(10) **Step 1**

(3) $\vdash (p \to (q \to r)) \Longleftrightarrow (p \wedge q \to r)$

then $p \to (q \to r), \vdash p \wedge q$ ③ r

then $p \to (q \to r), p \wedge q \vdash$ ⑧ c

Step 2:

$k_1: p \to (q \to r)$

$k_2: p \wedge q \xrightarrow{\text{simplification}} \begin{array}{l} k_3: p \\ k_4: q \end{array} \left| \begin{array}{l} \text{if } p \wedge g \text{ is } T \Longrightarrow \\ \Longrightarrow \quad p = T \\ \quad\quad g = T \end{array} \right)$

$k_1, k_3 \vdash_{mp} q \to r : k_5$

$k_4, k_5 \vdash_{mp}$ ① c

Step 3:

$T_1: p \to (q \to r), p \wedge q \vdash r$

then $p \to (q \to r) \vdash p \wedge q \to r$

then $\vdash (p \to (q \to r)) \to (p \wedge q \to r)$

$*$ T_2 would be:

$p \wedge g \vdash (p \to (q \to r)) \to r$

$\vdash (p \wedge g) \to (p \to (q \to r) \to r)$