

Goodness of fit test on the Grasshopper data

①

$$H_0: \phi = 1 \quad \text{vs} \quad H_A: \phi \neq 1$$

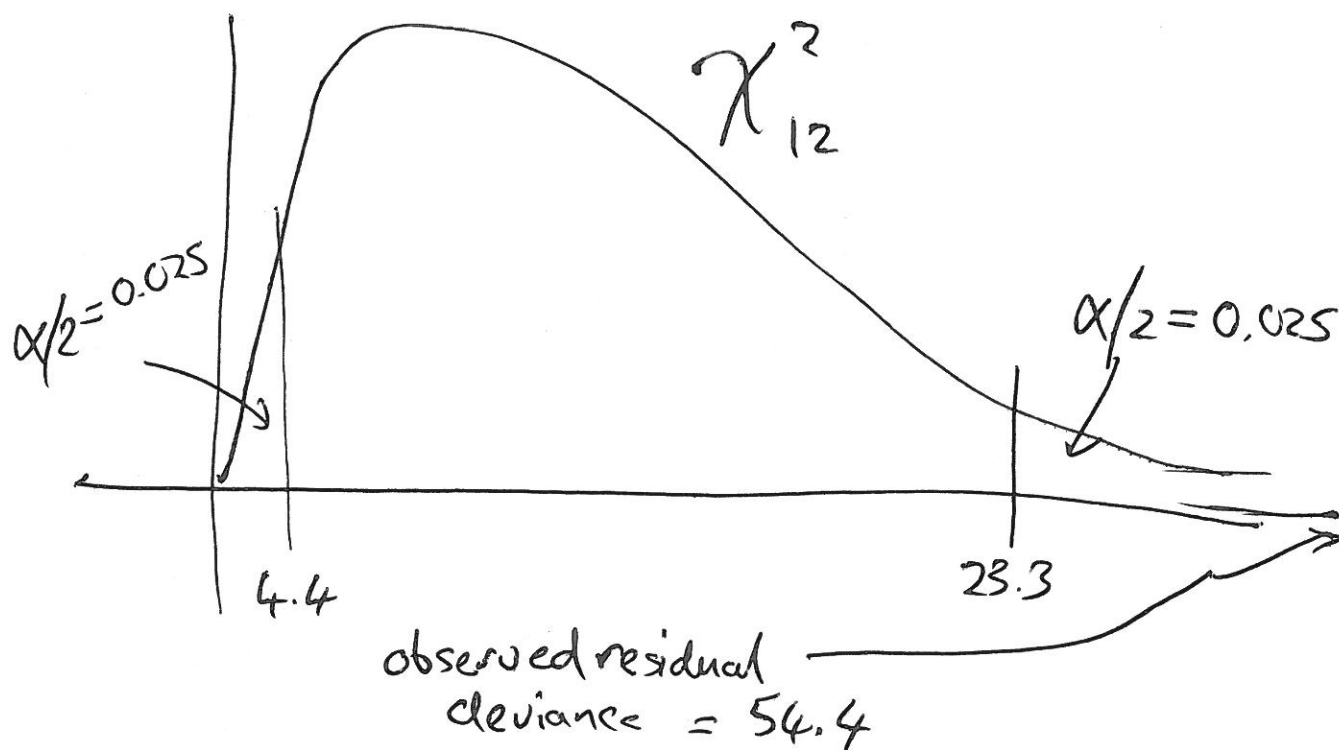
↑  
 $\phi$  assumed for a binomial model

Test statistic  $\rightarrow$  scaled residual deviance

$$\frac{\sum d_i^2}{\phi_{\text{assumed}}} = \sum d_i^2 \text{ residual deviance}$$

$$\sim \chi^2_{\text{residual df}}$$

for ghp.glm 2  $\hat{\phi}_{\text{MLE}} = 4.51 \neq \hat{\phi}_{\text{assumed}} = 1$



So, reject  $H_0$  & conclude  $\phi \neq 1$