

Farmer, Fox, Chicken, and Grain		Missionaries and Cannibals		4-Disk Towers of Hanoi	
BFS	DFS	BFS	DFS	BFS	DFS
len(OPEN)=3; len(CLOSED)= 8; COUNT = 8	len(OPEN)=3; len(CLOSED)= 8; COUNT = 8	len(OPEN)=3; len(CLOSED)= 8; COUNT = 8	len(OPEN)=1; len(CLOSED)= 10; COUNT = 10	len(OPEN)=14; len(CLOSED)=67; COUNT = 67	len(OPEN)=5; len(CLOSED)=40; COUNT = 40
Congratulations on successfully transfer all passengers from LEFT to right!	Congratulations on successfully transfer all passengers from LEFT to right!	Congratulations on successfully guiding the missionaries and cannibals across the river!	Congratulations on successfully guiding the missionaries and cannibals across the river!	The Tower Transport is Triumphant!	The Tower Transport is Triumphant!
Solution path:	Solution path:	Solution path:	Solution path:	Solution path: [[4, 3, 2, 1], [], []]	Solution path: [[4, 3, 2, 1], [], []]
Farmer on LEFT:1 Fox on LEFT:1 Chicken on LEFT:1 grain on LEFT:1	Farmer on LEFT:1 Fox on LEFT:1 Chicken on LEFT:1 grain on LEFT:1	M on left:3 C on left:3 M on right:0 C on right:0 boat is on the left.	M on left:3 C on left:3 M on right:0 C on right:0 boat is on the left.	[[4, 3, 2], [1], []] [[4, 3], [1], [2]] [[4, 3, 1], [], [2]] [[4, 3, 1], [2], []] [[4, 3], [2, 1], []]	[[4, 3, 2], [1], []] [[4, 3], [1], [2]] [[4, 3, 1], [], [2]] [[4, 3], [], [2, 1]] [[4], [3], [2, 1]]
Farmer on right:0 Fox on right:0 Chicken on right:0 grain on right:0 boat is on the LEFT.	Farmer on right:0 Fox on right:0 Chicken on right:0 grain on right:0 boat is on the LEFT.	M on left:2 C on left:2 M on right:1 C on right:1 boat is on the right.	M on left:2 C on left:2 M on right:1 C on right:1 boat is on the right.	[[4], [2, 1], [3]] [[4, 1], [2], [3]] [[4, 1], [], [3, 2]] [[4], [1], [3, 2]] [[4, 2], [1], [3]] [[4, 2, 1], [], [3]] [[4, 2], [3], [1]] [[4], [3, 2], [1]] [[4, 2, 1], [3], []]	[[4, 1], [3], [2]] [[4], [3, 1], [2]] [[4, 2], [3, 1], []] [[4, 2, 1], [3], []] [[4, 2], [3], [1]] [[4], [3, 2], [1]] [[4, 1], [3, 2], []]
Farmer on LEFT:0 Fox on LEFT:1	Farmer on LEFT:0 Fox on LEFT:1			[[4, 2], [3, 1], []] [[4], [3, 1], [2]]	[[4], [3, 2, 1], []] [[], [3, 2, 1], [4]]

Chicken on LEFT:0 grain on LEFT:1	Chicken on LEFT:0 grain on LEFT:1	M on left:3	M on left:3	[[4, 1], [3], [2]]	[[1], [3, 2], [4]]
		C on left:2 M on right:0	C on left:2 M on right:0	[[4, 1], [3, 2], []]	[[], [3, 2], [4, 1]]
				[[4], [3, 2, 1], []]	[[2], [3], [4, 1]]
Farmer on right:1 Fox on right:0 Chicken on right:1 grain on right:0 boat is on the right.	Farmer on right:1 Fox on right:0 Chicken on right:1 grain on right:0 boat is on the right.	C on right:1 boat is on the left.	C on right:1 boat is on the left.	[[], [3, 2, 1], [4]]	[[2, 1], [3], [4]]
				[[1], [3, 2], [4]]	[[2], [3, 1], [4]]
				[[1], [3], [4, 2]]	[[], [3, 1], [4, 2]]
				[[], [3, 1], [4, 2]]	[[1], [3], [4, 2]]
		M on left:0 C on left:2 M on right:3	M on left:0 C on left:2 M on right:3	[[2], [3, 1], [4]]	[[], [3], [4, 2, 1]]
				[[2, 1], [3], [4]]	[[3], [], [4, 2, 1]]
				[[2, 1], [], [4, 3]]	[[3, 1], [], [4, 2]]
Farmer on LEFT:1 Fox on LEFT:1 Chicken on LEFT:0 grain on LEFT:1	Farmer on LEFT:1 Fox on LEFT:1 Chicken on LEFT:0 grain on LEFT:1	C on right:1 boat is on the right.	C on right:1 boat is on the right.	[[2], [1], [4, 3]]	[[3], [1], [4, 2]]
				[[], [1], [4, 3, 2]]	[[3, 2], [1], [4]]
				[[1], [], [4, 3, 2]]	[[3, 2, 1], [], [4]]
				[[], [], [4, 3, 2, 1]]	[[3, 2], [], [4, 1]]
				Length of solution path found: 28 edges	[[3], [2], [4, 1]]
Farmer on right:0 Fox on right:0 Chicken on right:1 grain on right:0 boat is on the LEFT.	Farmer on right:0 Fox on right:0 Chicken on right:1 grain on right:0 boat is on the LEFT.	M on left:2	M on left:2	67 states expanded. MAX_OPEN_LENGTH = 2	[[3, 1], [2], [4]]
		C on left:2 M on right:1	C on left:2 M on right:1		[[3], [2, 1], [4]]
		C on right:1 boat is on the left.	C on right:1 boat is on the left.		[[], [2, 1], [4, 3]]
					[[1], [2], [4, 3]]
					[[], [2], [4, 3, 1]]
					[[2], [], [4, 3, 1]]
		M on left:0	M on left:1		[[2, 1], [], [4, 3]]
Farmer on LEFT:0 Fox on LEFT:0 Chicken on LEFT:0	Farmer on LEFT:0 Fox on LEFT:0 Chicken on LEFT:0	C on left:1 M on right:3	C on left:1 M on right:2		[[2], [1], [4, 3]]
					[[], [1], [4, 3, 2]]
		C on right:2	C on right:2		[[1], [], [4, 3, 2]]

grain on LEFT:1	grain on LEFT:1	boat is on the right.	boat is on the right.	[[ ],[ ]],[4, 3, 2, 1]] Length of solution path found: 40 edges
Farmer on right:1 Fox on right:1 Chicken on right:1 grain on right:0 boat is on the right.	Farmer on right:1 Fox on right:1 Chicken on right:1 grain on right:0 boat is on the right.	M on left:1 C on left:1 M on right:2 C on right:2 boat is on the left.	M on left:3 C on left:1 M on right:0 C on right:2 boat is on the left.	40 states expanded. MAX_OPEN_LENGTH = 7
Farmer on LEFT:1 Fox on LEFT:0 Chicken on LEFT:1 grain on LEFT:1	Farmer on LEFT:1 Fox on LEFT:0 Chicken on LEFT:1 grain on LEFT:1	M on left:0 C on left:0 M on right:3 C on right:3 boat is on the right.	M on left:0 C on left:1 M on right:3 C on right:2 boat is on the right.	
Farmer on right:0 Fox on right:1	Farmer on right:0 Fox on right:1			
Chicken on right:0 grain on right:0 boat is on the LEFT.	Chicken on right:0 grain on right:0 boat is on the LEFT.	Length of solution path found: 7 edges 8 states expanded. MAX_OPEN_ LENGTH = 3	M on left:1 C on left:1 M on right:2 C on right:2 boat is on the left.	
Farmer on LEFT:0 Fox on LEFT:0 Chicken on LEFT:1	Farmer on LEFT:0 Fox on LEFT:0 Chicken on LEFT:1			

grain on LEFT:0	grain on LEFT:0
Farmer on right:1	Farmer on right:1
Fox on right:1	Fox on right:1
Chicken on right:0	Chicken on right:0
grain on right:1	grain on right:1

boat is on the right.	boat is on the right.
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Farmer on LEFT:1	Farmer on LEFT:1
Fox on LEFT:0	Fox on LEFT:0
Chicken on LEFT:1	Chicken on LEFT:1
grain on LEFT:0	grain on LEFT:0

Farmer on right:0	Farmer on right:0
Fox on right:1	Fox on right:1
Chicken on right:0	Chicken on right:0
grain on right:1	grain on right:1
boat is on the LEFT.	boat is on the LEFT.

Farmer on LEFT:0	Farmer on LEFT:0
Fox on LEFT:0	Fox on LEFT:0
Chicken on LEFT:0	Chicken on LEFT:0

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

grain on LEFT:0	grain on LEFT:0
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Farmer on right:1	Farmer on right:1
Fox on right:1	Fox on right:1
Chicken on right:1	Chicken on right:1
grain on right:1	grain on right:1
boat is on the right.	boat is on the right.

Length of solution path found: 7 edges 8 states expanded. MAX_OPEN_ LENGTH = 3	Length of solution path found: 7 edges 8 states expanded. MAX_OPEN_ LENGTH = 3
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