

5/30 (F) M

Chap 13 Boolean Algebra

Ring, Integral Domain & Field AND.

(A, \oplus) \oplus is closed $\forall a, b \in A \implies a \oplus b \in A$ **1) algebraic system** (binary op. \oplus is closed)

(A, \oplus) \oplus is associative $\forall a, b, c \in A \implies (a \oplus b) \oplus c = a \oplus (b \oplus c)$

ex $(\mathbb{N}, +)$ $\sum_{i=1}^n = \sum_{i \in N_{1,n}}$ **2) semi-group** (n-ary op \oplus is ")
-indexed set

(A, \oplus, e)

3) $\exists e \in A \forall a \in A \implies a \oplus e = e \oplus a = a$ $e_L = e_R$

ex $(\mathbb{N}, +, 0) \rightarrow$

~~ex~~ $\forall n \in \mathbb{N}$

3) monoid

1) $0 \in \mathbb{N}$

2) $n \in \mathbb{N} \implies n++ \in \mathbb{N}$

] Peano lemma

finite description of infinite set (\mathbb{N}) .

(Infinite wisdom!)

$3 \in \mathbb{N} \implies 0 \xrightarrow{++} 1 \xrightarrow{++} 2 \xrightarrow{++} 3$

Additional chain

$1 + 2 = 3$

$4 + 5 \in \mathbb{N} \implies 9 \times 5 = 45$



$9 \times 5 = 45$

Additional chain!

3. V .. a set of symbols $\Gamma \neq V = \{a, b\}$

$\cdot : V \times V \rightarrow V^2$: concatenation $a \cdot b = ab \in V^2$

$\cdot^2 : V^2 \times 2 \rightarrow V^3$ $(a \cdot b) \cdot a = aba$

$V^0 = \{\lambda\}$

$V^3 = \underbrace{V^2}_{\text{R}} \cdot \underbrace{V^1}_{\text{L}} = V^2 \cdot V^1 \cdot V^0$

$V^{n+1} = \underbrace{V^n}_{\text{R}} \cdot V^1$

$\stackrel{\text{I}}{=} V^2 \cdot V^1 = V^1 \cdot V^1 \cdot V^0$

- $= \{aaaa, \text{~~abaa~~, } abaa, abab, abbb, baaa, bbaa, bab, bbb\}$

$|V^n| = |V|^n$

$V^* \triangleq V^0 \cup V^1 \cup V^2 \cup \dots$ where $V^0 = \{\lambda\}$

— universe of strings over V .

한글 = 초성 · 중성 · 종성 \rightarrow ~~하~~기/기/기 = $\frac{\text{하}}{\text{기}}$ 기
 \equiv $\frac{\text{하}}{\text{기}}$ 기

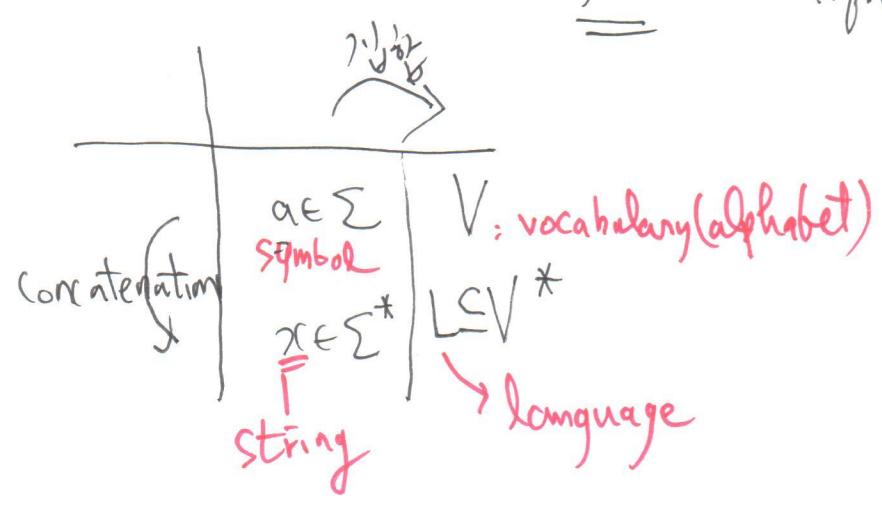
초성 = ~~ㅋ~~, ㅋ, ㆁ, ㄴ, ㄷ, ..., ㅎ, ㆁ, ㄴ, ㄷ, ㄹ, ㅁ, ㅂ, ㅅ, ㅈ, ㅊ, ㅌ, ㅍ, ㅎ } 19글

중성 = { ㅏ, ㅑ, ㅓ, ㅕ, ㅗ, ㅛ, ㅜ, ㅠ, ㅡ, ㅣ }
 $V = \{ \overset{14}{\text{ㅏ, ..., ㅛ, ㅜ, ..., ㅛ}}, \overset{5}{\text{ㅏ, ..., ㅛ, ㅜ, ..., ㅛ}} \}$
 $\frac{14}{\text{중성}} + \frac{5}{\text{종성}} = 29 \text{글}$
 $\frac{14}{\text{중성}} + \frac{5}{\text{종성}} + 1 = 33 \text{글}$
 21글

종성 = { ㅁ, ㅂ, ㅅ, ㅈ, ㅊ, ㅋ, ㆁ, ㄴ, ㄷ, ㄹ, ㅁ, ㅂ, ㅅ, ㅈ, ㅊ, ㅋ, ㆁ, ㄴ, ㄷ, ㄹ }
 $4+2+11 = 28 \text{글}$
 $\frac{14}{\text{중성}} + \frac{5}{\text{종성}} + 1 = 28 \text{글}$

3) (V^*, \cdot, λ) is a monoid.

free - unique representation V



4개의 전문용어 (Terminologies)

