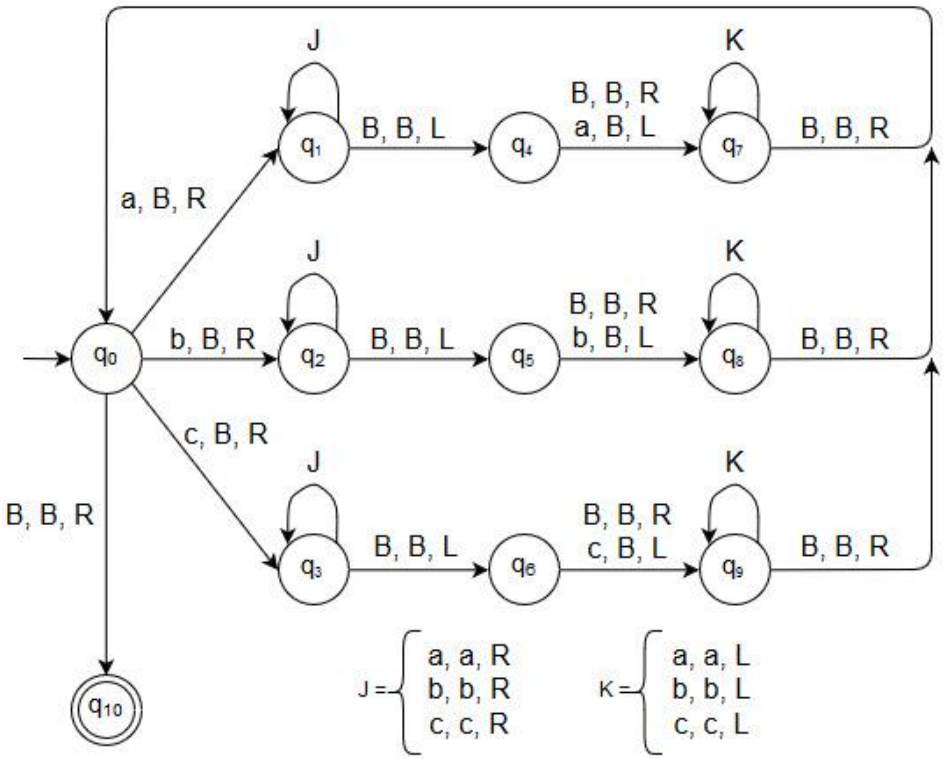
Máquina de Turing 1. Reconocer cadenas palíndromas

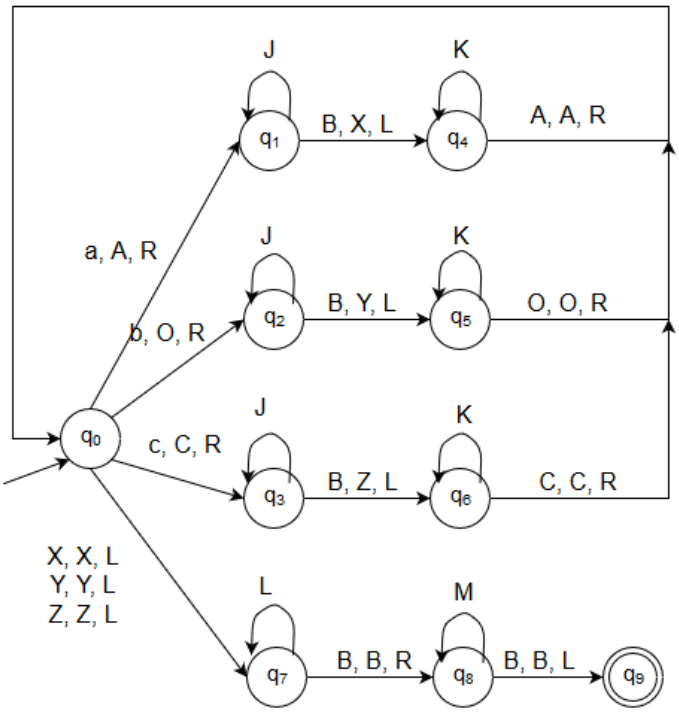
$M = (\{q_0, q_1, q_2, q_3, q_4, q_5, q_6, q_7, q_8, q_9, q_{10}\}, \{a, b, c\}, \{a, b, c, B\}, \delta, q_0, B, \{q_{10}\})$



Estados	a	b	c	B
q_0	q1, B, R	q2, B, R	q3, B, R	-
q_1	q1, a, R	q1, b, R	q1, c, R	q4, B, L
q_2	q2, a, R	q2, b, R	q2, c, R	q5, B, L
q_3	q3, a, R	q3, b, R	q3, c, R	q6, B, L
q_4	q7, B, L	-	-	q7, B, R
q_5	-	q8, B, L	-	q8, B, R
q_6	-	-	q9, B, L	q9, B, R
q_7	q7, a, L	q7, b, L	q7, c, L	q0, B, R
q_8	q8, a, L	q8, b, L	q8, c, L	q0, B, R
q_9	q9, a, L	q9, b, L	q9, c, L	q0, B, R
q_{10}	-	-	-	-

Máquina de Turing 2. Copia de patrones

$M = (\{q_0, q_1, q_2, q_3, q_4, q_5, q_6, q_7, q_8, q_9\}, \{a, b, c\}, \{a, b, c, A, O, C, X, Y, Z, B\}, \delta, q_0, B, \{q_9\})$



J = { a, a, R; b, b, R; c, c, R; X, X, R; Y, Y, R; Z, Z, R }

K = { a, a, L; b, b, L; c, c, L; X, X, L; Y, Y, L; Z, Z, L }

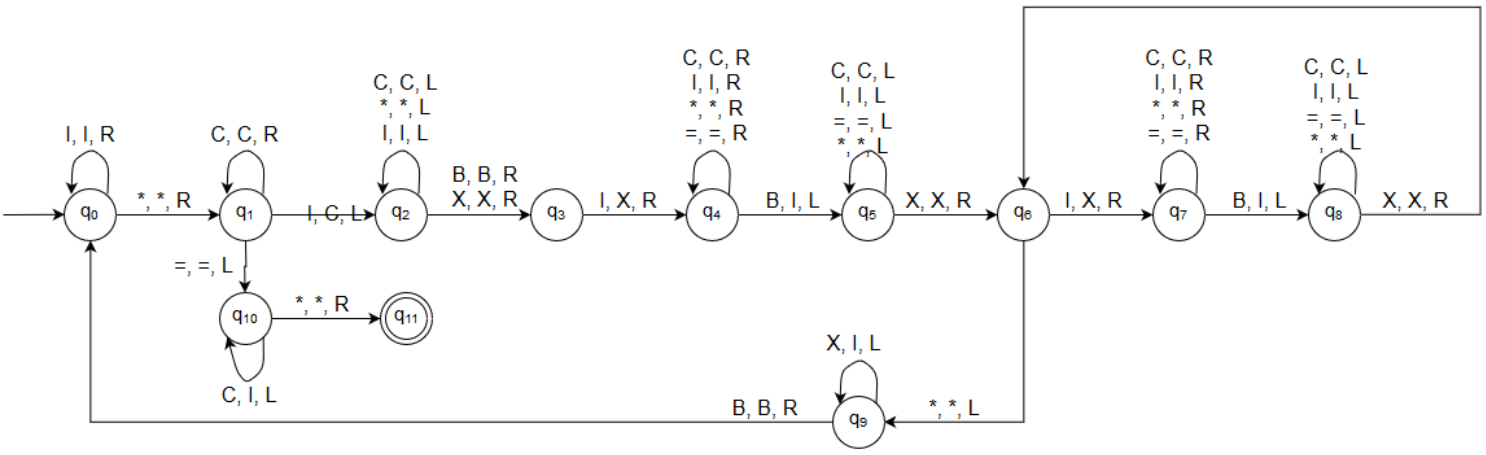
L = { A, A, L; O, O, L; C, C, L }

M = { A, a, R; B, b, R; C, c, R; X, a, R; Y, b, R; Z, c, R }

Estados	a	b	c	A	O	C	X	Y	Z	B
q_0	q1,A,R	q2,O,R	q3,C,R	-	-	-	q7,X,L	q7,Y,L	q7,Z,L	-
q_1	q1,a,R	q1,b,R	q1,c,R	-	-	-	q1,X,R	q1,Y,R	q1,Z,R	q4,X,L
q_2	q2,a,R	q2,b,R	q2,c,R	-	-	-	q2,X,R	q2,Y,R	q2,Z,R	q5,Y,L
q_3	q3,a,R	q2,b,R	q2,c,R	-	-	-	q2,X,R	q2,Y,R	q2,Z,R	q6,Z,R
q_4	q4,a,L	q4,b,L	q4,c,L	q0,A,R	-	-	q4,X,L	q4,Y,L	q4,Z,L	-
q_5	q5,a,L	q5,b,L	q5,c,L	-	q0,O,R	-	q5,X,L	q5,Y,L	q5,Z,L	-
q_6	q6,a,L	q6,b,L	q6,c,L	-	-	q0,C,R	q6,X,L	q6,Y,L	q6,Z,L	-
q_7	-	-	-	q7,A,L	q7,O,L	q7,C,L	-	-	-	q8,B,R
q_8	-	-	-	q8,a,R	q8,b,R	q8,c,R	q8,a,R	q8,b,R	q8,c,R	q9,B,L
q_9	-	-	-	-	-	-	-	-	-	-

Máquina de Turing 3. Multiplicación en código unario.

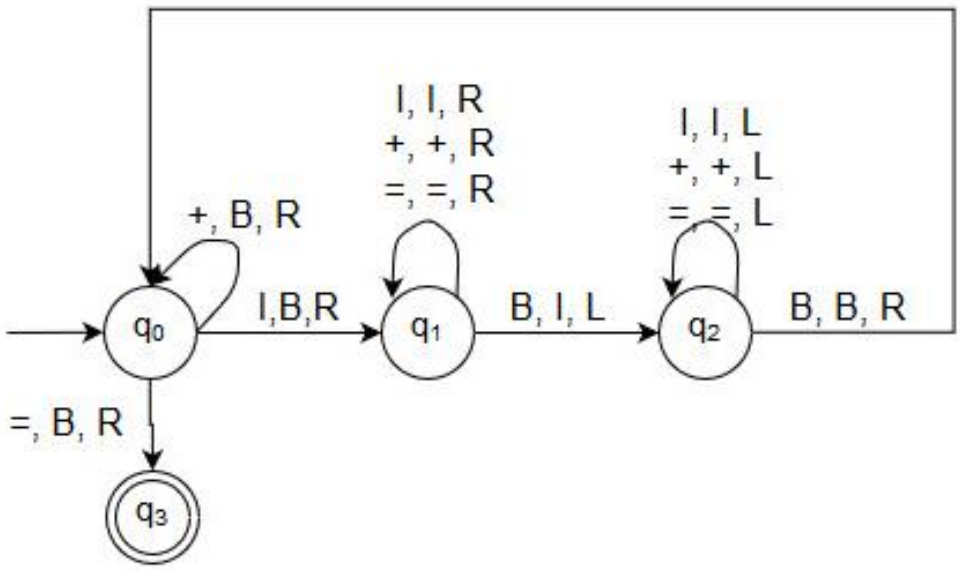
$$M = (\{q_0, q_1, q_2, q_3, q_4, q_5, q_6, q_7, q_8, q_9, q_{10}, q_{11}\}, \{I, *, =\}, \{I, *, =, C, X, B\}, \delta , q_0, B, \{ q_{11} \})$$



Estados	I	*	=	C	X	B
q_0	q0, I, R	q1, *, R	-	-	-	-
q_1	q2, C, L	-	q10, =, L	q1, C, R	-	-
q_2	q2, I, L	q2, *, L	-	q2, C, L	q3, X, R	q3, B, R
q_3	q4, X, R	-	-	-	-	-
q_4	q4, I, R	q4, *, R	q4, =, R	q4, C, R	-	q5, I, L
q_5	q5, I, R	q5, *, R	q5, =, R	q5, C, R	q6, X R	-
q_6	q7, X, R	q9, *, L	-	-	-	-
q_7	q7, I, R	q7, *, R	q7, =, R	q7, C, R	-	q8, I, L
q_8	q8, I, R	q8, *, R	q8, =, R	q8, C, R	q6, X R	-
q_9	-	-	-	-	q9, I, L	q0, B, R
q_{10}	-	q11, *, R	-	q10, I, L	-	-
q_{11}	-	-	-	-	-	-

Máquina de Turing 4. Suma en código unario

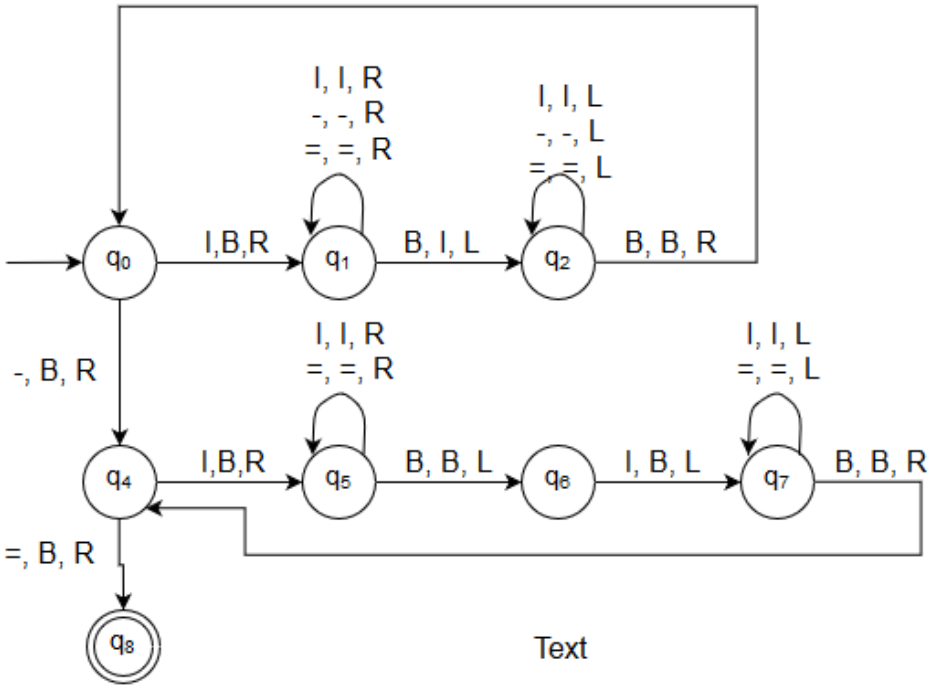
$$M = (\{q_0, q_1, q_2, q_3\}, \{I, +, =\}, \{I, +, =, B\}, \delta , q_0, B, \{ q_3 \})$$



Estados	I	+	=	B
q_0	q1, B, R	q0, B, R	q3, B, R	-
q_1	q1, I, R	q1, +, R	q1, =, R	q2, I, L
q_2	q2, I, L	q2, +, L	q2, =, L	q0, B, L
q_3	-	-	-	-

Máquina de Turing 5. Resta en código unario.

$$M = (\{q_0, q_1, q_2, q_3, q_4, q_5, q_6, q_7, q_8,\}, \{I, -, =\}, \{I, -, =, B\}, \delta , q_0, B, \{ q_8 \})$$



Estados	I	-	=	B
q_0	q1, B, R	q4, B, R	-	-
q_1	q1, I, R	q1, -, R	q1, =, R	q2, I, L
q_2	q2, I, L	q2, -, L	q2, =, L	q0, B, R
q_4	q5, B, R	-	q5, B, R	-
q_5	q5, I, R	-	q5, =, R	q6, B, L
q_6	q7, B, L	-	-	-
q_7	q7, I, L	-	q7, =, L	q4, B, R
q_8	-	-	-	-