Errata (2nd edition)

- Ch. 3, p. 109: The regression coefficient for $x_{i,c-1}$ should not have an index i:

$$y_i = \beta_0 + \beta_1 x_{i1} + \ldots + \beta_{c-1} x_{i,c-1} + \ldots + \varepsilon_i.$$

- Ch. 4, p. 256: Missing indices in the hyperparameters:
  - For the ridge prior draw $(\tau^2)^{(t)} \mid \cdot$ from an inverse gamma distribution with parameters

$$a^{new} = a_{\tau^2} + \frac{k}{2}, \qquad b^{new} = b_{\tau^2} + \frac{1}{2}\tilde{(}\boldsymbol{\beta}^{(t)})'\tilde{\boldsymbol{\beta}}^{(t)}.$$

  - For the LASSO prior, sample

$$\begin{aligned}(1/\tau_j^2)^{(t)} \mid \cdot &\sim \text{InvGauss}(\tfrac{|\lambda^{(t-1)}|}{|\beta_j^{(t)}|}, (\lambda^{(t-1)})^2),\\ (\lambda^2)^{(t)} \mid \cdot \quad &\sim \text{G}\left(a_\lambda + k, b_\lambda + \tfrac{1}{2}\sum_{j=1}^{k}(\tau_j^2)^{(t)}\right).\end{aligned}$$

- Ch. 4, p. 267: At various places in Section 4.4.4, σ^2 should be replaced by τ^2:

$$\beta_j \mid \delta_j, \sigma^2 \sim (1-\delta_j)\text{Dirac}(0) + \delta_j \ \text{N}(0, \sigma^2). \tag{4.36}$$

$$\beta_j \mid \delta_j, \tau^2 \sim (1-\delta_j)\, \text{N}(0, \nu_0\, \tau^2) + \delta_j \ \text{N}(0, \tau^2), \tag{4.37}$$

  The same changes have to be made in Box 4.10.
- Ch. 8, p. 445: Mistake in the index set:

$$B_j^0(z) = I(\kappa_j \le z < \kappa_{j+1}) = \begin{cases} 1 & \kappa_j \le z < \kappa_{j+1} \\ 0 & \text{otherwise} \end{cases} \qquad j = 1, \ldots, d,$$

- Ch. 8, p. 537: Mistake in the transposed signs in the joint normal distribution:

$$\begin{pmatrix} \boldsymbol{y} \\ \eta_0 \end{pmatrix} \sim \text{N}\left(\begin{bmatrix} \boldsymbol{X\beta} \\ \mu_0 \end{bmatrix}, \begin{bmatrix} \tau^2 \boldsymbol{ZRZ}' + \sigma^2 \boldsymbol{I}_n & \tau^2 \boldsymbol{r} \\ \tau^2 \boldsymbol{r}' & \tau^2 \end{bmatrix}\right)$$

- Ch. 9, p. 587: penalized least squares should be penalized log-likelihood:
  The penalized log-likelihood

$$l_{pen}(\boldsymbol{\gamma}_1, \ldots, \boldsymbol{\gamma}_q, \boldsymbol{\beta}) = l(\boldsymbol{\gamma}_1, \ldots, \boldsymbol{\gamma}_q, \boldsymbol{\beta}) - \frac{1}{2}\sum_{j=1}^{q} \lambda_j \boldsymbol{\gamma}_j' \boldsymbol{K}_j \boldsymbol{\gamma}_j$$

  can be maximized by Fisher scoring iterations augmenting working weights and working responses to the solution to penalized least squares estimate.
- Ch. 10, p. 638: Sloppy notation for the flat prior of $\boldsymbol{\beta}_\tau$:
  We thereby assume noninformative priors $p(\boldsymbol{\beta}_\tau) \propto$ const and the usual inverse gamma priori for σ^2, i.e., $\sigma^2 \sim \text{IG}(a, b)$ with hyperparameters a and b.

- Ch. 10, p. 638: Sloppy notation for the flat prior of $\boldsymbol{\beta}_\tau$ in Box 10.2:

  $p(\boldsymbol{\beta}_\tau) \propto \text{const}$

  $z_i \,|\, \sigma^2 \sim \text{Expo}(1/\sigma^2)$

  $\sigma^2 \sim \text{IG}(a, b).$

- Ch. 10, p. 662: Incorrect formatting of the subscript for z_1:

$$\boldsymbol{y} \,|\, \boldsymbol{z}, \boldsymbol{\beta}_\tau, \sigma^2 \sim \text{N}(\boldsymbol{X}\boldsymbol{\beta}_\tau + \xi\boldsymbol{z},\ \sigma^2\boldsymbol{W}^{-1}), \qquad \boldsymbol{W} = \text{diag}(w_1, \ldots, w_n), \qquad \boldsymbol{z} = (z_1, \ldots, z_n)'$$

- Ch. 10, p. 662: Missing part in the full conditional for σ^2:

$$a' = a + \frac{3n}{2} \text{ and } b' = b + \frac{1}{2}(\boldsymbol{X}\boldsymbol{\beta}_\tau + \xi\boldsymbol{z} - \boldsymbol{y})'\boldsymbol{W}(\boldsymbol{X}\boldsymbol{\beta}_\tau + \xi\boldsymbol{z} - \boldsymbol{y}) + \sum_{i=1}^{n} z_i.$$