

Homework 2: January 17

Due: 01/24/20

1. Use the PC algorithm `alpha,max.sx` provided by `bnlearn` package to learn a PDAG from the Breast Cancer (<https://archive.ics.uci.edu/ml/datasets/Breast+Cancer>) and the Primary Tumor (<https://archive.ics.uci.edu/ml/datasets/Primary+Tumor>) datasets. This function has several arguments, but the important ones are

- `alpha` is the type I error rate
- `max.sx` is the maximum allowed size of the conditioning sets used in conditional independence tests.

The documentation about `pc.stable` can be found at <https://www.bnlearn.com/documentation/man/constraint.html>. Experiment with different significance levels (ex., 0.01, 0.05, 0.1).

- Print the graphs that you obtain from the PC algorithm.
- What is the effect of the significance level on the learned structures?
- Which conclusions about these domains do you draw from the learned structures?