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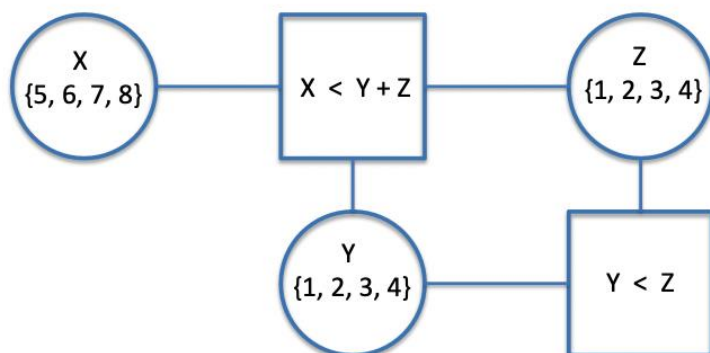CS 5260 – AI, Spring 2023   Homework 2, Week 3

Homework Week 3

1. Consider the following constraint network over three variables – X, Y, Z – with initial domains as indicated. Give the domains of each variable after applying the generalized arc consistency (GAC) algorithm to this constraint satisfaction graph. List the domains with the elements listed in ascending order by a single comma (no blanks). For example, '0,9' (no apostrophes) would be correct syntax.

a) Final domain of X:

b) Final domain of Y:

c) Final domain of Z:

a) Final domain of X: $(5,6)$

b) Final domain of Y: $(2,3)$

c) Final domain of Z: $(3,4)$

2. Consider this game tree. Give the value for the root node obtained through minimax search:

Correct Answer:

Max △
Min ▽

3. Using the same game tree as question 2 (and copied below), select (circle) all arcs that are pruned during search with alpha beta pruning. If an arc into a node would be pruned then **do not** (redundantly) select the arcs in node's subtree as well (this is the same policy as in video lecture).