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January 2020

Gibbs sampler of the model under the prior:

$$[B, \sigma_\epsilon^2] = \pi[B] \times \frac{1}{\sigma_\epsilon^2} \tag{1}$$

where $\pi[B]$ is such that all the coefficients are independent across species:

$$\forall j = 1, \dots, S \qquad \beta_j \overset{iid}{sim} N(0, \sigma^2) \tag{2}$$

where β_j is the j-th row of B (if B is $S \times k$) σ is an hyperparameter that gives the degree of uninformativeness of the prior. You can take $\sigma = 10$.

- $[V_i|B, X, A]$: for each site $i = 1, \dots, n$ we sample V_i from

$$V_i|B, X, A \sim N(Bx_i, R) \tag{3}$$

  where R is the correlation matrix obtained by normalizing $\Sigma = AA' + \sigma_\epsilon^2 I$.

- $[B|V, X, A, ...]$: for each species $j = 1, \dots, S$ we sample β_j from a multivariate normal

$$\beta_j \sim N((\sigma I + X_j' X_j)^{-1}) X_j' V_j, (\sigma I + X_j' X_j)^{-1})) \tag{4}$$

  as in equation (3.A.3) by Golding. (non vorrei dire una boiata, ma potrebbe essere che σ in realtà vada messo al quadrato. Se non vi torna magari provateci).

- $[\sigma_\epsilon^2|rest]$ as in Taylor and Rodriguez appendix