Assignment for DAT246/DIT246

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October 15, 2021

Abstract

This report will detail the process of investigating wheter the new technology is better than the old technology.

General notes

There are two different ways i am thinking about going about this. One method is using a *GLM* and another is using the treament analysis in the book.

Data

The data constists of 70 individual subjects that participated in an experiment with a 2×2 design.

From the data, four different cases were picked, the combinations of old /new technology and more /less experience. A simple table of descriptive statistics containing these cases was created and a density plot for each of the cases. The result of this analysis can be shown in figure 1

(a) Descriptive Statistics

technique	experience	mean	sd
OT	LE	5.282609	2.428196
OT	ME	4.708333	1.731528
NT	LE	4.555556	1.816034
NT	ME	4.250000	1.700384

(b) Density Chart

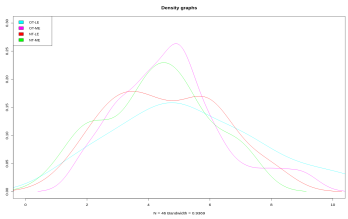

Figure 1: Figure showing both the descriptive statistics of the four cases and a colorized plot containing the densities.

The table and plot shows us that the difference when looking at the data in this way shows much similarity between the techniques.

Two methods will be used. The first method will use a *GLM*

Defense of likelihood

Final priors

A discussion regarding the priors you have chosen for your 'final' model. Defend them and show what happens if you change priors!-

Final results and comparisons

Results from running your 'final' model with `ulam()`*, comparing it with other model(s) using WAIC or LOO,*[1] *and reason about what the results means.*

[1] The rethinking package has a `compare()` function for this

DAG

Adding a DAG is always nice (use the `ggdag` *package in* R*). If you can explain direct and indirect causal effects without one then sure.*[2]

[2] `https://ggdag.malco.io`

Diagnostics

Presentation of diagnostics from running Stan *on the 'final' model, e.g., caterpillar traces (or trankplots),*[3] *$\hat{R}$ values, and/or effective sample size. There's no reason to show traceplots that take up a page!*

[3] `http://mc-stan.org/assets/img/bayesplot/mcmc_trace-rstan.png`

Interpretation

Interpretation of what the results mean from a practical point of view, i.e, which technique is better, does experience influence the results, and how does the analysis support your argument?