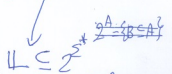
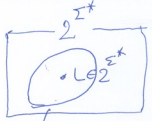
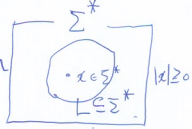


Four terminologies -

	↑ 집합 (set)	↓ Vocab
Symbol (문자) $\alpha \in \Sigma$	over Σ	Vocabulary (Alphabet, 어휘, 자판) Σ
string (문열) $x \in \Sigma^*$	over Σ	language (언어) $L \subseteq \Sigma^*$
symbol (a, b, c...)	union	string (x, y, z...)
string (x, y, z...)		language (L, S, T...)

over vocabulary V.



Class of languages

Chomsky's Hierarchy Automata

regular languages

type 3

Finite State Automata (FSA)

class of language (set)

context free

type 2

Pushdown Automata (PDA) LL(k), LR(k)

recursive (Context-sensitive)

type 1

Terminating TM = algorithm

recursively enumerable

type 0

Turing Machine (TM)

"

"

= Computer

Non R.E.

"

X

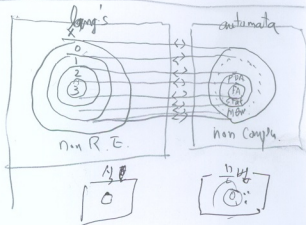
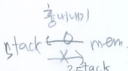
= program

FA - FSA without memory

PDA - FSA + stack

TM [alg.] - FSA + memory

pgm (computable)
Non-pgm



Regular languages (type 3)

Class of

- closed under union ($\cup, +$) - 더하기
- concat. (\cdot, \cdot) - 붙이기
- closure ($*$) - 많기 붙이려, 더하기

(See TPs. of chap 3)

Lang. description

(Set)

- 1. 정규식
- 2. 유한 상태 기계
- 3. 포문 2대 1

reg. lang (정규 언어)

- 1. 정규식
- 2. 유한 상태 기계
- 3. 정규 문법

정규식 over $\{0, 1\}$

$$0|1|1^*$$

$$(0^*1^*)^*$$

이 (사칙연산) over $\{0, 1\}$
 $\{+, \times, \div, -\}$
 $0, 2+6 \div 3-4$

식 \rightarrow 수 | 문자
 $| \text{식} + \text{식} | \text{식} * \text{식}$
 $| \text{식} | (\text{식})$
 $| \text{식}^n | \sin(\text{식}) | \dots$