$\Sigma = \underbrace{\{\beta_1, \beta_2 \ldots \beta_n\}}_{\text{conjunction}} \models \alpha$ iff $\ldots$ $\underbrace{\emptyset}_{\text{True}} \models \alpha \vee \neg\beta_1 \vee \ldots \vee \neg\beta_n$

iff $\Sigma \cup \{\neg\alpha\} \models \underbrace{\Box}_{\text{False}}$

True $\models \alpha \vee \neg\beta_1 \ldots \vee \neg\beta_n$

$(\alpha \Leftarrow (\beta_1 \wedge \beta_2 \ldots \wedge \beta_n))$

$\Sigma \cup \{\neg\alpha\} \models$ False

implication

1. $\underbrace{\Leftarrow \quad (\rightarrow)}_{\text{prolog}}$:→ syntactical symbol .. truth depends on particular $\underline{I}$
2. $\models$: semantic relation, ... defined in terms of all $\underline{I}$ $\quad \Sigma \models \alpha$
3. "if then" :- Natural language

-- entailment

If

$\alpha \models \beta$ & $\beta \models \alpha$

then

$\alpha \equiv \beta$

Every I_α is also an int for β

& vice versa.

$\neg(\alpha \vee \beta) \equiv \neg\alpha \wedge \neg\beta$

$\neg(\alpha \vee \beta) \equiv \neg\alpha \vee \neg\beta$

$\alpha \equiv (\alpha \wedge True)$

$\beta = (\beta \vee False)$

$(\alpha \leftarrow \beta) \equiv (\alpha \vee \neg\beta)$

Literal:- Proposition / negated proposition

$A, \neg B, C$ ..

Clause:- Disjunction of literals

$A \vee \neg B \vee C$ ..