

PHIL 250: Introduction to Symbolic Logic

The following arguments are to be proved in propositional logic, using only basic rules (i.e., introduction and elimination rules for the connectives, plus, where necessary, the absurdity rule and/or the rule of classical *reductio ad absurdum*).

1.  $\frac{\neg(A \vee B)}{\neg A}$       2.  $\frac{\neg(A \rightarrow B)}{\neg B}$       3.  $\frac{\neg(A \rightarrow B)}{A}$       4.  $\frac{\neg\neg\neg A}{\neg A}$
5.  $\frac{\neg A \quad \neg B}{\neg(A \vee B)}$       6.  $\frac{\neg B}{\neg(A \wedge B)}$       7.  $\frac{A \quad \neg B}{\neg(A \rightarrow B)}$       8.  $\frac{A \rightarrow \neg B}{B \rightarrow \neg A}$
9.  $\frac{A \rightarrow (B \wedge C)}{\neg B \rightarrow \neg A}$       10.  $\frac{(A \vee B) \rightarrow C}{\neg C \rightarrow \neg B}$       11.  $\frac{A \rightarrow (B \rightarrow C)}{(A \wedge B) \rightarrow C}$       12.  $\frac{(A \wedge B) \rightarrow C}{A \rightarrow (B \rightarrow C)}$
13.  $\frac{A \rightarrow B \quad A \rightarrow C}{A \rightarrow (B \wedge C)}$       14.  $\frac{A \rightarrow B \quad B \rightarrow C}{A \rightarrow C}$       15.  $\frac{\neg A}{\neg(A \wedge B)}$       16.  $\frac{A \rightarrow C}{(A \wedge B) \rightarrow C}$
17.  $\frac{A \rightarrow (B \rightarrow C)}{B \rightarrow (A \rightarrow C)}$       18.  $\frac{A \rightarrow (B \rightarrow C)}{\neg C \rightarrow (A \rightarrow \neg B)}$       19.  $\frac{\neg(A \wedge B) \quad A}{\neg B}$       20.  $\frac{A \wedge (B \vee C)}{(A \wedge B) \vee (A \wedge C)}$