Week_7_Hypothesis_testing

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LO:

1. learn the practical procedure and steps of hypothesis testing
2. understand theoretical foundations of hypothesis testing: distributions for null/alternative hypotheses, critical values and type 1/2 errors
3. appreciate the meaning of significance levels/p values and interpretation of results in relation to them
4. appreciate different biases and errors that can occur in the hypothesis testing process

Notes:

Procedure of hypothesis tests:

1. Formulate the Null Hypothesis, Alternative Hypothesis

Null: nothing is happening;

Alternative: something is happening.

2. Design your experiment and collect data
3. Summarise and describe your data
4. Think about what you would expect if H0 were true.
5. Could your data be explained by the Null Hypothesis?
6. Determine the probability of your data given H0
7. Interpret your p value and make a decision
8. Be aware that hypothesis tests are not perfect

Statistical models

- Extract patterns from available data (training data) and can be used to predict new data (testing data)

Types of tests

- two-tailed: can be less or more (default)
- one-tailed: need to be justified.