Proof Rules

914
913
916
915
912

$\wedge_i$ $\dfrac{\varphi_1 \quad \varphi_2}{\varphi_1 \wedge \varphi_2}$ $\qquad$ $\dfrac{\varphi_1 \wedge \varphi_2}{\varphi_1}$ $\dfrac{\varphi_1 \wedge \varphi_2}{\varphi_2}$ $\wedge_e$

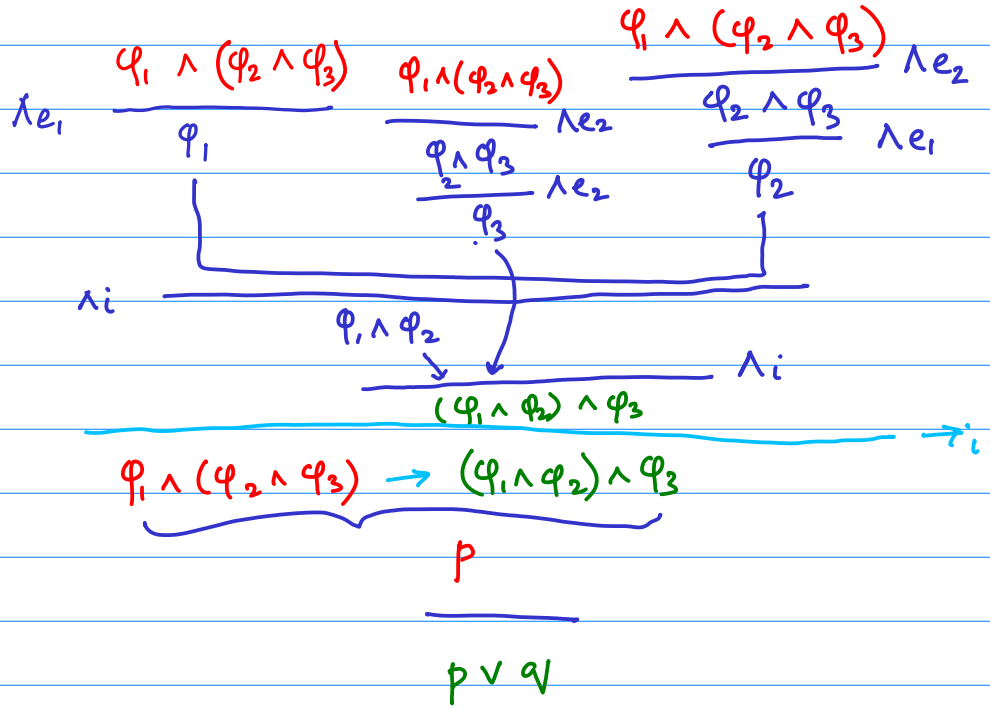
$\vee_i$ $\dfrac{\varphi_1}{\varphi_1 \vee \varphi_2}$ $\dfrac{\varphi_2}{\varphi_1 \vee \varphi_2}$ $\qquad$ $\dfrac{\varphi_1 \vee \varphi_2 \quad \varphi_1 \to \varphi_3 \quad \varphi_2 \to \varphi_3}{\varphi_3}\ \vee_e$

$\to_i$ $\dfrac{\begin{array}{|c} \varphi_1 \\ \vdots \\ \varphi_2 \end{array}}{\varphi_1 \to \varphi_2}$ $\qquad$ $\dfrac{\varphi_1 \to \varphi_2 \quad \varphi_1}{\varphi_2}\ \to_e$ Modus Ponens

$\neg_i$ $\dfrac{\begin{array}{|c} \varphi \\ \vdots \\ \bot \end{array}}{\neg\varphi}$ $\qquad$ $\dfrac{\varphi \quad \neg\varphi}{\bot}\ \neg_e$ $\quad \bot_i$

$\qquad\qquad$ $\dfrac{\bot}{\varphi}\ \bot_e$

$\neg\neg_i$ $\dfrac{\varphi}{\neg\neg\varphi}$ $\qquad$ $\dfrac{\neg\neg\varphi}{\varphi}\ \neg\neg_e$



T

$\vdots$

$\varphi \vee \neg\varphi$