Problem Session 2

1 RPG and Heuristics

Simplified Air Cargo transport (modified from AIMA 11.1.1)

Init
$At(C_1, JFK) \land At(P_1, SFO)$
$\land Cargo(C_1) \land Plane(P_1)$
$\land Airport(JFK) \land Airport(SFO)$
Goal
$At(C_1, SFO) \land At(P_1, JFK)$
Action
Load(c,p,a)
PRECOND: $At(c, a) \land At(p, a) \land Cargo(c) \land Plane(p) \land Airport(a)$
EFFECT: $\neg At(c, a) \land In(c, p)$
Unload(c, p, a)
PRECOND: $In(c, p) \land At(p, a) \land Cargo(c) \land Plane(p) \land Airport(a)$
EFFECT: $At(c, a) \land \neg In(c, p)$
Fly(p, from, to)
PRECOND: $At(p, from) \land Plane(p) \land Airport(from) \land Airport(to)$
EFFECT: $\neg At(p, from) \land At(p, to)$

1.1 Relaxed Planning Graph(RPG)

Draw the RPG. Unary predicates for type specification can be ignored.

1.2 Heuristics

Determine the value for the following heuristics.

1.2.1 $\mathbf{H}_{max}$

1.2.2 $\mathbf{H}_{add}$

1.2.3 $\mathbf{H}_{ff}$