



$$\frac{A \quad B}{A \wedge B} \wedge \mathbf{I} \quad \text{and-introduction}$$

$$\frac{A}{A \vee B} \vee \mathbf{I}_1 \quad \frac{B}{A \vee B} \vee \mathbf{I}_2 \quad \text{or-introduction}$$

$$\frac{\begin{array}{c} [A] \\ \vdots \\ B \end{array}}{A \rightarrow B} \rightarrow \mathbf{I} \quad \text{implication-introduction}$$

$$\frac{A \wedge B}{A} \wedge \mathbf{E}_1 \quad \frac{A \wedge B}{B} \wedge \mathbf{E}_2 \quad \text{and-elimination}$$

$$\frac{A \rightarrow B \quad A}{B} \rightarrow \mathbf{E} \quad \text{implication-elimination}$$

$$\frac{\perp}{C} \perp \mathbf{E} \quad \text{false-elimination}$$

$$\frac{A \vee B \quad \begin{array}{c} [A] \\ \vdots \\ C \end{array} \quad \begin{array}{c} [B] \\ \vdots \\ C \end{array}}{C} \vee \mathbf{E} \quad \text{or-elimination}$$