Language

A language is a set of a strings that conform to some criteria.

Set-builder notation.

$$L = \{ x_j^i \mid x_j \in \Sigma, i,j \in \mathbb{N} \}$$

$$\Sigma = \{a, b\}$$

$$L_0 = \{a^2 b^i \mid i \in \mathbb{N}\}$$

aa

aab

aabb.....b

9 million.

$$L_1 = \{ a^{2i} b^i \mid i \geq 0 \}$$

$$L_2 = \{ a\, a^i b^3 \mid i \geq 2 \}$$

$$= \{ a^{i+1} b^3 \mid i \geq 3 \}$$

omit the NN

$*$ kleene star

asterisk

$* := i \geq 0 \in \mathbb{N}$.

$a^* \equiv \{ a^i \mid i \geq 0 \}$

- "or" notation

$$\{a(a \cup b)^i a \mid i \geq 0\}$$

$\cup$ union — set theory

we overload $+$ to mean "or"

for now.