t49_qc_lang2 (TMK6RyBFm75CM5KYQuk9R3ZegZmcEX14UGo)

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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 $v4\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1\_qc\_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k19\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k20\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2\_qc\_lang1 : \iota \Rightarrow \iota$ be given. Let $k3\_qc\_lang1 : \iota \Rightarrow \iota$ be given. Let $k15\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)) \Rightarrow ((k19\_qc\_lang1\ X0\ (k14\_qc\_lang1\ X0\ X1\ X2) = X1) \wedge (k20\_qc\_lang1\ X0\ (k14\_qc\_lang1\ X0\ X1\ X2) = X2))))) \tag{1}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (k9\_qc\_lang1\ X0)) \Rightarrow ((r1\_qc\_lang2\ X0\ X1\ (k14\_qc\_lang1\ X0\ X2\ X3)) \Leftrightarrow ((X1 = X2) \vee (X1 = X3)))))) \tag{2}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)) \Rightarrow ((v4\_qc\_lang1\ X1\ X0) \Leftrightarrow (\exists X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)) \wedge (\exists X3.(m1\_subset\_1\ X3\ (k9\_qc\_lang1\ X0)) \wedge (X1 = k14\_qc\_lang1\ X0\ X2\ X3))))) \tag{3}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)) \Rightarrow ((r1\_qc\_lang2\ X0\ X1\ X2) \Leftrightarrow (\neg(X2 \neq k13\_qc\_lang1\ X0\ X1) \wedge ((\forall X3.(m1\_subset\_1\ X3\ (k9\_qc\_lang1\ X0)) \Rightarrow ((X2 \neq k14\_qc\_lang1\ X0\ X1\ X3) \wedge (X2 \neq k14\_qc\_lang1\ X0\ X3\ X1))) \wedge (\forall X3.(m2\_subset\_1\ X3\ (k2\_qc\_lang1\ X0)\ (k3\_qc\_lang1\ X0)) \Rightarrow (X2 \neq k15\_qc\_lang1\ X0\ X3\ X1))))))) \tag{4}$$

Theorem 1

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0))\Rightarrow((v4\_qc\_lang1\ X1\ X0)\Rightarrow((r1\_qc\_lang2\ X0\ X2\ X1)\Leftrightarrow((X2 = k19\_qc\_lang1\ X0\ X1)\vee(X2 = k20\_qc\_lang1\ X0\ X1))))))$$