

Exercício 4: $(\neg\neg A) \rightarrow (\neg\neg B) \vdash \neg\neg(A \rightarrow B)$.

$$\frac{\perp}{\varphi} (\perp e)$$

$$\begin{array}{c}
 \frac{\frac{\frac{\frac{\frac{\frac{\perp}{B} (\perp e)}{A \rightarrow B} (\rightarrow i) \textcircled{\omega}}{\neg(A \rightarrow B)}^* (\neg i) \textcircled{\omega}}{\neg\neg A} (\neg e)}{\neg\neg B} (\neg e)}{(\neg\neg A) \rightarrow (\neg\neg B)} (\rightarrow e) \quad \frac{\frac{\frac{\frac{\frac{\frac{\perp}{B} (\perp e)}{A \rightarrow B} (\rightarrow i) \textcircled{\omega}}{\neg(A \rightarrow B)}^* (\neg i) \textcircled{\omega}}{\neg\neg A} (\neg e)}{\neg\neg B} (\neg e)}{(\neg\neg A) \rightarrow (\neg\neg B)} (\rightarrow e) \\
 \frac{(\neg\neg A) \rightarrow (\neg\neg B) \quad (\neg\neg A) \rightarrow (\neg\neg B)}{\neg\neg(A \rightarrow B)} (\neg\neg i) \textcircled{u}
 \end{array}$$