CSCI 3202  
Assignment 7  
Henrik Larsen

* 1. P(c = True) = 0.48
  2. P(c = True | r = True) = 0.75
  3. P(s = True | w = True) = 0.4
  4. P(s = True | c = True, w = True) = 0.0
  5. P(c = True) = 0.5

Error: 0.5 – 0.48 = 0.02

This is a small error, since P(c = True) is the easiest probability to calculate her, since we can treat all numbers as a sample for c, since it’s independent.

* 1. P(c = True | r = True) = 0.8

Error: 0.8 – 0.75 = 0.05

This calculation was an underestimate, most likely due to not having enough samples were P(r = True) and P(c = True).

* 1. P(s = True | w = True) = 0.4737

Error: 0.4737 – 0.4 = 0.0737

This error is a little bit bigger, most likely due to the fact that it involved all four variables, and we probably didn’t have enough variables for all the cases with had to test.

* 1. P(s = True | c = True, w = True) = 0.0671

Error: 0.0671- 0.0 = 0.0671

Same logic as c).

* 1. P(c = True) = 0.49
  2. P(c = True | r = True) = 0.704
  3. P(s = True | w = True) = 0.4
  4. P(s = True | c = True, w = True) = 0.0
  5. Error: 0.5 – 0.49 = 0.01

Difference between prior sampling and rejection sampling:

0.49 – 0.48 = 0.01

* 1. Error: 0.8 – 0.704 = 0.096

Difference between prior sampling and rejection sampling:

0.75 – 0.704 = 0.046

* 1. Error: 0.4737 – 0.4 = 0.0737

Difference between prior sampling and rejection sampling:

0.4 – 0.4 = 0

* 1. Error: 0.0671 - 0.0 = 0.0671

Difference between prior sampling and rejection sampling:

0.0 – 0.0 = 0.0

The average error for prior sampling was a little bit less than the average error for rejection sampling, but only by about 1%.

Average error for Prior Sampling: (0.02+ 0.05 + 0.0737 + 0.0671)/4 = 0.0527

Average error for Rejection Sampling: (0.01 + 0.096 + 0.0737 + 0.0671)/4 = 0.0617