

$$\begin{aligned}
Notes_{i,t} &\sim \text{Poisson}(\lambda_{i,t}) \\
\lambda_{i,t} &= (1 - cat_{it}) * \alpha_i + cat_{i,t} * \beta_i \\
cat_{obs,t} &\sim \text{Bernoulli}(cat_t * \delta) \\
cat_t &\sim \text{Bernoulli}(\kappa) \\
\delta &\sim \text{Beta}(4, 4) \\
\kappa &\sim \text{Beta}(4, 4) \\
\alpha_i &\sim \text{Exponential}(1/\bar{\alpha}) \\
\beta_i &\sim \text{Exponential}(1/\bar{\beta}) \\
\bar{\alpha} &\sim \text{Exponential}(1/10) \\
\bar{\beta} &\sim \text{Exponential}(1/10)
\end{aligned}$$