



$$\begin{aligned}
 y_i &\sim \text{NegBinom}(\mu, \phi) \\
 \phi &\sim \text{half-Cauchy}(2.5) \\
 \alpha &\sim \text{Normal}(0, 10) \\
 \eta_i &\sim \text{MultiNormal}(\vec{0}, \Sigma) \\
 \Sigma &= \sigma^2 (D - pA)^{-1} \\
 \sigma &\sim \text{half-Cauchy}(2.5)
 \end{aligned}$$