

participant level

$$\log(k) \sim \text{Normal}(\log(1/365), 10^2)$$

$$\epsilon \sim \text{Beta}_{(0,0.5)}(1.1, 10.9)$$

$$\alpha \sim \text{Exponential}(0.01)$$

trial level

$$V_t^A = \frac{A_t}{1 + k_t D_t^A}$$

$$V_t^B = \frac{B_t}{1 + k_t D_t^B}$$

$$P_t = \epsilon + (1 - 2.\epsilon).\Phi\left(\frac{V_t^B - V_t^A}{\alpha}\right)$$

$$R_t \sim \text{Bernoulli}(P_t)$$