

Model:

$$\begin{aligned}
Y_{mi} &\overset{ind.}{\sim} \text{Weibull}(\eta_m, \beta_m) \\
\sigma_m &= \frac{1}{\beta_m}, \quad t_{p,m} = \exp\{\log(\eta_m) + \sigma_m \Phi_{sev}(p)\} \\
\log(t_{p,m}) &\overset{i.i.d.}{\sim} t(\nu = 5, \mu_1, \tau_1) \\
\sigma_m &\overset{i.i.d.}{\sim} \text{log-normal}(\mu_2, \tau_2^2)
\end{aligned}$$

Priors:

$$\begin{aligned}
p(\mu_1, \mu_2) &\propto 1 \\
\tau_1, \tau_2 &\overset{ind.}{\sim} \text{half-Cauchy}(0, 10)
\end{aligned}$$