RANDOM SLOPES MODEL

$$y_i \sim Normal(\mu_i,\ \sigma)$$

$$\mu_i = \alpha_0 + \alpha_{block[i]} + (\beta_0 + \beta_{block[i]})x_i$$

$$\alpha_k \sim Normal(0,\ \sigma_\alpha), \text{for } k \text{ in } \{1, \cdots, N_{blocks}\}$$

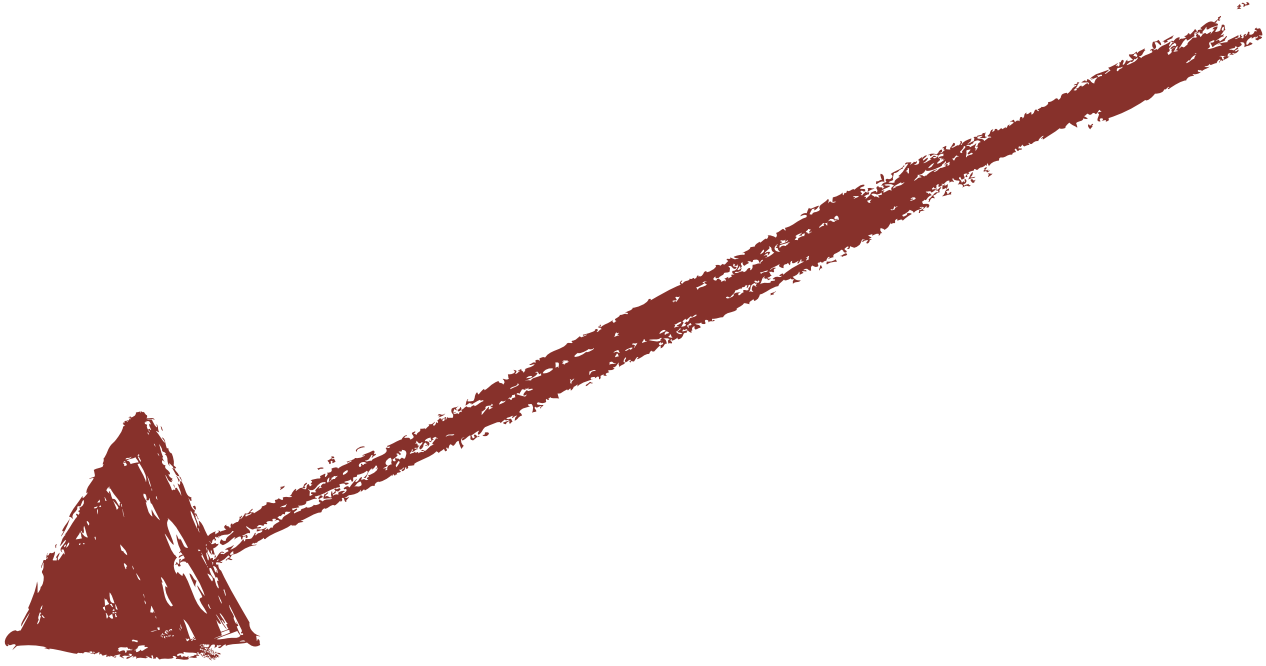
$$\beta_k \sim Normal(0,\ \sigma_\beta), \text{for } k \text{ in } \{1, \cdots, N_{blocks}\}$$

$$\alpha_0, \beta_0 \sim Normal(0,\ 1)$$

$$\beta \sim Normal(0,\ 0.3)$$

$$\sigma, \sigma_{block} \sim Exponential(1)$$

Allows the slope associated with the x predictor to vary across blocks, but maintains a dependency across blocks



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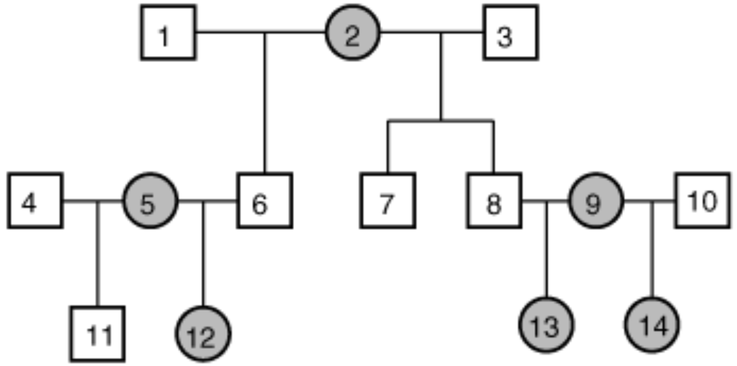
MORE COMPLEX STRUCTURING OF THE DEPENDENCY ACROSS COEFFICIENTS

Phylogenetic models

Evolutionary relatedness

Animal models

Genetic relatedness



Spacial auto-correlation

Spacial proximity