

## Problem 2

### Initial State

(worker w1 f0)  
 (worker w2 f1)  
 (worker w3 f2)  
 (worker w4 f3)  
 (worker w5 f4)  
 (worker w6 f5)  
 (worker w7 f6)  
 (worker w8 f7)  
 (slow l1 f0)  
 (slow l2 f0)  
 (slow l3 f0)  
 (slow l4 f0)  
 (fast l5 f0)  
 (fast l6 f0)  
 (fast l7 f0)  
 (fast l8 f0)  
 (move\_one f0 f1)  
 (move\_one f1 f2)  
 (move\_one f2 f3)  
 (move\_one f3 f4)  
 (move\_one f4 f5)  
 (move\_one f5 f6)  
 (move\_one f6 f7)  
 (move\_one f7 f8)  
 (move\_one f8 f9)  
 (move\_one f9 f10)  
 (move\_one f10 f11)  
 (move\_one f11 f12)  
 (move\_one f12 f13)  
 (move\_one f13 f14)  
 (move\_one f14 f15)  
 (move\_one f15 f16)  
 (move\_one f16 f17)  
 (move\_one f17 f18)  
 (move\_one f18 f19)  
 (move\_one f19 f20)  
 (move\_one f20 f21)  
 (move\_one f21 f20)

(move\_one f20 f19)  
 (move\_one f19 f18)  
 (move\_one f18 f17)  
 (move\_one f17 f16)  
 (move\_one f16 f15)  
 (move\_one f15 f14)  
 (move\_one f14 f13)  
 (move\_one f13 f12)  
 (move\_one f12 f11)  
 (move\_one f11 f10)  
 (move\_one f10 f9)  
 (move\_one f9 f8)  
 (move\_one f8 f7)  
 (move\_one f7 f6)  
 (move\_one f6 f5)  
 (move\_one f5 f4)  
 (move\_one f4 f3)  
 (move\_one f3 f2)  
 (move\_one f2 f1)  
 (move\_one f1 f0)  
 (move\_ten f0 f10)  
 (move\_ten f10 f20)  
 (move\_ten f20 f10)  
 (move\_ten f10 f0)

### Final State

(worker w1 f10)  
 (worker w2 f5)  
 (worker w3 f5)  
 (worker w4 f5)  
 (worker w5 f9)  
 (worker w6 f19)  
 (worker w7 f17)  
 (worker w8 f21)

### Trace

(move\_one\_floor l2 f0 f1)  
 (get\_in\_slow l2 w2 f1)  
 (move\_one\_floor l2 f1 f2)  
 (get\_in\_slow l2 w3 f2)  
 (move\_one\_floor l2 f2 f3)  
 (get\_in\_slow l2 w4 f3)  
 (move\_one\_floor l2 f3 f4)  
 (get\_in\_slow l2 w5 f4)  
 (move\_one\_floor l2 f4 f5)  
 (get\_out\_slow l2 w2 f5)  
 (get\_out\_slow l2 w3 f5)  
 (get\_out\_slow l2 w4 f5)  
 (get\_in\_slow l2 w6 f5)  
 (move\_one\_floor l2 f5 f6)  
 (get\_in\_slow l2 w7 f6)  
 (move\_one\_floor l2 f6 f7)  
 (get\_in\_slow l2 w8 f7)  
 (move\_one\_floor l2 f7 f8)  
 (move\_one\_floor l2 f8 f9)  
 (get\_out\_slow l2 w5 f9)  
 (move\_one\_floor l2 f9 f10)  
 (move\_one\_floor l2 f10 f11)  
 (move\_one\_floor l2 f11 f12)  
 (move\_one\_floor l2 f12 f13)  
 (move\_one\_floor l2 f13 f14)  
 (move\_one\_floor l2 f14 f15)  
 (move\_one\_floor l2 f15 f16)  
 (move\_one\_floor l2 f16 f17)  
 (get\_out\_slow l2 w7 f17)  
 (move\_one\_floor l2 f17 f18)  
 (move\_one\_floor l2 f18 f19)  
 (get\_out\_slow l2 w6 f19)  
 (move\_one\_floor l2 f19 f20)  
 (move\_one\_floor l2 f20 f21)  
 (get\_out\_slow l2 w8 f21)  
 (get\_in\_fast l7 w1 f0)  
 (move\_ten\_floor l7 f0 f10)  
 (get\_out\_fast l7 w1 f10)