4-28 [WE CHECKED EX. 22 TODAY]

OTHER EXAMPLES OF USING THE BASIC TRUTH TABLES TO FIND MORE COMPLICATED TRUTH TABLES

- $(\sim a) \cup (\sim b)$

a	b	~a	~b	$(\sim a) \cup (\sim b)$
T	T	F	F	F
T	F	F	T	T
F	T	T	F	T
F	F	T	T	T

- $\sim(a \cup b)$

a	b	$a \cup b$	$\sim(a \cup b)$
T	T	T	F
T	F	T	F
F	T	T	F
F	F	F	T

- $a \rightarrow \sim b$

a	b	~b	$a \rightarrow \sim b$
T	T	F	F
T	F	T	T
F	T	F	T
F	F	T	T

3 VARIABLE EXAMPLE

a, b, c

a	b	c	COMPOUND STATEMENT
T	T	T	
T	T	F	
T	F	T	
T	F	F	
F	T	T	
F	T	F	
F	F	T	
F	F	F	

VALIDITY OF AN ARGUMENT

WE USE TRUTH TABLES FOR EACH STATEMENT IN AN ARGUMENT TO CHECK VALIDITY

- FORM A TRUTH TABLE FOR EACH STATEMENT
- LOOK AT ROWS THAT HAVE TRUE PREMISES. (ONLY THESE ROWS MATTER)
- IF ANY OF THESE ROWS HAS A FALSE CONCLUSION, THE ARGUMENT IS INVALID. OTHERWISE, THE ARGUMENT IS VALID.

FOR AN ARGUMENT OF THE FORM P1, P2, C,

a	b	c	P1	P2	C	
			T	T	T	
			T	T	F	← LOOK FOR 'TTF'

APPLY TO THE DOG - ANIMAL - EATING THING ARGUMENT.

P_1 IF DOG, THEN ANIMAL.

P_2 IF ANIMAL, THEN EATING THING.

C IF DOG, THEN EATING THING.

d = DOG

a = ANIMAL

e = EATING THING

P_1 $d \to a$

P_2 $a \to e$

C $d \to e$

d	a	e	P_1 $d \to a$	P_2 $a \to e$	C $d \to e$
T	T	T	T	T	T
T	T	F	T	F	F
T	F	T	F	T	T
T	F	F	F	T	F
F	T	T	T	T	T
F	T	F	T	F	T
F	F	T	T	T	T
F	F	F	T	T	T

NO 'TTF'

SO VALID