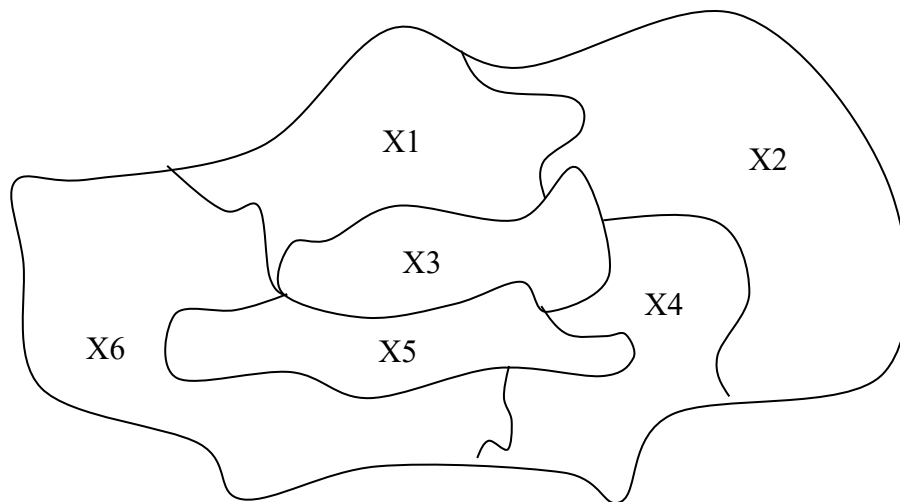


UNIVERSITY OF PATRAS
DEPT. OF COMPUTER ENGINEERING & INFORMATICS
ARTIFICIAL INTELLIGENCE
4th Assignment

CONSTRAINT SATISFACTION

You are given the following problem: “There is a plane map (the one in the figure below) that contains six (6) different regions and you are asked to color the regions using only four (4) colors (red, yellow, green, blue) in a way that no two adjacent regions have the same color”.



To solve it, describe the problem as a constraint satisfaction problem, by specifying the variables, their domains and the constraints between them.

(1) Apply an arc consistency algorithm combining a classical depth-first search approach with the AC-3 consistency algorithm. Draw the first three levels of the search tree.

(2) The same as (1), but use a best-first search instead of a depth-first one. Notice that you need a define heuristic metric here.