1/ 1

3/14(月) 제4강 propositional Logic & set algebra

p	q	$\neg p$	$p\wedge q$	$p\vee q$	$p\oplus q$	$p \xrightarrow{\neg p\vee q} q$	$p\leftrightarrow q$
T	T	F	T	T	F	T	T
T	F	(F)	F	T	T	F	F
F	T	T	F	T	T	T	F
F	F	(T)	F	F	F	T	T

truth table

$2^{n} \to$ # variables rows

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123,456,789 vs 1,2345,6789

$361! \fallingdotseq 1.44\times10^{768}$

※ Logic says nothing when the hypothesis is false.

Set

A	B	$\overline{A}$	$A\cap B$	$A\cup B$	$A\oplus B$	$A\subseteq B$	$A=B$

※

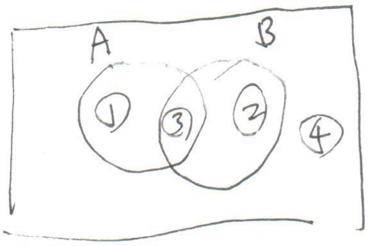
$\{a,b\}=\{b,a\}$ unordered

$(\{a\}=\{a\,a\}=\{a,a\})$

$(a,b)\neq(b,a)$ ordered

$A=\{x\in U \mid p(x)\}$

$p: U\to\{T,F\}$



Ven diagram

2^n area

① $= A\cap\overline{B}$

② $= \overline{A}\cap B$

③ $= A\cap B$

④ $= \overline{A}\cap\overline{B}$

Table 6 in Chap 1 (p25) vs

Def 9.1 Let $A \xrightarrow{f} B$, $A \xleftarrow{f^{-1}} B$. Then we say A is isomorphic w.r.t bijection f

= with respect to

$$\left(\forall a\in A\ \exists_1\ b=f(a)\in B\right)\wedge\left(\forall b\in B\ \exists_1\ a\in f^{-1}(b)\in A\right)$$