KE Deduction Rules

α (Alpha) Rules

For convenience and reference, the KE Deduction rules are divided into categories.

α (alpha) Rules

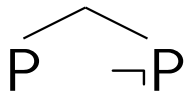
$$\frac{P \wedge Q}{\begin{array}{c} P \\ Q \end{array}} \qquad \frac{\neg(P \vee Q)}{\begin{array}{c} \neg P \\ \neg Q \end{array}} \qquad \frac{\neg(P \rightarrow Q)}{\begin{array}{c} P \\ \neg Q \end{array}} \qquad \frac{\neg\neg P}{P}$$

β (Beta) Rules

β (beta) Rules

$$\frac{P \vee Q \quad \neg P}{Q} \qquad \frac{\neg(P \wedge Q) \quad P}{\neg Q} \qquad \frac{P \rightarrow Q \quad P}{Q} \qquad \frac{P \rightarrow Q \quad \neg Q}{\neg P}$$

Branching Rule, B :



η (Eta) Rules

η (eta) Rules

$$\frac{P \equiv Q \quad P}{Q} \qquad \frac{P \equiv Q \quad Q}{P} \qquad \frac{\neg(P \equiv Q) \quad P}{\neg Q} \qquad \frac{\neg(P \equiv Q) \quad Q}{\neg P}$$

$$\frac{P \equiv Q \quad \neg P}{\neg Q} \qquad \frac{P \equiv Q \quad \neg Q}{\neg P} \qquad \frac{\neg(P \equiv Q) \quad \neg P}{Q} \qquad \frac{\neg(P \equiv Q) \quad \neg Q}{P}$$