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Planning - In class exercise

Monkey-and-bananas problem. Russell's and Norvig's Problem 10.3 (pp.396-397), parts (a) and (b).

Initial Situation:

At(Monkey,A) ∧ At(Bananas,B) ∧ At(Box,C) ∧ Height(Monkey,Low) ∧ Height(Box,Low) ∧ Height(Bananas,High) ∧ Pushable(Box) ∧ Climbable(Box)

Final Situation: Have(Monkey,Bananas) ∧ Height(Monkey,Low) [this last subgoal added by Ruiz]

Actions:

ACTION: Go(x, y)

PRECOND: At(Monkey, x)

EFFECT: At(Monkey, y) ∧ ¬(At(Monkey, x))

ACTION: Push(b, x, y)

PRECOND: At(Monkey, x) ∧ At(b,x) ∧ Pushable(b)

EFFECT: At(b, y) ∧ At(Monkey, y) ∧ ¬At(b, x) ∧ ¬At(Monkey, x))

ACTION: ClimbUp(b)

PRECOND: At(Monkey, x) ∧ At(b, x) ∧ Climbable(b)

EFFECT: On(Monkey, b) ∧ Height(Monkey,High)) ∧ ¬Height(Monkey,Low))

ACTION: Grasp(b)

PRECOND: Height(Monkey, h) ∧ Height(b, h) ∧ At(Monkey, x) ∧ At(b, x)

EFFECT: Have(Monkey, b))

ACTION: ClimbDown(b)

PRECOND: On(Monkey, b) ∧ Height(Monkey,High)

EFFECT: ¬On(Monkey, b) ∧ Height(Monkey,Low) ∧ ¬Height(Monkey,High)

ACTION: UnGrasp(b)

PRECOND: Have(Monkey, b)

EFFECT: ¬Have(Monkey, b))