

# t73\_qc\_lang2

## (TMLxpv74vfVpua2CdmV2aZLZaQbniyWFrPL)

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Let  $m1\_qc\_lang1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k9\_qc\_lang1 : \iota \Rightarrow \iota$  be given. Let  $r3\_qc\_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k14\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k13\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_qc\_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r2\_qc\_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\begin{aligned} & \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k9\_qc\_lang1 \\ & \quad X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k9\_qc\_lang1 X0)) \Rightarrow (\forall X3. \\ & (m1\_subset\_1 X3 (k9\_qc\_lang1 X0)) \Rightarrow (((r2\_qc\_lang2 X0 X1 X2) \vee (r2\_qc\_lang2 \\ & \quad X0 X1 X3)) \Leftrightarrow (r3\_qc\_lang2 X0 X1 (k14\_qc\_lang1 X0 X2 X3)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k9\_qc\_lang1 \\ & \quad X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k9\_qc\_lang1 X0)) \Rightarrow ((r2\_qc\_lang2 \\ & \quad X0 X1 X2) \Leftrightarrow (r3\_qc\_lang2 X0 X1 (k13\_qc\_lang1 X0 X2)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1\_qc\_lang1 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k9\_qc\_lang1 \\ & \quad X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k9\_qc\_lang1 X0)) \Rightarrow (\forall X3. \\ & (m1\_subset\_1 X3 (k9\_qc\_lang1 X0)) \Rightarrow (((r3\_qc\_lang2 X0 X1 X2) \wedge (r3\_qc\_lang2 \\ & \quad X0 X2 X3)) \Rightarrow (r3\_qc\_lang2 X0 X1 X3)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1\_qc\_lang1 X0) \wedge ((m1\_subset\_1 \\ & \quad X1 (k9\_qc\_lang1 X0)) \wedge (m1\_subset\_1 X2 (k9\_qc\_lang1 X0)))) \Rightarrow (r2\_qc\_lang2 \\ & \quad X0 X1 X1) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1\_qc\_lang1 X0) \wedge ((m1\_subset\_1 \\ & \quad X1 (k9\_qc\_lang1 X0)) \wedge (m1\_subset\_1 X2 (k9\_qc\_lang1 X0)))) \Rightarrow (m1\_subset\_1 \\ & \quad (k14\_qc\_lang1 X0 X1 X2) (k9\_qc\_lang1 X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0)\wedge(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)))\Rightarrow(m1\_subset\_1\ (k13\_qc\_lang1\ X0\ X1)\ (k9\_qc\_lang1\ X0)) \quad (6)$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0))\Rightarrow(k2\_qc\_lang2\ X0\ X1\ X2 = k13\_qc\_lang1\ X0\ (k14\_qc\_lang1\ X0\ X1\ (k13\_qc\_lang1\ X0\ X2)))))) \quad (7)$$

**Theorem 1**

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0))\Rightarrow((r3\_qc\_lang2\ X0\ (k14\_qc\_lang1\ X0\ X1\ (k13\_qc\_lang1\ X0\ X2))\ (k2\_qc\_lang2\ X0\ X1\ X2))\wedge((r3\_qc\_lang2\ X0\ X1\ (k2\_qc\_lang2\ X0\ X1\ X2))\wedge((r3\_qc\_lang2\ X0\ (k13\_qc\_lang1\ X0\ X2)\ (k2\_qc\_lang2\ X0\ X1\ X2))\wedge(r3\_qc\_lang2\ X0\ X2\ (k2\_qc\_lang2\ X0\ X1\ X2))))))))))$$