

RULES OF INFERENCE: STAGE 1

1. &-Introduction (&I)

$$\frac{P}{\frac{Q}{P \& Q}}$$

2. &-Elimination (&E)

$$\frac{P \& Q}{P} \qquad \frac{P \& Q}{Q}$$

3. \vee -Introduction (\vee I)

$$\frac{P}{P \vee Q} \qquad \frac{Q}{P \vee Q}$$

4. Modus Ponendo Ponens (MPP)

$$\frac{P \rightarrow Q}{\frac{P}{Q}}$$

5. Modus Tollendo Tollens (MTT)

$$\frac{P \rightarrow Q}{\frac{-Q}{-P}}$$

6. Double Negation (DN)

$$\frac{P}{--P} \qquad \frac{--P}{P}$$