Homework 3 – Artificial Intelligence – 2020
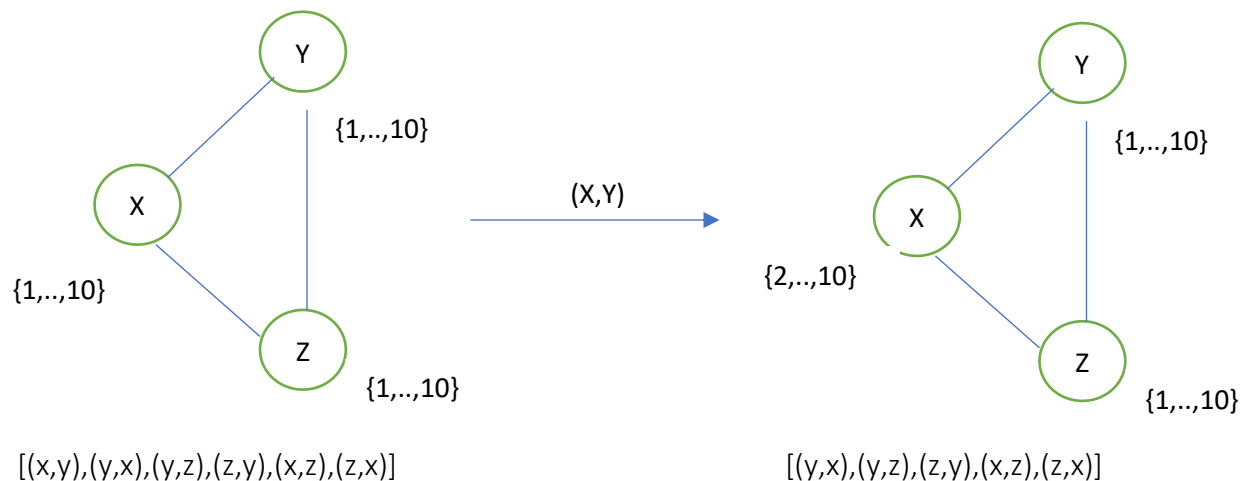
The goal of this assignment is for you to become proficient with the AC3 algorithm (arc-consistency algorithm).

Points for the homework: 100 points

Consider the CSP with three variables X, Y, and Z and

- The domain of each variable is $D_X = D_Y = D_Z = \{1,2,3,...,9,10\}$
- The constraints are X > Y, Y > Z, X = 2*Z

You need to show each step of the AC3 algorithm – for each step, indicating the arc that you are considered, the values that are removed, the remaining values for each variable. To simplify the writing, you can use the following presentation.

[(x,y),(y,x),(y,z),(z,y),(x,z),(z,x)]   [(y,x),(y,z),(z,y),(x,z),(z,x)]

You can draw the constraint graph with the domain of variables and the queue as shown on the left above. Then, choose the arc and draw the result of the algorithm to the right (see above). So, from each graph and queue, create the link (as (X,Y) above) to a new graph with new domains and a new queue.

Submit your written homework on Canvas by 11:59 pm, March 9, 2020.