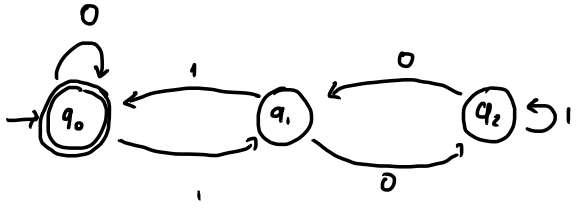
Practica 1

Radilla Maldonado Dylan E. 316237848

Garcia Villanueva Israel 317052197

3.1

3.1.1. Construya una AFD que reconozca aquellas cadenas en el alfabeto {0,1} tales que las cadenas binarias representen un número decimal múltiplo de 3



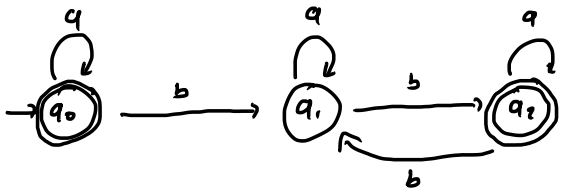
Aceptación

$0 \in L(M)$
$11 \in L(M)$
$0011 \in L(M)$
$1001 \in L(M)$
$1111 \in L(M)$
$1100\,11 \in L(M)$
$1111\,11 \in L(M)$

Rechazo

$1 \notin L(M)$
$01 \notin L(M)$
$10 \notin L(M)$
$111 \notin L(M)$
$101 \notin L(M)$
$100 \in L(M)$
$10101\,1 \notin L(M)$

3.1.2 Construya una AFD que reconozca aquellas cadenas en el alfabeto $\{a,b\}$ tales que tengan un número par de b consecutivas.



Aceptación

$a \in L(M)$
$bab \in L(M)$
$bb \in L(M)$
$bba \in L(M)$
$babbab \in L(M)$
$bbabbbb \in L(M)$
$acabaabcbbbbabab \in L(M)$

Rechazo

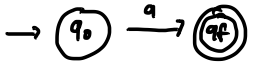
$b \notin L(M)$
$ab \notin L(M)$
$babb \notin L(M)$
$bbab \notin L(M)$
$bbbabb \notin L(M)$
$acbabbabbab \notin L(M)$
$babcbbaaab \notin L(M)$

3.2

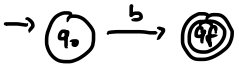
3.2.1 $(bb + aba)(ba)^*$

Exp Reg $\Rightarrow$ AFN-ε

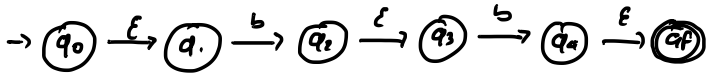
AFN-ε a



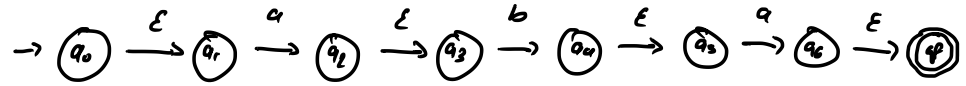
AFN-ε b



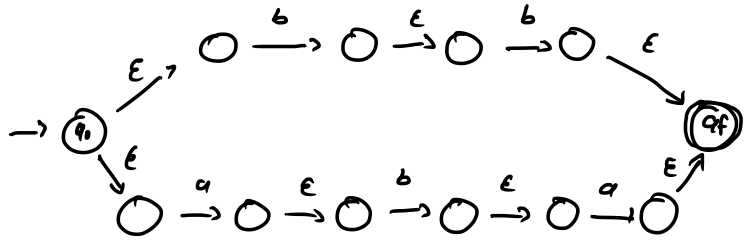
AFN-ε (bb)



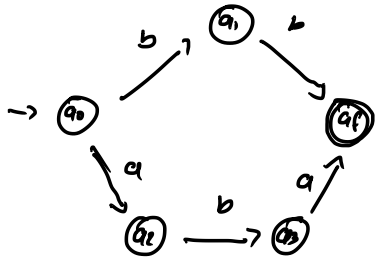
AFN-ε (aba)



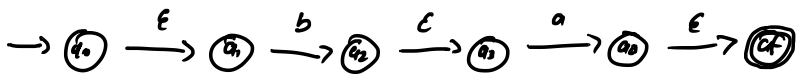
AFN-ε (bb + aba)



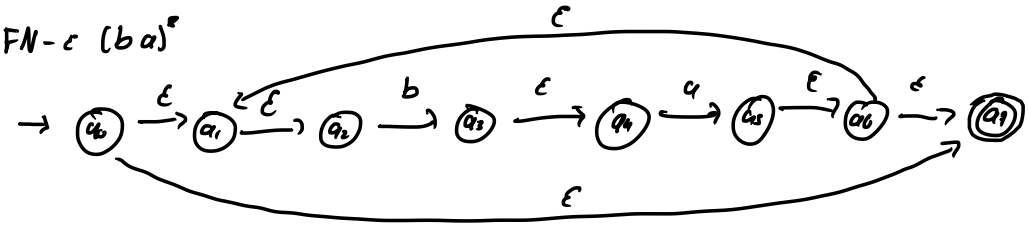
Simplificación (bb + aba)



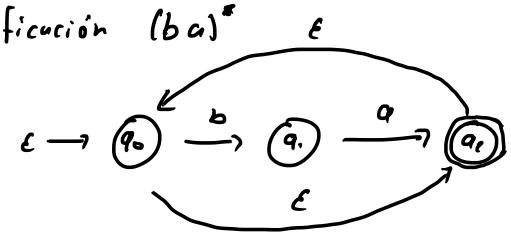
AFN-ε (ba)



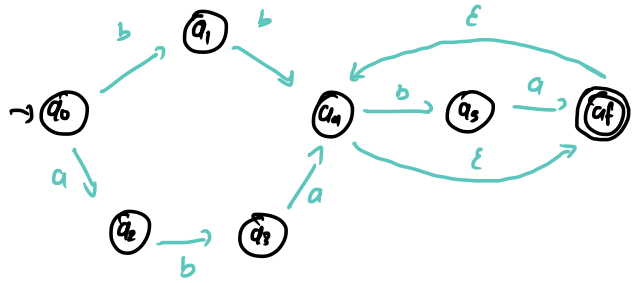
AFN-ε (ba)*



Simplificación (ba)*



AFN-ε (bb + aba)(ba)*

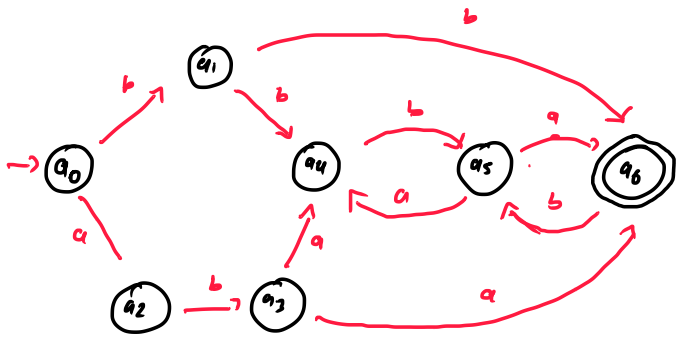


AFN-ε ⇒ AFN

$E(q_0) = \{q_0\}$
$E(q_1) = \{q_1\}$
$E(q_2) = \{q_2\}$
$E(q_3) = \{q_3\}$
$E(q_4) = \{q_4, q_6\}$
$E(q_5) = \{q_5\}$
$E(q_6) = \{q_6, q_4\}$

$\delta(q_0, a) = \{q_2\}$
$\delta(q_0, b) = \{q_1\}$
$\delta(q_1, a) = \emptyset$
$\delta(q_1, b) = \{q_4, q_6\}$
$\delta(q_2, a) = \emptyset$
$\delta(q_2, b) = \{q_3\}$
$\delta(q_3, a) = \{q_4, q_6\}$
$\delta(q_3, b) = \emptyset$
$\delta(q_4, a) = \emptyset$
$\delta(q_4, b) = \{q_5\}$
$\delta(q_5, a) = \{q_6, q_4\}$
$\delta(q_5, b) = \emptyset$
$\delta(q_6, a) = \emptyset$
$\delta(q_6, b) = \{q_5\}$

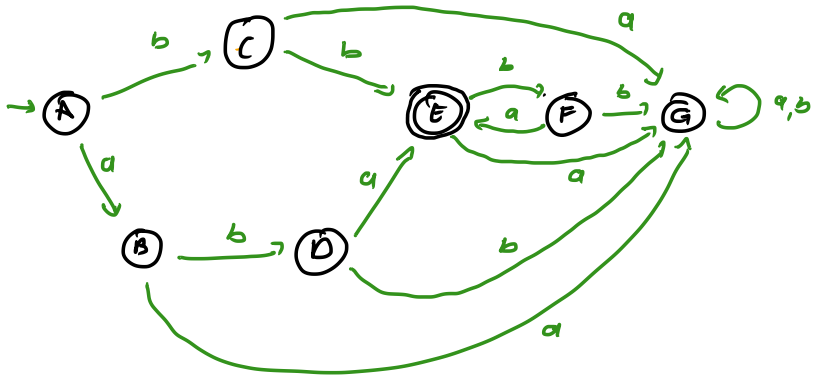
AFN (bb + aba)(ba)*



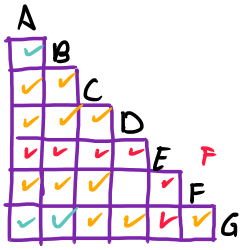
AFN => AFD

	a	b	
$\{q_0\}$	$\{q_2\}$	$\{q_1\}$	A
$\{q_2\}$	$\emptyset$	$\{q_3\}$	B
$\{q_1\}$	$\emptyset$	$\{q_4, q_6\}$	C
$\{q_3\}$	$\{q_4, q_6\}$	$\emptyset$	D
F $\{q_4, q_6\}$	$\emptyset$	$\{q_5\}$	E
$\{q_5\}$	$\{q_4, q_6\}$	$\emptyset$	F
$\emptyset$	$\emptyset$	$\emptyset$	G

AFD $(bb + aba)(ba)^*$



AFD => AFD mínimo



D ≃ F