

Propositional Proof Rules

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$$\frac{}{\Gamma_1, \phi, \Gamma_2 \vdash \Delta_1, \phi, \Delta} \text{ (Ax)}$$

$$\frac{}{\Gamma_1, \perp, \Gamma_2 \vdash \Delta} \text{ (\perp Ax)}$$

$$\frac{\Gamma_1, \phi, \psi, \Gamma_2 \vdash \Delta}{\Gamma_1, (\phi \wedge \psi), \Gamma_2 \vdash \Delta} \text{ (\wedge L)}$$

$$\frac{\Gamma \vdash \Delta_1, \phi, \Delta_2 \quad \Gamma \vdash \Delta_1, \psi, \Delta_2}{\Gamma \vdash \Delta_1, (\phi \wedge \psi), \Delta_2} \text{ (\wedge R)}$$

$$\frac{\Gamma_1, \phi, \Gamma_2 \vdash \Delta \quad \Gamma_1, \psi, \Gamma_2 \vdash \Delta}{\Gamma_1, (\phi \vee \psi), \Gamma_2 \vdash \Delta} \text{ (\vee L)}$$

$$\frac{\Gamma \vdash \Delta_1, \phi, \psi, \Delta_2}{\Gamma, \vdash \Delta_1, (\phi \vee \psi), \Delta_2} \text{ (\vee R)}$$

$$\frac{\Gamma_1, \Gamma_2 \vdash \phi, \Delta \quad \Gamma_1, \psi, \Gamma_2 \vdash \Delta}{\Gamma_1, (\phi \Rightarrow \psi), \Gamma_2 \vdash \Delta} \text{ (\Rightarrow L)}$$

$$\frac{\Gamma, \phi \vdash \Delta_1, \psi, \Delta_2}{\Gamma \vdash \Delta_1, (\phi \Rightarrow \psi), \Delta_2} \text{ (\Rightarrow R)}$$

$$\frac{\Gamma_1, \Gamma_2 \vdash \phi, \Delta}{\Gamma_1, \neg \phi, \Gamma_2 \vdash \Delta} \text{ (\neg L)}$$

$$\frac{\Gamma, \phi \vdash \Delta_1, \Delta_2}{\Gamma \vdash \Delta_1, \neg \phi, \Delta_2} \text{ (\neg R)}$$