Some other questions are: __ (1) (a/b)*. (c/d)*ad. (3) (a/b)* ab (3) ba (a/b)*ab (4) (a+b)*+ (a.c)*.

Conversion from Regular Expression to DFA without NFA.

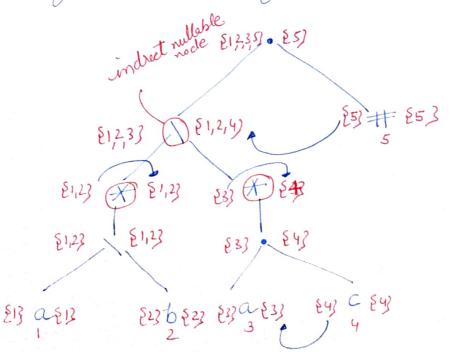
> (a+6)*+(a·c)* We may convert a regular expression into a DPA Cuck out creating a NPA. Firstly, we augmented Regular espression by given RE, Augmented Regular Expression > (a+b) +(a·c) + # Step-1 Convert regular expression (a+6)*+(ac)*# into ST.
and also give label for each leaf nocle a to a c 1 Syntan tree Calculate nullable node from constructed sentine tree.

Step-3 Calculate firstpas and lastpas for constructed syntax true.

Step-3 Calculate firstpas and lastpas for constructed syntax true.

Eliza El

Step-4 Now, Calculate followpes for constructed syntax tree: - followpes table will be constructed (create) by using (and x) only.



1 Clarons table
followpas table
position followpas
1 §1,2,53 2 §1,2,53
3 245
2 5 3, 53
5
Now, constructed DPA by using) constructed syntax tree and followpas table.
constructed syntantree and
followpas (able.
Always start from top.
50, enitial state is \$ 1,2,3,5}
18 tate A=2 1,23,55
Transition S(Aa) and S(AB) and S(AB) and S(AB)
· S(A,a) = followpas(1) V followpad=
= {51,2,530,542
= § 1, 2, 4, 5} - B
$\cdot S(A, B) = followpos(2)$
= \$1,2,570
. 5(Ac) = 51,2,5f C
State B = \$ 1,2,4,5}
Transition S(B,a) and S(B, B) & S(B, C)
· S(B, a) = followpas(1)
= 51,2,5} - (E)
· 8(B, b) = followpoo(2)
= \(\frac{5}{1}, \frac{2}{3} \)
· · S(B,C) = follow pas(4) (D) (9)
- 23/7

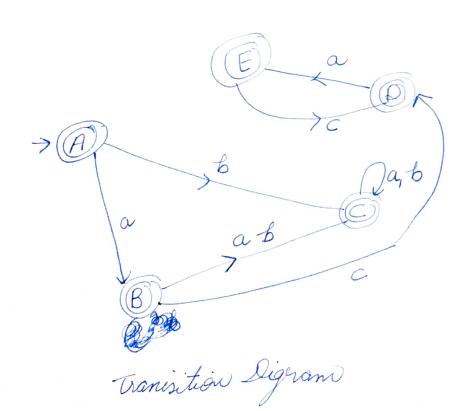
State C= \$ 1,2,53 Transition S(G, a), S(G, B) ·S(C,q)=followpos(1) = &1,2,5} - @ · 8 (4 6) = followpas(2) = 251,2,5] - 0 · S(C, c) = no moves. State & = 15 3, 54 Transition S(D,9), S(D,b) & S(D,C) $\circ S(D,9) = follow pos(3)$ = 244 -E (S(D,b) = no moves)· S(D,C) = no moves. State E = 5 43 transition S(E, 9), S(E, 6), 4 S(E, C) · S(E, a) = no moves · S(E, 6) = noves. · S(E, C) = followpol4) = § 3,54-0

(5)

Transition Lable

State	In	out b/c
O 1, 2, 3, 5 3	B	CØ
B= £1,2,4,54	C	CD
0=51,2,53	C	CB
D= & 3,5}	E	PP
E=543	0	Ø D

5 is present in A, B, C, D. So, A, B, C, D are final states.



> ba (a+6)*ab we may convert a regular expression into a DPA without creating a NPA. Firstly, we augmented regular expression by given RE. sugmented regular expression [ba(a+b)tab]++ ba(a+b)*ab# Convert regular expression ba (a+6) *ab#into
syntax tree and also give label for each leaf Syntax tree Calculate nullable node from constructed syntaxe tree. Step-3 Calculate firstons and lastpas for constructed syntax tree. E13 (553 E63 BE13 7 syntaxe tree 813 82343 853 Ch53 हारे हिंगे रेंग्रे रेंग्रे रेंग्रे रेंग्रे £33 a £33 £436 £43 Step-4 Calculate Lallowper for constructed syntax

by using (. and x) only. ٤١٤ ٤٤٤ ٤٤٤ ٤٤٤ ٤١٤ ٤٤٤ ٤٤٤ ٤٤٤ 213 E23,43 ESJ-QESJ E13 (823 NE343 E343 513 6513 E23 a E23 2 E3,43 E33 a E33 E43 6 E43

folla	wpes	table	
pasi	tion	followpes	
7 2		3,4,5	
3		3,4,5	
5.		6	
7	-		

Now, constructed DFA by using constructed syntax tree and followples table.

- Always start from top.

So, initial state is \$ 13

$$\Rightarrow$$
 State $A = 512$
Transition $S(A, a)$ and $S(A, b)$

$$o S(A,a) = nomoved.$$

⇒ State
$$C = \{5, 3, 4, 5, 6\}$$

Transition $S(C, a)$ and $S(C, b)$.
• $S(C, a) = \{allowpos(3) \cup \{bllowpos(5)\}$
= $\{3, 4, 5\} \cup \{6\}$
= $\{3, 4, 5\} \cup \{6\}$

$$\Rightarrow$$
 State $D = \{53, 4, 5, 7\}$
Transition $S(D, 9)$ and $S(D, 6)$

- Transition Table

State Input	
Q. a 6	The state of the s
>A=5 13 p B	
B= \(\gamma 3, 4, 5 \\ \gamma \ \ \B	
C= \(\frac{5}{3}, \frac{4}{5}, \frac{5}{6} \)	
D= § 3, 4, 5, 73 C B	
7 present in D SO, Disfinal Stat	C
Transition Digram	
(Qc	
$\rightarrow A$ $\rightarrow B$ $\rightarrow B$	