



# CITY UNIVERSITY

COMPUTER SCIENCE AND ENGINEERING  
ARTIFICIAL INTELLIGENT LABORATORY  
CSE 418

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## ASSIGNMENT

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## 1 MISSIONARIES AND CANNIBALS PROBLEM

**INITIAL STATE:** IT IS THE STATE WHEN CANNIBALS AND MISSIONARIES ARE ON THE LEFT BANK OF THE RIVER WITH BOAT. I STATED THIS STATE WITH (MMM/CCC>R)

**FINAL STATE:** FINAL STATE IS THEY ALL CROSS THE RIVER AND GO TO THE OTHER SIDE. WHICH I STATED AS (0>MMM/CCC)(1)

## 1.1 STATE SPACE DIAGRAM

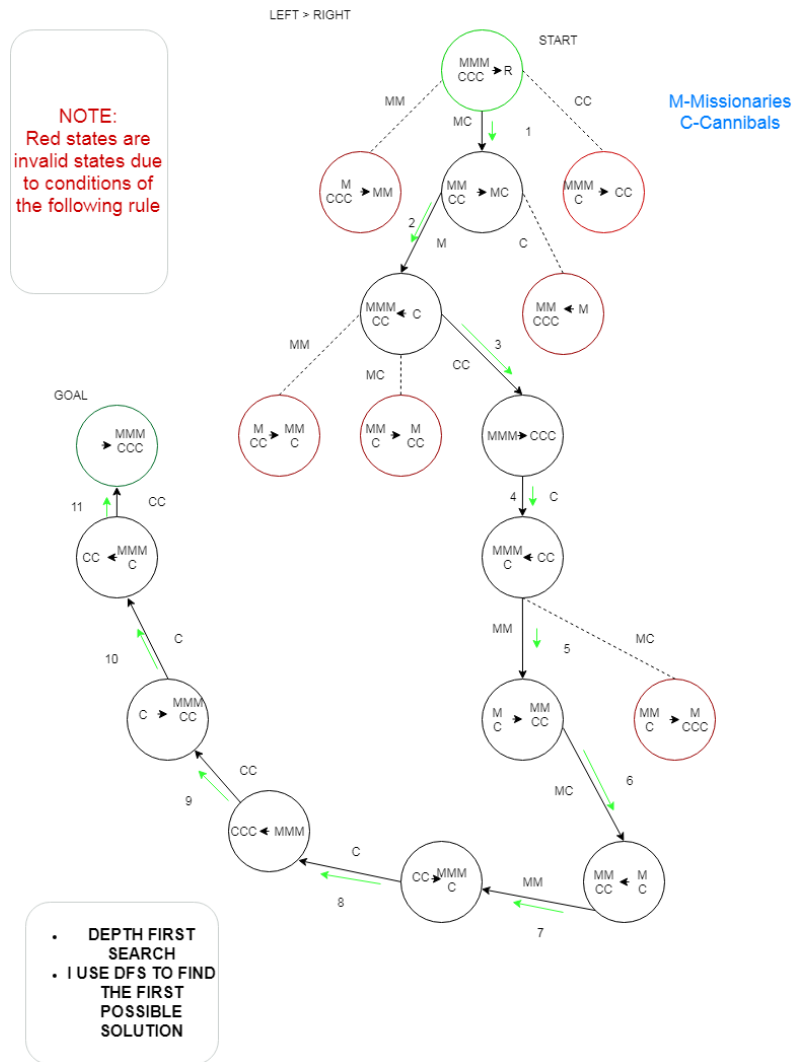


Figure 1: STATE SPACE DIAGRAM

TO SLOVE THIS PROBLEM, I USED DFS BECAUSE IT WILL TAKE LESS STEPS THAN BFS.

## 2 LION,LAMB AND GRASS PROBLEM

**INITIAL STATE:** IT IS THE STATE WHEN LION,LAMBS AND GRASS ARE ON THE LEFT BANK OF THE RIVER WITH BOAT.(P<sub>LLG</sub>>R

**FINAL STATE:** FINAL STATE IS THEY ALL CROSS THE RIVER AND GO TO THE OTHER SIDE.WHICH I STATED AS (0>P<sub>LLG</sub>)(2)

2.1 STATE SPACE DIAGRAM

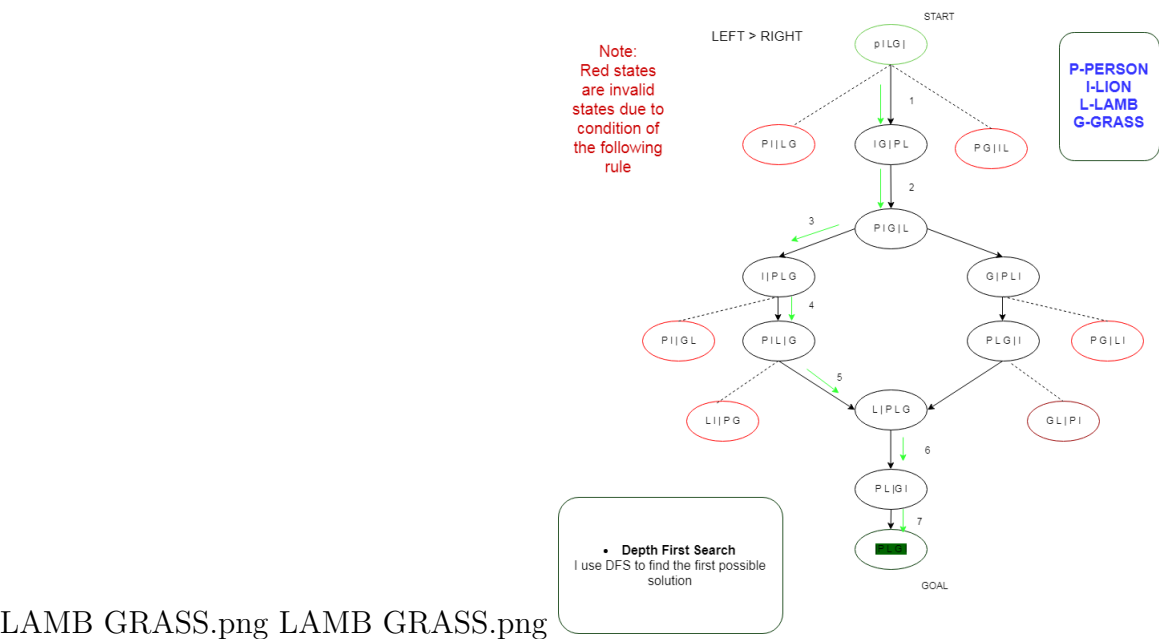


Figure 2: STATE SPACE DIAGRAM

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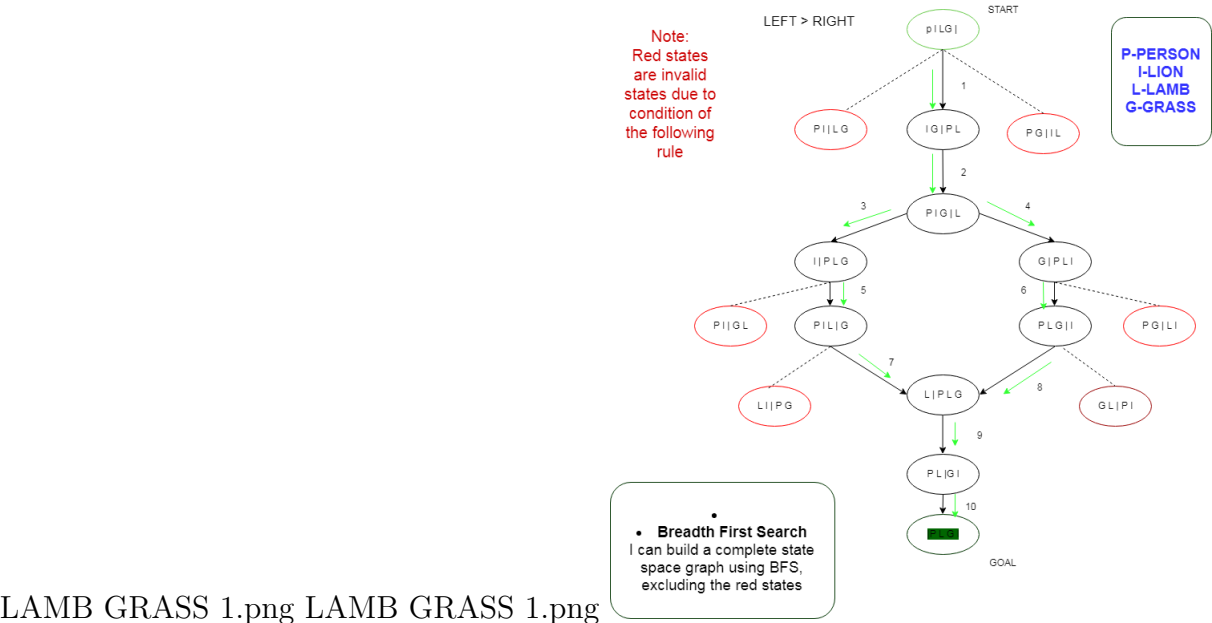


Figure 3: STATE SPACE DIAGRAM

TO SLOVE THIS PROBLEM, I USED DFS BECAUSE IT IS OPTIMAL SOLUTION.

## References

- [1] [http://gki.informatik.uni-freiburg.de/teaching/ws0809/map/mas\\_lect4.pdf](http://gki.informatik.uni-freiburg.de/teaching/ws0809/map/mas_lect4.pdf)
- [2] <http://yongouyang.blogspot.com/2013/04/solving-farmer-wolf-goat-cabbage-riddle.html>