Universidad Autónoma de Nuevo León

Facultad de Ciencias Físico-Matemáticas

Unidad de Aprendizaje: Teoría de Autómatas

Profesor(a): Yazmany Jahaziel Guerrero Ceja

Integrantes del equipo:

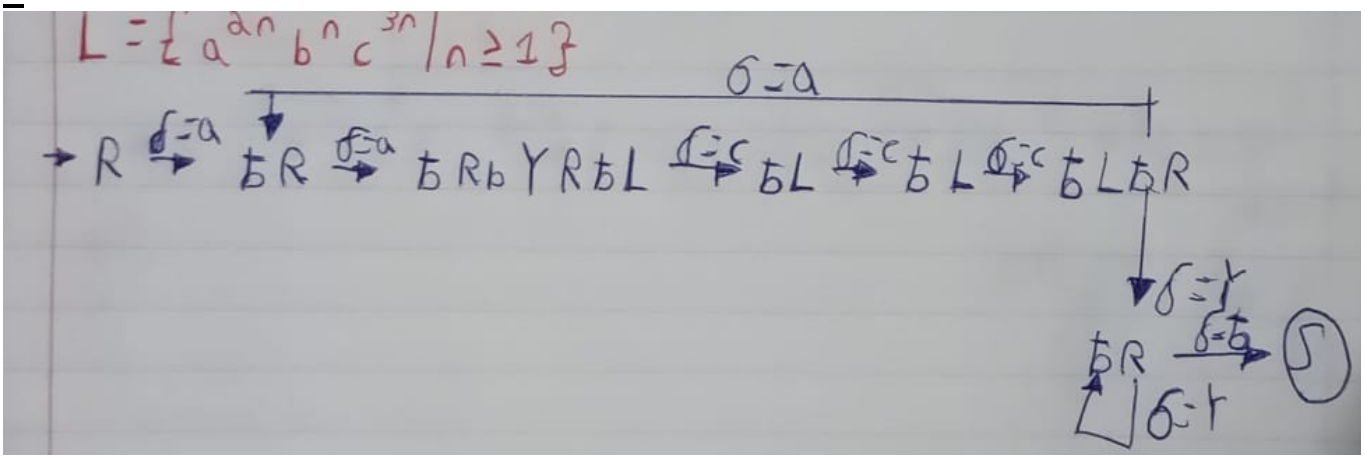
Juan Ángel Garza Castillo (2007612)

Jorge Ángel Valdez Tristán (1957496)

Laboratorio 3

San Nicolás de los Garza, N.L., a 10 de noviembre 2022

1

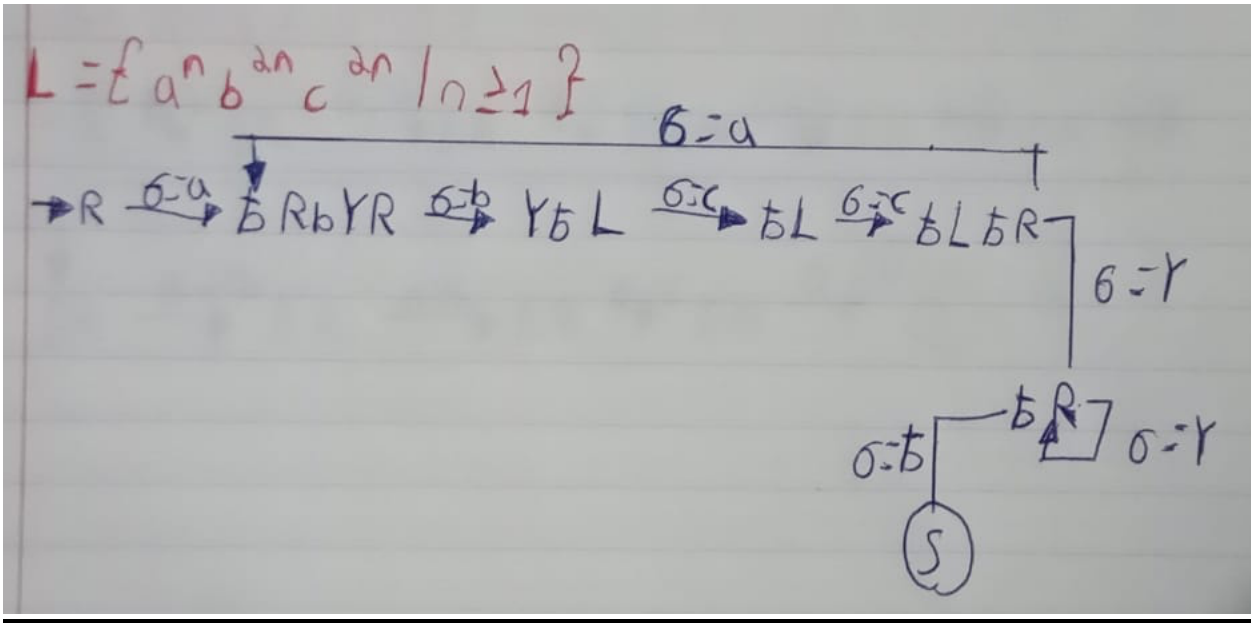


2

δ(q0, ƀ)=(q1, ƀ,R)
δ(q1,a)=(q2, ƀ,R)
δ (q2, σ1)=(q2, σ1,R) σ1={a,Y}
δ(q2,b)=(q3,Y,R)
δ (q3,b)=(q4,Y,R)
δ(q4, σ2)=(q4, σ2,R). σ2={b,c}
δ (q4 ƀ,)=(q5, ƀ,L)
δ (q5,c)=(q6, ƀ,L)
δ(q6,c)=(q7, ƀ,L)
δ(q7, σ3)=(Q7, σ3,l) σ3=(a,b,c,Y)
δ(q7, ƀ)=(q8, ƀ,R)
δ(q8,a)=(q9, ƀ,R)
δ (q8,Y)=(q9 ƀ,R)
δ(q9,Y)=(q9, ƀ,R)
δ(q9, ƀ)=(q10,S)

3

4



5

δ(q10, σ) = (q1, ƀ, R) ;

δ(q1, α) = (q2, ƀ, R) ;

δ(q2, α) = (q3, ƀ, R) ;

δ(q3, σ1) = (q3, σ1, R) ; σ1=1{α,Y}

δ(q3, β) = (q4, Y, R) ;

δ(q4, σ2) = (q4, σ2 , R) ; σ2={b,c}

δ(q4, ƀ) = (q5, ƀ, L) ;

δ(q5, c) = (q6, ƀ, L) ;

δ(q6, c) = (q7, ƀ, L) ;

δ(q7, c) = (q8, ƀ, L) ;

δ(q8, σ3) = (q8, σ3, L) ; σ3={a,b,c,Y}

δ(q8, ƀ) = (q9, ƀ, R) ;

δ(q9, a) = (q2, ƀ, R) ;

δ(q9, Y) = (q10, ƀ, R) ;

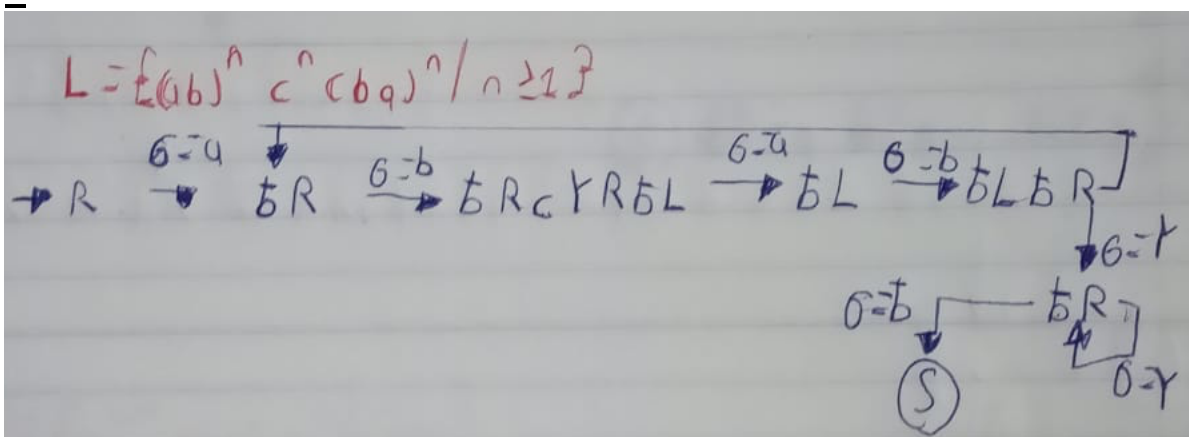
δ(q10, Y) = (q10, ƀ, R) ;

δ(q10, Y) = (q10, ƀ, S) ;

6

(q0, ƀaabbbbcccc ƀ) ⊢1(q1, ƀ**a**abbbbcccc ƀ) ⊢2 (q2, ƀa**b**bbbcccc ƀ) ⊢3 (q3, ƀab**b**bbcccc ƀ) ⊢3 (q0, ƀaabb**b**bcccƈ) ⊢3 (q2, ƀabbb**b**cccƈ) ⊢3 (q2, ƀabbbb**c**cccƈ) ⊢3 (q2, ƀabbbbc**c**ccƈ) ⊢3 (q2, ƀaabbbbcc**c**ƈ) ⊢3 (q2, ƀabbbbccc**c**ƈ) ⊢3 (q2, ƀabbbbcccc**ƀ**) ⊢3 (q2, ƀaabbbbccc**c**ƈ) ⊢5 (q3, ƀaabbbbcccƈ) ⊢4 (q3, ƀaabbbbcc**c**ƈ) ⊢

7



8Reglas de transicion

δ(q1, σ) = (q2, ƀ, R) ;

δ(q0, σ) = (q1, ƀ, R) ;

δ(q1, σ) = (q2, ƀ, R) ;

δ(q2, σ) = (q3, σ1, R) ; σ1 = {a, ,b,y}

δ(q3, σ) = (q3, ƀ, R) ;

δ(q3, σ) = (q4, σ2, R) ; σ2 = {a, b,c}

δ(q4, σ) = (q4, ƀ, R) ;

δ(q4, σ) = (q5, ƀ, R) ;

δ(q5, σ) = (q6, ƀ, R) ;

δ(q6, σ) = (q7, σ 3, R) ; σ 3= {a, b,c,y}

δ(q7, σ) = (q7, ƀ, R) ;

δ(q7, σ) = (q8, ƀ, R) ;

δ(q8, σ) = (q2, ƀ, R) ;

δ(q8, σ) = (q9, ƀ, R) ;

δ(q9, σ) = (q9, ƀ, R) ;

δ(q9, σ) = (q10, ƀ, R) ;

9

(q0, ƀababccbabaƀ) ⊢1 (q1, ƀ**a**babccbabaƀ) ⊢2

(q2, ƀƀ**a**bccbabaƀ) ⊢3 (q3, ƀƀƀ**a**bccbabaƀ) ⊢3

(q3, ƀƀƀa**b**ccbabaƀ) ⊢4 (q3, ƀƀƀab**c**cbabaƀ) ⊢5

(q4, ƀƀƀabY**c**babaƀ) ⊢6 (q4, ƀƀƀabYc**b**abaƀ) ⊢6

(q4, ƀƀƀabccb**a**baƀ) ⊢6 (q4, ƀƀƀabYcba**b**aƀ) ⊢6

(q4, ƀababYcbab**a**ƀ) ⊢6 (q4, ƀababYcbaba**ƀ**) ⊢7

(q5, ƀababYcbab**a**ƀ) ⊢8 (q6, ƀababYcba**b**ƀƀ) ⊢9

(q7, ƀƀƀabccb**a**ƀƀƀ) ⊢10 (q7, ƀƀƀabccbaƀƀƀ) 10

(q7, ƀƀƀabccbaƀƀƀ) ⊢10 (q7, ƀƀƀabYcbaƀƀƀ) ⊢10

(q7, ƀƀƀabY**c**baƀƀƀ) ⊢10 (q7, ƀƀƀab**Y**cbaƀƀƀ) ⊢10

(q7, ƀƀƀa**b**Ycbabaƀ) ⊢11 (q8, ƀƀƀ**a**bYcbabaƀ) ⊢1 2

(q2, ƀƀƀƀ**b**Ycbabaƀ) ⊢3 (q3,ƀƀƀƀƀ**Y**cbaƀƀƀ) ⊢4

(q3, ƀƀƀƀY**c**babaƀ) ⊢5 (q4, ƀƀƀƀYY**b**aƀƀƀ) ⊢5

(q4, ƀƀƀƀƀYYb**a**ƀƀƀ) ⊢5 (q4, ƀƀƀƀƀYYba**ƀ**ƀƀ) ⊢7

(q5, ƀƀƀƀYYb**a**ƀƀƀ) ⊢8 (q6, ƀƀƀƀƀYY**b**ƀƀƀƀ) ⊢9

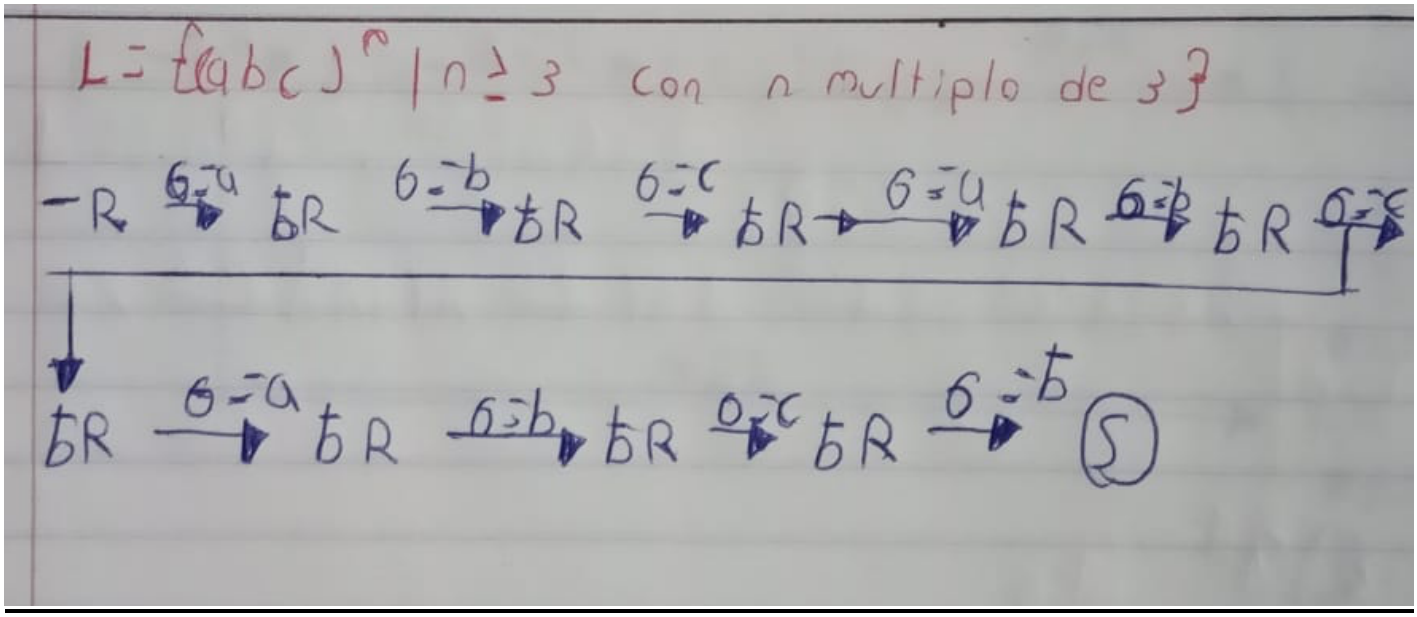
(q7, ƀƀƀƀƀY**Y**ƀƀƀƀƀ) ⊢10 (q7, ƀƀƀƀƀ**Y**Ybabaƀ) 10

(q7, ƀƀƀƀ**ƀ**YYbabaƀ) ⊢11 (q9, ƀƀƀƀƀ**Y**Ybabaƀ) ⊢3

(q9, ƀƀƀƀƀƀ**Y**babaƀ) ⊢14 (q9, ƀƀƀƀƀƀƀƀƀƀƀƀ) ⊢5

(q10, ƀƀƀƀƀƀƀƀƀƀ)

10



11 Reglas de transicion

δ(q0, σ) = (q1, ƀ, R) ;

δ(q1, σ) = (q2, ƀ, R) ;

δ(q2, σ) = (q3, ƀ, R) ;

δ(q13, σ) = (q4, ƀ, R) ;

δ(q4, σ) = (q5, ƀ, R) ;

δ(q5, σ) = (q6, ƀ, R) ;

δ(q6, σ) = (q7, ƀ, R) ;

δ(q7, σ) = (q8, ƀ, R) ;

δ(q8, σ) = (q9, ƀ, R) ;

δ(q9, σ) = (q10, ƀ, R) ;

δ(q10, σ) = (q2, ƀ, R) ;

δ(q10, σ) = (q11, ƀ, R) ;

12

(q0, ƀabcabcabcƀ ⊢1 (q1, ƀ**a**bcabcabcƀ ⊢2

(q2, ƀ**b**cabcabcƀ ⊢3 (q3, ƀ**c**abcabcƀ ⊢4

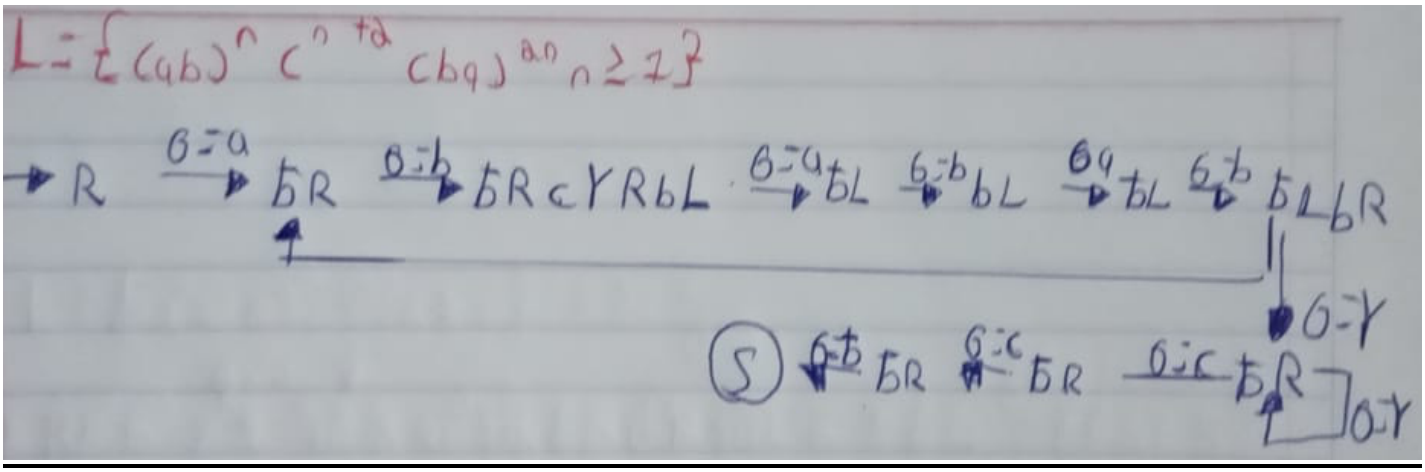
(q4, ƀ**a**bcabcƀ ⊢5 (q5, ƀ**b**cabcƀ ⊢6

(q6, ƀ**c**abcƀ ⊢7 (q7, ƀ**a**bcƀ ⊢8

(q8, ƀ**b**cƀ ⊢9 (q9, ƀ**c**ƀ ⊢10

(q10, ƀƀ ⊢11 (q11, ƀƀ) cadena valida

13



14

$L = \{a^{2n} b^{n+1} c^{n} / n \geq 0\}$