

Example for how to Translate a Planning Problem to STRIPS notation

Assume that there is a monkey in a room with some bananas hanging out of reach from the ceiling, but a box is available that will enable the monkey to reach the bananas if he climbs on it. Initially, the monkey is at A, the bananas at B, and the box at C. The monkey and box have height LOW, but if the monkey climbs onto the box, he will have height HIGH, the same as the bananas. The actions available to the monkey include GO from one place to another, PUSH an object from one place to another, CLIMB onto an object, and GRASP an object. Grasping results in holding the object if the monkey and object are in the same place at the same height. The monkey wants to get the bananas.

Initial State:

At(Monkey,A) AND At(Bananas,B) AND At(Box,C) AND Height(Monkey,Low) AND Height(Box,Low) AND Height(Bananas,High) AND Pushable(Box) AND Climbable(Box) AND Graspable(Bananas) AND Notequal(A,B) AND Notequal(A,C) AND Notequal(B,A) AND Notequal(B,C) AND Notequal(C,A) AND Notequal(C,B)

Goal State:

Have(Monkey, Bananas)

Operators:

Go(x,y)

Precond: At(Monkey,x) AND Height(Monkey,Low) AND Notequal(x,y)

Effect: At(Monkey,y) AND NOT At(Monkey,x)

Push(b,x,y)

Precond: At(Monkey,x) AND Height(Monkey,Low) AND At(b,x) AND Pushable(b) AND Height(b,Low) AND Notequal(x,y)

Effect: At(b,y) AND At(Monkey,y) AND NOT At(b,x) AND NOT At(Monkey,x)

ClimbUp(x,b)

Precond: At(Monkey,x) AND Height(Monkey,Low) AND At(b,x) AND Climbable(b) AND Height(b,Low)

Effect: On(Monkey,b) AND NOT Height(Monkey,Low) AND Height(Monkey,High)

Grasp(x,b,h)

Precond: At(Monkey,x) AND Height(Monkey,h) AND At(b,x) AND Graspable(b) AND Height(b,h)

Effect: Have(Monkey,b) AND NOT At(b,x) AND NOT Height(b,h)