

tab.1 Propositional Rules

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sec

Rules for \neg

$$\frac{\mathbb{T}\neg\varphi}{\mathbb{F}\varphi} \neg\mathbb{T} \qquad \frac{\mathbb{F}\neg\varphi}{\mathbb{T}\varphi} \neg\mathbb{F}$$

Rules for \wedge

$$\frac{\mathbb{T}\varphi \wedge \psi}{\mathbb{T}\varphi} \wedge\mathbb{T} \qquad \frac{\mathbb{F}\varphi \wedge \psi}{\mathbb{F}\varphi \mid \mathbb{F}\psi} \wedge\mathbb{F}$$

Rules for \vee

$$\frac{\mathbb{T}\varphi \vee \psi}{\mathbb{T}\varphi \mid \mathbb{T}\psi} \vee\mathbb{T} \qquad \frac{\mathbb{F}\varphi \vee \psi}{\mathbb{F}\varphi} \vee\mathbb{F}$$

Rules for \rightarrow

$$\frac{\mathbb{T}\varphi \rightarrow \psi}{\mathbb{F}\varphi \mid \mathbb{T}\psi} \rightarrow\mathbb{T} \qquad \frac{\mathbb{F}\varphi \rightarrow \psi}{\mathbb{T}\varphi} \rightarrow\mathbb{F}$$

The Cut Rule

$$\frac{}{\mathbb{T}\varphi \mid \mathbb{F}\varphi} \text{Cut}$$

The Cut rule is not applied “to” a previous **signed formula**; rather, it allows every branch in a **tableau** to be split in two, one branch containing $\mathbb{T}\varphi$, the other $\mathbb{F}\varphi$. It is not necessary—any set of **signed formulas** with a closed **tableau** has one not using Cut—but it allows us to combine **tableaux** in a convenient way.

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Bibliography