METHODS FOR CAUSAL INFERENCE: TUTORIAL 3

In this tutorial, you will run publicly available casual inference packages on example data, from the package itself, or generated through other examples. Please install:

- DoWhy: https://microsoft.github.io/dowhy/
- CausalGraphicalModels: https://github.com/ijmbarr/causalgraphicalmodels.

Remark: This requires certain hours of self-learning.

1. (a) Follow this nice tutorial on adjustment sets and backdoor identification: http://www.degeneratestate.org/posts/2018/Jul/10/causal-inference-with-python-part-2-causal-graphical-models/.

   (b) Draw your own graphs and run the code to check how variables d-separate. As you make more complex graphs, try to first identify the causal effect yourself analytically based on d-separation and back-door rules, then compare your answers with the output of the package.

2. Follow the tutorials on DoWhy https://microsoft.github.io/dowhy/. Notice that we have discussed the steps in the lecture: (i) model, (ii) identify, (iii) estimate, (iv) refute (basic sensitivity tests). Given a graph, and a treatment-outcome pair, DoWhy verifies causal identifiability and outputs the possible options to achieve causal identifiability.

3. Follow this tutorial for the front-door adjustment: http://www.degeneratestate.org/posts/2018/Sep/03/causal-inference-with-python-part-3-frontdoor-adjustment/.