

Quiz

Wed Oct 3 2018

Proof the following:

$$p \wedge (q \vee (\neg q \wedge r) \vee (\neg q \wedge \neg r)) \iff p \left(\begin{array}{l} \text{Statement} \\ \text{in} \\ \text{Logic} \end{array} \right)$$

Metalevel $\left\{ p \wedge (q \vee (\neg q \wedge r) \vee (\neg q \wedge \neg r)) \right\} \equiv p \left(\begin{array}{l} \text{Statement} \\ \text{English} \\ \text{about } \end{array} \right)$



Sol: 1) $p \wedge (q \vee (\neg q \wedge r) \vee (\neg p \wedge r))$

2) $p \wedge (q \vee [q \wedge (r \vee \neg r)])$

3) $p \wedge (q \vee [\neg q \wedge T])$

4) $p \wedge (q \vee \neg q)$

5) $p \wedge T$

6) p

(Dist.)

(LEM)

$(A \wedge T \equiv A)$

(LEM)

$(A \wedge T \equiv A)$

Feeling? $\rightarrow$ Explan

$p \leftrightarrow p \equiv T$
 $(p \rightarrow p)$
 $\neg q \vee p$

$$p \wedge (q \vee (\neg q \wedge r) \vee (\neg q \wedge \neg r)) \longrightarrow P?$$

Starting point

Ending Point

$$P \longrightarrow p \wedge (q \vee (\neg q \wedge r) \vee (\neg q \wedge \neg r))$$

$$\frac{p \wedge (q \vee (\neg q \wedge r) \vee (\neg q \wedge \neg r))}{p}$$

$$\frac{p}{p \wedge (q \vee (\neg q \wedge r) \vee (\neg q \wedge \neg r))}$$

$$p \wedge T \rightarrow p \wedge (q \vee (\neg q \wedge r) \vee (\neg q \wedge \neg r))$$