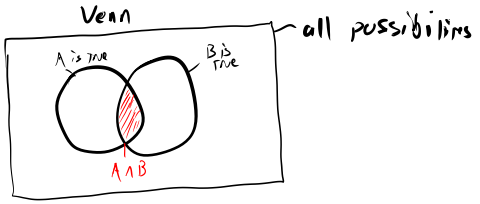
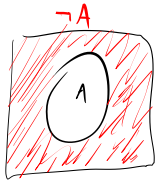

TODAY'S LEC

[redacted]

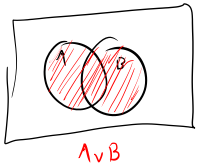
$\neg$	not
$\wedge$	and
$\vee$	or
$\oplus$	xor
$\rightarrow$	implies
$\leftrightarrow$	biimplies

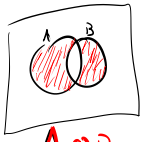
$P, Q, R \ldots$

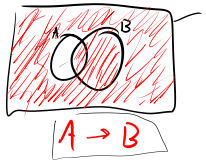




$A \wedge B$







domain
universe of discourse

$A \cup B = \{x \mid x \in A \vee x \in B\}$

$D \setminus (A \setminus B)$ $\quad \neg(A \wedge \neg B)$

$(D \setminus A) \cup B$ $\quad (\neg A) \vee B$

$(\neg A \wedge \neg B) \vee (A \wedge B) \vee (\neg A \wedge B)$

A	B	$A \rightarrow B$	$\neg(A \wedge \neg B)$	$(\neg A) \vee B$	$((\neg A \wedge \neg B) \vee (A \wedge B)) \vee (\neg A \wedge B)$
0	0	1	1	1	1
0	1	1	1	1	1
1	0	0	0	0	0
1	1	1	1	1	1

¬ first

all our Booleans (use parens)

P	(P → ¬P)	→	P	P
0	1 1	0		0
1	0 0	1		1

$2+3=5$

$x+x=2x$

$(P \to \neg P) \to P \equiv P$

equivalent

$1+2\uparrow 3$

$(1+2)\uparrow 3$

$1+(2+3)$

1·2·3

associative

$\wedge$

$\vee$

$\oplus$

$\leftrightarrow$

A	B	C	(A ∧ B)	(A ∧ B) ∧ C	A ∧ B	(A ∧ B) ∨ C
0	0	0	0	0	0	0
0	0	1	0	0	0	1
0	1	0	0	0	0	0
0	1	1	0	0	0	1
1	0	0	0	0	0	0
1	0	1	0	0	0	1
1	1	0	1	0	1	1
1	1	1	1	1	1	1