

Hierarchical Model: Multi-Level Structure

Mathematical specification of nested dependencies

LEVEL 3

Population Level:
 $\beta \sim \text{Normal}(0, 2.5)$
 $\sigma \sim \text{Half-Cauchy}(0, 1)$

LEVEL 2

Individual Level:
 $u[i] \sim \text{Normal}(0, \sigma_u^2)$
 $i = 1, \dots, 6$

Block Level:
 $v[j] \sim \text{Normal}(0, \sigma_v^2)$
 $j = 1, \dots, 88$

LEVEL 1

Trial Level:
 $Y[ijk] \sim \text{Multinomial}(p_1, p_2, p_3)$
 $k = 1, \dots, 1,443$

