

Summary of Rules of Inference

Table 2.3.1 summarizes some of the most important rules of inference.

Modus Ponens	$ \begin{array}{l} p \rightarrow q \\ p \\ \therefore q \end{array} $	Elimination	a. $ \begin{array}{l} p \vee q \\ \sim q \\ \therefore p \end{array} $ b. $ \begin{array}{l} p \vee q \\ \sim p \\ \therefore q \end{array} $
Modus Tollens	$ \begin{array}{l} p \rightarrow q \\ \sim q \\ \therefore \sim p \end{array} $	Transitivity	$ \begin{array}{l} p \rightarrow q \\ q \rightarrow r \\ \therefore p \rightarrow r \end{array} $
Generalization	a. $ \begin{array}{l} p \\ \therefore p \vee q \end{array} $ b. $ \begin{array}{l} q \\ \therefore p \vee q \end{array} $	Proof by Division into Cases	$ \begin{array}{l} p \vee q \\ p \rightarrow r \\ q \rightarrow r \\ \therefore r \end{array} $
Specialization	a. $ \begin{array}{l} p \wedge q \\ \therefore p \end{array} $ b. $ \begin{array}{l} p \wedge q \\ \therefore q \end{array} $		
Conjunction	$ \begin{array}{l} p \\ q \\ \therefore p \wedge q \end{array} $	Contradiction Rule	$ \begin{array}{l} \sim p \rightarrow c \\ \therefore p \end{array} $

Valid Argument Forms

Table 2.3.1