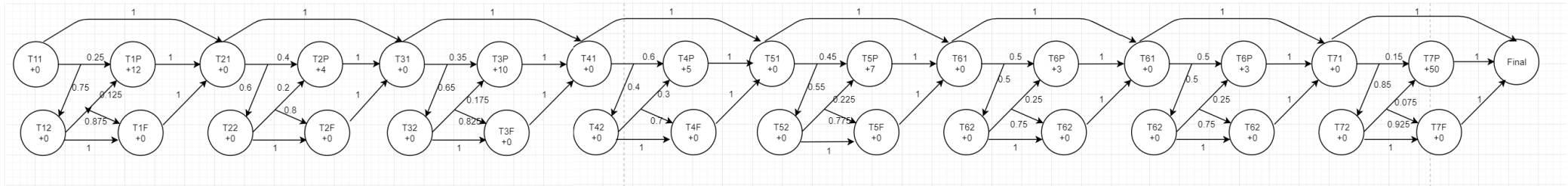1)

There are 7 tasks. For the first task1, it has 4 states, initial T11 has 2 actions. First one has 2 probabilities of 0.25 and 0.75. If it is failed for the first attempt, it goes to T12. At this state, it can go directly not to attempt and T1F state, or it can attempt for the second time but this time it has half probability of success rate of which is 0.125 and failure rate of 0.875. If it fails, it goes to T1F and then second task2 directly. If it succeeded, it goes to T1P state which has 12 points reward. Also it can choose not to solve the problem and go from initial state task1 to task2 state directly by T11 second action. So, to sum up;

T11; 1st action with probability 1, 2nd action with probabilities 0.25 and 0.75

T12; 1st action with probability q, 2nd action with probabilities 0.125 and 0.875

T1F has 1 action with probability 1,

T1P has 12 points reward and 1 action with probability 1.

For the rest of the tasks, each of them has similar structures but different values as in the figure.

5)

A stochastic process has the Markov property if the conditional probability distribution of future states of the process depends only upon the present state. [...] given the present, the future does not depend on the past [1].

So, according to this statement, there are some examples that past and future states depend on each other. For example;

-Consider there are 2 blue and 1 yellow cards will be made.

-1st card is made in the past, 2nd card has been made today; last card will be made in the future.

-If we know that today's card color is blue, and do not have an idea about the card made in the past, then the probability of the knowing the card color which will be made in the future is 1/2 whether it is blue or yellow.

-If we know also card color made in the past is yellow, and then future card color is definitely blue, probability is 1.

So, because past information effect on the future information, this example does not have Markov property.

This assumption is valid if and only if we know the information about past and current situations, then future does not depend on the past.

References;

1- Markov, A. A. (1954). Theory of Algorithms.