

## Problem Solving and Search in AI Tutorial 3 (on May 7th)

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For the ASP exercises, either use the browser version of clingo <https://potassco.org/clingo/run/>, or download clingo (*recommended*) from <https://potassco.org/>.

### Exercise 3.1

Given the programs  $P_i$ , determine the stable models of  $P_i$  by applying the *Gelfond-Lifschitz-Reduct*.

$$\begin{array}{lll} P_1 = \{a \leftarrow \text{not } b, c. & P_2 = \{a \leftarrow \text{not } b. & P_3 = \{a \leftarrow a. \\ & b \leftarrow \text{not } c. & b \leftarrow c, d. \\ & c \leftarrow \text{not } b.\} & c \leftarrow \text{not } d. \\ & & d \leftarrow \text{not } c, \text{not } a.\} \end{array}$$

### Exercise 3.2 (old exam question)

Given a graph  $G = (V, E)$ , a matching is a set of edges  $M \subseteq E$ , such that every node is the endpoint of exactly one edge. Give an ASP Encoding for the Graph Matching Problem.

### Exercise 3.3 (Homework for the next tutorial)

Can you encode the Bridge-Crossing Problem of Exercise 1.2 in ASP?