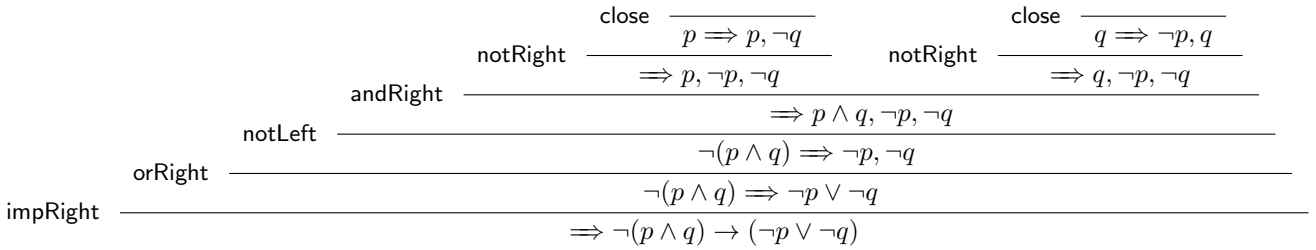
Answers Sequent Calculus

$$\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{}{p \Rightarrow p, q}\,\text{close} \quad \dfrac{}{p, q \Rightarrow q}\,\text{close}}{p, p \to q \Rightarrow q}\,\text{impLeft}}{p \wedge (p \to q) \Rightarrow q}\,\text{andLeft}}{\Rightarrow (p \wedge (p \to q)) \to q}\,\text{impRight}$$

$$\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{}{p \Rightarrow p, q}\,\text{close} \quad \dfrac{}{p, q \Rightarrow q}\,\text{close}}{p, p \to q \Rightarrow q}\,\text{impLeft} \quad \dfrac{}{q, p \to q \Rightarrow q}\,\text{close}}{p \vee q, p \to q \Rightarrow q}\,\text{orLeft}}{(p \vee q) \wedge (p \to q) \Rightarrow q}\,\text{andLeft}}{\Rightarrow ((p \vee q) \wedge (p \to q)) \to q}\,\text{impRight}$$

$$\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{}{p, q \Rightarrow p, r}\,\text{close} \quad \dfrac{}{p, q \Rightarrow q, r}\,\text{close}}{p, q \Rightarrow p \wedge q, r}\,\text{andRight} \quad \dfrac{}{p, q, r \Rightarrow r}\,\text{close}}{(p \wedge q) \to r, p, q \Rightarrow r}\,\text{impLeft}}{(p \wedge q) \to r, p \Rightarrow q \to r}\,\text{impRight}}{(p \wedge q) \to r \Rightarrow p \to (q \to r)}\,\text{impRight}}{\Rightarrow ((p \wedge q) \to r) \to (p \to (q \to r))}\,\text{impRight}$$

$$\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{}{p \Rightarrow p, q}\,\text{close} \quad \dfrac{}{p, q \Rightarrow q}\,\text{close}}{p \to q, p \Rightarrow q}\,\text{impLeft}}{p \to q \Rightarrow \neg p, q}\,\text{notRight}}{p \to q \Rightarrow \neg p \vee q}\,\text{orRight}}{\Rightarrow (p \to q) \to (\neg p \vee q)}\,\text{impRight}$$


close
$p \Longrightarrow p, \neg q$
notRight
$\Longrightarrow p, \neg p, \neg q$
close
$q \Longrightarrow \neg p, q$
notRight
$\Longrightarrow q, \neg p, \neg q$
andRight
$\Longrightarrow p \wedge q, \neg p, \neg q$
notLeft
$\neg(p \wedge q) \Longrightarrow \neg p, \neg q$
orRight
$\neg(p \wedge q) \Longrightarrow \neg p \vee \neg q$
impRight
$\Longrightarrow \neg(p \wedge q) \rightarrow (\neg p \vee \neg q)$