

Foundations of Constraint Programming Tutorial 7 (on February 1st)

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Exercise 6.1:

Consider the following CSP C together with the ordering $x \prec y \prec z$:

$$\langle x \neq y, y > z, x < z; x \in \{1, 2, 3\}, y \in \{2, 3, 4\}, z \in \{1, 2, 3, 4\} \rangle$$

Give a *prop* labeling tree associated with C (cf. Slide VII/13-14) for each of the two constraint propagation methods Forward Checking and MAC (Full Look Ahead).

Exercise 6.2

Consider the following CSP P , together with the ordering $y \prec x \prec z$:

$$\langle x < y, z > x, y \geq z, x > 1; x \in \{1, 2, 3, 4\}, y \in \{1, 2, 3, 4\}, z \in \{2, 3, 4, 5\} \rangle$$

Give a *proplabeling* tree associated with P for the constraint propagation method MAC.

Exercise 6.3:

Given a CSP with the variables x_1, \dots, x_n linearly ordered by \prec and the corresponding variable domains D_1, \dots, D_n non-empty, show that the number of nodes in the complete labeling tree associated with \prec is

$$1 + \sum_{i=1}^n (\prod_{j=1}^i |D_j|).$$