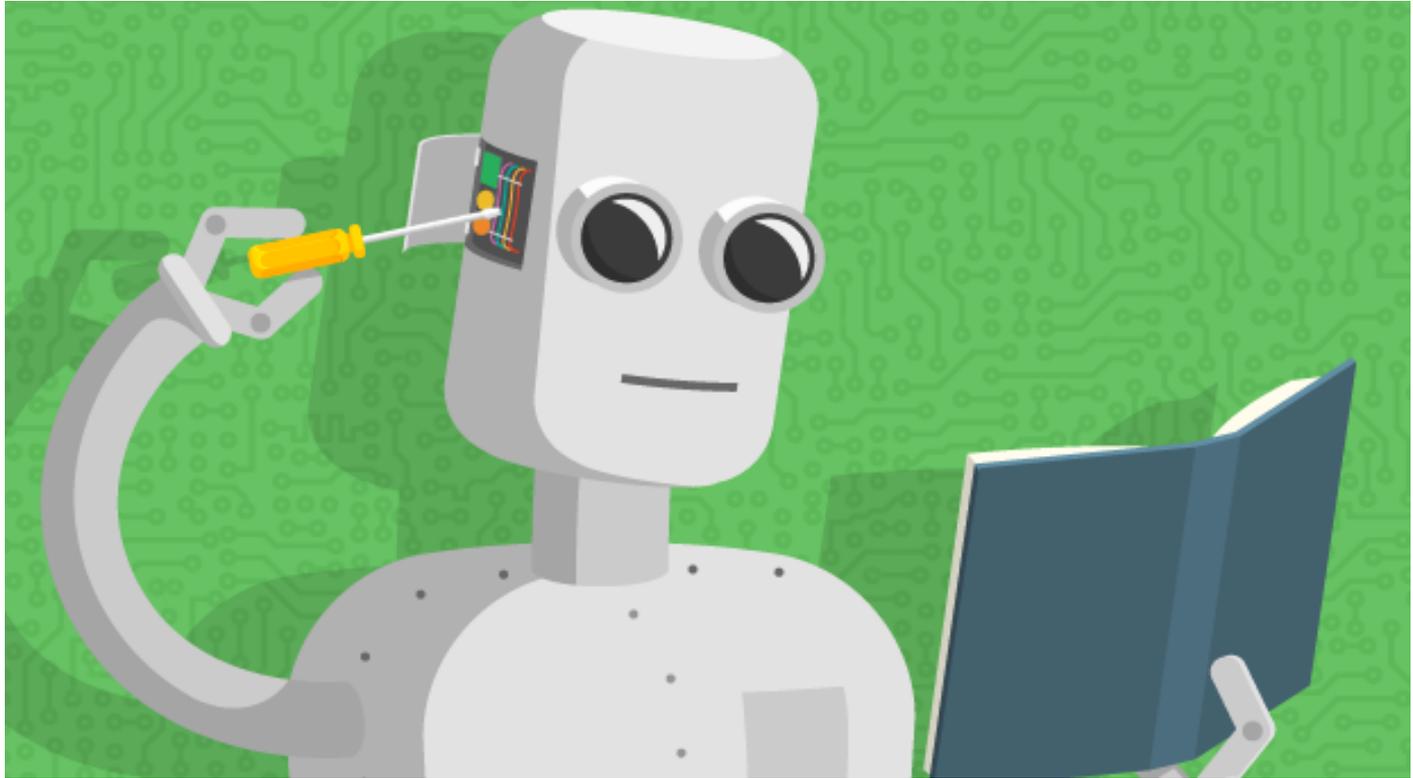


ML_notes

Notes



hw5

```
.....  
::: HW5 blocks world with painting  
.....  
(define (domain hw5_domain)  
  (:requirements :strips)  
  
  (:constants red green blue)  
  
  ;; the first five predicates are for the classic block world. The rest are  
  ;; additional predicates required to extend the model to allow for painting  
  
  (:predicates (on ?x ?y)           ; object ?x is on object ?y  
               (on-table ?x)       ; object ?x is directly on the table  
               (clear ?x)          ; object ?x has nothing on it  
               (arm-empty)         ; the arm is not holding anything  
               (holding ?x)        ; the arm is holding ?x  
               (block ?x)          ; ?x is a block  
               (paint-can ?x ?color) ; ?x is a paint can with paint color ?color  
               (brush ?x)          ; ?x is a paint brush  
               (water-bucket ?wb)  ; ?x is a water bucket  
               (color ?x ?color)   ; ?x has color ?color  
               (open ?can)         ; paint can ?can is open  
               (clean ?brush)      ; brush ?brush is clean  
               (loaded ?brush ?color) ; brush ?brush is loaded with paint of color ?color  
               (true))            ; dummy effect of no consequence
```

Shortest plan?

- How long is too long?
- Finding shortest plan?
- Why different lengths?

$\sim(\text{clean } ?b) \Leftrightarrow (\text{loaded } ?b ?c)$

$(\text{loaded } ?b ?c1) \wedge (\text{loaded } ?b ?c2) \Rightarrow (c1 = c2)$

- Don't think you can say this in simple PDDL
- Must define relevant actions to enforce it
- Can then assume it in preconditions
- May be possible in current PDDL spec. or successor ADL

