STRIPS exercise

Given the initial state:

[ontable(a,p1), ontable(d,p3), on(c,d), clear(a), clear(c), empty(p2), handempty]

(p1,p2,p3 are three positions on the table)

Actions are modelled as:

- **pickup(X,Pos)**
  PRECOND: ontable(X,Pos), clear(X), handempty
  DELETE: ontable(X,Pos), clear(X), handempty
  ADD: holding(X), empty(Pos)
- **putdown(X,Pos)**
  PRECOND: holding(X), empty(Pos)
  DELETE: holding(X), empty(Pos)
  ADD: ontable(X,Pos), clear(X), handempty

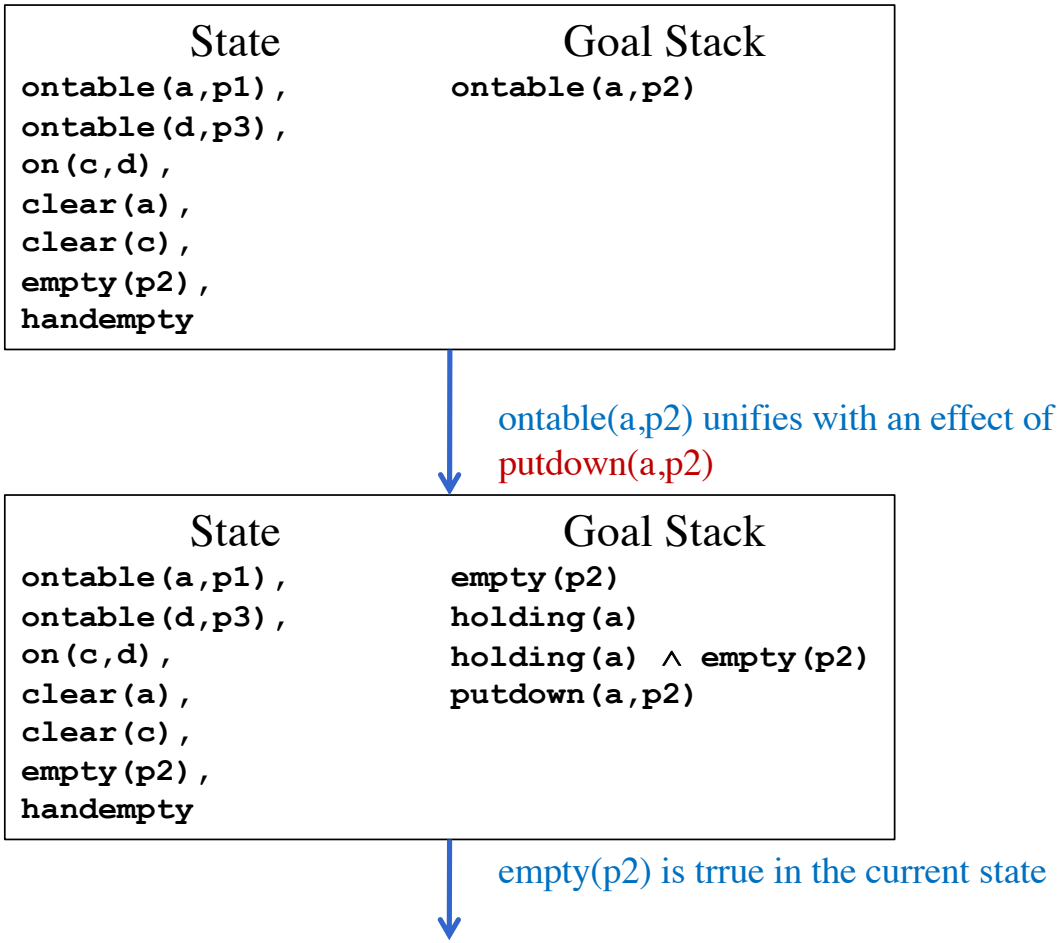
STRIPS exercise

- **stack(X,Y)**
  PRECOND: holding(X), clear(Y)
  DELETE: holding(X), clear(Y)
  ADD: handempty, on(X,Y), clear(X)
- **unstack(X,Y)**
  PRECOND: handempty, on(X,Y), clear(X)
  DELETE: handempty, on(X,Y), clear(X)
  ADD: holding(X), clear(Y)

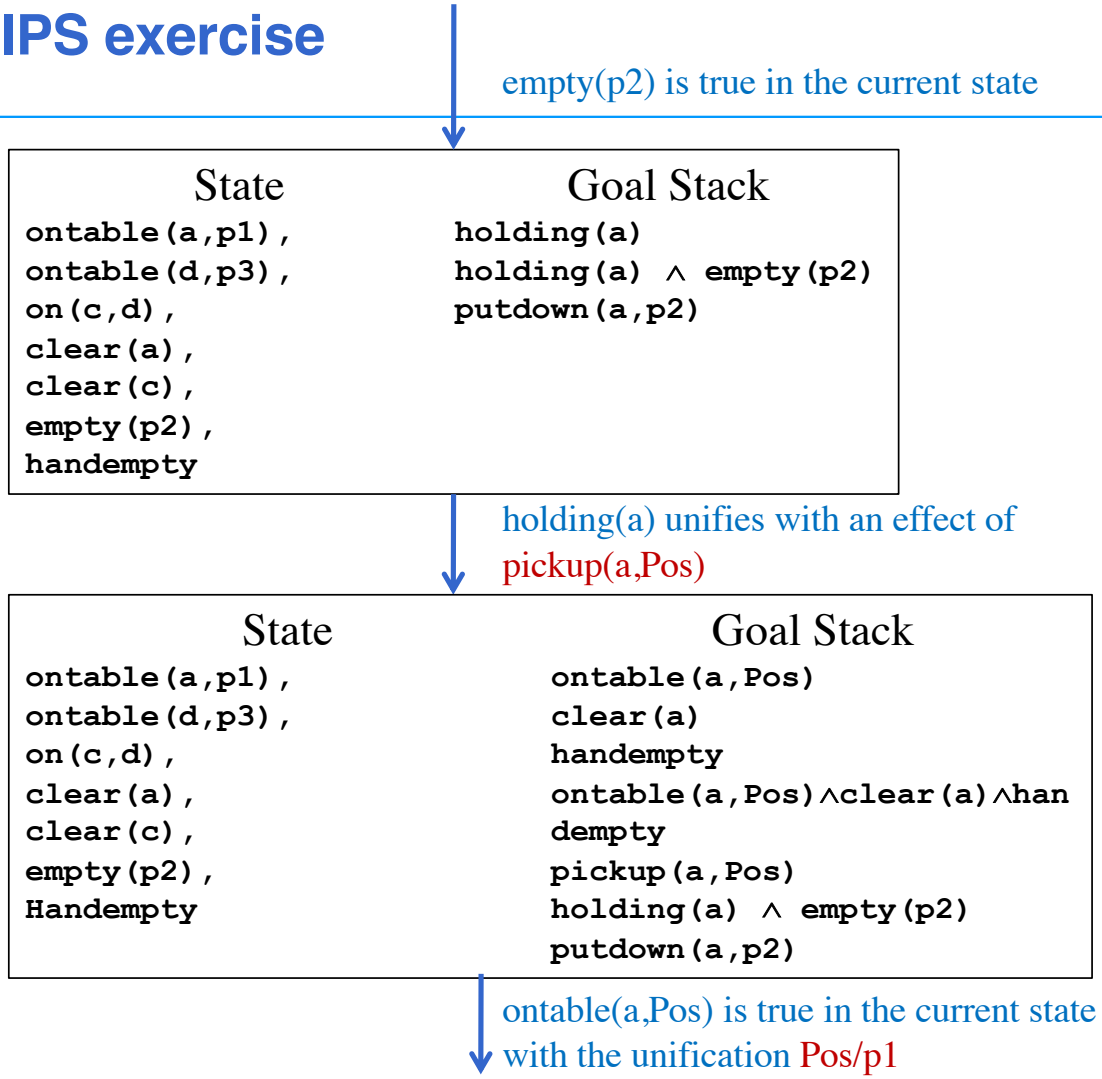
The goal is **ontable(a,p2)**

Describe how the algorithm STRIPS finds a plan. Show ONLY ONE PATH from the root to the node.

STRIPS exercise



STRIPS exercise



STRIPS exercise

ontable(a,Pos) is true in the current state
with the unification Pos/p1

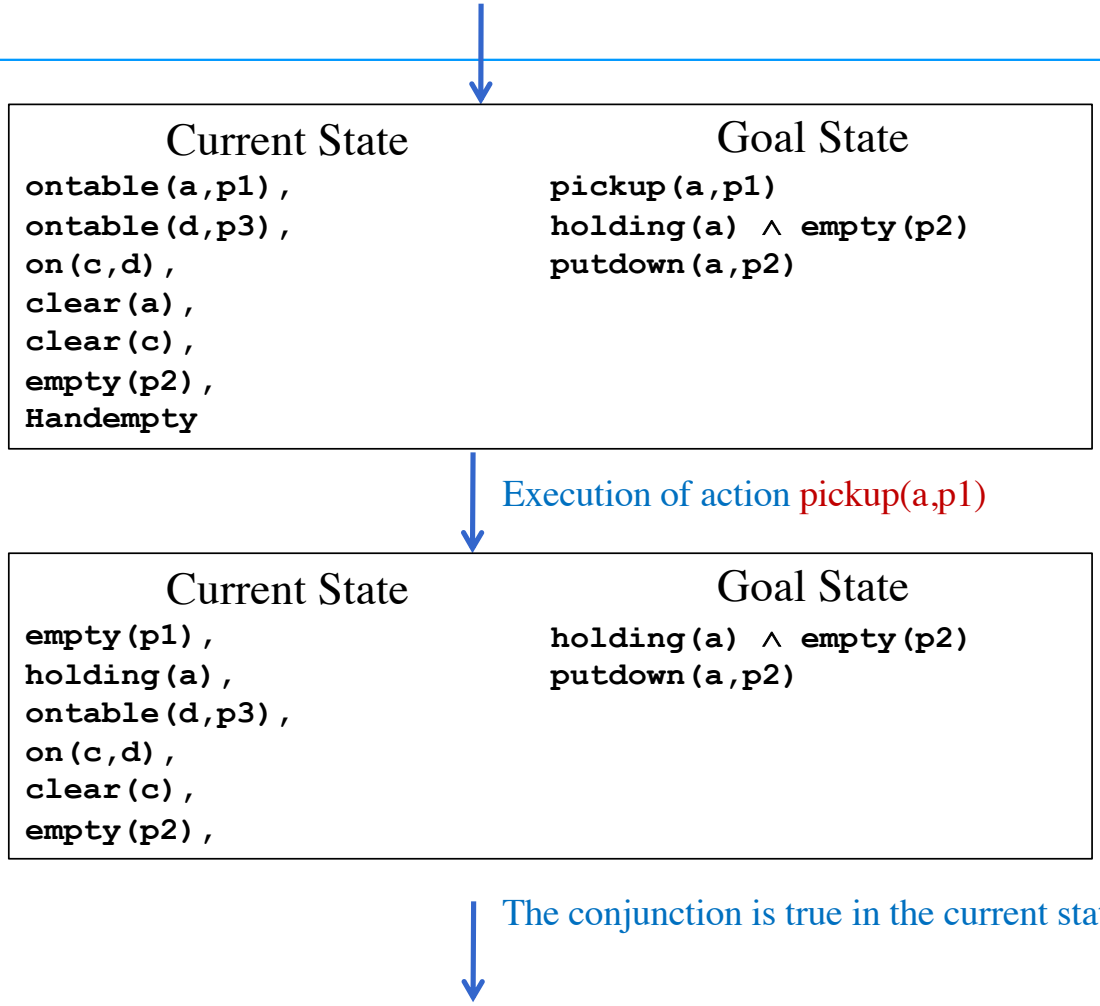
Current State	Goal Stack
ontable(a,p1),	clear(a)
ontable(d,p3),	handempty
on(c,d),	ontable(a,p1)∧clear(a)∧hand
clear(a),	empty
clear(c),	pickup(a,p1)
empty(p2),	holding(a) ∧ empty(p2)
Handempty	putdown(a,p2)

clear(a) and handempty are true in the current state

Current State	Goal Stack
ontable(a,p1),	ontable(a,p1)∧clear(a)∧hand
ontable(d,p3),	empty
on(c,d),	pickup(a,p1)
clear(a),	holding(a) ∧ empty(p2)
clear(c),	putdown(a,p2)
empty(p2),	
Handempty	

The conjunction is true in the current state

STRIPS exercise



STRIPS exercise