Homework assingment #4 EECS 510

| | !- | Row | lar Expre | ssion for | ·: | | | | | | |
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| | | - | →(q1)- | $\rightarrow (q_2)$ | (92)- | -> (94) 20,1° | S 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | - L | | | |
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| Ø. | (177) | ~ | | Ŋ | - . , | | E 1. 21 = 1 | يدريس روس اسيد | | | |
| - | | | K=0 | K= 1 | k= Z | ¥= 3 | k=4 | ±1 | | | |
| 416 | - | R,k | ۲+۵. | 0* | 0* | O* | | Just need | | | |
| | | R ₁₂ K | 1.1. | 0*1 | 0*1 | 10x1 (00+10)* | 041(00+10) | e These two | | | |
| | 0 | R13 | ø | . Ø | 0*1(0+1) | (#1 (oti) (00toi)* | 0 (01) (00+01) | e (1 - final state | | | |
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| | | R22 | ر (| <u>)</u> | λ . | 7+(06+10)* | | 40 | | | |
| | | R23 | 0+1 | Q+1 | 0+1 | (0+1)(00+01)* | | | | | |
| | | Rz4 | ф | Ψ | - th | (0+1)(00+01)*1 | | <u> 201</u> | | | |
| | | R ₃₁ | - \$ | 4 | Ø | 8 | . W | | | | |
| - | | R32 | 0 | , D. | 9 _ | (00+01)*0 | | The same | | | |
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| | | R34 | | | | (00+ a1)*1 | Top produce Aproxima | 14 1199 c 200 at w | | | |
| | - - | RHI | <i>p</i> | p | Ø | - <u>4</u> | | 4 351 | | | |
| | | <u> </u> | \$ | Ø | Ø | 9 | min të së | | | | |
| • | ╬ | K+13 | | 4 | 9 | Ø | M 15 61 Print 51 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | om 1 in | | | |
| | + | Ruy | 0+1+) | 0+17/ | 0+1+7 | 0+1+7 | to distilluidate and deposite year. If you was a party of the | | | | |
| | - | p K+ | = Rij | k /, | K 7* | K. | The state of the s | MERCHANICA TO AND | | | |
| | ╁ | | annaire in all a sec | + Rix+1 (6 | | | E 0 10 | M to glav | | | |
| | + | Kel. | | ° / ° \ * ° ° | <u></u> . | |) (0+1) - 0+7+ | ere i e e e e e e e e e e e e e e e e e | | | |
| | ۲. | | . KIL T. | 0 (P. ')* | 1 = {Of; | 1) T (0+1) (0+1) |) (0+h) = 0 + h+ | 0* = 0* | | | |
| B.J. I. H | $R_{12} = R_{12}^{\circ} + R_{11}^{\circ} (R_{11}^{\circ})^{\circ} R_{12} = 1 + (0 + A) (0 + A)^{*} = 1 + 0^{*} = 0^{*}$ $R_{13} = R_{13} + R_{11}^{\circ} (R_{11}^{\circ})^{\circ} R_{13} = \emptyset + (0 + A) (0 + A)^{*} \emptyset = \emptyset$ | | | | | | | | | | |
| 72 | | R. : | Ris + | R 1 / 1 . " \ * | 2.12. <u>2</u> | 4 + (0T() (0th) | | | | | |
| | $R_{14} = R_{14} + R_{11} (R_{11})^* R_{14} = \emptyset + (0+\lambda)(0+\lambda)^* \emptyset = \emptyset$ $R_{21} = R_{21} + R_{21} (R_{11})^* R_{11} = \emptyset + \emptyset(0+\lambda)^* (0+\lambda) = \emptyset$ | | | | | | | | | | |
| *3 | | R2-2 | = 0 = 4 | - R., (R.,) | 210 | A . L | ((=) | | | | |
| | | Z 12 | = R. + | R. (R.) | ر: : د الارتواد ا | (n+1) + d(n+1) | 1) x b = 0+1 | - 3 | | | |
| · · | | hara.a | | and the Blatter | - • <i>₹</i> | (* | 71. Fat 1.03\ (200) | | | | |

Homework 4

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R2H = R2H + R21 (R11) * KIH = $ + $ (D+ ) " $ = $
R31 = R31 + R31 (R11) * R11 = $\text{i} + \text{j} (\text{ord}) = $\text{j}$

R32 = R32 + R31 (R11) * R12 = 0 + $\text{j} (\text{ord}) * 1 = 0
                                  0 + $ (012)*1 = 0
R=3= R=3 + R=1 (R11) * Ri3 =
                                   X + (10+2) = 1
R34 = R34 + R31 (R11) KR17 =
                                   1 + $ ( sta) # 0 = 1
R'4, = R'4, + R'4, (Ri,) * Ri, =
                                   4 + $ (o+ ) (a+ ) = 6
                                   $ + $ (6+2) 1 = $
R'42 = R42 + R41 (R11) * R12 =
R'43 = R"+3 + R41 (R11") * R13" =
                                  $ + 4 (0+1) q = $
Ryy = Ryy + Ry (Ry) * Ry =
                                   (0+1+2) + $ (0+2) $ $ = 0+1+2
 R_{11}^{2} = R_{11} + R_{12} (R_{22})^{*} R_{21}^{2} =
                                   0x + 0x 1 (1)* $ = 0x
                                   0*1 + 0*1 (1)* 1 = 0*1 + 0*1 = 0*1
 R12 = R12 + R12 (R22) + R22 =
                                   ( + o*1 ( ) *( >+1) = 0*10+ o*11
 R13 = R13 + R12 (R21) * R23 =
 Rig = Right Riz (Rzz) + Rz4 =
                                   $ + 0*1 (2)* $ = $
 Rz1 = R21 + R22 (R27)* R21 =
                                   $ + A (A) + 0 = D
                                    y + y(y)_{K} y = y
 Rz= = Rz + Rz2 (Rz2) RZ2 =
                                   = (1+0)*(K) K + (1+0)
 823 = R23 + R2= (R22) * R123 =
 Rzy = Rzy + Rzz (Rzz)* Rzy =
                                    1 + 3 (A) x 0 =
 R31 = R31 + R32 (R22) * R21 =
                                    Q + 0 (1) x Q = 4
 832 = R32 + R32 (P72) K K27 "
                                  0 + 0(1)x 1 = 0
 R3 = R2 + R3 (R22) * R23 =
                                  1+0(0)x(01)= 1+0(0+1)
 R34 = R34 + R32 (R22)* R24 = 1 + 0(1)* 5 = 1
 R41 = R41 + R42 (R72) * R21 = V + 6 (A) V = D
 Ruz - Ruz ( Ruz ( Rzz) * Prz = 0 + 6 (15 ) = 0
 RH3 = RH3 + RH 2 (Rz2) " RZ3 = $ + $ (A) (0+1) = $
 R447 = R44 + R42 (R22) + R24 = O+1+2 + & (2) = O+1+2
R_{11}^{2} = R_{11}^{2} + R_{13}^{2} \left(R_{33}^{2}\right)^{*} R_{31}^{2} = O^{*} + O^{*} I(o+1) \left[\lambda + O(o+1)\right]^{*} \phi = O^{*}
R12 + R12 + R13 (R83) * R32 = 0*1+0*1(0+1)[x+0(0+1)]*0 = 0*1(00+10)*
Ris = Ris + Ris (R332)* Rs3 = 0*1(o+1) + 0*1(o+1)[A+0(o+1)]*(A+0(o+1)) = 0*1(o+1)(ox+0)
Rui = Rui + Rui (Rui) * Rui = $ + 0*1 (0+1) [2+0(0+1)] 1 = 0*1 (0+1) (00101) 1
R_{21} = R_{21}^{2} + R_{23}^{2} (R_{33}^{2})^{*} R_{31}^{2} = \emptyset + (01) [\lambda + 0(01)]^{*} \emptyset = \emptyset
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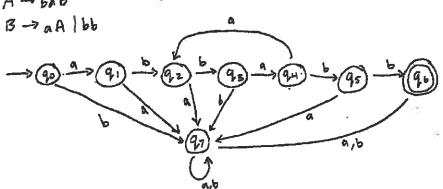
Rzz = Rzz + Rzz (Rzz) * Rzz =) + (0+1) [1+0 (0+1)] O = 1+ (00+10)* R23 = R23 + R23 (R332)* R3 = 10+1) + (0+1) [A+0(0+1)]*[A+0(0+1)]*[A+0(0+1)]*[($R_{24}^{2} = R_{24}^{2} + R_{23}^{2} (R_{33}^{2})^{*} R_{34}^{2} = \emptyset + (0+1) [\lambda + 0(0+1)]^{*} 1 = (0+1) (00+01)^{*} 1$ Rst = Rst + Rst (Rst) * Rst = Ø + [x+0(0+1)] * [x+0(0+1)] * Ø = Ø $R_{32}^{2} = R_{32}^{2} + R_{33}^{3} (R_{33}^{2})^{4} R_{32}^{2} = 0 + [\lambda + 0(0+1)]^{4} [\lambda + 0(0+1)]^{4} 0 = (00+01)^{4} 0$ $R_{33}^{2} = R_{33}^{2} + R_{33}^{2} (R_{33}^{2})^{4} R_{33}^{2} = [\lambda + 0(0+1)]^{4} + [\lambda + 0(0+1)]^{4} = (00+01)^{4}$ RZY = RZY + RZZ (RZZ) * RZZ = (+ ()+ ()+0(0+1)) ()+0(0+1)) = (00+01) 1 R41 = R41 + R43 (R332) " R31 = Ø + Ø (7+ O(0+1))" Ø = Ø Ry = Ruz + Ruz (Rzz) * Rzz = \$ + \$ (2 + 0(0m)) 0 = \$ Rys = Rys + Rys (Rys) Rys = \$ + \$ (1+0(01)) (1+0(01)) = \$ Ry43 = R47 + R43 (R33) * R34 = 0141 + \$ (2+0(0+1)) 1 = 0+1+1 K=4 R12 = R12 + R14 (R44) R42 = 0*1 (00+10)* + 0*1(0+1) (00+01)* 1 (0+1+2)* 0 = 0*1 (00+10) RI3" = RI3" + (Ri4) * Ri3 = 0*1 (0+1) (00+01) *+ 0*1 (011) (00+01) *1 (0+1+2) 6-= 0*1 (0+1)(00+01)* Final Regular Expression = R12 + R13 = 0*1 (00+10)* + 0*1 (0+1) (00+01)* =

DFA for:

2.

5-> abA

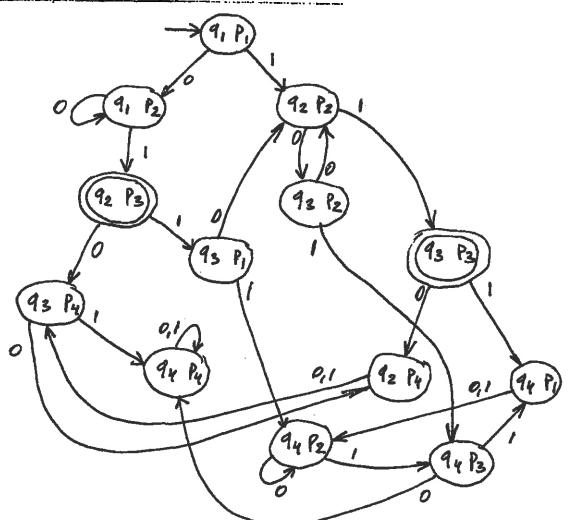
A -> bAB



= 0 +1 ((00+10) + (0+1)(00+01) +)

3. S -> Abb A -> Aaba | B B -> abba

| 4. Right-linear grammar: | |
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| S- OALIA |) |
| A- OA I 18 | |
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| | . |
| Charles to which the way and the second seco | • |
| 5. Intersection of #1 and #4: | |



Homework 4

6. Let M be a prime number, M > M.

W_{M+1} = xy M+2

[xy n+1 z | - |xyz| + |y| • M = M + |y| • M = M(1+|y|)

so W_{M+1} & L

| | . () () () () () () () () () () () () () | 40 pr = | 1 - par payag , | |
|--|--|--|--------------------|-----------------------|
| 7. L= \{an : n is prime or | product of e | cimes } | | (2年 * 20) **** |
| All positive integels >1 L= 2a^: 1>13, | are prime or | a prod | אפו פל פני | MCS SO |
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