

POISSON MODEL - *Uniform precision prior*

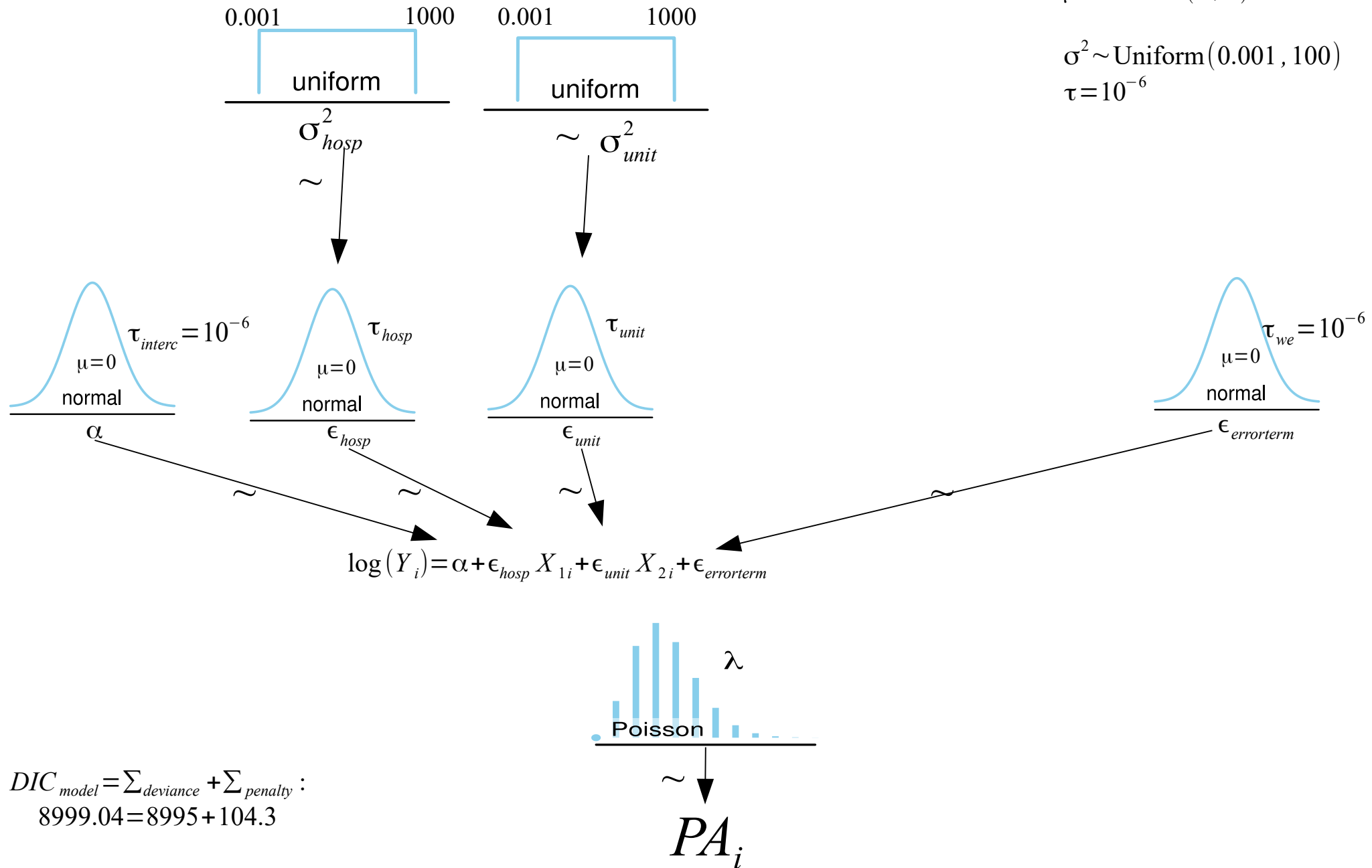
MODEL : *Random intercept only*

$$y_i \sim \text{Poisson}(\lambda)$$

$$\mu \sim \text{Normal}(0, \tau)$$

$$\sigma^2 \sim \text{Uniform}(0.001, 100)$$

$$\tau = 10^{-6}$$



$$DIC_{model} = \sum_{deviance} + \sum_{penalty} :$$

$$8999.04 = 8995 + 104.3$$

POISSON MODEL - *Uniform precision prior*

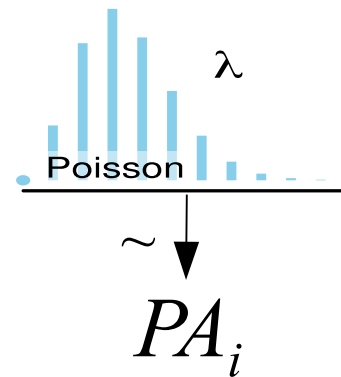
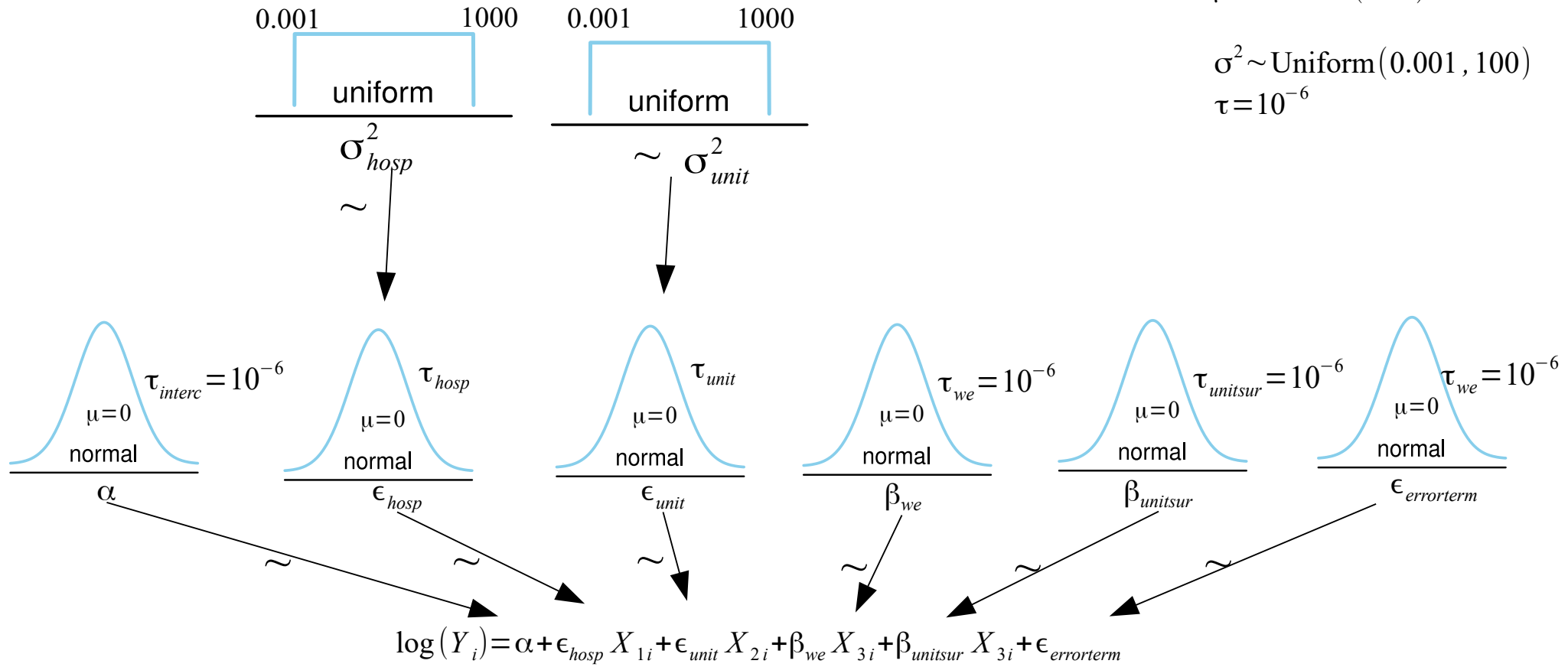
MODEL : Random intercept + optimal variable selection based on DIC

$$y_i \sim \text{Poisson}(\lambda)$$

$$\mu \sim \text{Normal}(0, \tau)$$

$$\sigma^2 \sim \text{Uniform}(0.001, 100)$$

$$\tau=10^{-6}$$



$$DIC_{model} = \sum_{deviance} + \sum_{penalty} :$$

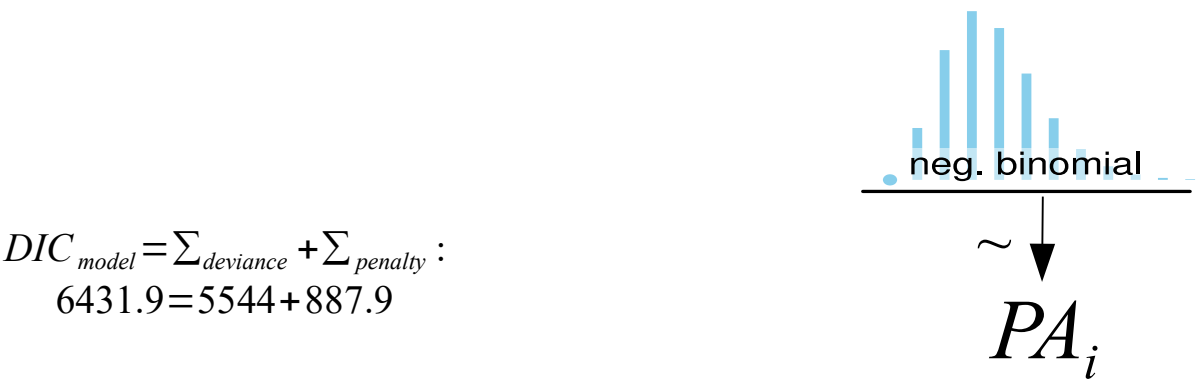
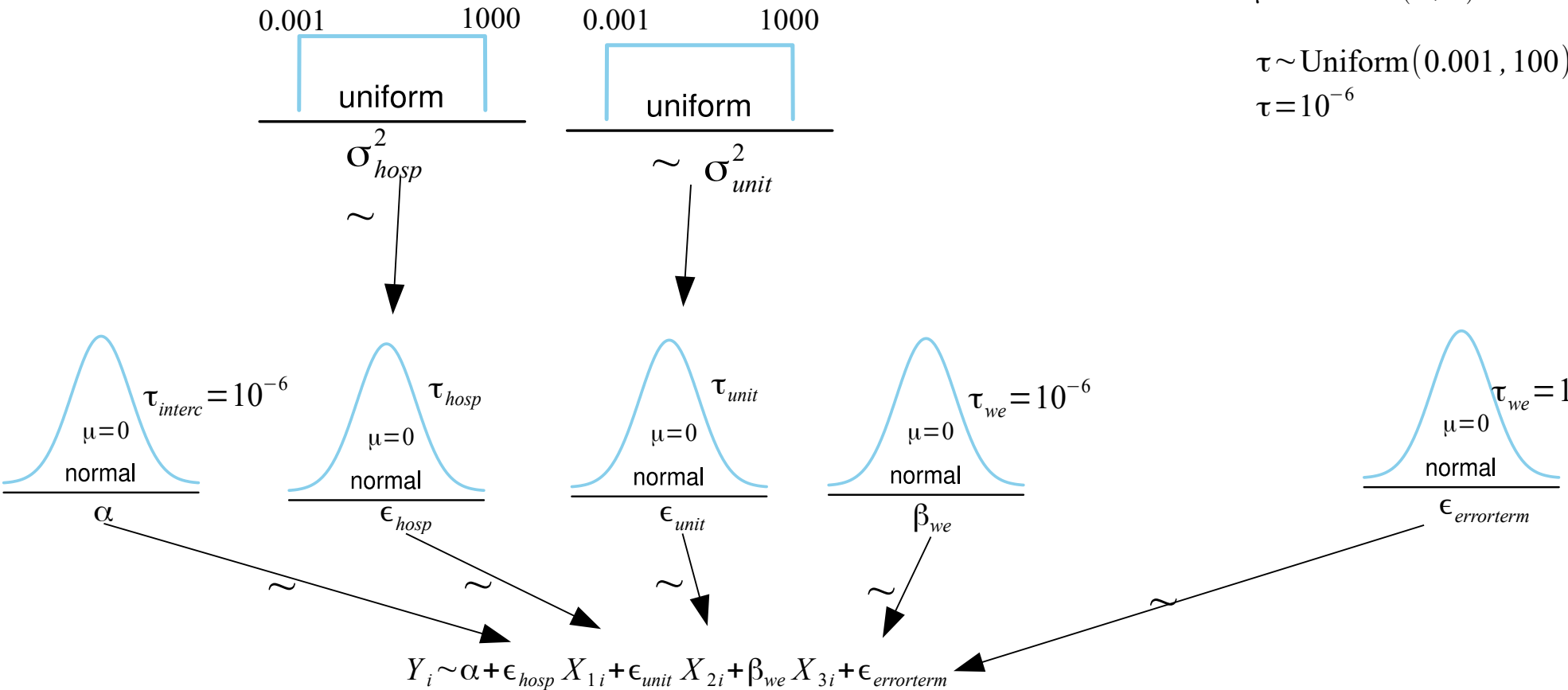
$$8996.92 = 8896 + 101.2$$

$$DIC_{model} = \sum_{deviance} + \sum_{penalty} :$$

$$0000 + 0000 = 0000$$

NEGATIVE BINOMIAL MODEL - *Uniform precision prior*
MODEL : Random intercept + optimal variable selection based on DIC

$y_i \sim \text{Poisson}(\lambda)$
 $\mu \sim \text{Normal}(0, \tau)$
 $\tau \sim \text{Uniform}(0.001, 100)$
 $\tau = 10^{-6}$



$DIC_{model} = \Sigma_{deviance} + \Sigma_{penalty} :$
 $6431.9 = 5544 + 887.9$