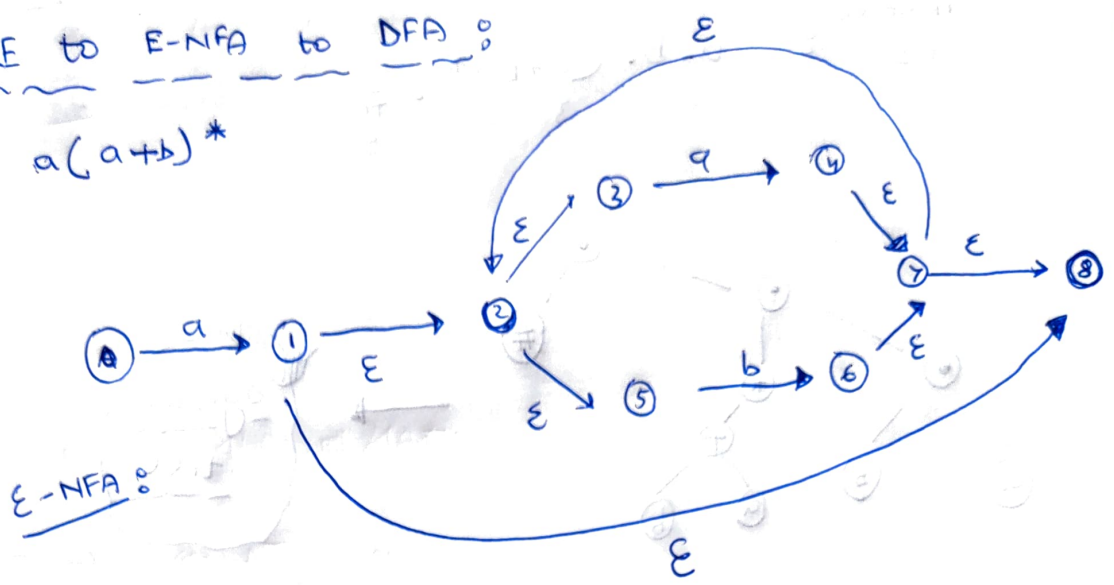


Assignment

* RE to E-NFA to DFA

$a(a+b)^*$



$$A = \epsilon\text{-closure}(0) = \{0\}$$

$$\delta(A, a) = \cancel{\{1\}} \neq \epsilon\text{-closure}(\{0, a\}) = \epsilon\text{-closure}(1)$$

$$\delta(A, b) = \emptyset \quad \epsilon\text{-closure}(\{0, b\}) = \{1, 2, 3, 5, 8\} = (B)$$

$$\begin{aligned} \delta(B, a) &= \epsilon\text{-closure}(\delta(1, 2, 3, 5, 8), a) \\ &= \epsilon\text{-closure}(\{4\}) = \{4, 7, 8, 2, 3, 5\} = (C) \end{aligned}$$

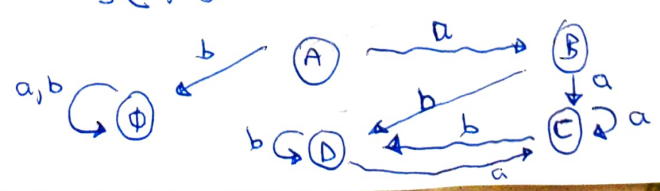
$$\begin{aligned} \delta(B, b) &= \epsilon\text{-closure}(\delta(1, 2, 3, 5, 8), b) \\ &= \epsilon\text{-closure}(\{6\}) = \{6, 7, 8, 2, 3, 5\} = (D) \end{aligned}$$

$$\delta(C, a) = \epsilon\text{-closure}(\delta(4, 7, 8, 2, 3, 5), a) = \epsilon\text{-closure}(4) = (C)$$

$$\delta(C, b) = \epsilon\text{-closure}(\delta(4, 7, 8, 2, 3, 5), b) = \epsilon\text{-closure}(6) = (D)$$

$$\delta(D, a) = \epsilon\text{-closure}(\delta(6, 7, 8, 2, 3, 5), a) = \epsilon\text{-closure}(4) = (C)$$

$$\delta(D, b) = \epsilon\text{-closure}(\delta(6, 7, 8, 2, 3, 5), b) = \epsilon\text{-closure}(6) = (D)$$

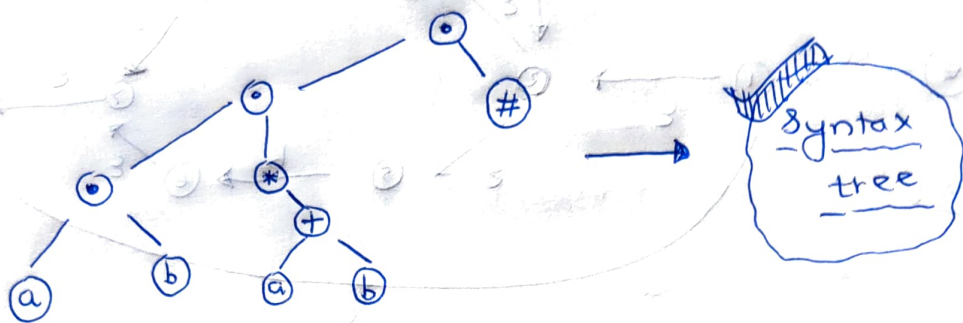


RE to DFA { Direct Method }

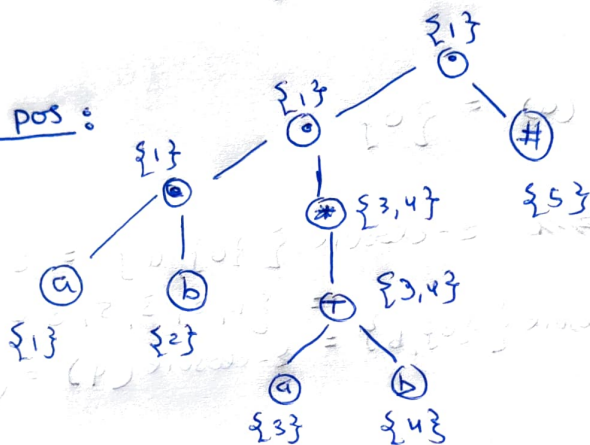
RE = $ab(a+b)^*$

Augmented RE : $a \cdot b \cdot (a+b)^* \cdot \#$

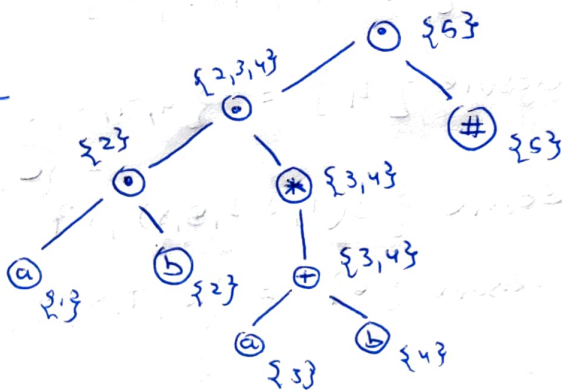
1 2 3 4 5



First pos :



Last pos



Follow pos :

Nodes

Follow pos

1

2

2

3, 4, 5

3

3, 4, 5

4

3, 4, 5

5

-

DFA :

Input

States

Followers

a

1

2

3, 4, 5

b

2

3, 4, 5

a

3

3, 4, 5

b

4

-

#

5

Diagram

