



$$\begin{aligned}
\mu_i^\eta &\sim \text{Gaussian}(0, 1) \\
\gamma_i^\eta &\sim \text{Gaussian}(0, 1)T(0, \infty) \\
\eta_{is} &= \begin{cases} \exp\left(\mu_i^\eta + \frac{\gamma_i^\eta}{2}\right) & \text{if } s = \text{accuracy} \\ \exp\left(\mu_i^\eta - \frac{\gamma_i^\eta}{2}\right) & \text{if } s = \text{speed} \end{cases} \\
\tau_i^0 &\sim \text{uniform}(0, \min y_{i1}) \\
\mu_{id}^\delta &\sim \text{Gaussian}(0, 1) \\
\sigma^\delta &\sim \text{uniform}(0, 1) \\
\delta_{id} &\sim \text{log-Gaussian}\left(\mu_{id}^\delta, \frac{1}{(\sigma^\delta)^2}\right) \\
\mu_d^{\tau^\theta} &\sim \text{Gaussian}(0, 1) \\
\tau^{\tau^\theta} &\sim \text{uniform}(0, 4) \\
\tau_{id}^\theta &\sim \text{log-Gaussian}\left(\mu_d^{\tau^\theta}, \frac{1}{(\sigma^{\tau^\theta})^2}\right) \\
\mu_{ic}^\omega &\sim \text{Gaussian}(0, 1) \\
\gamma_{ic}^\omega &\sim \text{Gaussian}(0, 1) \\
\frac{\omega_{ic}}{1 - \omega_{ic}} &= \begin{cases} \exp\left(\mu_{ic}^\omega + \frac{\gamma_{ic}^\omega}{2}\right) & \text{if } c > 0 \\ \exp\left(\mu_{ic}^\omega - \frac{\gamma_{ic}^\omega}{2}\right) & \text{if } c < 0 \\ \exp(\mu_{ic}^\omega) & \text{if } c = 0 \end{cases} \\
z_{isdct} &\sim \text{Bernoulli}(\omega_{ic}) \\
\beta_i &\sim \text{Gaussian}(0, 1) \\
\theta_{isdct} &\sim \begin{cases} \text{Gaussian}(\phi_{isdct}, \tau_{id}^\theta) & \text{if } z_{isdct} = 0 \\ \text{Gaussian}(q_{isdct}, \beta_i \tau_{id}^\theta) & \text{if } z_{isdct} = 1 \end{cases} \\
y_{isdct} &\sim \text{CDDM}(\delta_{id}, \eta_{is}, \tau_i^0, \text{mod}(\theta_{isdct}, 2\pi))
\end{aligned}$$