

AI Planning for Autonomy

Solution Problem Set V: Delete Relaxation

1.

- If computed with respect to each food it's roughly a Minimum Spanning Tree (technically a Steiner Tree, since paths can branch in non-food location, i.e. the Steiner Points)
- $h_{max} \ll h^+ \ll h^*$, $h_{max} \ll h^+ \ll h_{add}$. h^* dominates admissible heuristics, that's why it doesn't dominate h_{add} .

2.

- Compute $h^{add}(s_0)$ for this blocks-world problem. $h^{add}(s_0) = 5$. For computation, see below.
- Compute $h^{max}(s_0)$ for this blocks-world problem. $h^{max}(s_0) = 2$. For computation, see below.

I omit irrelevant $on(x,y)$

Iteration	$cl(A)$	$cl(B)$	$cl(C)$	$onTable(A)$	$onTable(B)$	$onTable(C)$	$on(A,C)$	$on(A,B)$	$on(B,C)$	$h(A)$	$h(B)$	$h(C)$	$AtmFree$
0	0	0	∞	∞	0	0	0	∞	∞	∞	∞	∞	0
1	0	0	1	∞	0	0	0	∞	∞	1	1	∞	0
2	0	0	1	2	0	0	0	2	2	1	1	2	0

The table for h_{add} changes only the value for $on(B,C)$ to 3, hence h value of the Goal is 5.