

$$1 \quad Q \text{ ou } \neg P \quad (\text{hyp})$$

$$2 \quad \left| \begin{array}{l} Q \\ \end{array} \right. \quad (\text{hyp})$$

$$3 \quad \left| \begin{array}{l} P \\ \end{array} \right. \quad (\text{hyp})$$

$$4 \quad \left| \begin{array}{l} Q \\ \end{array} \right. \quad (\text{con}) e2$$

$$5 \quad \left| \begin{array}{l} P \Rightarrow Q \\ \end{array} \right. \quad (\text{I} \Rightarrow) e3,4$$

$$6 \quad Q \Rightarrow (P \Rightarrow Q) \quad (\text{I} \Rightarrow) e2,5$$

$$7 \quad \left| \begin{array}{l} \neg P \\ \end{array} \right. \quad (\text{hyp})$$

$$8 \quad \left| \begin{array}{l} P \\ \end{array} \right. \quad (\text{hyp})$$

$$9 \quad \left| \begin{array}{l} \perp \\ \end{array} \right. \quad (\text{contrad.}) e7,8$$

$$10 \quad \left| \begin{array}{l} Q \\ \end{array} \right. \quad (\perp \text{I})$$

$$11 \quad \left| \begin{array}{l} P \Rightarrow Q \\ \end{array} \right. \quad (\text{I} \Rightarrow) e8,10$$

$$12 \quad \neg P \Rightarrow (P \Rightarrow Q) \quad (\text{I} \Rightarrow) e7,11$$

$$13 \quad P \Rightarrow Q \quad (\text{ou I}) e1,6,7$$