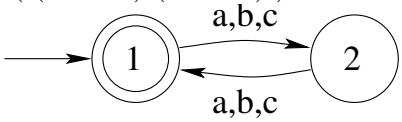
Fiche 02 correction :
Langage rationnel
Automate Fini Déterministe

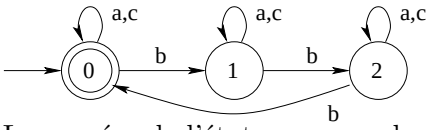
Licence 3 informatique
2017 / 2018

Exercice 1 : Langage, expression régulière, AFD

1. ((a+b+c) (a+b+c))*

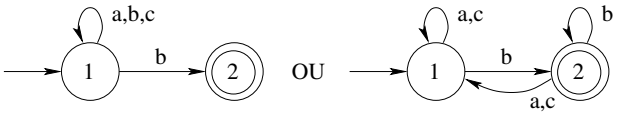


2. ((a+c)* b (a+c)* b (a+c)* b)* (a+c)*

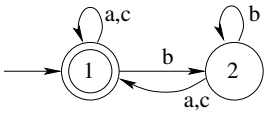


Le numéro de l'état correspond au nombre de b modulo 3.

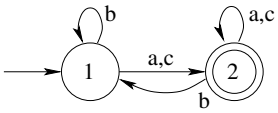
3. (a+b+c)* b



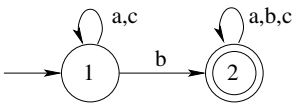
4. ((a+b+c)* (a+c))*



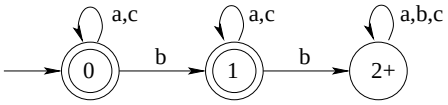
5. (a+b+c)* (a+c)



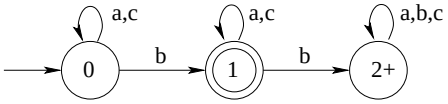
6. (a+c)* b (a+b+c)*



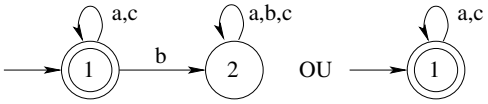
7. (a+c)* (b + (a+c)*) (a+c)*



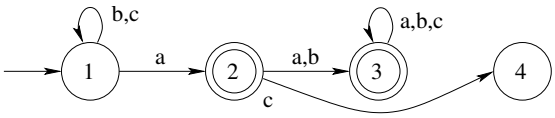
8. (a+c)* b (a+c)*



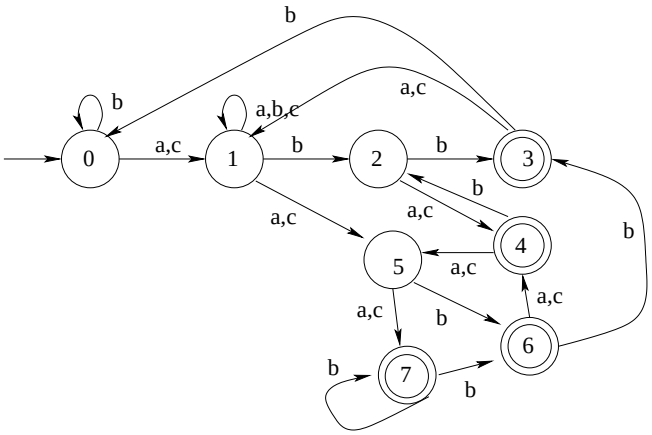
9. (a+c)*



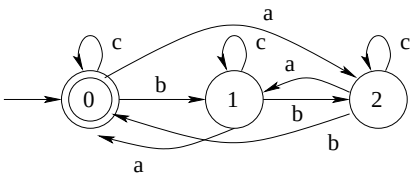
10. (b+c)* a ((a+b)(a+b+c)*)*



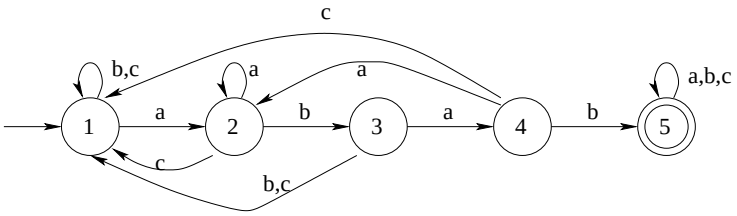
11. (a+b+c)* (a+c) (a+b+c)^2



12. Le numéro de l'état correspond au nombre $2|u|_a + |u|_b$ modulo 3.

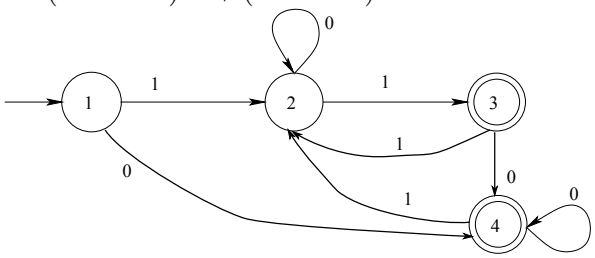


13. (a+b+c)* (ab)^2 (a+b+c)*

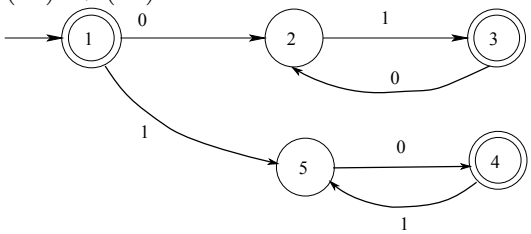


Exercice 2 : ER et AFD

a- Les mots sur $\{0, 1\}$ dont la dernière lettre est le bit de parité :
$0^*1(0^*10^*10^*)^*1 + (0^*10^*10^*)^*0$



b- Les suites alternées de 0 et 1 :
$(01)^* + (10)^*$



c- Les mots contenant la séquence ATA sur l'alphabet $\{A, T, C, G\}$:
$(A + T + C + G)^*ATA(A + T + C + G)^*$