Languages and Automata Assignment 2

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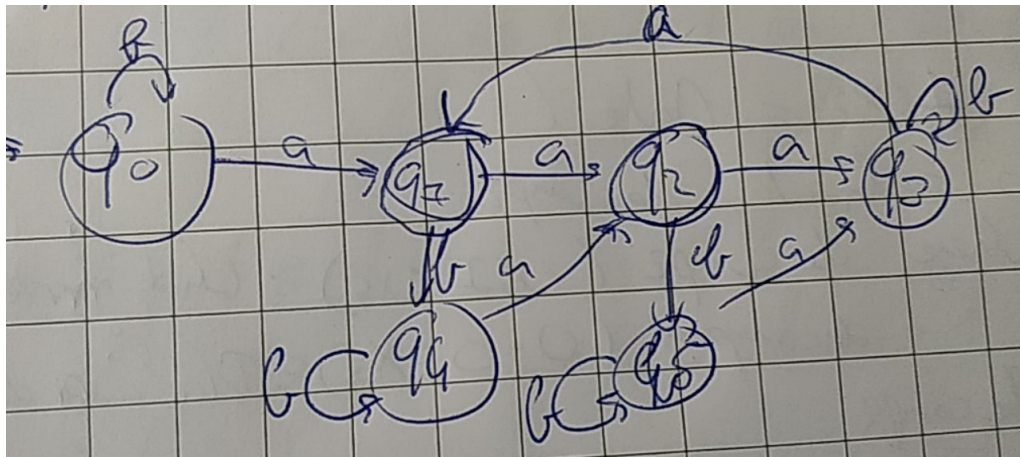
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a)

$L = \mathcal{L}((a^*(aa^* \cup bb^* \cup ba^* \cup ab^*) \cup (b(bb^* \cup aa^* \cup ab^* \cup ba*))$

b)

c)

$abaa \notin L$ since:
$\delta^*(q_0, abba) =$
$\delta^*(q_1, bba) =$
$\delta^*(q_4, ba) =$
$\delta^*(q_4, a) =$
$\delta^*(q_3, \lambda) =$
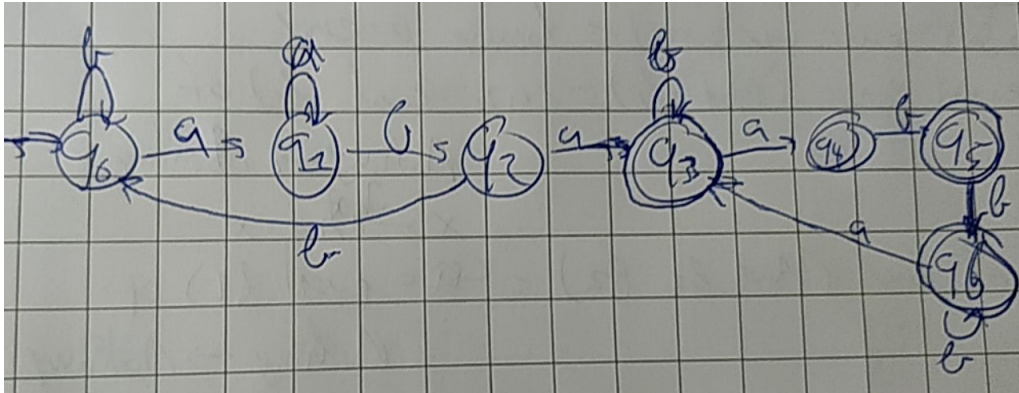Since q_3 is not an accepting state, the word abba is not accepted.

    $ba \in L$ since:
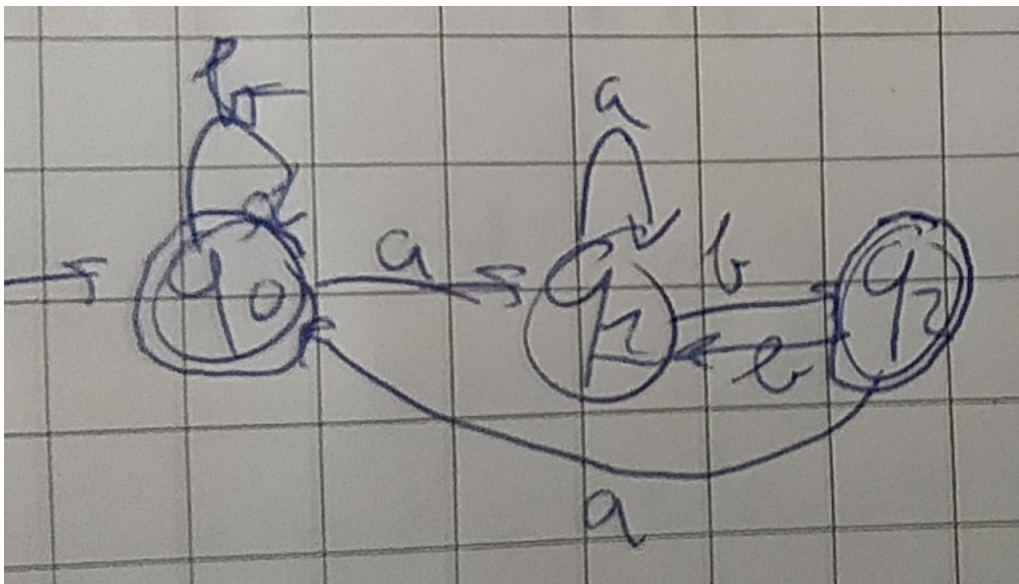$\delta^*(q_0, ba) =$
$\delta^*(q_0, a) =$
$\delta^*(q_1, \lambda) =$
Since q_1 is an accepting state, the word ba is accepted.

d)

2

a)

b)

$L = \mathcal{L}(b^* \cup aa^*(b(bb^*) \cup ba))$