

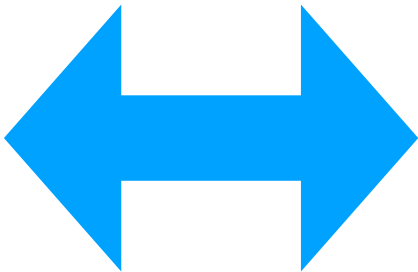
- Misfitting and overfitting both manifest as tension between measurements and predictive distributions

- Graphical posterior predictive checks visually compare the observed data to the predictive distribution

Posterior predictive checking

visual model evaluation

$$\theta^* \sim p(\theta|y)$$



$$\tilde{y} \sim p(\tilde{y}|y)$$



$$\tilde{y} \sim p(y|\theta^{\star})$$

Posterior predictive checking

visual model evaluation

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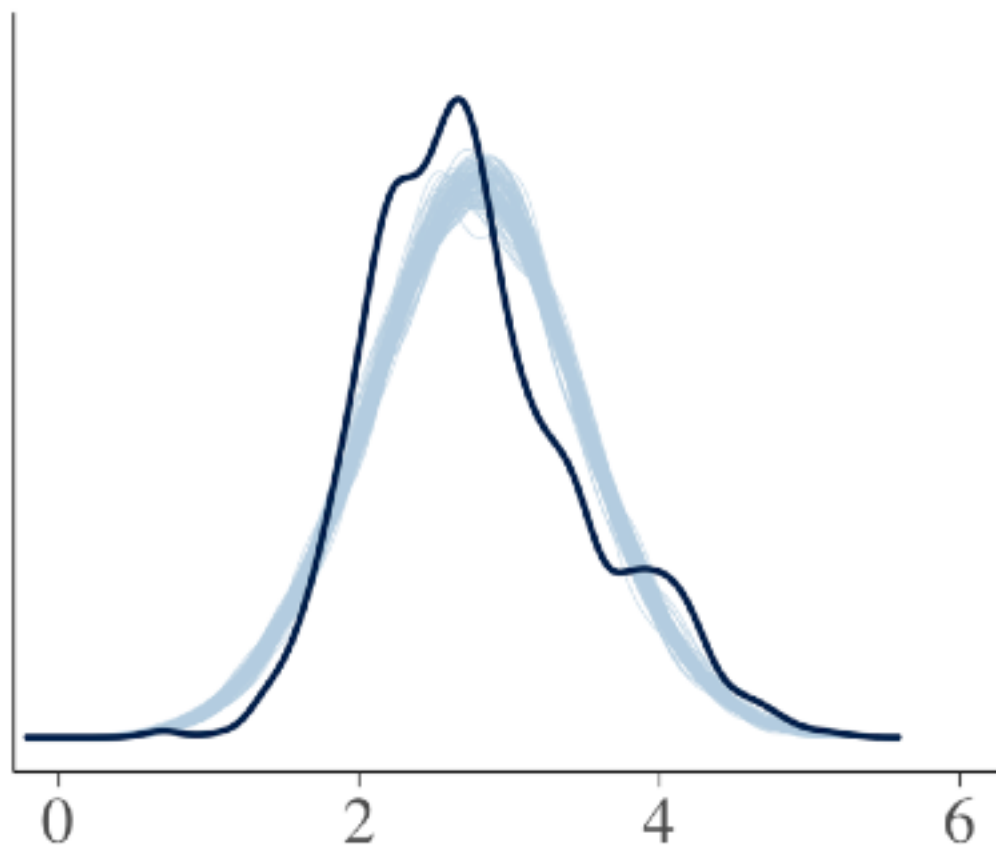
$$\begin{array}{ccc} \theta^* \sim p(\theta|y) & & \\ \downarrow & \longleftrightarrow & \tilde{y} \sim p(\tilde{y}|y) \\ \tilde{y} \sim p(y|\theta^*) & & \end{array}$$

Posterior predictive checking

visual model evaluation

Observed data vs posterior predictive simulations

Model 1 (single level)



Model 3 (multilevel)

