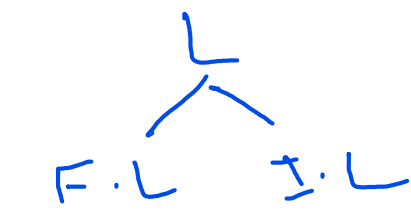


Pumping Lemma — (-Negativity test)



Regular

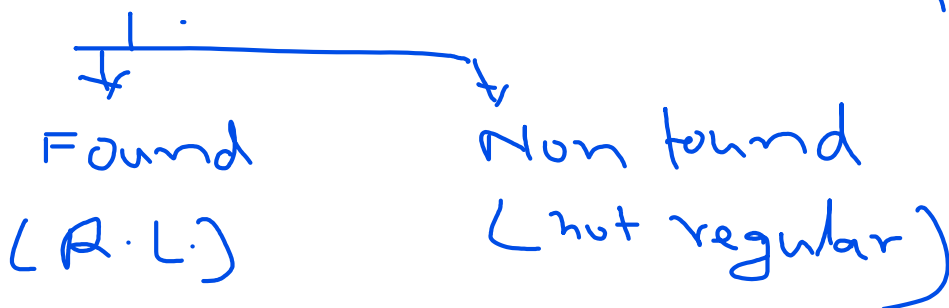
$$L \Rightarrow F.A \rightarrow R.L$$

$\exists x$

$$L = \{a^n \mid n \geq 0\}$$

$$L = \{a^0, a^1, a^2, a^3, \dots\}$$

PL — Find Pattern



— $\exists x \quad L = \{a^p \mid p \text{ is prime}\}$

$$L = \{a^3, a^5, a^7, a^{11}, \dots\}$$

not find pattern so it is not Regular

Proof —

$$w = xyz$$

$$|xy| \leq m, w^i = xy^i z$$

if y^i is not repeated then language is not Regular

Ex - $L = \{(ab)^n \mid n \geq 0\}$

$L = \{(ab)^0, (ab)^1, (ab)^2, (ab)^3, \dots\}$

$= (ab)^0, ab, abab, ababab, \dots$

Pattern found - Regular

Ex - $L = \{ww^R \mid w \in (a,b)^*\}$

Palindrome not Regular

Context Free Language

CFL

CFL



CFL



PDA

DPDA

NPDA

For all

for some

L is CFL or not



if PDA