

Rules for \perp

$$\frac{\perp}{\psi} \perp$$

This rule formalizes the thesis that from the contradiction anything follows.

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$$\frac{\perp}{\psi} \perp$$

$$\frac{\begin{array}{c} [\neg\phi]^i \\ \cdot \\ \cdot \\ \cdot \\ \perp \end{array}}{\phi} \text{RAA}^i$$

This rule formalizes the thesis that from the contradiction anything follows.

This rule formalizes **proof by contradiction**. RAA is an abbreviation of the Latin expression *reductio ad absurdum*.

Do Not Confuse $\rightarrow I$ with RAA

$$\frac{\begin{array}{c} [\phi]^i \\ \cdot \\ \cdot \\ \cdot \\ \perp \end{array}}{\neg\phi} \rightarrow I^i$$

$$\frac{\begin{array}{c} [\neg\phi]^i \\ \cdot \\ \cdot \\ \cdot \\ \perp \end{array}}{\neg\neg\phi} \rightarrow I^i$$

$$\frac{\begin{array}{c} [\neg\phi]^i \\ \cdot \\ \cdot \\ \cdot \\ \perp \end{array}}{\phi} \text{RAA}^i$$

Going from $\neg\neg\phi$ to ϕ is not obvious!