

# JAGS\_model

## simulation\_normal\_2prior\_indep\_0.txt

$$\begin{aligned}
 y_i &\sim N(\mu_i, \sigma_y^2) \\
 \mu_i &= X_i \beta \\
 \beta &= \beta^* \gamma_{g,j} \times (1/24), \quad j = 1, 2, \quad g = 1, \dots, 24 \\
 \beta^* &= N(0.03, 0.001^2) \\
 \gamma_{1,1} &= 0 \\
 \gamma_{1,2} &\sim N(1, 0.3^2) \\
 \gamma_{g,2} &\sim N(\gamma_{g-1,2}, \sigma_\gamma^2), \quad 2 \leq g \leq 24 \\
 1/\sigma_\gamma^2 &\sim \text{Gamma}(\text{shape}, \text{rate})
 \end{aligned}$$

```

model {

  # likelihood
  for (i in 1:N) {
    y[i] ~ dnorm(mu[i], sigma.y)
    mu[i] <- inprod(xvct[hmat[i,]], beta)
  }

  beta <- bstar * gamma[pick] * (1/24)

  # prior for bstar
  bstar ~ dnorm(mu.beta, tau.beta)
  mu.beta <- 0.03
  tau.beta <- pow(sigma.beta, -2)
  sigma.beta <- 0.001

  # prior for gamma
  for (g in 1:K) {
    gamma[g,1] <- 0
    gamma[g,2] ~ dnorm(mu.gamma, tau.gamma)
  }
  mu.gamma <- 1
  tau.gamma <- pow(sigma.gamma, -2)
  sigma.gamma <- 0.4

  pick ~ dcat(q[1:2])
  q[1] <- 0.5
  q[2] <- 0.5

  # sigma.y
  sigma.y <- 10
}

```