Modus ponens:	$\alpha \to \beta$ α ——— β	Modus tollens:	$\alpha \to \beta$ $\neg\, \beta$ ——— $\neg\, \alpha$
$\wedge$ introduction:	α β ——— $\alpha \wedge \beta$	$\wedge$ elimination:	$\alpha \wedge \beta$ ——— α [or β]
$\vee$ introduction:	α [or β] ——— $\alpha \vee \beta$	$\vee$ elimination: (Case analysis)	$\alpha \vee \beta$ $\alpha \to \gamma$ $\beta \to \gamma$ ——— γ
$\neg\ \neg$ introduction:	α ——— $\neg\ \neg\, \alpha$	$\neg\ \neg$ elimination:	$\neg\ \neg\, \alpha$ ——— α
$\leftrightarrow$ introduction:	$\alpha \to \beta$ $\beta \to \alpha$ ——— $\alpha \leftrightarrow \beta$	$\leftrightarrow$ elimination:	$\alpha \leftrightarrow \beta$ ——— $(\alpha \to \beta) \wedge (\beta \to \alpha)$
Contradiction:	α $\neg\, \alpha$ ——— FALSE	Tautology: (when $\alpha \equiv$ TRUE)	——— α

Figure 3.1: Rules of Inference

$\rightarrow$ introduction:

$$\frac{\begin{array}{c}[\alpha]\\ \beta\end{array}}{\alpha \rightarrow \beta}$$

Reduction to absurdity:

$$\frac{\begin{array}{c}[\alpha]\\ \text{FALSE}\end{array}}{\neg\, \alpha}$$