

Advanced Problem Solving and Search Tutorial 3

Lucía Gómez Álvarez

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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*.

$$P_1 = \{a \leftarrow \text{not } b, c, \\ b \leftarrow \text{not } a, \\ c \leftarrow \text{not } b.\}$$
$$P_2 = \{a \leftarrow \text{not } b, \\ b \leftarrow \text{not } c, \\ c \leftarrow \text{not } a.\}$$
$$P_3 = \{a \leftarrow a, \\ b \leftarrow c, d, \\ c \leftarrow \text{not } d, \\ d \leftarrow \text{not } c, a.\}$$

Exercise 3.2

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.