Basic Terminology

Alphabet

$$A = \{a, b, c\}$$

Letters

$$a \in A$$
$$b \in A$$
$$c \in A$$

Words

$$u = ababb$$
$$v = acbacb$$

Empty Word

λ or ϵ

Set of All Words

$$A^* = \{a, aa, ..., abbb\}$$

Length

$$|u| = 5 \text{ or } l(u) = 5$$

Language

A language is a subset of A^*

$$L_1 = \{a, aa, a^3, a^4, ...\}$$

$$L_2 = \{b, bb, b^3, b^4, ...\}$$

where

$$L_1 \subset A^*$$
$$L_2 \subset A^*$$

Regular Expression

$$(\quad) \quad * \quad \vee \quad \lambda$$

and

$$A_1 = \{a, p, l, e\}$$

Examples

$r = a^*$ includes λ

$r = aa^*$

$r = a \vee b^* = \{a, ab, abb, abbb, ...\}$

Math	Programming
$*$	{0,}
aa^*	aa{0,}
$a \vee b$	a | b
$a(p \vee l)p^*(l \vee e)(e \vee l)$	`a(p|l)p{0,}(l|e){0,}(e|l){0,}`