$C = a \wedge b$

a	b	$a \wedge b$	c
0	0	0	0
0	1	0	0
1	0	0	0
1	1	1	1

$?$

$\iff$

"c is true"

$C \wedge a \wedge b$

OR

"c is false"

$-c \wedge -(a \wedge b)$

$-(a \wedge b)$

$\Rightarrow -a \vee -b$

$\cong -c \wedge (-a \vee -b)$

$\Rightarrow (-c \wedge -a)$ OR $(-c \wedge -b)$

$\checkmark$

-c	-a	-b	$-c \wedge -a$	$-c \wedge -b$	α or β
1	1	1	1	1	1
1	1	0	1	0	1
1	0	1	0	1	1
0	1	1	0	0	0

$$sTrue \text{ or } sFalse$$

$$\Downarrow \text{ CNF}$$

$$\neg sTrue \text{ and } \neg sFalse$$

$$a\ b\ |\ c\ \ s$$
$$1\ 2\ \ 3\ \ 4$$

$C_{ID} = 3$

$C_{VAL} = a \wedge b$

$C_{TRUE} = C_{ID} \wedge C_{VAL}$

$C_{FALSE} = -C_{ID} \wedge -C_{VAL}$

C_{TRUE} OR C_{FALSE}

$\Downarrow$ CNF

$-C_{TRUE}$ AND $-C_{FALSE}$

AND of ORS

$-C_{TRUE} : -\left[C_{ID} \wedge C_{VAL} \right]$

$= -C_{ID} \vee -C_{VAL}$

canonicalize to AND of ORs

$\Downarrow$

"AND" of $\left[(\ \ ), (\ \ ), (\ \ ) \cdots \right]$

OR   OR   OR

then distribute

map $(\ ors \rightarrow ors : -C_{ID}) -C_{VAL}$

$\xRightarrow{\text{ie}}$ $A \vee \left[(B \vee C) \wedge (D \vee E) \right]$

$(A \vee (B \vee C)) \wedge (A \vee (D \vee E))$

$\Downarrow$

$(A \vee B \vee C) \wedge (A \vee D \vee E)$