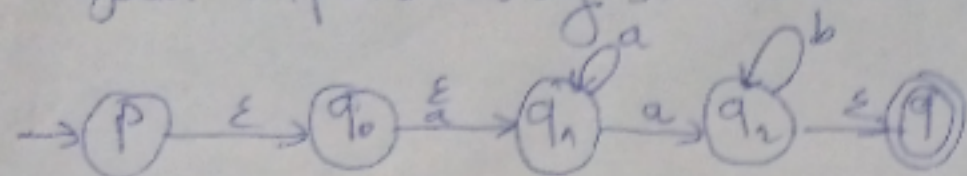
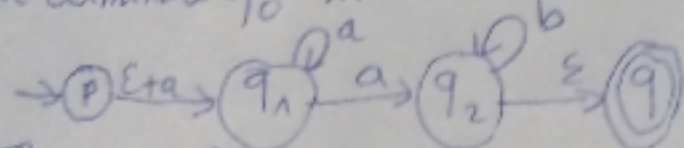


ϵ NFA

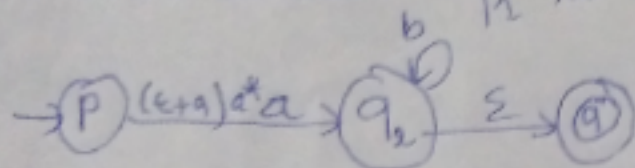
- Regular expression using state elimination technique:



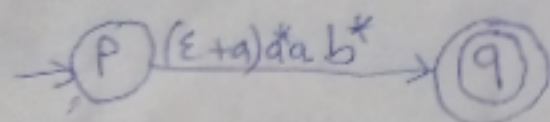
1) we eliminate q_0 it become:



2) Then we eliminate q_1 it become:



3) Now we eliminate q_2 it become:



- Checking if the given words belong to (Accepted by Regularity)
 $w = aaaaab$ using automaton configuration:

$$(q_0, aaaaab) \xrightarrow{A} (q_1, aaab) \xrightarrow{A} (q_1, aab) \xrightarrow{A} (q_2, ab) \xrightarrow{A} (q_2, b) \xrightarrow{A} (q_2, \epsilon) \text{ The word is accepted.}$$

The same principle with the abb (accepted)
 but $abba$ (not accepted)

- The automaton is not complete, because
 $\delta(q_0, b) = \emptyset, \delta(q_1, b) = \emptyset, \delta(q_2, a) = \emptyset$