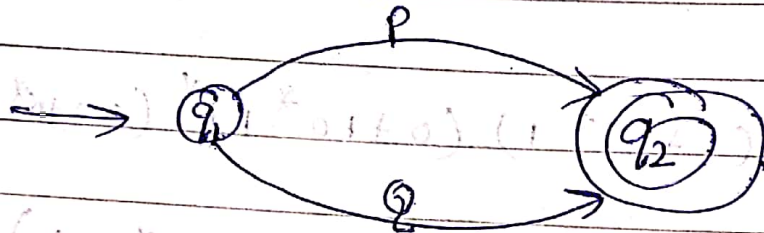


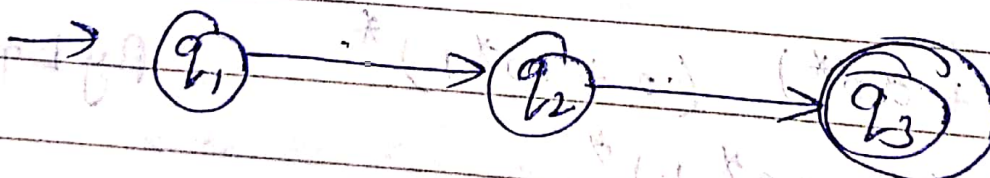
# Finite Automata & Regular Expressions

→ Transition System & Regular Expression

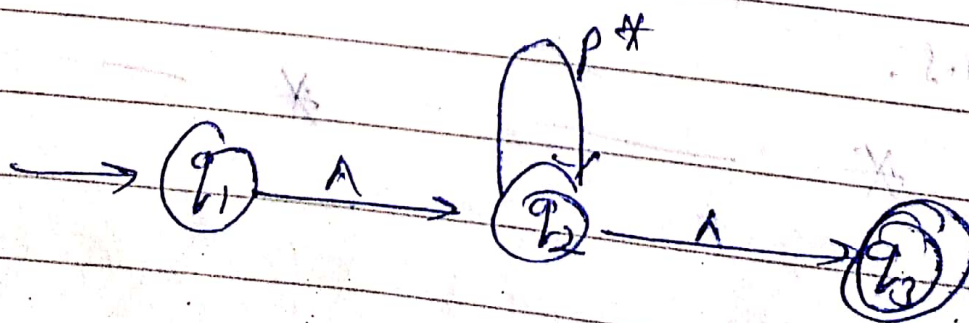
(i)  $P+Q$



(ii)  $P \cdot Q$



(iii)  $P^*$



## Transition System containing $\Lambda$ moves $\Rightarrow$

Suppose we want to replace a  $\Lambda$ -move from vertex  $v_1$  and vertex  $v_2$ . Then.

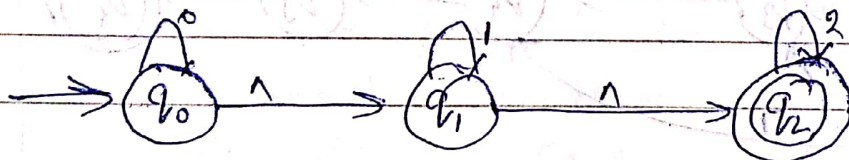
Step 1. Find all the edges starting from  $v_2$

Step 2. Duplicate all these edges starting from  $v_1$ , without changing the edge labels.

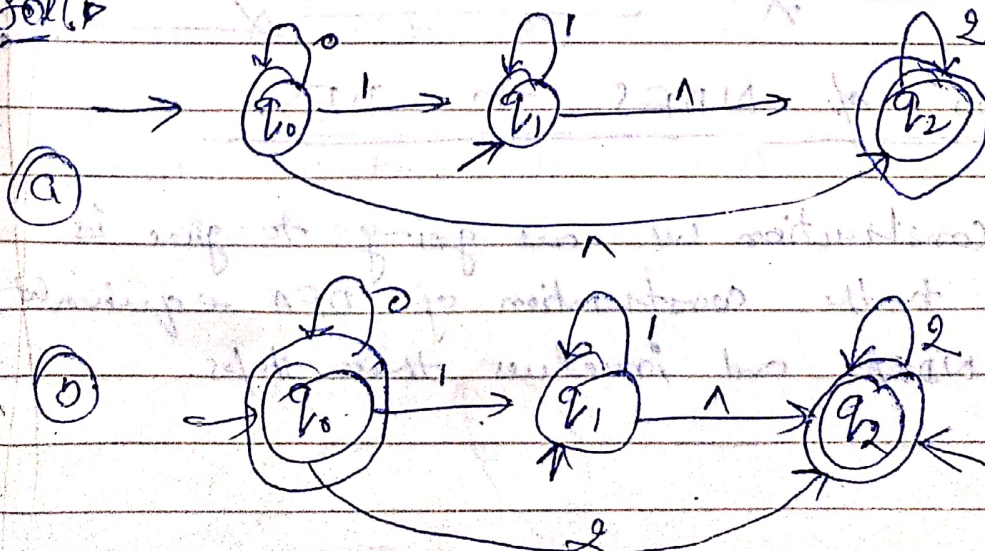
Step 3. If  $v_1$  is an initial state, make  $v_2$  also as initial state.

Step 4. If  $v_2$  is a final state, make  $v_1$  as the final state.

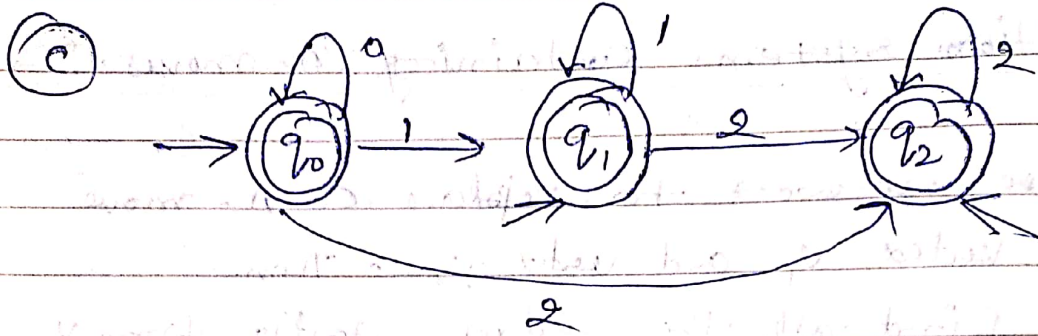
Que: Consider a FA with  $\Lambda$ -moves in below diagram. Obtain an equivalent automaton without  $\Lambda$ -moves.



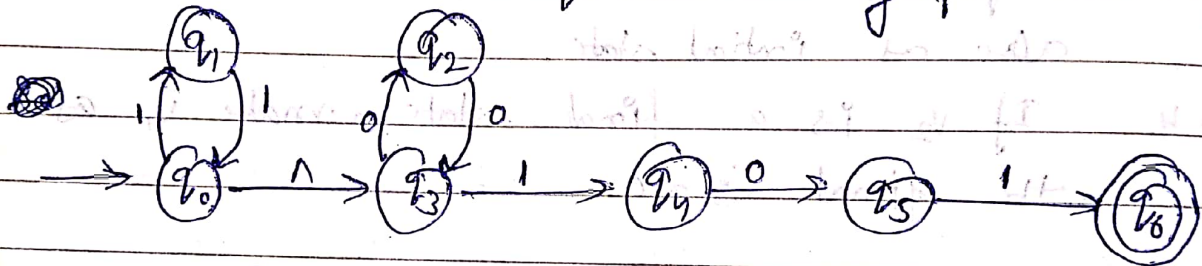
Sol:



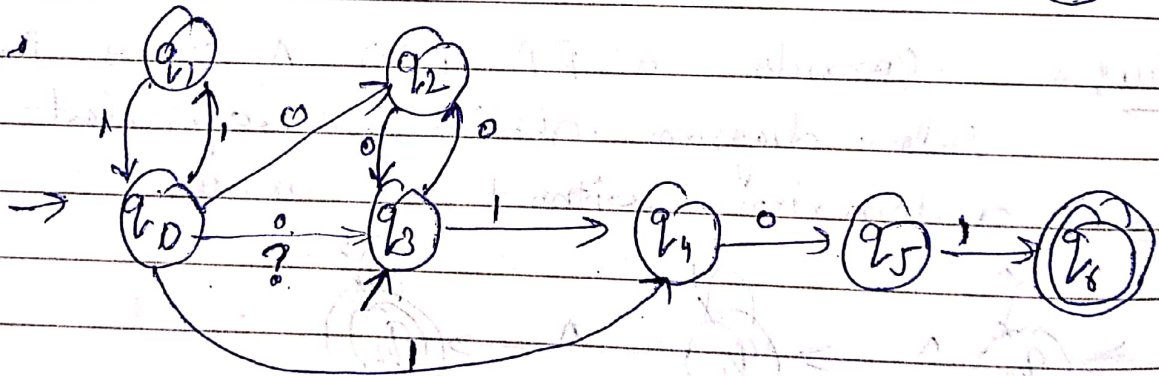




Que: → Consider a graph containing  $n$ -move-in-block obtain an equivalent graph without  $n$ .



Sol:



### Conversion of NDFS to DFS.

The construction we are going to give is similar to the construction of DFA equivalent to an NFA and involves three steps.