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Lista de Exercícios 3

① a) $(aa+b)^*(a+bb)$

⇒ L = {aaa; a; bb; aabb; ba; bbb; ...}

∴ Todas as cadeias de "aa"; "b" ou vazia, que terminam com "a" ou "bb"

b) $(b+ab)^*(\varepsilon+a)$

⇒ L = {ε; a; b; ba; ab; aba; ...}

∴ Todas as cadeias de b; ab ou vazia, que terminam com "a" ou vazia.

c) $(aa+bb+(aa+bb)(ab+ba)(aa+bb)^*)$

⇒ L = {aa; bb; aaab; aaba; bbab; bbba; aababaa; aabaaa; aaabbb; ...}

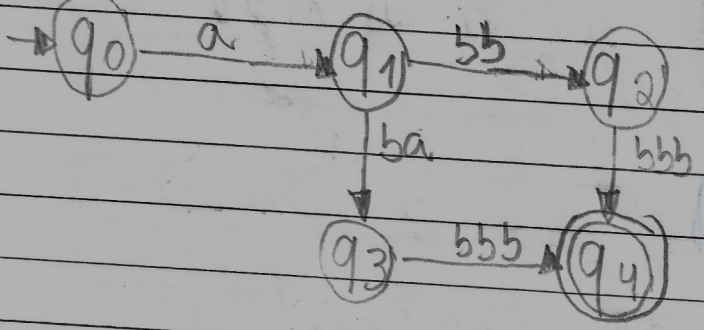
∴ Todas as cadeias iniciadas em "aa" ou "bb", contendo "ab" ou "ba" e terminadas em "aa", "bb" ou vazio.

Q) a) $a(bb+ba)bbb$

$M = \{\Sigma, Q, d, q_0, F\}$

$\Sigma = \{a, b\}$

$q_0 = \{q_0\}$



$F = \{q_4\}$

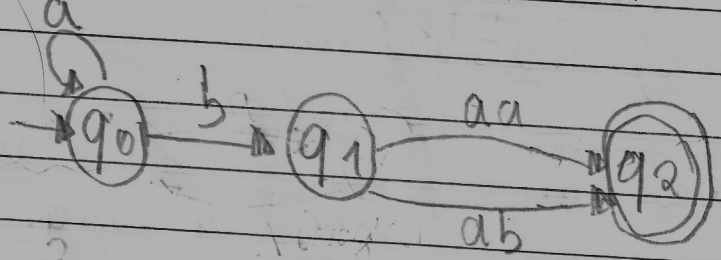
$Q = \{q_0, q_1, q_2, q_3, q_4\}$

b) $a^*b(aa+ab)$

$M = \{\Sigma, Q, d, q_0, F\}$

$\Sigma = \{a, b\}$

$q_0 = \{q_0\}$



$F = \{q_2\}$

$Q = \{q_0, q_1, q_2\}$

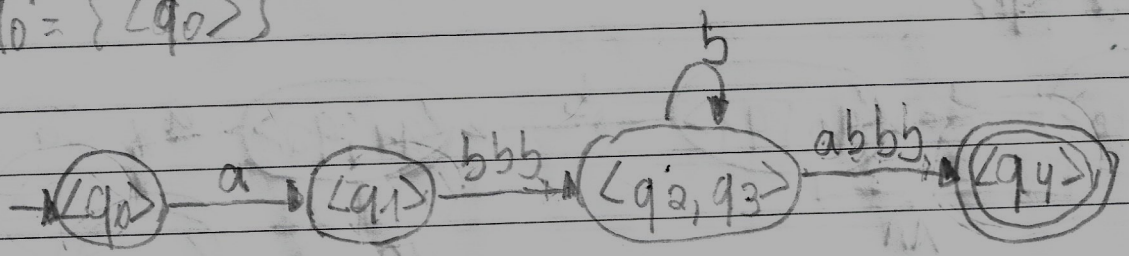
③ a) $a(bb + ba)^* bbb$

$\rightarrow M' = \{\Sigma, Q', \delta', q_0', F'\}$

$\Sigma = \{a, b\}$

$Q' = \{\langle q_0\rangle ; \langle q_1\rangle ; \langle q_2\rangle ; \langle q_3\rangle ; \langle q_0, q_1\rangle ;$
$\langle q_1, q_2\rangle ; \langle q_1, q_3\rangle ; \langle q_2, q_4\rangle ; \langle q_3; q_4\rangle \}$

$q_0' = \{\langle q_0\rangle\}$



$F = \{\langle q_4\rangle\}$

$\rightarrow G = \{V, t, P, S\}$

$t = \{a, b\}$
$S = \{ABC\}$
$V = \{A, B, C\}$

$\rightarrow P = \{ A \rightarrow aA ;$
$B \rightarrow bbB \mid ba ;$
$C \rightarrow bbbC \}$

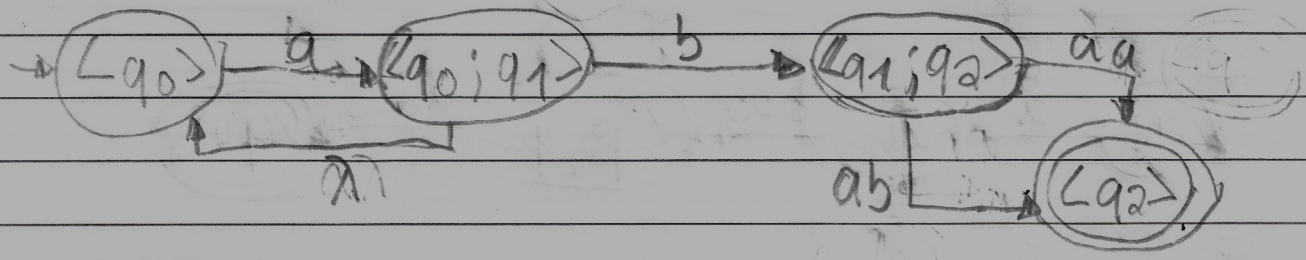
b) $a^*b(aa + ab)$

→ $M' = \{\Sigma; Q'; \delta'; q_0'; F'\}$

$\Sigma = \{a, b\}$

$Q' = \{\langle q_0\rangle; \langle q_1\rangle; \langle q_2\rangle; \langle q_0 q_1\rangle; \langle q_0; q_0\rangle; \langle q_1; q_2\rangle\}$

$q_0' = \{\langle q_0\rangle\}$



→ $G = (V, T, P, S)$

$T = \{a, b\}$

$S = \{AB\}$

$V = \{A, B\}$

$P = \{A \to aAb/\Sigma;$
$B \to aaB/ab\}$