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Task 1

Hanoi files *./hanoi/hanoi_ops.txt ./hanoi/hanoi1.txt ./hanoi/hanoi2.txt*
(smaller <x> <y>) – x is smaller than y
(clear <x>) – x is clear
(on <x> <y>) – x is on y

7 Puzzle files *./7puz/7ops.txt ./7puz/7puz1.txt ./7puz/7puz2.txt*
(in <x> <y>) – y is in x (could be in column or in row)
(empty <x>) – x is the empty tile

Task 2	Const/Pred	Meaning
	R1	Marble
	R2	Marble
	R3	Marble
	B1	Marble
	B2	Marble
	B3	Marble
	isRed(x)	x is Red
	isBlue(x)	x is Blue
	isP1(x)	x is in P1
	isP2(x)	x is in P2

Note:
Each cell itself is AND
Constants and/or predicates in the same cell is OR

Init State			
	isRed(R1)	isRed(R2)	isRed(R3)
	isP1(R1)	isP1(R2)	isP1(R3)
	isBlue(B1)	isBlue(B2)	isBlue(B3)
	isP2(B1)	isP2(B2)	isP2(B3)

Goal State			
	isP1(B1)	isP1(B2)	isP1(B3)
	isP2(R1)	isP2(R2)	isP2(R3)

Actions				
P1toP2	**x**	**y**		
Preconds	isRed(x)	isBlue(y)	isP1(x)	isP1(y)
Effects	isP2(x)	isP2(y)	not isP1(x)	not isP1(y)
P2toP1Red	**x**	**y**		
Preconds	isRed(x)	isRed(y)	isP2(x)	isP2(y)
Effects	isP1(x)	isP2(y)	not isP2(x)	not isP2(y)
P2toP1Blue	**x**	**y**		
Preconds	isBlue(x)	isBlue(y)	isP2(x)	isP2(y)
Effects	isP1(x)	isP2(y)	not isP2(x)	not isP2(y)

Extra Credit: Complete Plan to Goal		
P2toP1Blue	B1	B2
P1toP2	R1	B1
P1toP2	R2	B2
P2toP1Blue	B1	B2
P1toP2	R3	B2
P2toP1Blue	B2	B3

Task 3

Conditional Plan

Requires modification of action definition

Actions

P1toP2	**x**	**y**		
Preconds	*isRed(x)*	*isBlue(y)*	*isP1(x)*	*isP1(y)*
Effects	*isP1(x) or isP2(x)*	*isP1(y) or isP2(y)*	*not isP1(x) or not isP2(x)*	*not isP1(y) or not isP2(y)*

P2toP1Red	**x**	**y**		
Preconds	*isRed(x)*	*isRed(y)*	*isP2(x)*	*isP2(y)*
Effects	*isP1(x) or isP2(x)*	*isP1(y) or isP2(y)*	*not isP1(x) or not isP2(x)*	*not isP1(y) or not isP2(y)*

P2toP1Blue	**x**	**y**		
Preconds	*isBlue(x)*	*isBlue(y)*	*isP2(x)*	*isP2(y)*
Effects	*isP1(x) or isP2(x)*	*isP1(y) or isP2(y)*	*not isP1(x) or not isP2(x)*	*not isP1(y) or not isP2(y)*

Online Replan

Does not require modification of action definitions since:

- Before executing, the agent should already be checking to see if the state of the problem is as expected

- After executing, the agent should then check to see if the effect is achieved by the action, if not then it should replan and update the state of the problem

Task 4	Max arguments	(5 constants ^ 3 arguments) * 4 predicates =	500	possible worlds
	Min arguments	(5 constants ^ 1 argument) * 4 predicates =	20	possible worlds
	Bound =	From 20 - 500	possible worlds	