

**Foundations of Constraint Programming**  
**Tutorial 3 (on November 23rd)**

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**Exercise 3.1:**

Apply the Domain Reduction Rules from Slide 5 (Lecture 3) to the following CSPs until you reach a successful, failed or stabilising CSP. At each step give the rule you have used.

- a)  $\langle x = y, y = z, x \neq w, w \neq z; x \in \{a, b, c\}, y \in \{a, c, d\}, z \in \{c, d, e\}, w = c \rangle$
- b)  $\langle x \neq w, w < y, w < z, y < z; x \in [4..8], y \in [2..6], z \in [3..6], w \in [4..9] \rangle$

**Exercise 3.2:**

Take the following set of linear equations:

$$a + b + c = 0$$

$$4a + 2b + c = 1$$

$$9a + 3b + c = 3$$

- a) Apply *Gauss-Jordan Elimination* to compute a *most general unifier (mgu)* for this set of equations.
- b) Apply *Gaussian Elimination* to compute an mgu for this set of equations.