

Learning to use JASP for the evaluation of informative hypotheses with bain

Exercise 1. Bayesian hypothesis evaluation

1. Use the upper left hand corner, select “open – computer” in JASP to open the data file SesameData.csv.
2. Read the documentation in SesameDescription.pdf to get an impression what the data entail.
3. Use the + and select bain ANOVA.
4. Note that, there is a help-file that can be opened via the blue circle containing “i”.
5. Use site as the factor and postnumb as the dependent variable.
6. Click on the “model constraints button” and enter the null-hypotheses that all means are equal and an informative hypotheses that you construct after considering the meaning of postnumb and site.
7. Tick all the options under Tables and Plots
8. Interpret the analysis results that are presented in the right hand screen.

Exercise 2. Null hypothesis significance testing

1. Click on the “common” button and select ANOVA and ANOVA.
2. Run an ANOVA with postnumb and site including post-hoc tests.
3. Interpret the analysis results.
4. Compare the results obtained in Exercise 1 with those obtained in Exercise 2. What do you think are the strong and weak features of the Bayesian hypothesis evaluation and null-hypothesis significance testing?

Exercise 3. Linear regression and Bayesian updating

1. Use SesameData.csv. Use the filter (top left of the screen to the left of V1) to select the first 40 cases: click filter; enter $V1 \leq 40$; and click on “apply pass through filter”.
2. Use the + and select bain linear regression.
3. Note that, there is a help- file that can be opened via the blue circle containing “i”. Use postnumb as the dependent variable and age, prenumb, and peabody as the independent variables.
4. Click on the “model constraints button” and enter the null-hypotheses that all regression coefficients are equal to zero, and an informative hypotheses that you construct after considering the meaning of age, prenumb, and peabody.
5. Write down the PMPb’s.
6. Click on remove analysis (the red circle containing “x”) and go back to the data screen.
7. Double click the trash can.
8. Use the filter to select the first 80 cases. Apply the filter.
9. Write down the PMPb’s
10. Repeat steps 8-9-10 for samples sizes of 120, 160, 200, and 240.
11. You have executed a Bayesian updating. What is your conclusion, do you need all 240 children in the data file to obtain convincing conclusion, or would less children have been sufficient?

Exercise 4. Additional Exercises can be Obtained from the Lecturer