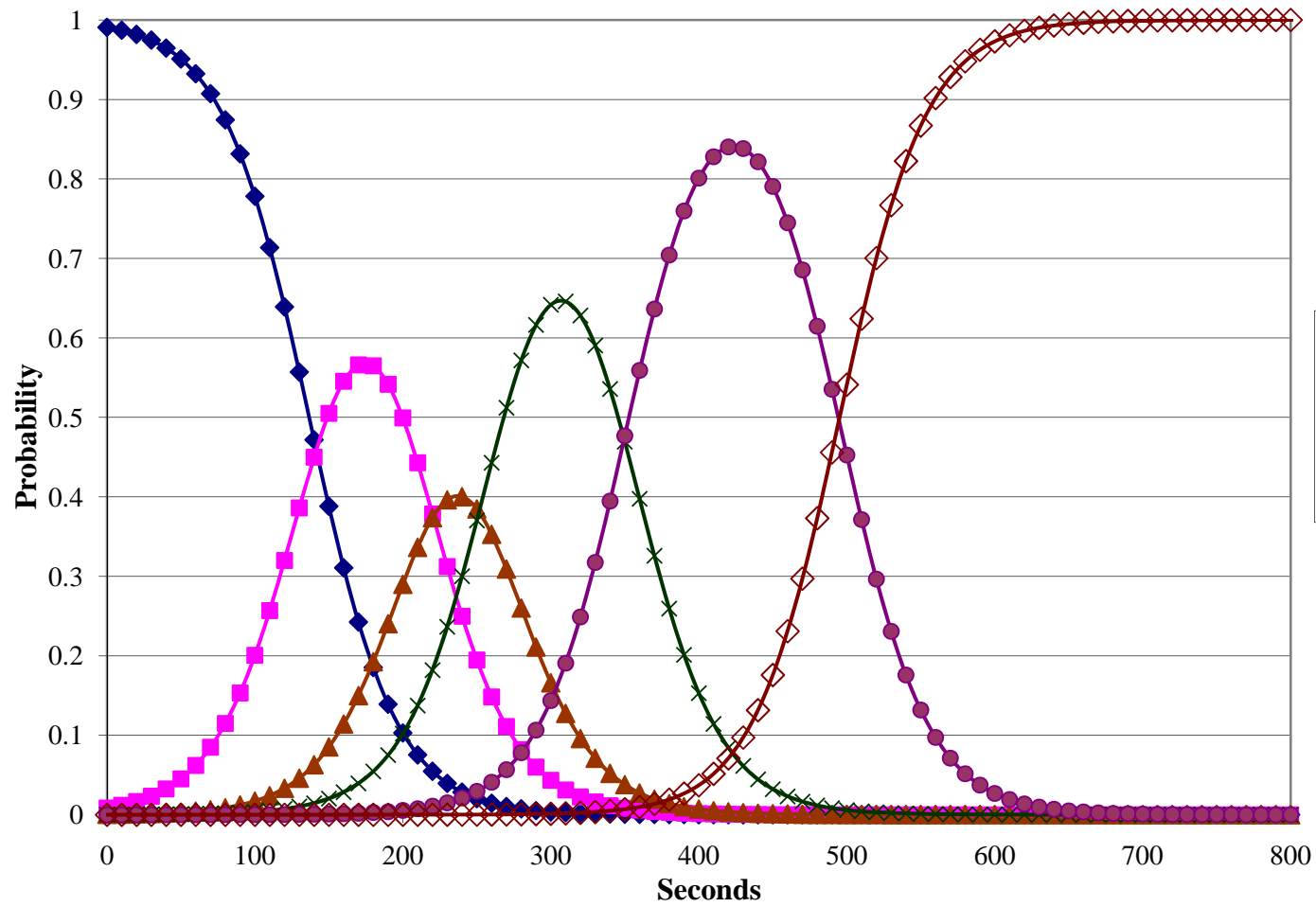Modeled Response Category Probabilities over Time at Baseline

Supplemental Digital Content 4. The estimated probability of responding in each category on the numeric rating scale as a function of time during the baseline test for typical respondent with B0i.= G00 and B1i = G01. The probabilities are obtained by transforming the fixed effects at baseline. First, for the response category $m = 0$, the log odds of responding in category 0 or less are •0t = G00 + G10 (SEC); then for $m = 1, 2, 3$, and 4 add the threshold difference dm, so that •mt = G00 + G10 (SEC) + dm to obtain the log odds of scoring in each category (or lower). Second, convert the log odds to the cumulative probability for m using $P(NRS \leq m) = 1/(1 + \exp\{-•mt\})$. The cumulative probability of scoring m = 4 or less is set to 1.0. Third, for $m = 1, 2, 3$, and 5, obtain the probabilities for $R = m$ by subtracting the cumulative probability for the adjacent lower category $m - 1$ from the cumulative probability for category m. (See Hedecker & Gibbons, 2006, pp. 188-190 and Raudenbush & Bryk, 2002, pp. 295-296, 317-322).