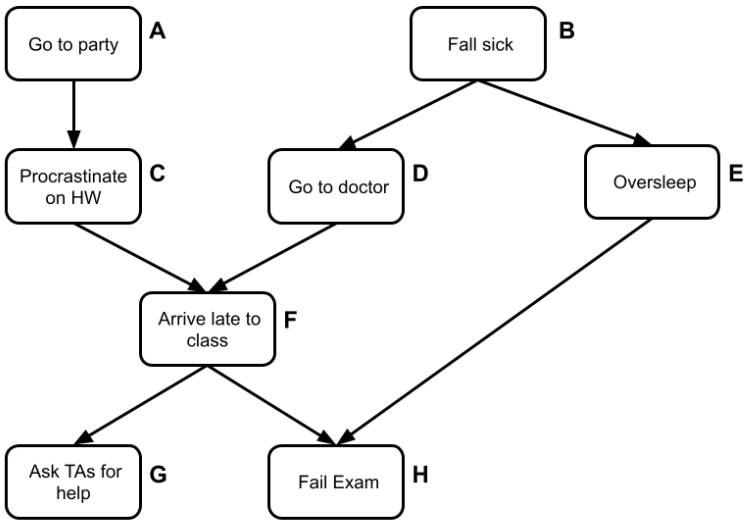
Learning Objectives

- To practice variable elimination on a sample Bayes net

Q1. Bayes Nets Inference

Suppose you are concerned about your social life, physical health, and procrastination and how it impacts your performance in class. You draw the following Bayes Net. The letters are provided for ease of reference to the variables.



(a) Given what we learned about inference, simplify the probability P(A,B,C,D) using the CPTs by pushing in the summations and summing to 1 when possible.

P(A,B,C,D) =

(b) Given what we learned about inference, simplify the probability P(A,D,E,H) using the CPTs by pushing in the summations and summing to 1 when possible.

P(A,D,E,H) =

(c) Starting from the summation in part (b), write the equation for each **factor** that is created and its size as you perform would variable elimination. Assume each variable is a binary variable.

Factor f_1	**Size of** f_1

Factor f_2	**Size of** f_2

Factor f_3	**Size of** f_3

Factor f_4	**Size of** f_4

Any final products	**Final table size**