Finding Patterns for Classical Symbolic Pattern Planning

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1 Formal setting

We restrict ourself in the setting of *Classical Planning*. Let $\Pi = \langle V, A, I, G \rangle$ be a planning task where: V is a set of atoms, the initial condition I is a total assignment which maps all the boolean atoms $v \in V$ to $\{\top, \bot\}$, G is the goal state represented as a propositional formula over the atoms in V and A is the set of actions $a = \langle \text{pre}(a), \text{add}(a), \text{del}(a) \rangle$. The precondition $\text{pre}(a)$ of the action a is a propositional formula over V. The *add and delete effects* of a, $\text{add}(a)$ and $\text{del}(a)$ are (partial) assignments to the variables in V to $\top$ and $\bot$, respectively. A *state* s consists in a total assignment of the variables in V to $\{\top, \bot\}$.