## Farmer\_Fox

Welcome to ItrBFS Welcome to ItrDFS Initial State: Initial State: LEFT: boat & farmer fox chicken grain LEFT: boat & farmer fox chicken grain RIGHT: RIGHT: len(OPEN)=1; len(CLOSED)=0; COUNT = 0 len(OPEN)=1; len(CLOSED)=0; COUNT = 0 OPEN is now: LEFT: fox grain OPEN is now: LEFT: fox grain RIGHT: boat & farmer chicken RIGHT: boat & farmer chicken len(OPEN)=1; len(CLOSED)=1; COUNT = 1 len(OPEN)=1; len(CLOSED)=1; COUNT = 1 OPEN is now: LEFT: fox grain boat & farmer OPEN is now: LEFT: fox grain boat & farmer RIGHT: chicken RIGHT: chicken len(OPEN)=1; len(CLOSED)=2; COUNT = 2 len(OPEN)=1; len(CLOSED)=2; COUNT = 2 OPEN is now: LEFT: grain OPEN is now: LEFT: grain RIGHT: chicken boat & farmer fox, LEFT: fox RIGHT: chicken boat & farmer fox, LEFT: fox RIGHT: chicken boat & farmer grain RIGHT: chicken boat & farmer grain len(OPEN)=2; len(CLOSED)=3; COUNT = 3 len(OPEN)=2; len(CLOSED)=3; COUNT = 3 OPEN is now: LEFT: fox OPEN is now: LEFT: grain boat & farmer RIGHT: chicken boat & farmer grain, LEFT: chicken grain boat & farmer chicken RIGHT: fox, LEFT: fox RIGHT: fox RIGHT: chicken boat & farmer grain len(OPEN)=2; len(CLOSED)=4; COUNT = 4 len(OPEN)=2; len(CLOSED)=4; COUNT = 4 OPEN is now: LEFT: grain boat & farmer OPEN is now: LEFT: chicken chicken RIGHT: fox boat & farmer grain, LEFT: fox RIGHT: chicken boat & farmer grain RIGHT: fox , LEFT: fox boat & farmer chicken len(OPEN)=2; len(CLOSED)=5; COUNT = 5 RIGHT: grain len(OPEN)=2; len(CLOSED)=5; COUNT = 5 OPEN is now: LEFT: chicken boat & farmer OPEN is now: LEFT: fox boat & farmer RIGHT: fox grain , LEFT: chicken boat & farmer fox chicken RIGHT: grain, LEFT: chicken RIGHT: grain, LEFT: fox RIGHT: fox boat & farmer grain RIGHT: chicken boat & farmer grain len(OPEN)=2; len(CLOSED)=6; COUNT = 6 len(OPEN)=3; len(CLOSED)=6; COUNT = 6 OPEN is now: LEFT: chicken OPEN is now: LEFT: RIGHT: fox grain boat & farmer chicken, RIGHT: fox boat & farmer grain len(OPEN)=1; len(CLOSED)=7; COUNT = 7 LEFT: chicken boat & farmer fox OPEN is now: LEFT: chicken boat & farmer RIGHT: grain, LEFT: fox RIGHT: fox grain RIGHT: chicken boat & farmer grain len(OPEN)=1; len(CLOSED)=8; COUNT = 8 len(OPEN)=3; len(CLOSED)=7; COUNT = 7 OPEN is now: LEFT: Congratulations on successfully helping the RIGHT: fox grain boat & farmer chicken farmer with the task len(OPEN)=1; len(CLOSED)=9; COUNT = 9 Solution path: Congratulations on successfully helping the LEFT: boat & farmer fox chicken grain

farmer with the task	RIGHT:
Solution path:	LEFT: fox grain
LEFT: boat & farmer fox chicken grain	RIGHT: boat & farmer chicken
RIGHT:	LEFT: fox grain boat & farmer
LEFT: fox grain	RIGHT: chicken
RIGHT: boat & farmer chicken	LEFT: grain
LEFT: fox grain boat & farmer	RIGHT: chicken boat & farmer fox
RIGHT: chicken	LEFT: grain boat & farmer chicken
LEFT: grain	RIGHT: fox
RIGHT: chicken boat & farmer fox	LEFT: chicken
LEFT: grain boat & farmer chicken	RIGHT: fox boat & farmer grain
RIGHT: fox	LEFT: chicken boat & farmer
LEFT: chicken	RIGHT: fox grain
RIGHT: fox boat & farmer grain	LEFT:
LEFT: chicken boat & farmer	RIGHT: fox grain boat & farmer chicken
RIGHT: fox grain	Length of solution path found: 7 edges
LEFT:	7 states expanded.
RIGHT: fox grain boat & farmer chicken	MAX_OPEN_LENGTH = 3
Length of solution path found: 7 edges	
9 states expanded.	
MAX_OPEN_LENGTH = 2	
Length of Path(BFS):7	Length of Path(DFS):7
Nodes expanded(BFS):9	Nodes expanded(DFS):7

## Missionaries

Welcome to ItrBFS	Welcome to ItrDFS
Initial State:	Initial State:
Titulal State.	miliai otate.
M on left:3	M on left:3
C on left:3	C on left:3
M on right:0	M on right:0
C on right:0	C on right:0
boat is on the left.	boat is on the left.
	a such some notice
len(OPEN)=1; len(CLOSED)=0; COUNT = 0	len(OPEN)=1; len(CLOSED)=0; COUNT = 0
OPEN is now:	OPEN is now:
M on left:0	M on left:0
C on left:3	C on left:3
M on right:3	M on right:3
C on right:0	C on right:0
boat is on the right.	boat is on the right.
,	,
M on left:2	M on left:2
C on left:2	C on left:2
M on right:1	M on right:1
C on right:1	C on right:1
boat is on the right.	boat is on the right.
len(OPEN)=2; len(CLOSED)=1; COUNT = 1	len(OPEN)=2; len(CLOSED)=1; COUNT = 1
OPEN is now:	OPEN is now:
M on left:2	M on left:2
C on left:2	C on left:2
M on right:1	M on right:1
C on right:1	C on right:1
boat is on the right.	boat is on the right.
len(OPEN)=1; len(CLOSED)=2; COUNT = 2	len(OPEN)=1; len(CLOSED)=2; COUNT = 2
OPEN is now:	OPEN is now:
M on left:3	M on left:3
C on left:2	C on left:2
M on right:0	M on right:0
C on right:1	C on right:1
boat is on the left.	boat is on the left.
len(OPEN)=1; len(CLOSED)=3; COUNT = 3	len(OPEN)=1; len(CLOSED)=3; COUNT = 3
( == -, =, == -, =, == -, =, == -, =, == -, =, == -, =, == -, = = -, = = -, = = -, = = -, = = -, = = -, = = -, = = -, = = -, = = -, = = = -, = = = -, = = = -, = = = -, = = = -, = = = -, = = = =	( == -, =, == -, =, == -, =, == = -, =, == = -, =, == = = -, = = = =

OPEN is now:	OPEN is now:
M on left:0	M on left:0
C on left:2	C on left:2
M on right:3	M on right:3
C on right:1	C on right:1
boat is on the right.	boat is on the right.
,	1
M on left:1	M on left:1
C on left:1	C on left:1
M on right:2	M on right:2
C on right:2	C on right:2
boat is on the right.	boat is on the right.
len(OPEN)=2; len(CLOSED)=4; COUNT = 4	len(OPEN)=2; len(CLOSED)=4; COUNT = 4
OPEN is now:	OPEN is now:
M on left:1	M on left:2
C on left:1	C on left:2
M on right:2	M on right:1
C on right:2	C on right:1
boat is on the right.	boat is on the left.
, M on left:2	, M on left:1
C on left:2	C on left:1
M on right:1	M on right:2
C on right:1	C on right:2
boat is on the left.	boat is on the right.
len(OPEN)=2; len(CLOSED)=5; COUNT = 5	len(OPEN)=2; len(CLOSED)=5; COUNT = 5
OPEN is now:	OPEN is now:
M on left:2	M on left:1
C on left:2	C on left:1
M on right:1	M on right:2
C on right:1	C on right:2
boat is on the left.	boat is on the right.
, M on left:3	M on left:0
C on left:1	C on left:1
M on right:0	M on right:3
C on right:2	C on right:2
boat is on the left.	boat is on the right.
len(OPEN)=2; len(CLOSED)=6; COUNT = 6	len(OPEN)=2; len(CLOSED)=6; COUNT = 6
OPEN is now:	OPEN is now:
M on left:3	M on left:3

0 164	0 164
C on left:1	C on left:1
M on right:0	M on right:0
C on right:2	C on right:2
boat is on the left.	boat is on the left.
1	1
M on left:0	M on left:0
C on left:1	C on left:1
M on right:3	M on right:3
C on right:2	C on right:2
boat is on the right.	boat is on the right.
len(OPEN)=2; len(CLOSED)=7; COUNT = 7	len(OPEN)=2; len(CLOSED)=7; COUNT = 7
OPEN is now:	OPEN is now:
M on left:0	M on left:0
C on left:1	C on left:1
M on right:3	M on right:3
C on right:2	C on right:2
boat is on the right.	boat is on the right.
J	3
len(OPEN)=1; len(CLOSED)=8; COUNT = 8	len(OPEN)=1; len(CLOSED)=8; COUNT = 8
OPEN is now:	OPEN is now:
M on left:1	M on left:1
C on left:1	C on left:1
M on right:2	M on right:2
C on right:2	C on right:2
boat is on the left.	boat is on the left.
bout is on the left.	boat is on the left.
len(OPEN)=1; len(CLOSED)=9; COUNT = 9	len(OPEN)=1; len(CLOSED)=9; COUNT = 9
OPEN is now:	OPEN is now:
M on left:0	M on left:0
C on left:0	C on left:0
M on right:3	M on right:3
C on right:3	C on right:3
boat is on the right.	boat is on the right.
boat is on the right.	boat is on the right.
len(OPEN)=1; len(CLOSED)=10; COUNT =	len(OPEN)=1; len(CLOSED)=10; COUNT =
10	10
Congratulations on successfully guiding the	Congratulations on successfully guiding the
missionaries and cannibals across the river!	missionaries and cannibals across the river!
Solution path:	Solution path:
M on left:3	M on left:3
C on left:3	C on left:3
M on right:0	M on right:0
	<u> </u>

C on right:0 C on right:0 boat is on the left. boat is on the left. M on left:2 M on left:2 C on left:2 C on left:2 M on right:1 M on right:1 C on right:1 C on right:1 boat is on the right. boat is on the right. M on left:3 M on left:3 C on left:2 C on left:2 M on right:0 M on right:0 C on right:1 C on right:1 boat is on the left. boat is on the left. M on left:0 M on left:0 C on left:2 C on left:2 M on right:3 M on right:3 C on right:1 C on right:1 boat is on the right. boat is on the right. M on left:2 M on left:2 C on left:2 C on left:2 M on right:1 M on right:1 C on right:1 C on right:1 boat is on the left. boat is on the left. M on left:0 M on left:1 C on left:1 C on left:1 M on right:3 M on right:2 C on right:2 C on right:2 boat is on the right. boat is on the right. M on left:3 M on left:1 C on left:1 C on left:1

M on right:0

C on right:2

boat is on the left.

M on right:2

C on right:2

boat is on the left.

M on left:0	M on left:0
C on left:0	C on left:1
M on right:3	M on right:3
C on right:3	C on right:2
boat is on the right.	boat is on the right.
Length of solution path found: 7 edges	
10 states expanded.	M on left:1
MAX_OPEN_LENGTH = 2	C on left:1
	M on right:2
	C on right:2
	boat is on the left.
	M on left:0
	C on left:0
	M on right:3
	C on right:3
	boat is on the right.
	Length of solution path found: 9 edges
	10 states expanded.
	MAX_OPEN_LENGTH = 2
Length of Path(BFS): 7	Length of Path(DFS): 9
Nodes expanded(BFS): 10	Nodes expanded(DFS): 10

## **TowersOfHanoi**

Welcome to ItrBFS Welcome to ItrDFS Initial State: Initial State: [[4, 3, 2, 1], [], []] [[4, 3, 2, 1], [], []] len(OPEN)=1; len(CLOSED)=0; COUNT = 0 len(OPEN)=1; len(CLOSED)=0; COUNT = 0 OPEN is now: [[4, 3, 2],[1], []], [[4, 3, 2],[],[1]] OPEN is now: [[4, 3, 2],[1],[]], [[4, 3, 2],[],[1]] len(OPEN)=2; len(CLOSED)=1; COUNT = 1 len(OPEN)=2; len(CLOSED)=1; COUNT = 1 OPEN is now: [[4, 3, 2], [], [1], [[4, 3], [1], [2]] OPEN is now: [[4, 3], [1], [2]], [[4, 3, 2], [], [1]] len(OPEN)=2; len(CLOSED)=2; COUNT = 2 len(OPEN)=2; len(CLOSED)=2; COUNT = 2 OPEN is now: [[4, 3],[1],[2]], [[4, 3],[2],[1]] OPEN is now: [[4, 3, 1], [], [2]], [[4, 3], [], [2, len(OPEN)=2; len(CLOSED)=3; COUNT = 3 1]], [[4, 3, 2] ,[] ,[1]] len(OPEN)=3; len(CLOSED)=3; COUNT = 3 OPEN is now: [[4, 3], [2], [1]], [[4, 3, 1], [2]], [[4, 3], [], [2, 1]] OPEN is now: [[4, 3],[],[2, 1]], [[4, 3, len(OPEN)=3; len(CLOSED)=4; COUNT = 4 1],[2],[]],[[4, 3, 2],[],[1]] OPEN is now: [[4, 3, 1], [], [2]], [[4, 3], [], [2, len(OPEN)=3; len(CLOSED)=4; COUNT = 4 1]], [[4, 3, 1],[2],[]], [[4, 3],[2, 1],[]] OPEN is now: [[4],[3],[2, 1]], [[4, 3, 1],[2],[]], len(OPEN)=4; len(CLOSED)=5; COUNT = 5 [[4, 3, 2], [1], [1]]OPEN is now: [[4, 3],[],[2, 1]], [[4, 3, len(OPEN)=3; len(CLOSED)=5; COUNT = 5 1],[2],[]],[[4, 3],[2, 1],[]],[[4, 3, 1],[2],[]] OPEN is now: [[4, 1],[3],[2]], [[4],[3, 1],[2]], len(OPEN)=4; len(CLOSED)=6; COUNT = 6 [[4, 3, 1],[2],[]], [[4, 3, 2],[],[1]] OPEN is now: [[4, 3, 1],[2],[]], [[4, 3],[2, len(OPEN)=4; len(CLOSED)=6; COUNT = 6 OPEN is now: [[4],[3, 1],[2]], [[4, 1],[3, 2],[]], 1],[],[[4, 3, 1],[2],[]],[[4],[3],[2, 1]] len(OPEN)=4; len(CLOSED)=7; COUNT = 7 [[4, 3, 1], [2], []], [[4, 3, 2], [], [1]]len(OPEN)=4; len(CLOSED)=7; COUNT = 7 OPEN is now: [[4, 3],[2, 1],[]], [[4, 3, 1],[2],[]],[[4],[3],[2,1]] OPEN is now: [[4, 2],[3, 1],[]], [[4, 1],[3, len(OPEN)=3; len(CLOSED)=8; COUNT = 8 2],[], [[4, 3, 1],[2],[]], [[4, 3, 2],[],[1]] OPEN is now: [[4, 3, 1], [2], []], [[4], [3], [2, 1]], len(OPEN)=4; len(CLOSED)=8; COUNT = 8 [[4],[2, 1],[3]] OPEN is now: [[4, 2, 1],[3],[]], [[4, 2],[3],[1]], len(OPEN)=3; len(CLOSED)=9; COUNT = 9 [[4, 1], [3, 2], []], [[4, 3, 1], [2], []], [[4, 3, OPEN is now: [[4], [3], [2, 1]], [[4], [2, 1], [3]] 2] ,[] ,[1] len(OPEN)=2; len(CLOSED)=10; COUNT = len(OPEN)=5; len(CLOSED)=9; COUNT = 9 OPEN is now: [[4, 2], [3], [1]], [[4, 2, 1], [3]], OPEN is now: [[4], [2, 1], [3]], [[4, 1], [3], [2]], [[4, 1], [3, 2], []], [[4, 3, 1], [2], []], [[4, 3, [[4],[3, 1],[2]] 2],[],[1]] len(OPEN)=3; len(CLOSED)=11; COUNT = len(OPEN)=5; len(CLOSED)=10; COUNT = 11 10 OPEN is now: [[4, 1],[3],[2]], [[4],[3, 1],[2]], OPEN is now: [[4],[3, 2],[1]], [[4, 2, 1],[],[3]], [[4, 1], [2], [3]], [[4], [2], [3, 1]] [[4, 1], [3, 2], []], [[4, 3, 1], [2], []], [[4, 3, len(OPEN)=4; len(CLOSED)=12; COUNT = 2],[],[1]] 12 len(OPEN)=5; len(CLOSED)=11; COUNT = OPEN is now: [[4], [3, 1], [2]], [[4, 1], [2], [3]], 11 [[4],[2],[3,1]],[[4,1],[3,2],[]] OPEN is now: [[4, 1],[3, 2],[]], [[4],[3, 2,

```
13
                                                2],[],[1]]
                                                len(OPEN)=5; len(CLOSED)=12; COUNT =
OPEN is now: [[4, 1], [2], [3]], [[4], [2], [3], 1]],
[[4, 1], [3, 2], []], [[4, 2], [3, 1], []]
len(OPEN)=4; len(CLOSED)=14; COUNT =
                                                OPEN is now: [[4] ,[3, 2, 1] ,[]], [[4, 2,
14
                                                1], [3], [4, 3, 1], [2], [1], [4, 3, 2], [1]]
                                                len(OPEN)=4; len(CLOSED)=13; COUNT =
OPEN is now: [[4],[2],[3, 1]], [[4, 1],[3, 2],[]],
[[4, 2], [3, 1], [[4, 1], [], [3, 2]]
                                                13
len(OPEN)=4; len(CLOSED)=15; COUNT =
                                                OPEN is now: [[] ,[3, 2, 1] ,[4]], [[4, 2,
15
                                                1],[3],[4, 3, 1],[2],[1],[4, 3, 2],[1]
OPEN is now: [[4, 1], [3, 2], []], [[4, 2], [3,
                                                len(OPEN)=4; len(CLOSED)=14; COUNT =
1], [], [[4, 1], [], [3, 2]], [[4, 2], [], [3, 1]]
                                                14
len(OPEN)=4; len(CLOSED)=16; COUNT =
                                                OPEN is now: [[1],[3, 2],[4]], [[],[3, 2],[4, 1]],
                                                [[4, 2, 1],[],[3]], [[4, 3, 1],[2],[]], [[4, 3,
OPEN is now: [[4, 2],[3, 1],[]], [[4, 1],[],[3,
                                                2],[],[1]]
                                                len(OPEN)=5; len(CLOSED)=15; COUNT =
2]], [[4, 2] ,[] ,[3, 1]], [[4] ,[3, 2, 1] ,[]], [[4] ,[3,
2] ,[1]]
                                                15
len(OPEN)=5; len(CLOSED)=17; COUNT =
                                                OPEN is now: [[], [3, 2], [4, 1]], [[1], [3], [4, 2]],
17
                                                [[4, 2, 1],[],[3]], [[4, 3, 1],[2],[]], [[4, 3,
OPEN is now: [[4, 1], [], [3, 2]], [[4, 2], [], [3,
                                                2],[],[1]]
                                                len(OPEN)=5; len(CLOSED)=16; COUNT =
1]], [[4] ,[3, 2, 1] ,[]], [[4] ,[3, 2] ,[1]], [[4, 2,
1],[3],[],[[4, 2],[3],[1]]
                                                16
len(OPEN)=6; len(CLOSED)=18; COUNT =
                                                OPEN is now: [[2],[3],[4, 1]], [[1],[3],[4, 2]],
18
                                                [[4, 2, 1],[],[3]], [[4, 3, 1],[2],[]], [[4, 3,
OPEN is now: [[4, 2],[],[3, 1]], [[4],[3, 2,
                                                2] ,[] ,[1]
                                                len(OPEN)=5; len(CLOSED)=17; COUNT =
1],[]],[[4],[3, 2],[1]],[[4, 2, 1],[3],[]],[[4,
2],[3],[1],[[4],[1],[3, 2]],[[4],[]
,[3, 2, 1]]
                                                OPEN is now: [[2, 1], [3], [4]], [[2], [3, 1], [4]],
len(OPEN)=7; len(CLOSED)=19; COUNT =
                                                [[1],[3],[4, 2]], [[4, 2, 1],[],[3]], [[4, 3,
                                                1],[2],[]],[[4, 3, 2],[],[1]]
OPEN is now: [[4],[3, 2, 1],[]], [[4],[3, 2],[1]],
                                                len(OPEN)=6; len(CLOSED)=18; COUNT =
[[4, 2, 1], [3], []], [[4, 2], [3], [1]], [[4], [1], [3,
2]], [[4] ,[] ,[3, 2, 1]], [[4, 2, 1] ,[] ,[3]], [[4,
                                                OPEN is now: [[2],[3, 1],[4]], [[2, 1],[],[4, 3]],
2],[1],[3]]
                                                [[1],[3],[4, 2]], [[4, 2, 1],[],[3]], [[4, 3,
len(OPEN)=8; len(CLOSED)=20; COUNT =
                                                1],[2],[]],[[4, 3, 2],[],[1]]
                                                len(OPEN)=6; len(CLOSED)=19; COUNT =
OPEN is now: [[4],[3, 2],[1]], [[4, 2, 1],[3],[]],
                                                OPEN is now: [[], [3, 1], [4, 2]], [[2, 1], [], [4,
[[4, 2], [3], [[4], [1], [3, 2]], [[4], [], [3, 2,
                                                3]], [[1] ,[3] ,[4, 2]], [[4, 2, 1] ,[] ,[3]], [[4, 3,
1]], [[4, 2, 1], [], [3]], [[4, 2], [1], [3]], [[], [3, 2,
                                                1],[2],[]],[[4, 3, 2],[],[1]]
len(OPEN)=8; len(CLOSED)=21; COUNT =
                                                len(OPEN)=6; len(CLOSED)=20; COUNT =
21
                                                20
OPEN is now: [[4, 2, 1], [3], []], [[4, 2], [3], [1]],
                                                OPEN is now: [[1],[3],[4, 2]], [[],[3],[4, 2, 1]],
[[4],[1],[3, 2]], [[4],[],[3, 2, 1]], [[4, 2,
                                                [[2, 1],[],[4, 3]], [[4, 2, 1],[],[3]], [[4, 3,
```

1],[],[[4, 2, 1],[],[3]],[[4, 3, 1],[2],[]],[[4, 3,

len(OPEN)=4; len(CLOSED)=13; COUNT =

```
1],[3],[4, 2],[1],[3]],[[],[3,
                                                1],[2],[]],[[4, 3, 2],[],[1]]
2, 1],[4]]
                                                len(OPEN)=6: len(CLOSED)=21: COUNT =
len(OPEN)=7; len(CLOSED)=22; COUNT =
22
                                                OPEN is now: [[],[3],[4, 2, 1]], [[2, 1],[],[4,
OPEN is now: [[4, 2], [3], [1]], [[4], [1], [3, 2]],
                                                3]], [[4, 2, 1] ,[] ,[3]], [[4, 3, 1] ,[2] ,[]], [[4, 3,
[[4] ,[] ,[3, 2, 1]], [[4, 2, 1] ,[] ,[3]], [[4,
                                                2],[],[1]]
                                                len(OPEN)=5; len(CLOSED)=22; COUNT =
2],[1],[3],[[],[3, 2, 1],[4]],[[4, 2, 1],[3]]
len(OPEN)=7; len(CLOSED)=23; COUNT =
                                                22
23
                                                OPEN is now: [[3],[],[4, 2, 1]], [[2, 1],[],[4,
OPEN is now: [[4],[1],[3, 2]], [[4],[],[3, 2, 1]],
                                                3]], [[4, 2, 1],[],[3]], [[4, 3, 1],[2],[]], [[4, 3,
[[4, 2, 1], [3]], [[4, 2], [1], [3]], [[], [3, 2,
                                                2],[],[1]]
                                                len(OPEN)=5; len(CLOSED)=23; COUNT =
1],[4]],[[4, 2, 1],[],[3]]
len(OPEN)=6; len(CLOSED)=24; COUNT =
24
                                                OPEN is now: [[3, 1], [], [4, 2]], [[3], [1], [4, 2]],
OPEN is now: [[4] ,[] ,[3, 2, 1]], [[4, 2,
                                                [[2, 1],[],[4, 3]], [[4, 2, 1],[],[3]], [[4, 3,
1],[3],[4, 2],[1],[3],[[],[3, 2, 1],[4]],[[4,
                                                1],[2],[]],[[4, 3, 2],[],[1]]
2, 1],[3],[[4, 2],[1],[3]]
                                                len(OPEN)=6; len(CLOSED)=24; COUNT =
len(OPEN)=6; len(CLOSED)=25; COUNT =
                                                24
25
                                                OPEN is now: [[3],[1],[4, 2]], [[3, 1],[2],[4]],
OPEN is now: [[4, 2, 1], [3]], [[4, 2], [1], [3]],
                                                [[2, 1],[],[4, 3]], [[4, 2, 1],[],[3]], [[4, 3,
[[],[3, 2, 1],[4]], [[4, 2, 1],[],[3]], [[4,
                                                1],[2],[]],[[4, 3, 2],[],[1]]
2],[1],[3]],[[],[4],[3,2,1]]
                                                len(OPEN)=6; len(CLOSED)=25; COUNT =
len(OPEN)=6; len(CLOSED)=26; COUNT =
                                                25
26
                                                OPEN is now: [[3, 2],[1],[4]], [[3, 1],[2],[4]],
OPEN is now: [[4, 2], [1], [3]], [[], [3, 2, 1], [4]],
                                                [[2, 1],[],[4, 3]], [[4, 2, 1],[],[3]], [[4, 3,
[[4, 2, 1], [], [3]], [[4, 2], [1], [3]], [[], [4], [3, 2,
                                                1],[2],[]],[[4, 3, 2],[],[1]]
                                                len(OPEN)=6; len(CLOSED)=26; COUNT =
1]]
len(OPEN)=5; len(CLOSED)=27; COUNT =
                                                26
27
                                                OPEN is now: [[3, 2, 1], [, 4]], [[3, 2], , [4,
OPEN is now: [[] ,[3, 2, 1] ,[4]], [[4, 2,
                                                1]], [[3, 1], [2], [4]], [[2, 1], [], [4, 3]], [[4, 2,
1],[3],[4, 2],[1],[3]],[[],[4],[3, 2, 1]]
                                                1],[],[3]],[[4, 3, 1],[2],[]],[[4,
len(OPEN)=4; len(CLOSED)=28; COUNT =
                                                3, 2] ,[] ,[1]]
28
                                                len(OPEN)=7; len(CLOSED)=27; COUNT =
OPEN is now: [[4, 2, 1], [], [3]], [[4, 2], [1], [3]],
[[],[4],[3, 2, 1]], [[1],[3, 2],[4]], [[],[3, 2],[4,
                                                OPEN is now: [[3, 2], [], [4, 1]], [[3, 2,
1]]
                                                1],[4],[],[[3, 1],[2],[4]],[[2, 1],[],[4, 3]],[[4,
len(OPEN)=5; len(CLOSED)=29; COUNT =
                                                2, 1], [], [3]], [[4, 3, 1], [2], []], [[4,
29
                                                3, 2] ,[] ,[1]]
                                                len(OPEN)=7; len(CLOSED)=28; COUNT =
OPEN is now: [[4, 2],[1],[3]], [[],[4],[3, 2, 1]],
[[1],[3, 2],[4]], [[],[3, 2],[4, 1]]
len(OPEN)=4; len(CLOSED)=30; COUNT =
                                                OPEN is now: [[3], [2], [4, 1]], [[3, 2, 1], [4], []],
30
                                                [3, 1], [2], [4], [2, 1], [4, 3], [4, 2]
OPEN is now: [[], [4], [3, 2, 1]], [[1], [3, 2], [4]],
                                                1], [3], [4, 3, 1], [2], [], [4, 3, 2], [1]]
                                                len(OPEN)=7; len(CLOSED)=29; COUNT =
[[],[3, 2],[4, 1]]
```

```
31
                                                 OPEN is now: [[3, 1], [2], [4]], [[3], [2, 1], [4]],
                                                 [[3, 2, 1],[4],[]], [[2, 1],[],[4, 3]], [[4, 2,
OPEN is now: [[1], [3, 2], [4]], [[], [3, 2], [4, 1]],
[[1],[4],[3,2]],[[],[4,1],[3,2]]
                                                 1], [], [3]], [[4, 3, 1], [2], []], [[4, 3, 2], [], [1]]
len(OPEN)=4; len(CLOSED)=32; COUNT =
                                                 len(OPEN)=7; len(CLOSED)=30; COUNT =
32
                                                 30
OPEN is now: [[],[3, 2],[4, 1]], [[1],[4],[3, 2]],
                                                 OPEN is now: [[3],[2, 1],[4]], [[3, 2, 1],[4],[]],
                                                 [[2, 1],[],[4, 3]], [[4, 2, 1],[],[3]], [[4, 3,
[[],[4, 1],[3, 2]], [[1],[3],[4, 2]]
len(OPEN)=4; len(CLOSED)=33; COUNT =
                                                 1],[2],[]],[[4, 3, 2],[],[1]]
                                                 len(OPEN)=6; len(CLOSED)=31; COUNT =
OPEN is now: [[1], [4], [3, 2]], [[], [4, 1], [3, 2]],
                                                 OPEN is now: [[] ,[2, 1] ,[4, 3]], [[3, 2,
[[1],[3],[4, 2]], [[2],[3],[4, 1]]
len(OPEN)=4; len(CLOSED)=34; COUNT =
                                                 1],[4],[]],[[2, 1],[],[4, 3]],[[4, 2, 1],[],[3]],
34
                                                 [[4, 3, 1], [2], []], [[4, 3, 2], [], [1]]
                                                 len(OPEN)=6; len(CLOSED)=32; COUNT =
OPEN is now: [[], [4, 1], [3, 2]], [[1], [3], [4, 2]],
[[2],[3],[4,1]],[[1],[4,2],[3]]
len(OPEN)=4; len(CLOSED)=35; COUNT =
                                                 OPEN is now: [[1],[2],[4,3]], [[],[2],[4,3,1]],
35
                                                 [[3, 2, 1],[4],[]], [[2, 1],[],[4, 3]], [[4, 2,
OPEN is now: [[1],[3],[4, 2]], [[2],[3],[4, 1]],
                                                 1],[],[3]],[[4, 3, 1],[2],[]],[[4,
[[1], [4, 2], [3]], [[2], [4, 1], [3]]
                                                 3, 2],[],[1]]
                                                 len(OPEN)=7; len(CLOSED)=33; COUNT =
len(OPEN)=4; len(CLOSED)=36; COUNT =
36
                                                 33
OPEN is now: [[2],[3],[4, 1]], [[1],[4, 2],[3]],
                                                 OPEN is now: [[],[2],[4, 3, 1]], [[1],[1],[4, 3,
[[2],[4, 1],[3]], [[],[3, 1],[4, 2]], [[],[3],[4, 2,
                                                 2]], [[3, 2, 1],[4],[]], [[2, 1],[],[4, 3]], [[4, 2,
1]]
                                                 1], [], [3]], [[4, 3, 1], [2], []], [[4, 3, 2], [], [1]]
len(OPEN)=5; len(CLOSED)=37; COUNT =
                                                 len(OPEN)=7; len(CLOSED)=34; COUNT =
OPEN is now: [[1], [4, 2], [3]], [[2], [4, 1], [3]],
                                                 OPEN is now: [[2],[],[4, 3, 1]], [[1],[],[4, 3,
[[],[3, 1],[4, 2]], [[],[3],[4, 2, 1]], [[2,
                                                 2]], [[3, 2, 1],[4],[]], [[2, 1],[],[4, 3]], [[4, 2,
1],[3],[4]],[[2],[3, 1],[4]]
                                                 1], [], [3]], [[4, 3, 1], [2], []], [[4, 3, 2], [], [1]]
len(OPEN)=6; len(CLOSED)=38; COUNT =
                                                 len(OPEN)=7; len(CLOSED)=35; COUNT =
38
                                                 35
OPEN is now: [[2],[4, 1],[3]], [[],[3, 1],[4, 2]],
                                                 OPEN is now: [[2, 1], [], [4, 3]], [[2], [1], [4, 3]],
[[],[3],[4,2,1]],[[2,1],[3],[4]],[[2],[3],[4]],
                                                 [[1],[],[4, 3, 2]], [[3, 2, 1],[4],[]], [[4, 2,
[[],[4, 2, 1],[3]], [[],[4,
                                                 1],[],[3]],[[4, 3, 1],[2],[]],[[4,
2],[3, 1]]
                                                 3, 2] ,[] ,[1]]
len(OPEN)=7; len(CLOSED)=39; COUNT =
                                                 len(OPEN)=7; len(CLOSED)=36; COUNT =
39
                                                 36
OPEN is now: [[],[3, 1],[4, 2]], [[],[3],[4, 2,
                                                 OPEN is now: [[2],[1],[4,3]], [[1],[1],[4,3,2]],
1]], [[2, 1], [3], [4]], [[2], [3, 1], [4]], [[], [4, 2,
                                                 [[3, 2, 1], [4], []], [[4, 2, 1], [], [3]], [[4, 3,
1] ,[3]], [[] ,[4, 2] ,[3, 1]], [[2, 1] ,[4] ,[3]],
                                                 1],[2],[]],[[4, 3, 2],[],[1]]
                                                 len(OPEN)=6; len(CLOSED)=37; COUNT =
[[2],[4],[3, 1]]
len(OPEN)=8; len(CLOSED)=40; COUNT =
                                                 37
40
                                                 OPEN is now: [[],[1],[4, 3, 2]], [[1],[],[4, 3,
```

29

len(OPEN)=3; len(CLOSED)=31; COUNT =

```
OPEN is now: [[], [3], [4, 2, 1]], [[2, 1], [3], [4]],
                                                  2]], [[3, 2, 1],[4],[]], [[4, 2, 1],[],[3]], [[4, 3,
[[2],[3, 1],[4]], [[],[4, 2, 1],[3]], [[],[4, 2],[3,
                                                  1],[2],[]],[[4, 3, 2],[],[1]]
                                                  len(OPEN)=6; len(CLOSED)=38; COUNT =
1]], [[2, 1], [4], [3]], [[2], [4], [3, 1]], [[2], [3,
1],[4]]
len(OPEN)=8; len(CLOSED)=41; COUNT =
                                                  OPEN is now: [[1],[],[4, 3, 2]], [[],[],[4, 3, 2,
41
                                                  1]], [[3, 2, 1], [4], [7], [[4, 2, 1], [7], [3]], [[4, 3,
OPEN is now: [[2, 1], [3], [4]], [[2], [3, 1], [4]],
                                                  1],[2],[]],[[4, 3, 2],[],[1]]
[[],[4, 2, 1],[3]], [[],[4, 2],[3, 1]], [[2,
                                                  len(OPEN)=6; len(CLOSED)=39; COUNT =
1],[4],[3],[[2],[4],[3, 1],[[2],[3, 1],[4]],
                                                  39
[[3],[],[4, 2, 1]]
                                                  OPEN is now: [[] ,[] ,[4, 3, 2, 1]], [[3, 2,
len(OPEN)=8; len(CLOSED)=42; COUNT =
                                                  1],[4],[]],[[4, 2, 1],[],[3]],[[4, 3, 1],[2],[]],
42
                                                  [[4, 3, 2], [1], [1]]
OPEN is now: [[2],[3, 1],[4]], [[],[4, 2, 1],[3]],
                                                  len(OPEN)=5; len(CLOSED)=40; COUNT =
[[], [4, 2], [3, 1]], [[2, 1], [4], [3]], [[2], [4], [3,
                                                  The Tower Transport is Triumphant!
1]], [[2] ,[3, 1] ,[4]], [[3] ,[] ,[4, 2, 1]], [[2,
                                                  Solution path:
1],[],[4, 3]]
len(OPEN)=8; len(CLOSED)=43; COUNT =
                                                  [[4, 3, 2, 1],[],[]]
43
                                                  [[4, 3, 2],[1],[]]
OPEN is now: [[],[4, 2, 1],[3]], [[],[4, 2],[3,
                                                  [[4, 3],[1],[2]]
1]], [[2, 1], [4], [3]], [[2], [4], [3, 1]], [[2], [3,
                                                  [[4, 3, 1], [], [2]]
1],[4]],[[3],[],[4, 2, 1]],[[2, 1],[],[4, 3]]
                                                  [[4, 3], [], [2, 1]]
len(OPEN)=7; len(CLOSED)=44; COUNT =
                                                  [[4],[3],[2,1]]
                                                  [[4, 1],[3],[2]]
OPEN is now: [[],[4, 2],[3, 1]], [[2, 1],[4],[3]],
                                                  [[4],[3, 1],[2]]
[[2],[4],[3, 1]],[[2],[3, 1],[4]],[[3],[],[4, 2,
                                                  [[4, 2],[3, 1],[]]
1]], [[2, 1], [], [4, 3]], [[3], [4, 2, 1], []]
                                                  [[4, 2, 1], [3], []]
len(OPEN)=7; len(CLOSED)=45; COUNT =
                                                  [[4, 2],[3],[1]]
45
                                                  [[4],[3, 2],[1]]
OPEN is now: [[2, 1], [4], [3]], [[2], [4], [3, 1]],
                                                  [[4, 1], [3, 2], []]
[[2],[3,1],[4],[[3],[3,4],[4,2,1]],[[2,1],[4,
                                                  [[4],[3, 2, 1],[]]
                                                  [[],[3, 2, 1],[4]]
3]], [[3] ,[4, 2, 1] ,[]]
len(OPEN)=6; len(CLOSED)=46; COUNT =
                                                  [[1],[3, 2],[4]]
                                                  [[],[3, 2],[4, 1]]
OPEN is now: [[2],[4],[3, 1]], [[2],[3, 1],[4]],
                                                  [[2],[3],[4,1]]
[[3],[],[4, 2, 1]], [[2, 1],[],[4, 3]], [[3],[4, 2,
                                                  [[2, 1], [3], [4]]
1],[]], [[2, 1],[4, 3],[]]
                                                  [[2],[3, 1],[4]]
len(OPEN)=6; len(CLOSED)=47; COUNT =
                                                  [[],[3, 1],[4, 2]]
47
                                                  [[1],[3],[4, 2]]
OPEN is now: [[2],[3, 1],[4]], [[3],[],[4, 2, 1]],
                                                  [[],[3],[4, 2, 1]]
[[2, 1], [], [4, 3]], [[3], [4, 2, 1], []], [[2, 1], [4,
                                                  [[3],[],[4, 2, 1]]
3],[]]
                                                  [[3, 1],[],[4, 2]]
len(OPEN)=5; len(CLOSED)=48; COUNT =
                                                  [[3],[1],[4, 2]]
                                                  [[3, 2],[1],[4]]
                                                  [[3, 2, 1],[],[4]]
OPEN is now: [[3],[],[4, 2, 1]], [[2, 1],[],[4,
```

```
3]], [[3] ,[4, 2, 1] ,[]], [[2, 1] ,[4, 3] ,[]]
len(OPEN)=4; len(CLOSED)=49; COUNT =
OPEN is now: [[2, 1], [], [4, 3]], [[3], [4, 2,
1],[], [[2, 1],[4, 3],[], [[3, 1],[],[4, 2]],
[[3],[1],[4, 2]]
len(OPEN)=5; len(CLOSED)=50; COUNT =
50
OPEN is now: [[3],[4, 2, 1],[]], [[2, 1],[4,
3],[]], [[3, 1],[],[4, 2]], [[3],[1],[4, 2]],
[[2],[1],[4,3]],[[2],[],[4,3,1]]
len(OPEN)=6; len(CLOSED)=51; COUNT =
51
OPEN is now: [[2, 1],[4, 3],[]], [[3, 1],[], [4,
2]], [[3] ,[1] ,[4, 2]], [[2] ,[1] ,[4, 3]], [[2] ,[] ,[4,
3, 1]], [[3, 1], [4, 2], []], [[3], [4, 2], [1]]
len(OPEN)=7; len(CLOSED)=52; COUNT =
52
OPEN is now: [[3, 1], [], [4, 2]], [[3], [1], [4, 2]],
[[2],[1],[4, 3]], [[2],[],[4, 3, 1]], [[3, 1],[4,
2],[]],[[3],[4, 2],[1]],[[2],[4, 3, 1],[]],[[2],[4,
3],[1]]
len(OPEN)=8; len(CLOSED)=53; COUNT =
53
OPEN is now: [[3], [1], [4, 2]], [[2], [1], [4, 3]],
[[2],[],[4, 3, 1]], [[3, 1],[4, 2],[]], [[3],[4,
2],[1],[[2],[4, 3, 1],[]],[[2],[4, 3],[1]],[[3,
1],[2],[4]]
len(OPEN)=8; len(CLOSED)=54; COUNT =
OPEN is now: [[2],[1],[4,3]], [[2],[1],[4,3,1]],
[[3, 1], [4, 2], []], [[3], [4, 2], [1]], [[2], [4, 3,
1],[]], [[2],[4, 3],[1]], [[3, 1],[2],[4]], [[3,
2],[1],[4]]
len(OPEN)=8; len(CLOSED)=55; COUNT =
55
OPEN is now: [[2],[],[4, 3, 1]], [[3, 1],[4,
2],[]], [[3],[4, 2],[1]], [[2],[4, 3, 1],[]], [[2],[4,
3] ,[1]], [[3, 1] ,[2] ,[4]], [[3, 2] ,[1] ,[4]],
[[],[1],[4, 3, 2]]
len(OPEN)=8; len(CLOSED)=56; COUNT =
56
OPEN is now: [[3, 1], [4, 2], []], [[3], [4, 2], [1]],
\hbox{\tt [[2],[4,3,1],[]],[[2],[4,3],[1]],[[3,1],[2],[4]],}
```

[[3, 2],[],[4, 1]] [[3],[2],[4, 1]] [[3, 1],[2],[4]] [[3],[2, 1],[4]] [[],[2, 1],[4, 3]] [[1],[2],[4, 3]] [[],[2],[4, 3, 1]] [[2],[],[4, 3, 1]] [[2, 1],[],[4, 3]] [[2],[1],[4, 3]] [[],[1],[4, 3, 2]] [[1],[],[4, 3, 2]] [[],[],[4, 3, 2, 1]] Length of solution path found: 40 edges 40 states expanded. MAX OPEN LENGTH = 7

```
[[3, 2], [1], [4]], [[], [1], [4, 3, 2]], [[], [2], [4, 3,
1]]
len(OPEN)=8; len(CLOSED)=57; COUNT =
57
OPEN is now: [[3], [4, 2], [1]], [[2], [4, 3, 1], []],
[[2],[4, 3],[1]],[[3, 1],[2],[4]],[[3, 2],[1],[4]],
[[],[1],[4, 3, 2]], [[],[2],[4, 3, 1]], [[3,
1],[4],[2]]
len(OPEN)=8; len(CLOSED)=58; COUNT =
58
OPEN is now: [[2],[4, 3, 1],[]], [[2],[4, 3],[1]],
[[3, 1], [2], [4]], [[3, 2], [1], [4]], [[], [1], [4, 3,
2]], [[] ,[2] ,[4, 3, 1]], [[3, 1] ,[4] ,[2]], [[3,
2],[4],[1]]
len(OPEN)=8; len(CLOSED)=59; COUNT =
OPEN is now: [[2], [4, 3], [1]], [[3, 1], [2], [4]],
[[3, 2], [1], [4], [[], [1], [4, 3, 2]], [[], [2], [4, 3, 3]
1]], [[3, 1], [4], [2]], [[3, 2], [4], [1]], [[], [4, 3,
1],[2]]
len(OPEN)=8; len(CLOSED)=60; COUNT =
60
OPEN is now: [[3, 1], [2], [4]], [[3, 2], [1], [4]],
[[],[1],[4, 3, 2]], [[],[2],[4, 3, 1]], [[3,
1],[4],[2]],[[3, 2],[4],[1]],[[],[4, 3, 1],[2]],
[[],[4, 3, 2],[1]]
len(OPEN)=8; len(CLOSED)=61; COUNT =
61
OPEN is now: [[3, 2], [1], [4]], [[], [1], [4, 3, 2]],
[[], [2], [4, 3, 1]], [[3, 1], [4], [2]], [[3, 2], [4], [1]],
[[],[4, 3, 1],[2]], [[],[4,
3, 2], [1], [[3], [2, 1], [4]], [[3], [2, 1]]
len(OPEN)=9; len(CLOSED)=62; COUNT =
62
OPEN is now: [[],[1],[4, 3, 2]], [[],[2],[4, 3,
1]], [[3, 1], [4], [2]], [[3, 2], [4], [1]], [[], [4, 3,
1],[2]],[[],[4, 3, 2],[1]],[[3],[2, 1],[4]],
[[3],[2],[4, 1]], [[3, 2, 1],[3], [[4]], [[3, 2],[3],[4],
1]]
len(OPEN)=10; len(CLOSED)=63; COUNT =
63
OPEN is now: [[], [2], [4, 3, 1]], [[3, 1], [4], [2]],
[[3, 2],[4],[1]], [[],[4, 3, 1],[2]], [[],[4, 3,
2],[1],[[3],[2, 1],[4],[[3],[2],[4, 1]],[[3, 2,
```

```
1],[],[4],[[3, 2],[],[4, 1]],[[1],[],[4, 3, 2]],
[[],[],[4, 3, 2, 1]]
len(OPEN)=11; len(CLOSED)=64; COUNT =
64
OPEN is now: [[3, 1], [4], [2]], [[3, 2], [4], [1]],
[[],[4, 3, 1],[2]], [[],[4, 3, 2],[1]], [[3],[2,
1],[4]],[[3],[2],[4, 1]],[[3, 2, 1]
,[] ,[4]], [[3, 2] ,[] ,[4, 1]], [[1] ,[] ,[4, 3, 2]],
[[],[],[4, 3, 2, 1]], [[1],[2],[4, 3]], [[],[2, 1],[4,
len(OPEN)=12; len(CLOSED)=65; COUNT =
65
OPEN is now: [[3, 2], [4], [1]], [[], [4, 3, 1], [2]],
[[], [4, 3, 2], [1]], [[3], [2, 1], [4]], [[3], [2], [4,
1]], [[3, 2, 1], [], [4]], [[3, 2], [], [4, 1]], [[1], [], [4,
3, 2]], [[] ,[] ,[4, 3, 2, 1]], [[1] ,[2] ,[4, 3]], [[] ,[2,
1],[4, 3]],[[3],[4, 1],[2]],[[3],[4],[2, 1]]
len(OPEN)=13; len(CLOSED)=66; COUNT =
66
OPEN is now: [[] ,[4, 3, 1] ,[2]], [[] ,[4, 3,
2],[1],[[3],[2, 1],[4],[[3],[2],[4, 1]],[[3, 2,
1],[3, 2],[4, 1],[[1],[3, 2],[4, 3, 2]],
[[],[],[4, 3, 2, 1]], [[1],[2],[4, 3]], [[],[2, 1],[4,
3]], [[3] ,[4, 1] ,[2]], [[3] ,[4] ,[2, 1]], [[3, 2,
1],[4],[]],[[3,
2] ,[4, 1] ,[]]
len(OPEN)=14; len(CLOSED)=67; COUNT =
67
OPEN is now: [[], [4, 3, 2], [1]], [[3], [2, 1], [4]],
[[3],[2],[4,1]],[[3,2,1],[3,[4]],[[3,2],[3,4],
1]], [[1] ,[] ,[4, 3, 2]], [[] ,[] ,[4, 3, 2, 1]],
[[1],[2],[4, 3]],[[3],[4, 1],[2],[4, 1],[2],
[[3],[4],[2, 1]], [[3, 2, 1],[4],[]], [[3, 2],[4,
1],[]],[[1]
,[4, 3],[2]], [[],[4, 3],[2, 1]]
len(OPEN)=15; len(CLOSED)=68; COUNT =
OPEN is now: [[3], [2, 1], [4]], [[3], [2], [4, 1]],
[[3, 2, 1], [], [4]], [[3, 2], [], [4, 1]], [[1], [4, 3,
2]], [[] ,[] ,[4, 3, 2, 1]], [[1]
,[2],[4, 3]],[[],[2, 1],[4, 3]],[[3],[4, 1],[2]],
[[3],[4],[2,1]],[[3,2,1],[4],[]],[[3,2],[4,
1],[]],[[1],[4,3],[2]],[[],[4,3],[2,1]],[[1],[4,
3, 2],[], [[],[4, 3, 2, 1],[]]
```

```
len(OPEN)=16; len(CLOSED)=69; COUNT =
69
OPEN is now: [[3], [2], [4, 1]], [[3, 2, 1], [], [4]],
[[3, 2], [], [4, 1]], [[1], [], [4, 3, 2]], [[], [], [4, 3, 3]
2, 1]], [[1], [2], [4, 3]], [[], [2, 1], [4, 3]], [[3], [4,
1], [2]], [[3], [4], [2, 1]], [[3, 2, 1], [4], []], [[3,
2],[4, 1],[[],[[1],[4, 3],[2]],[[],[4, 3],[2, 1]],
[[1]]
,[4, 3, 2] ,[]], [[] ,[4, 3, 2, 1] ,[]], [[3] ,[2] ,[4, 1]]
len(OPEN)=16; len(CLOSED)=70; COUNT =
70
OPEN is now: [[3, 2, 1], [], [4]], [[3, 2], [4,
1]], [[1] ,[] ,[4, 3, 2]], [[] ,[] ,[4, 3, 2, 1]],
[[1],[2],[4,3]],[[3],[4,1],[2],[4,3]],[3],[4,1],[2]],
[[3],[4],[2, 1]], [[3, 2, 1],[4],[]], [[3, 2],[4,
1],[]],[[1],[4,3],[2]],[[],[4,3],[2,1]],[[1],[4,
3, 2], [], [[], [4, 3, 2, 1], []], [[3], [2], [4, 1]]
len(OPEN)=15; len(CLOSED)=71; COUNT =
71
OPEN is now: [[3, 2],[],[4, 1]], [[1],[],[4, 3,
2]], [[] ,[] ,[4, 3, 2, 1]], [[1] ,[2] ,[4, 3]], [[] ,[2,
1],[4, 3]],[[3],[4, 1],[2]],[[3]
,[4] ,[2, 1]], [[3, 2, 1] ,[4] ,[]], [[3, 2] ,[4, 1] ,[]],
[[1],[4, 3],[2]], [[],[4, 3],[2, 1]], [[1],[4, 3,
2],[]],[[],[4, 3, 2, 1],[]],[[3],[2],[4, 1]],[[3, 2,
1],[4],[]]
len(OPEN)=15; len(CLOSED)=72; COUNT =
72
OPEN is now: [[1], [], [4, 3, 2]], [[], [], [4, 3, 2,
1]], [[1] ,[2] ,[4, 3]], [[] ,[2, 1] ,[4, 3]], [[3] ,[4,
1], [2], [[3], [4], [2, 1]], [[3, 2, 1], [4], []], [[3,
2],[4, 1],[7],[7],[7],[4, 3],[2]],[7],[7],[7],[7],
[[1],[4, 3, 2],[]],[[],[4, 3, 2, 1],[]],[[3],[2],[4,
1]], [[3, 2, 1],[4],[]]
len(OPEN)=14; len(CLOSED)=73; COUNT =
73
OPEN is now: [[], [], [4, 3, 2, 1]], [[1], [2], [4,
3]], [[], [2, 1], [4, 3]], [[3], [4, 1], [2]], [[3], [4, 2],
1]], [[3, 2, 1], [4], []], [[3, 2], [4, 1], []], [[1], [4,
3],[2],[[],[4,3],[2,1]],[[1],[4,3,2],[]],[[],[4,
3, 2, 1], [[3], [[3], [2], [4, 1]], [[3, 2, 1], [4], []],
[[1],[2],[4,3]]
len(OPEN)=14; len(CLOSED)=74; COUNT =
74
```

The Tower Transport is Triumphant!	
Solution path:	
[[4, 3, 2, 1],[],[]]	
[[4, 3, 2],[1],[]]	
[[4, 3],[1],[2]]	
[[4, 3] ,[] ,[2, 1]]	
[[4],[3],[2,1]]	
[[4, 1] ,[3] ,[2]]	
[[4, 1],[3, 2],[]]	
[[4],[3, 2, 1],[]]	
[[],[3, 2, 1],[4]]	
[[],[3, 2],[4, 1]]	
[[2],[3],[4, 1]]	
[[2, 1],[3],[4]]	
[[2, 1],[],[4, 3]]	
[[2],[1],[4, 3]]	
[[],[1],[4, 3, 2]]	
[[] ,[] ,[4, 3, 2, 1]]	
Length of solution path found: 15 edges	
74 states expanded.	
MAX_OPEN_LENGTH = 16	
Length of Path(BFS): 15	Length of Path(DFS): 40
Nodes expanded(BFS): 74	Nodes expanded(DFS): 40