

PROBLEM 1

0: (shake_it d1)
0: -----waiting----- [3.0]
3.0: (shake_it d2)
3.0: -----waiting----- [5.0]
5.0: (start_move ambrogio A b)
5.0: -----waiting----- [6.0]
6.0: (put_on_tray ambrogio b d2)
6.0: (put_on_tray ambrogio b d1)
6.0: (take_tray ambrogio b)
6.0: (start_move ambrogio b t2)
6.0: -----waiting----- [8.0]
8.0: (serve_drink_t ambrogio t2 d2)
8.0: (serve_drink_t ambrogio t2 d1)
8.0: (start_move ambrogio t2 b)
8.0: -----waiting----- [10.0]
10.0: (leave_tray ambrogio b)
10.0: (take_biscuit_for d1 ambrogio b)
10.0: (start_move ambrogio b t2)
10.0: -----waiting----- [11.0]
11.0: (give_biscuit_to d1 ambrogio t2)
11.0: (start_move ambrogio t2 b)
11.0: -----waiting----- [12.0]
12.0: (take_biscuit_for d2 ambrogio b)
12.0: (start_move ambrogio b t2)
12.0: -----waiting----- [13.0]
13.0: (give_biscuit_to d2 ambrogio t2)

13.0: -----waiting----- [17.0]
17.0: (start_clean ambrogio t2)
17.0: -----waiting----- [19.0]
19.0: (start_move ambrogio t2 t4)
19.0: -----waiting----- [20.0]
20.0: (start_clean ambrogio t4)
20.0: -----waiting----- [22.0]
22.0: (start_move ambrogio t4 t3)
22.0: -----waiting----- [23.0]
23.0: (start_clean ambrogio t3)
23.0: -----waiting----- [27.0]
27.0: (start_move ambrogio t3 A)
27.0: -----waiting----- [29.0]

Plan-Length:70
Elapsed Time: 29.0
Metric (Search):53.0
Planning Time (msec): 850
Heuristic Time (msec): 187
Search Time (msec): 289
Expanded Nodes:238
States Evaluated:1693
Fixed constraint violations during search
(zero-crossing):0
Number of Dead-Ends detected:717
Number of Duplicates detected:69

PROBLEM 2

0: (shake_it d3)
0: -----waiting----- [3.0]
3.0: (shake_it d4)
3.0: -----waiting----- [6.0]
6.0: (start_move gertrude G t1)
6.0: -----waiting----- [7.0]
7.0: (shake_it d2)
7.0: -----waiting----- [8.0]
8.0: (start_clean gertrude t1)
8.0: -----waiting----- [10.0]
10.0: (start_move gertrude t1 G)
10.0: -----waiting----- [11.0]
11.0: (start_move ambrogio A b)
11.0: -----waiting----- [12.0]
12.0: (put_on_tray ambrogio b d4)
12.0: (put_on_tray ambrogio b d2)
12.0: (put_on_tray ambrogio b d3)
12.0: (take_tray ambrogio b)
12.0: (start_move ambrogio b t3)
12.0: -----waiting----- [15.0]
15.0: (serve_drink_t ambrogio t3 d4)
15.0: (serve_drink_t ambrogio t3 d2)
15.0: -----waiting----- [16.0]
16.0: (serve_drink_t ambrogio t3 d3)
16.0: (start_move ambrogio t3 b)
16.0: -----waiting----- [19.0]
19.0: (leave_tray ambrogio b)
19.0: (shake_it d1)
19.0: -----waiting----- [25.0]
25.0: (take_drink ambrogio b d1)
25.0: (start_move ambrogio b t3)
25.0: -----waiting----- [27.0]

27.0: (serve_drink_g ambrogio t3 d1)
27.0: (start_move ambrogio t3 b)
27.0: -----waiting----- [29.0]
29.0: (take_biscuit_for d3 ambrogio b)
29.0: (start_move ambrogio b t3)
29.0: -----waiting----- [31.0]
31.0: (give_biscuit_to d3 ambrogio t3)
31.0: (start_move ambrogio t3 b)
31.0: -----waiting----- [33.0]
33.0: (take_biscuit_for d4 ambrogio b)
33.0: (start_move ambrogio b t3)
33.0: -----waiting----- [35.0]
35.0: (give_biscuit_to d4 ambrogio t3)
35.0: -----waiting----- [39.0]
39.0: (start_clean ambrogio t3)
39.0: -----waiting----- [43.0]
43.0: (start_move ambrogio t3 A)
43.0: -----waiting----- [45.0]

Plan-Length:98
Elapsed Time: 45.0
Metric (Search):76.0
Planning Time (msec): 6201
Heuristic Time (msec): 4691
Search Time (msec): 5421
Expanded Nodes:7396
States Evaluated:44728
Fixed constraint violations during search
(zero-crossing):0
Number of Dead-Ends detected:20544
Number of Duplicates detected:8734

PROBLEM 3

0: (shake_it d1)
0: ----waiting---- [5.0]
5.0: (start_move gertrude G b)
5.0: ----waiting---- [6.0]
6.0: (take_drink gertrude b d1)
6.0: (start_move gertrude b t4)
6.0: ----waiting---- [8.0]
8.0: (serve_drink_g gertrude t4 d1)
8.0: (shake_it d4)
8.0: ----waiting---- [13.0]
13.0: (start_move ambrogio A b)
13.0: ----waiting---- [14.0]
14.0: (take_drink ambrogio b d4)
14.0: (shake_it d3)
14.0: ----waiting---- [15.0]
15.0: (start_move ambrogio b t1)
15.0: ----waiting---- [16.0]
16.0: (serve_drink_g ambrogio t1 d4)
16.0: ----waiting---- [19.0]
19.0: (start_move ambrogio t1 b)
19.0: ----waiting---- [20.0]
20.0: (take_drink ambrogio b d3)
20.0: (start_move ambrogio b t1)
20.0: ----waiting---- [21.0]
21.0: (serve_drink_g ambrogio t1 d3)
21.0: ----waiting---- [23.0]
23.0: (start_move ambrogio t1 t3)
23.0: ----waiting---- [24.0]
24.0: (start_clean ambrogio t3)
24.0: ----waiting---- [28.0]
28.0: (start_move ambrogio t3 t1)

28.0: ----waiting---- [29.0]
29.0: (shake_it d2)
29.0: ----waiting---- [30.0]
30.0: (start_clean ambrogio t1)
30.0: ----waiting---- [32.0]
32.0: (start_move ambrogio t1 A)
32.0: ----waiting---- [33.0]
33.0: (start_move gertrude t4 b)
33.0: ----waiting---- [35.0]
35.0: (take_drink gertrude b d2)
35.0: (start_move gertrude b t4)
35.0: ----waiting---- [37.0]
37.0: (serve_drink_g gertrude t4 d2)
37.0: ----waiting---- [41.0]
41.0: (start_clean gertrude t4)
41.0: ----waiting---- [43.0]
43.0: (start_move gertrude t4 G)
43.0: ----waiting---- [45.0]

Plan-Length:97

Elapsed Time: 45.0

Metric (Search):72.0

Planning Time (msec): 3978

Heuristic Time (msec): 2819

Search Time (msec): 3342

Expanded Nodes:8855

States Evaluated:42295

Fixed constraint violations during search
(zero-crossing):0

Number of Dead-Ends detected:25578

Number of Duplicates detected:3407

PROBLEM 4

0: (shake_it d5)
0: -----waiting----- [3.0]
3.0: (shake_it d7)
3.0: -----waiting----- [6.0]
6.0: (shake_it d6)
6.0: -----waiting----- [9.0]
9.0: (shake_it d8)
9.0: -----waiting----- [12.0]
12.0: (shake_it d4)
12.0: -----waiting----- [17.0]
17.0: (start_move ambrogio A b)
17.0: -----waiting----- [18.0]
18.0: (take_drink ambrogio b d4)
18.0: (start_move ambrogio b t3)
18.0: -----waiting----- [20.0]
20.0: (serve_drink_g ambrogio t3 d4)
20.0: -----waiting----- [23.0]
23.0: (start_move gertrude G b)
23.0: -----waiting----- [24.0]
24.0: (put_on_tray gertrude b d5)
24.0: (put_on_tray gertrude b d7)
24.0: (put_on_tray gertrude b d8)
24.0: (take_tray gertrude b)
24.0: (start_move gertrude b t1)
24.0: -----waiting----- [26.0]
26.0: (serve_drink_t gertrude t1 d8)
26.0: (start_move gertrude t1 t4)
26.0: -----waiting----- [27.0]
27.0: (serve_drink_t gertrude t4 d5)
27.0: (shake_it d3)
27.0: -----waiting----- [31.0]
31.0: (start_move ambrogio t3 b)
31.0: -----waiting----- [33.0]
33.0: (take_drink ambrogio b d3)
33.0: (start_move ambrogio b t3)
33.0: -----waiting----- [35.0]
35.0: (serve_drink_g ambrogio t3 d3)
35.0: -----waiting----- [36.0]
36.0: (start_move gertrude t4 t1)
36.0: -----waiting----- [37.0]
37.0: (serve_drink_t gertrude t1 d7)
37.0: (start_move gertrude t1 b)
37.0: -----waiting----- [39.0]
39.0: (leave_tray gertrude b)
39.0: (take_drink gertrude b d6)
39.0: (start_move gertrude b t4)
39.0: -----waiting----- [41.0]
41.0: (shake_it d2)
41.0: -----waiting----- [45.0]
45.0: (start_move ambrogio t3 b)
45.0: -----waiting----- [47.0]
47.0: (take_drink ambrogio b d2)
47.0: (start_move ambrogio b t3)
47.0: -----waiting----- [49.0]
49.0: (serve_drink_g ambrogio t3 d2)
49.0: (shake_it d1)
49.0: -----waiting----- [52.0]
52.0: (start_move ambrogio t3 b)
52.0: -----waiting----- [54.0]
54.0: (take_drink ambrogio b d1)
54.0: (start_move ambrogio b t3)
54.0: -----waiting----- [57.0]
57.0: (serve_drink_g ambrogio t3 d1)
57.0: -----waiting----- [61.0]
61.0: (start_clean ambrogio t3)
61.0: -----waiting----- [65.0]
65.0: (start_move ambrogio t3 A)
65.0: (serve_drink_g gertrude t4 d6)
65.0: (start_clean gertrude t4)
65.0: -----waiting----- [67.0]
67.0: (start_move gertrude t4 b)
67.0: -----waiting----- [69.0]
69.0: (take_biscuit_for d7 gertrude b)
69.0: (start_move gertrude b t1)
69.0: -----waiting----- [70.0]
70.0: (give_biscuit_to d7 gertrude t1)
70.0: -----waiting----- [71.0]
71.0: (start_move gertrude t1 b)
71.0: -----waiting----- [72.0]
72.0: (take_biscuit_for d6 gertrude b)
72.0: (start_move gertrude b t4)
72.0: -----waiting----- [74.0]
74.0: (give_biscuit_to d6 gertrude t4)
74.0: -----waiting----- [75.0]
75.0: (start_move gertrude t4 b)
75.0: -----waiting----- [77.0]
77.0: (take_biscuit_for d8 gertrude b)
77.0: (start_move gertrude b t1)
77.0: -----waiting----- [78.0]
78.0: (give_biscuit_to d8 gertrude t1)
78.0: -----waiting----- [82.0]
82.0: (start_clean gertrude t1)

82.0: -----waiting----- [84.0]
84.0: (start_move gertrude t1 b)
84.0: -----waiting----- [85.0]
85.0: (take_biscuit_for d5 gertrude b)
85.0: (start_move gertrude b t4)
85.0: -----waiting----- [87.0]
87.0: (give_biscuit_to d5 gertrude t4)
87.0: -----waiting----- [91.0]
91.0: (start_clean gertrude t4)
91.0: -----waiting----- [93.0]
93.0: (start_move gertrude t4 G)
93.0: -----waiting----- [95.0]

Plan-Length:204
Elapsed Time: 95.0
Metric (Search):157.0
Planning Time (msec): 55017
Heuristic Time (msec): 51097
Search Time (msec): 54200
Expanded Nodes:42217
States Evaluated:321496
Fixed constraint violations during search
(zero-crossing):0
Number of Dead-Ends detected:158034
Number of Duplicates detected:40438