Devoir 3

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Exo 1 :

1) Déterminons l'AFND $M = (\Sigma, E, \delta, I, F)$ en un AFD $M' = (\Sigma', E', \delta', q'_0, F')$

On a : $\Sigma = \{0,1\} \Rightarrow \Sigma' = \{0,1\}$

$q'_0 = \hat{\varepsilon}(I) = \hat{\varepsilon}(\{0\}) = \{0,4\} = A$

$\delta'(A,0) = \hat{\varepsilon}(\{1\} \cup \{5\} \cup \{7\}) = \hat{\varepsilon}(\{1,5,7\}) = \{1,5,7\} = B$

$\delta'(A,1) = \hat{\varepsilon}(\{1\} \cup \{7\}) = \varepsilon(\{1,7\}) = C$

$\delta'(B,0) = \hat{\varepsilon}(\{2,8,6,4\}) = \{2,4,6,8\} = D$

$\delta'(B,1) = \{4,8\} = E$

$\delta'(C,0) = \{2,4,8\} = F$

$\delta'(C,1) = \{4,8\} = E$

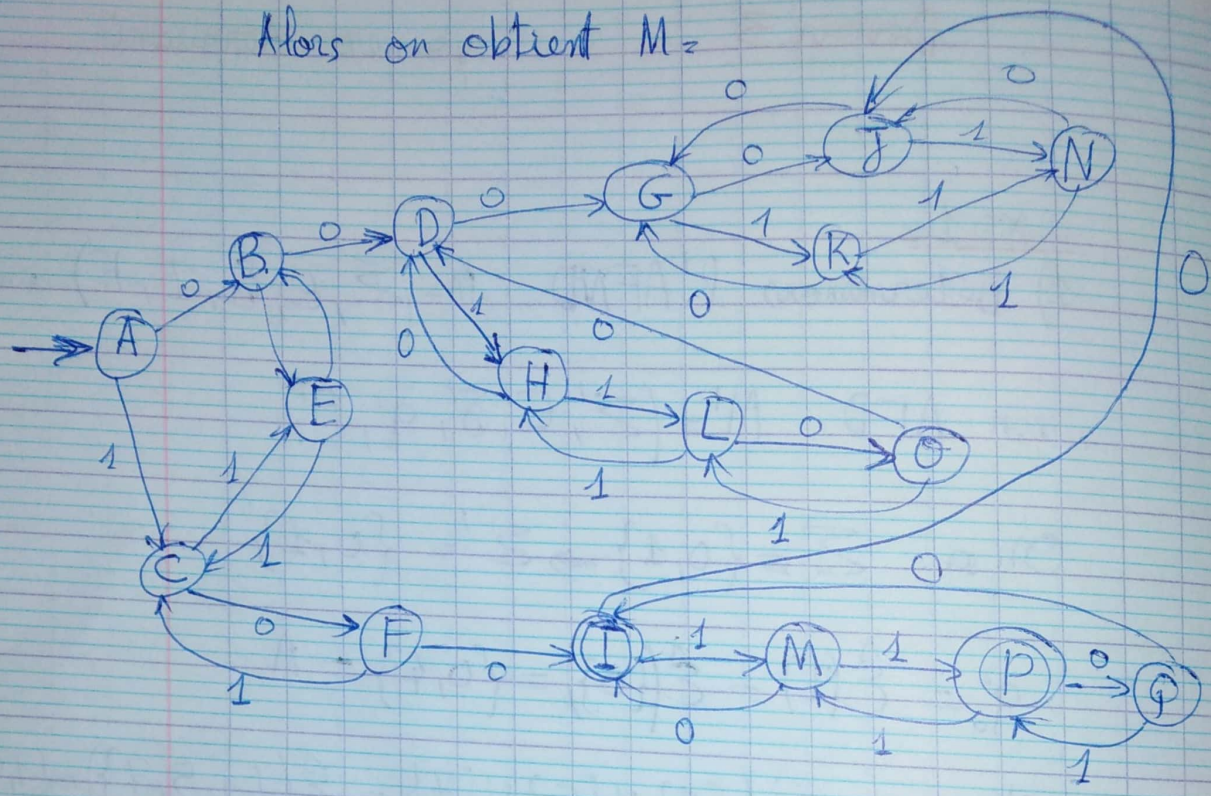
$\delta'(D,0) = \{1,3,5,7,9,11\} = G$

$\delta'(D,1) = \{1,7,9,11\} = H$

$\delta'(E,0) = \{1,5,7\} = B$

$\delta'(E,1) = \{1,7\} = C$

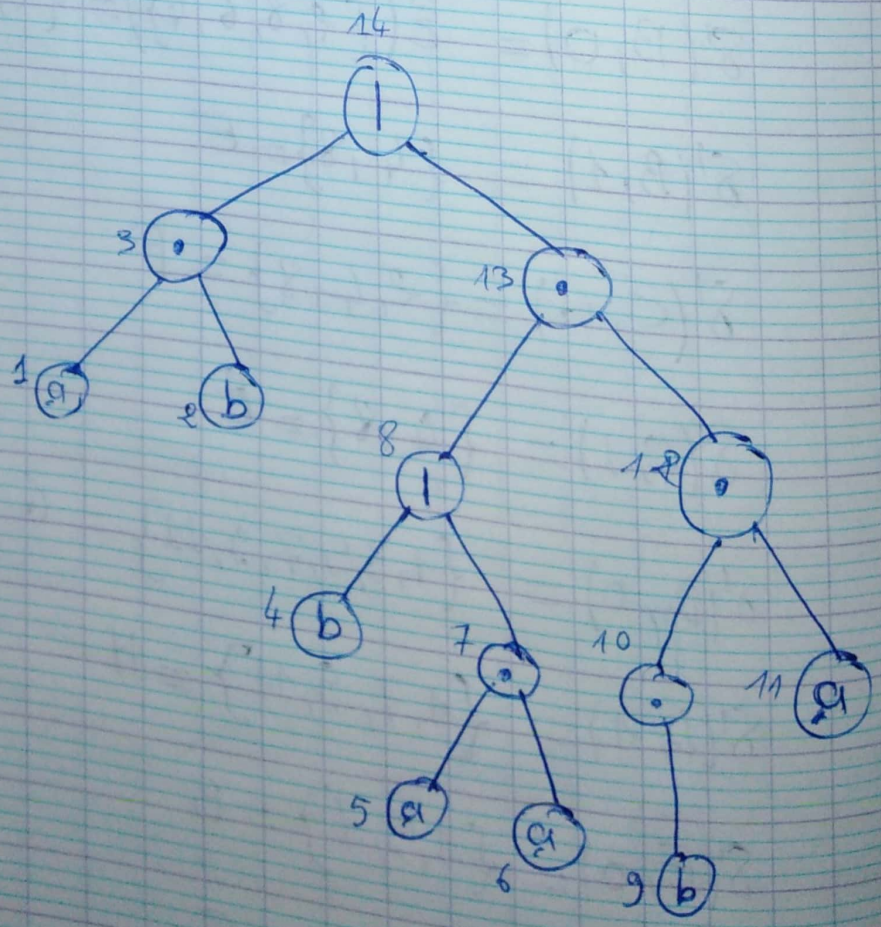
Alors on obtient M =



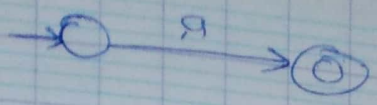
Exo2 :

1) ab, ba, aaa, bba, bbbba, bbba, aaba, aabba

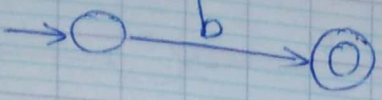
2)



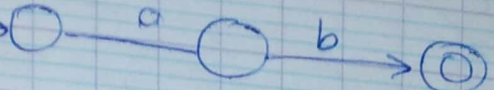
$r_1 = a$



$r_2 = b$



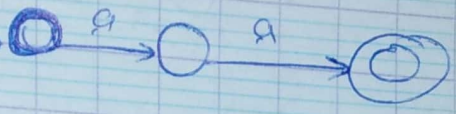
$r_3 = ab$



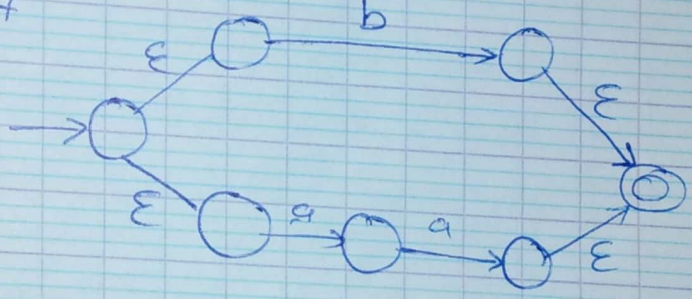
$r_4 = r_1$

$r_5 = r_6 = r_1$

$r_7 = a\,a$

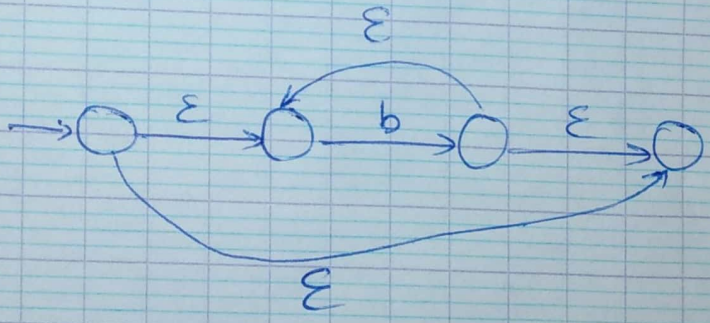


$r_8 = r_4 \mid r_7$

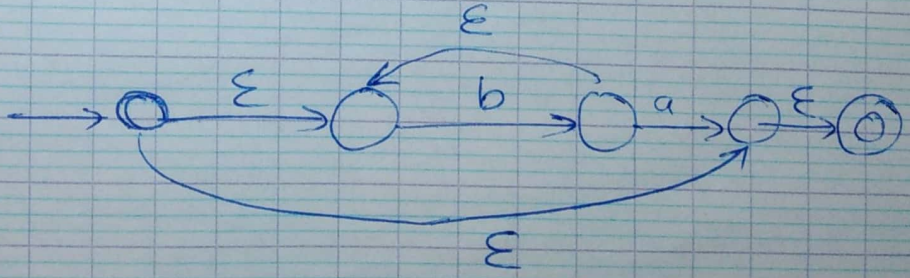


$r_9 = r_2$

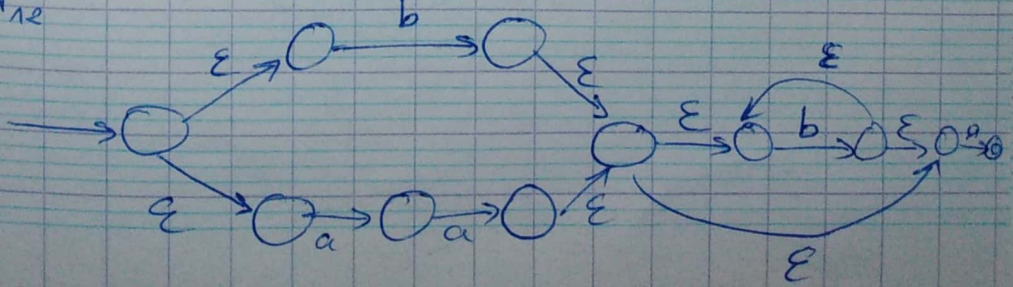
$r_{10} = b^*$



$r_{12} = r_{10}\, r_{11}$



$r_{13} = r_8\, r_{12}$



$r_{14} = r_3 \mid r_{13}$