IT-University of Copenhagen

Intelligent systems programming

Mandatory exercise 6

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1 Binary CSP

1.1 1

C_{X1X5} We can remove 3 from D_1 since D_5 only contains 1 and 2 which only allow 1 or 2 for X_1.

C_{X1X2} We can remove 5 from D_2 since D_1 only contains 1 and 2.

C_{X2X4} We can remove 7 from D_2 since D_2 only contains 7 and 8.

C_{X2X3} We can remove 1 and 2 from D_3 since D_2 only contains 8.

$D_1 = \{2\}, D_2 = \{8\}, D_4 = \{4\}, D_4 = \{0, 2\}, D_5 = \{1\}$

1.2 2

$X_1 = 1, X_2 = 8, X_3 = 4, X_4 = 0, X_5 = 2$

1.3 3

- Apply revise to all arcs from the bottom up.

- Assign the root variable to any value in its current domain and further shrink its domain to only one value – the one we assigned to it.

- Apply revise to all arcs from the root node.

- Repeat step 2 and 3 for all the root nodes children until we reach the bottom of the tree.