

Sample graph-plan problem (ungraded).

Problem 1.

Consider the following planning problem:

Action(Make(x),

Precondition:

Effect: Have(x))

Action(Eat(x),

Precondition: Have(x),

Effect: \neg Have(x) \wedge Full(x))

Initial state: \neg Have(Sandwich) \wedge \neg Full(Sandwich)

Goal: Have(Sandwich) \wedge Full(Sandwich)

[15 points] (1) Create the graph-plan until it converges. Show clearly all mutexes.

[5 points] (2) At what level, if any, is our goal possible? Explain why. Is the goal actually achievable at this level? Explain why again.

[10 points] (3) Give an example problem of when graph-plan will have no mutex between two relations/literals upon convergence, yet that pair of relations is impossible to satisfy simultaneously. You do not need to provide the full graph-plan, but you do need to support your answer.

Problem 2.

Use forward-search to solve the following planning problem. Use a breadth-first-search to approach for searching the space until a goal is found. Show all possible states at the depth the goal was found as well.

Initial = \neg Study \wedge \neg Passed

Goal = Study \wedge Passed

Action = Cram,

Precondition:

Effect: Study

Action = PassTest,

Precondition: Study

Effect: \neg Study \wedge Passed