write-up

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Full Model

For $i = 1, \ldots, n$ observations, denote each observation's group of scores as $\mathbf{Y}_i$, where

$$\mathbf{Y}_i = \begin{pmatrix} Y_{i,1} \\ Y_{i,2} \\ Y_{i,3} \end{pmatrix} = \begin{pmatrix} \text{political participation score} \\ \text{political satisfaction score} \\ \text{economic satisfaction score} \end{pmatrix}$$

The full model is in the form of

$$\mathbf{Y}_i \mid \boldsymbol{\theta}, \Sigma \sim MVN(\boldsymbol{\theta}, \Sigma).$$
$$\boldsymbol{\theta} \sim MVN(\boldsymbol{\mu}_0, \Lambda_0)$$
$$\Sigma \sim \text{inverseWishart}(\nu_o, S_o^{-1}).$$

Let $\boldsymbol{\theta} = (\theta_1, \theta_2, \theta_3)$ denote the mean scores for 1) political participation, 2) political satisfaction, and 3) economic satisfaction.

Let Σ denote the covariance matrix, where the $(i,j)^{\text{th}}$ component of Σ is the covariance between Y_i and~Y_j, giving component variances along the diagonal of Σ.

Hyperparameter settings