Model

$$p(\mu_\theta)\,p(\tau_\theta)\,p(\theta \mid \mu_\theta, \tau_\theta)\,p(\sigma)\,p(y \mid \theta, \sigma)$$

μ_θ conditional

$$p(\mu_\theta \mid \tau_\theta, \theta, \sigma, y) \propto p(\mu_\theta)\,p(\theta \mid \mu_\theta, \tau_\theta)$$

$$\propto p(\mu_\theta \mid \bar{\mu}, \tau_\mu^2) \prod_j p(\theta_j \mid \mu_\theta, \tau_\theta^2)$$

— simple conjugate problem!!

τ_θ conditional

$$p(\tau_\theta \mid \cdot) \propto p(\tau_\theta \mid \nu, \lambda) \prod_j p(\theta_j \mid \mu_\theta, \tau_\theta^2)$$

Model

$$p(\mu_\theta)\, p(\tau_\theta)\, p(\theta \mid \mu_\theta, \tau_\theta)\, p(\sigma)\, p(y \mid \theta, \sigma)$$

$p(\theta \mid \cdot)$

$$p(\theta \mid \cdot) \propto p(\theta \mid \mu_\theta, \tau_\theta)\, p(y \mid \theta, \sigma)$$

$$= \prod_j p(\theta_j \mid \mu_\theta, \tau_\theta) \prod_j p(y_j \mid \theta_j, \sigma_j)$$

$$= \prod_j \left\{ p(\theta_j \mid \mu_\theta, \tau_\theta)\, p(y_j \mid \theta_j, \sigma_j) \right\}$$

— independent conditionally conjugate problems!!!