

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*.

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

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

Can you also encode the Bridge-Crossing Problem of Exercise 1.2 in ASP? What could be possible limitations?