Computational Biology Group

D BSSE

ETH zürich

Introduction to Bayesian Statistics with R

6: Exercises

Jack Kuipers

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Exercise 6.1 - a fully Bayesian analysis

Take your analysis from Exercise 5.1 (of the `lung_data.csv` from Exercise 1.1) and turn it into a robust t-test. Now to make the analysis fully Bayesian we should select our prior choices.

- Check which priors have already been set by default
- Input sensible priors, especially for the regression coefficients and intercept of σ.
- Check prior predictions
- Run the Bayesian analysis and discuss the output of interest.

Bonus Exercise 6.2 - confounding

NOTE: This exercise is an optional bonus for when you have sufficient free time.

The data from the previous exercise had unfortunately lost a column, namely the participant's *Sex*. Read in the full data `lung_data_all.csv` and test for a difference in means between the two groups, adjusting to the participant's sex using `lm`.

Can you see how to port the `lm` syntax into `brms` and run a Bayesian version of the same analysis?