
Lógica

Aula 5

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Resumo - regras

$$\frac{\phi \quad \psi}{\phi \wedge \psi} \wedge_i \quad \frac{\phi \wedge \psi}{\phi} \wedge_{e1} \quad \frac{\phi \wedge \psi}{\psi} \wedge_{e2} \quad \frac{\phi}{\phi \vee \psi} \vee_{i1} \quad \frac{\psi}{\phi \vee \psi} \vee_{i2}$$

$$\frac{\phi \vee \psi \quad \begin{array}{|c|} \hline \phi \\ \vdots \\ \xi \\ \hline \end{array} \quad \begin{array}{|c|} \hline \psi \\ \vdots \\ \xi \\ \hline \end{array}}{\xi} \vee_e \quad \frac{\phi \quad \phi \rightarrow \psi}{\psi} \rightarrow_e \quad \frac{\begin{array}{|c|} \hline \phi \\ \vdots \\ \psi \\ \hline \end{array}}{\phi \rightarrow \psi} \rightarrow_i$$

$$\frac{\neg\neg\phi}{\phi} \neg\neg_e$$

$$\frac{\phi \quad \neg\phi}{\perp} \neg_e$$

$$\frac{\begin{array}{|c|} \hline \phi \\ \vdots \\ \perp \\ \hline \end{array}}{\neg\phi} \neg_i$$

$$\frac{\perp}{\phi} \perp_e$$

Prova por contradição / Redução ao absurdo

$$\frac{\boxed{\begin{array}{c} \neg\phi \\ \vdots \\ \perp \end{array}}}{\phi} \text{RAA}$$

Regras derivadas

MT: $\phi \rightarrow \psi, \neg\psi \vdash \neg\phi$

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$\neg\neg_i$: $\phi \vdash \neg\neg\phi$

RAA: $\neg\phi \rightarrow \perp \vdash \phi$

Regras derivadas

MT: $\phi \rightarrow \psi, \neg\psi \vdash \neg\phi$

$\neg\neg_i$: $\phi \vdash \neg\neg\phi$

RAA: $\neg\phi \rightarrow \perp \vdash \phi$

LTE: $\vdash \phi \vee \neg\phi$