AI Planning for Autonomy

Problem Set V: Delete Relaxation

1. Discuss in your group the heuristics you used in project 1. Are any of them related to the domain independent heuristics we have covered in class?

- What is the (optimal) delete relaxation heuristic h^+? How would it be interpreted in pacman?
- What is the relationship between h^{max}, h^+, and h^{add}? What about h^*?

$h^{max} \leq h^+ \leq h^*$ $\quad h_{max} \leq h^+ \leq h_{add}$

2. In a blocks-world problem, the agent's aim is to stack the blocks as in Figure 1.

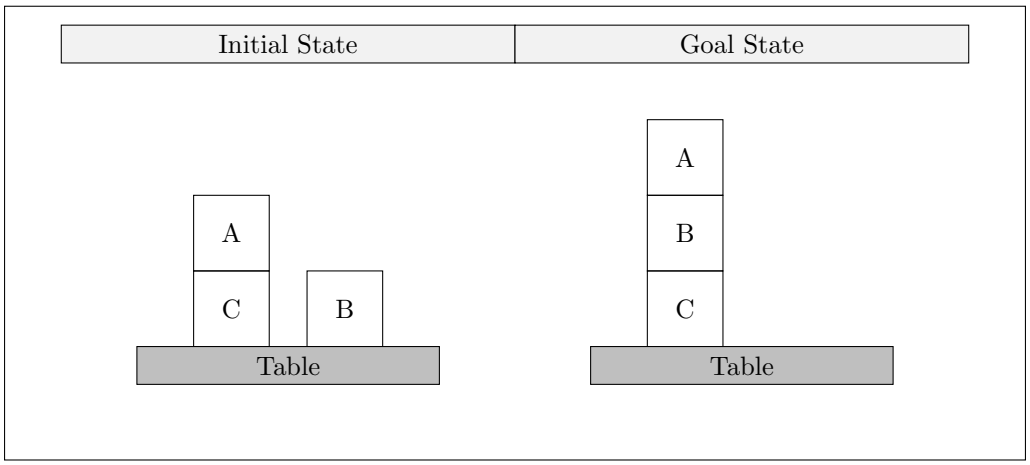

Figure 1: An Initial (Left hand side) and Goal (Right hand side) state of a blocks-world problem.

There are several important classes of domain-independent heuristics. Recall the delete relaxation based heuristics from Lectures:

- Compute $h^{add}(s_0)$ for the 4 operators blocks-world problem.
- Compute $h^{max}(s_0)$ for the 4 operators blocks-world problem.

	On(A,C)	On(A,B)	On(B,C)	C(A)	C(B)	C(C)	oT(A)	oT(B)	oT(C)	h(A)	h(B)	h(C)	aF
0	0	∞	∞	0	0	∞	∞	0	0	∞	∞	∞	0
1	0	∞	∞	0	0	1	∞	0	0	1	1	∞	0
2	0	1	2	0	0	1	2	0	0	1	1	2	0