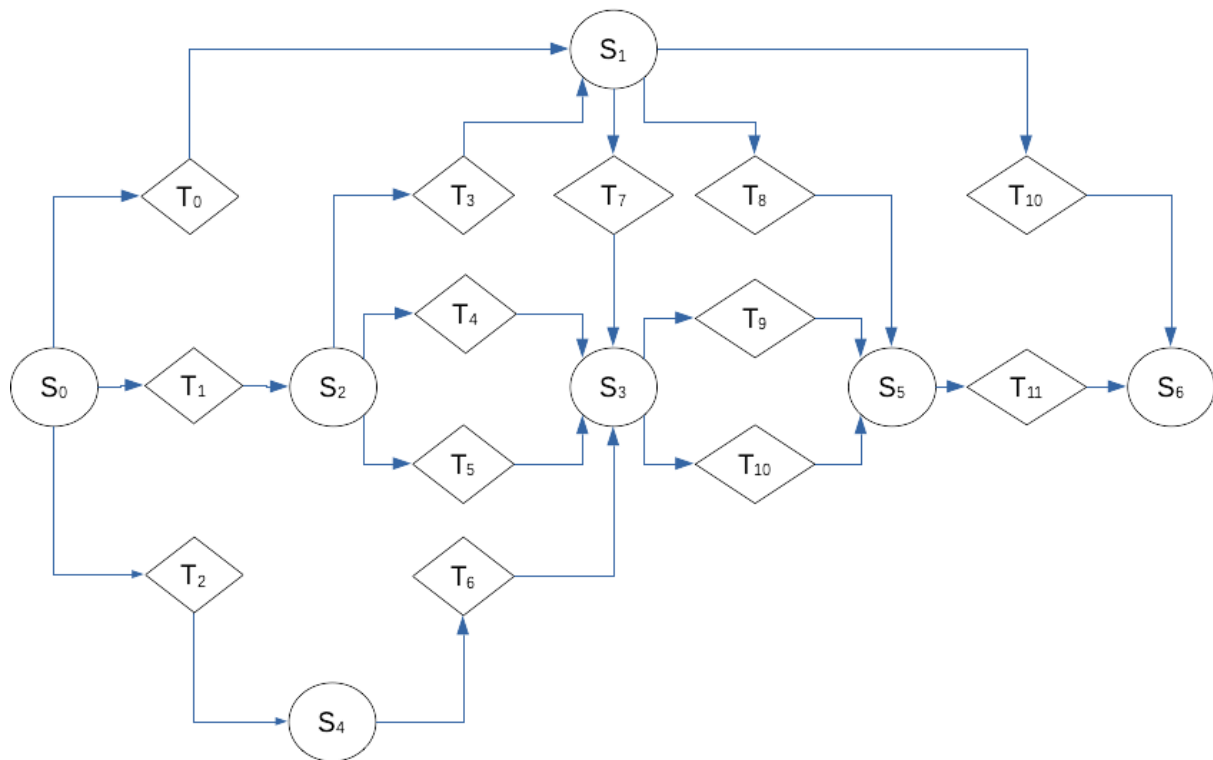


Pivot Stations Problem



The movement graph of a train is defined by a directed graph, where the nodes represent the stations and the arcs represent the tracks that can be traversed by the train to reach its destination. Notice that it is not compulsory to traverse each station in the graph, as there are multiple routing options which correspond to different sets of traversed stations. However, there are some stations which, no matter what route is chosen, cannot be bypassed. We want to identify such stations, which are called “pivot stations”.

Hence, given a train and its movement graph, which is similar to the graph depicted above, consider the following requirements:

- The train needs to traverse the network, going from its origin (S_o) to its destination (S_d)
- The train will choose one path among the ones feasible, given the movement graph
- A routing decision is needed whenever a station has more than one outgoing track;
- independently of which path will be chosen to route the train, there will be some stations always traversed (the pivot stations)

Assignment:

- find an algorithm that, given a movement graph (i.e. the example above), a source (i.e. S0) and a destination (i.e. S6), returns the list of the pivot stations
- Implement the algorithm in modern c++ (11/14/17)
- Evaluate the complexity of the algorithm.