

gripper-problem-3.pddl

```

(define (problem gripper-3)
  (:domain gripper-domain)
  (:objects rooma roomb roomc roomd roome roomf ball1 ball2 ball3 ball4 ball5 ball6 left right up down)
  (:init
    (room rooma)
    (room roomb)
    (room roomc)
    (room roomd)
    (room roome)
    (room roomf)
    (ball ball1)
    (ball ball2)
    (ball ball3)
    (ball ball4)
    (ball ball5)
    (ball ball6)
    (gripper left)
    (gripper right)
    (gripper up)
    (gripper down)
    (at-robby rooma)
    (free left)
    (free right)
    (free up)
    (free down)
    (at ball1 rooma)
    (at ball2 roomb)
    (at ball3 roomc)
    (at ball4 roomd)
    (at ball5 roome)
    (at ball6 roomf)
  )
  (:goal (and(at ball1 rooma) (at ball2 rooma) (at ball3 roomb) (at ball4 roomd) (at ball5 roomc) (at ball6 roome))))

```

1)

(move rooma roomb)	<pre> (:action move :parameters (rooma roomb) :precondition (and (room rooma) (room roomb) (at-robby rooma)) :effect (and (at-robby roomb) (not (at-robby rooma)))) </pre>
(move roomb roomc)	
(move roomc roome)	
(pick ball5 roome left)	
(move roome roomf)	
(drop ball5 roomf left)	
(pick ball6 roomf left)	
(move roomf roome)	

2)

(move rooma roomb)
(move roomb roomc)
(move roomc roome)
(pick ball5 roome left)
(move roome roomf)
(drop ball5 roomf left)
(pick ball6 roomf left)
(move roomf roome)

```
(:action move
:parameters (roomb roomc)
:precondition
  (and
    (room roomb)
    (room roomc)
    (at-robby roomb)
  )
:effect
  (and
    (at-robby roomc)
    (not
      (at-robby roomb)
    )
  )
)
```

3)

(move rooma roomb)
(move roomb roomc)
(move roomc roome)
(pick ball5 roome left)
(move roome roomf)
(drop ball5 roomf left)
(pick ball6 roomf left)
(move roomf roome)

```
(:action move
:parameters (roomc roome)
:precondition
  (and
    (room roomc)
    (room roome)
    (at-robby roomc)
  )
:effect
  (and
    (at-robby roome)
    (not
      (at-robby roomc)
    )
  )
)
```

4)

(move rooma roomb)
(move roomb roomc)
(move roomc roome)
(pick ball5 roome left)
(move roome roomf)
(drop ball5 roomf left)
(pick ball6 roomf left)
(move roomf roome)
(drop ball6 roome left)
(move roome roomb)

```
(:action pick
:parameters (ball5 roome left)
:precondition
  (and
    (ball ball5)
    (room roome)
    (gripper left)
    (at ball5 roome)
    (at-robby roome)
    (free left)
  )
:effect
  (and
    (carry ball5 left)
    (not
      (at ball5 roome)
    )
    (not
      (free left)
    )
  )
)
```

5)

(move rooma roomb)
(move roomb roomc)
(move roomc roome)
(pick ball5 roome left)
(move roome roomf)
(drop ball5 roomf left)
(pick ball6 roomf left)
(move roomf roome)

```
(:action move
:parameters (roome roomf)
:precondition
  (and
    (room roome)
    (room roomf)
    (at-robby roome)
  )
:effect
  (and
    (at-robby roomf)
    (not
      (at-robby roome)
    )
  )
)
```

6)

(move rooma roomb)	<pre>(:action drop :parameters (ball5 roomf left) :precondition (and (ball ball5) (room roomf) (gripper left) (carry ball5 left) (at-robby roomf)) :effect (and (at ball5 roomf) (free left) (not (carry ball5 left))))</pre>
(move roomb roomc)	
(move roomc roome)	
(pick ball5 roome left)	
(move roome roomf)	
(drop ball5 roomf left)	
(pick ball6 roomf left)	
(move roomf roome)	
(drop ball6 roome left)	

7)

(move rooma roomb)	<pre>(:action pick :parameters (ball6 roomf left) :precondition (and (ball ball6) (room roomf) (gripper left) (at ball6 roomf) (at-robby roomf) (free left)) :effect (and (carry ball6 left) (not (at ball6 roomf)) (not (free left))))</pre>
(move roomb roomc)	
(move roomc roome)	
(pick ball5 roome left)	
(move roome roomf)	
(drop ball5 roomf left)	
(pick ball6 roomf left)	
(move roomf roome)	
(drop ball6 roome left)	
(move roome roomb)	

8)

(move rooma roomb)
(move roomb roomc)
(move roomc roome)
(pick ball5 roome left)
(move roome roomf)
(drop ball5 roomf left)
(pick ball6 roomf left)
(move roomf roome)

```
(:action move
:parameters (roomf roome)
:precondition
  (and
    (room roomf)
    (room roome)
    (at-robby roomf)
  )
:effect
  (and
    (at-robby roome)
    (not
      (at-robby roomf)
    )
  )
)
```

9)

(move rooma roomb)
(move roomb roomc)
(move roomc roome)
(pick ball5 roome left)
(move roome roomf)
(drop ball5 roomf left)
(pick ball6 roomf left)
(move roomf roome)
(drop ball6 roome left)

```
(:action drop
:parameters (ball6 roome left)
:precondition
  (and
    (ball ball6)
    (room roome)
    (gripper left)
    (carry ball6 left)
    (at-robby roome)
  )
:effect
  (and
    (at ball6 roome)
    (free left)
    (not
      (carry ball6 left)
    )
  )
)
```

10)

(move roome roomf)
(drop ball5 roomf left)
(pick ball6 roomf left)
(move roomf roome)
(drop ball6 roome left)
(move roome roomb)
(pick ball2 roomb left)
(move roomb rooma)

```
(:action move
:parameters (roome roomb)
:precondition
  (and
    (room roome)
    (room roomb)
    (at-robby roome)
  )
:effect
  (and
    (at-robby roomb)
    (not
      (at-robby roome)
    )
  )
)
```

11)

(move roome roomf)
(drop ball5 roomf left)
(pick ball6 roomf left)
(move roomf roome)
(drop ball6 roome left)
(move roome roomb)
(pick ball2 roomb left)
(move roomb rooma)
(drop ball2 rooma left)

```
(:action pick
:parameters (ball2 roomb left)
:precondition
  (and
    (ball ball2)
    (room roomb)
    (gripper left)
    (at ball2 roomb)
    (at-robby roomb)
    (free left)
  )
:effect
  (and
    (carry ball2 left)
    (not
      (at ball2 roomb)
    )
    (not
      (free left)
    )
  )
)
```


12)

(move roomf roome)
(drop ball6 roome left)
(move roome roomb)
(pick ball2 roomb left)
(move roomb rooma)
(drop ball2 rooma left)
(move rooma roomc)

```
(:action move
:parameters (roomb rooma)
:precondition
  (and
    (room roomb)
    (room rooma)
    (at-robby roomb)
  )
:effect
  (and
    (at-robby rooma)
    (not
      (at-robby roomb)
    )
  )
)
```

13)

(move roomf roome)
(drop ball6 roome left)
(move roome roomb)
(pick ball2 roomb left)
(move roomb rooma)
(drop ball2 rooma left)
(move rooma roomc)
(pick ball3 roomc left)

```
(:action drop
:parameters (ball2 rooma left)
:precondition
  (and
    (ball ball2)
    (room rooma)
    (gripper left)
    (carry ball2 left)
    (at-robby rooma)
  )
:effect
  (and
    (at ball2 rooma)
    (free left)
    (not
      (carry ball2 left)
    )
  )
)
```

14)

(move roome roomb)
(pick ball2 roomb left)
(move roomb rooma)
(drop ball2 rooma left)
(move rooma roomc)
(pick ball3 roomc left)
(move roomc roomb)

```
(:action move
:parameters (rooma roomc)
:precondition
  (and
    (room rooma)
    (room roomc)
    (at-robby rooma)
  )
:effect
  (and
    (at-robby roomc)
    (not
      (at-robby rooma)
    )
  )
)
```

15)

(move roomf roome)
(drop ball6 roome left)
(move roome roomb)
(pick ball2 roomb left)
(move roomb rooma)
(drop ball2 rooma left)
(move rooma roomc)
(pick ball3 roomc left)
(move roomc roomb)
(drop ball3 roomb left)

```
(:action pick
:parameters (ball3 roomc left)
:precondition
  (and
    (ball ball3)
    (room roomc)
    (gripper left)
    (at ball3 roomc)
    (at-robby roomc)
    (free left)
  )
:effect
  (and
    (carry ball3 left)
    (not
      (at ball3 roomc)
    )
    (not
      (free left)
    )
  )
)
```


16)

(move roomb rooma)	<pre>(:action move :parameters (roomc roomb) :precondition (and (room roomc) (room roomb) (at-robby roomc)) :effect (and (at-robby roomb) (not (at-robby roomc))))</pre>
(drop ball2 rooma left)	
(move rooma roomc)	
(pick ball3 roomc left)	
(move roomc roomb)	
(drop ball3 roomb left)	
(move roomb roomf)	

17)

(pick ball2 roomb left)	<pre>(:action drop :parameters (ball3 roomb left) :precondition (and (ball ball3) (room roomb) (gripper left) (carry ball3 left) (at-robby roomb)) :effect (and (at ball3 roomb) (free left) (not (carry ball3 left))))</pre>
(move roomb rooma)	
(drop ball2 rooma left)	
(move rooma roomc)	
(pick ball3 roomc left)	
(move roomc roomb)	
(drop ball3 roomb left)	
(move roomb roomf)	
(pick ball5 roomf left)	

18)

(drop ball2 rooma left)
(move rooma roomc)
(pick ball3 roomc left)
(move roomc roomb)
(drop ball3 roomb left)
(move roomb roomf)
(pick ball5 roomf left)
(move roomf roomc)

```
(:action move
:parameters (roomb roomf)
:precondition
  (and
    (room roomb)
    (room roomf)
    (at-robby roomb)
  )
:effect
  (and
    (at-robby roomf)
    (not
      (at-robby roomb)
    )
  )
)
```

19)

(drop ball2 rooma left)
(move rooma roomc)
(pick ball3 roomc left)
(move roomc roomb)
(drop ball3 roomb left)
(move roomb roomf)
(pick ball5 roomf left)
(move roomf roomc)

```
(:action pick
:parameters (ball5 roomf left)
:precondition
  (and
    (ball ball5)
    (room roomf)
    (gripper left)
    (at ball5 roomf)
    (at-robby roomf)
    (free left)
  )
:effect
  (and
    (carry ball5 left)
    (not
      (at ball5 roomf)
    )
    (not
      (free left)
    )
  )
)
```

20)

(pick ball3 roomc left)

(move roomc roomb)

(drop ball3 roomb left)

(move roomb roomf)

(pick ball5 roomf left)

(move roomf roomc)

(drop ball5 roomc left)

```
(:action move
:parameters (roomf roomc)
:precondition
  (and
    (room roomf)
    (room roomc)
    (at-robby roomf)
  )
:effect
  (and
    (at-robby roomc)
    (not
      (at-robby roomf)
    )
  )
)
```

21)

(pick ball3 roomc left)

(move roomc roomb)

(drop ball3 roomb left)

(move roomb roomf)

(pick ball5 roomf left)

(move roomf roomc)

(drop ball5 roomc left)

```
(:action drop
:parameters (ball5 roomc left)
:precondition
  (and
    (ball ball5)
    (room roomc)
    (gripper left)
    (carry ball5 left)
    (at-robby roomc)
  )
:effect
  (and
    (at ball5 roomc)
    (free left)
    (not
      (carry ball5 left)
    )
  )
)
```