

22.6: Bayes Factor

We discussed Bayes factors in the earlier chapter on Bayesian statistics – you may remember that it represents the ratio of the likelihood of the data under each of the two hypotheses:

$$K = \frac{P(data|H_A)}{P(data|H_0)} = \frac{P(H_A|data)*P(H_A)}{P(H_0|data)*P(H_0)}$$

We can compute the Bayes factor for the police search data using the `contingencyTableBF()` function from the `BayesFactor` package:

```
## Bayes factor analysis
## -----
## [1] Non-indep. (a=1) : 1.8e+142 ±0%
##
## Against denominator:
##   Null, independence, a = 1
## ---
## Bayes factor type: BFcontingencyTable, independent multinomial
```

This shows that the evidence in favor of a relationship between driver race and police searches in this dataset is exceedingly strong.

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