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Regular Language Models Part-1

Regular Language Models Part1:

Content :

1. **Symbols**
2. **Alphabets**
3. **String**
4. **Length of String**
5. **Formal Language**

Language accepted by FA in Regular Expression

Symbols:- Symbols are undefined concepts or pre-emitives. Symbols are generally letters or digits

Alphabets:- It is finite non-empty set of elements or symbols & it is denoted by Σ

Σ = { 0,1,2,3,4,5,6,.....}

= {a,e,i,o,u}

String :- A string or a word is finite sequence of symbols chosen from some alphabet.

Σ = {a,b,c,d}

u= abc , v=aabc , w = abcd

Length of String:- Number of symbols in string

|u| = 3 , |v| = 4 ,|w| =4

Power of alphabet:- let Σ is alphabet Σk be the set of string length k each of whose symbol is in alphabet .

Example:

Σ = {0,1}

Σ1 = {0,1}

Σ2 ={00,11,01,10}

Σ3 = {000,001,010,100,101,110,011,111}

Σ4, Σ5, Σ6

Klew star(∗)

Σ∗ = Set of all possible combination including null

Σ∗ = Σ0 U Σ1 U Σ2 U Σ3…..

Σ∗ = { ʌ ,0,1,00,11,01,10,000,010…….}

a∗ = all possible combination of a including null

= {ʌ , a,aa,aaa,aaaa,…….}

b∗ = {ʌ, b,bb,bbb,bbbb……}

(ab)∗ = {ʌ , ab,abab,abababab,……}

ab∗ = {a,ab,abb,abbb,…….}

ab∗c∗ = { a,ab,ac,abc,abbc,abbbc,abbcc……..}

Σ+ = All possible combination excluding null .

a+ = {a,aa,aaa,aaaa,……}

a+b∗ = {a,ab,aa,abb,aabb,…….}

ab∗c+ = {ac , abc, abbcc,……..}

Formal Language(L):- language is the subset of klew star(∗) operator

L ⊆Σ∗

Σ = {0,1}

Σ∗ = { ∧,0,1,00,01,10,11……..}

L = All the strings starting with 0 .

Σ = {0,00,01,000,010,…….}

(a + b) □ OR {a,b}

{aa + bb} {aa,bb}

a∗b(a+b)

{ba/bb, /aba/abb, aab/aabb, aaabb/aaaba.....}

1. a+b∗c = a, c, bc ,bbc ,bbbc.....
2. ab∗(aa+bb)= aaa,abb,abaa,abbb,abbaa,abbbb....
3. ab+c∗(a+n)=ab,aba,abc,abc,abca,abcc,aabcca,abcca....

L={ an,bn,n≥,0,n≥,0,}

{ ∧,a,aa,aaa.....b,bb,.....}

$(a+b)*$ = All possible combination a+ a,b,including null

{n,a,b,aa,ab,ba...}

Let r= $a(a+b)*$

S=$aa*b$

T=$a*b$

1. $L(s) \leq L(r)$ & $L(s) \leq L(t)$

2. $L(r) \leq L(s)$ & $L(s) \leq L(t)$

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