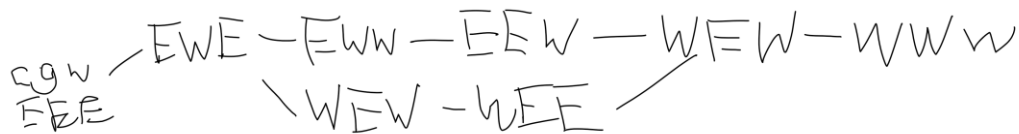


Q1

Since cabbage and goat cannot in same side without the man , the man should be stay with them. The same in wolf and goat. Since wolf and goat cannot in same side without the man , the man should be stay with them. Therefore, if goat, wolf and cabbage stay together , the man should stay with them. If the goat stay alone in one side , the man can stay with the goat or the wolf and cabbage. Each case should happen once .

Q2

Resulted graph



Q3

In the above graph , we can consider less possible result, such as the movement only happen in the man . Also , we need to move one unit each time only . This can simplify our thinking process . Moreover, we do not need to consider the combination in each side , since every side can become a reasonable result by adding a man .

However the above graph is harder to link each state together since every state 's linking seem possible when we only need to move one unit.