

## 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**