t45_qc_lang2 (TMM6KqKKQAMWiY1L48uM37VZxmSJ3YdoyD6)

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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 $r1\_qc\_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k14\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k1\_funct\_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k12\_qc\_lang1 : \iota \Rightarrow \iota$ be given. Let $np\_\_1 : \iota$ be given. Let $k6\_numbers : \iota$ be given. Let $v2\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5\_numbers : \iota$ be given. Let $m2\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6\_qc\_lang1 : \iota \Rightarrow \iota$ be given. Let $k8\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $np\_\_2 : \iota$ be given. Let $v5\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $np\_\_3 : \iota$ be given. Let $k13\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)) \Rightarrow (\forall X3.(m1\_subset\_1\ X3\ (k9\_qc\_lang1\ X0)) \Rightarrow (\forall X4.(m1\_subset\_1\ X4\ (k9\_qc\_lang1\ X0)) \Rightarrow ((k14\_qc\_lang1\ X0\ X1\ X2 = k14\_qc\_lang1\ X0\ X3\ X4) \Rightarrow ((X1 = X3) \wedge (X2 = X4))))))) \tag{1}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)) \Rightarrow ((k1\_xtuple\_0\ (k1\_funct\_1\ (k11\_qc\_lang1\ X0\ (k12\_qc\_lang1\ X0))\ np\_\_1) = k6\_numbers) \wedge ((\neg(v2\_qc\_lang1\ X1\ X0) \wedge (\forall X2.(m1\_subset\_1\ X2\ k5\_numbers) \Rightarrow (\neg m2\_subset\_1\ (k1\_funct\_1\ (k11\_qc\_lang1\ X0\ X1)\ np\_\_1)\ (k6\_qc\_lang1\ X0)\ (k8\_qc\_lang1\ X0\ X2)))) \wedge (((v3\_qc\_lang1\ X1\ X0) \Rightarrow (k1\_xtuple\_0\ (k1\_funct\_1\ (k11\_qc\_lang1\ X0\ X1)\ np\_\_1) = np\_\_1)) \wedge (((v4\_qc\_lang1\ X1\ X0) \Rightarrow (k1\_xtuple\_0\ (k1\_funct\_1\ (k11\_qc\_lang1\ X0\ X1)\ np\_\_1) = np\_\_2)) \wedge ((v5\_qc\_lang1\ X1\ X0) \Rightarrow (k1\_xtuple\_0\ (k1\_funct\_1\ (k11\_qc\_lang1\ X0\ X1)\ np\_\_1) = np\_\_3))))))) \tag{2}$$

Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0)\wedge(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)))\Rightarrow(m1\_subset\_1\ (k13\_qc\_lang1\ X0\ X1)\ (k9\_qc\_lang1\ X0)) \tag{4}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0))\Rightarrow((v5\_qc\_lang1\ X1\ X0)\Leftrightarrow(\exists X2.(m2\_subset\_1\ X2\ (k2\_qc\_lang1\ X0)\ (k3\_qc\_lang1\ X0))\wedge(\exists X3.(m1\_subset\_1\ X3\ (k9\_qc\_lang1\ X0))\wedge(X1 = k15\_qc\_lang1\ X0\ X2\ X3))))) \tag{5}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0))\Rightarrow((v4\_qc\_lang1\ X1\ X0)\Leftrightarrow(\exists X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0))\wedge(\exists X3.(m1\_subset\_1\ X3\ (k9\_qc\_lang1\ X0))\wedge(X1 = k14\_qc\_lang1\ X0\ X2\ X3))))) \tag{6}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0))\Rightarrow((r1\_qc\_lang2\ X0\ X1\ X2)\Leftrightarrow(\neg(X2{\neq}k13\_qc\_lang1\ X0\ X1)\wedge((\forall X3.(m1\_subset\_1\ X3\ (k9\_qc\_lang1\ X0))\Rightarrow((X2{\neq}k14\_qc\_lang1\ X0\ X1\ X3)\wedge(X2{\neq}k14\_qc\_lang1\ X0\ X3\ X1)))\wedge(\forall X3.(m2\_subset\_1\ X3\ (k2\_qc\_lang1\ X0)\ (k3\_qc\_lang1\ X0))\Rightarrow(X2{\neq}k15\_qc\_lang1\ X0\ X3\ X1))))))) \tag{7}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0))\Rightarrow((v3\_qc\_lang1\ X1\ X0)\Leftrightarrow(\exists X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0))\wedge(X1 = k13\_qc\_lang1\ X0\ X2)))) \tag{8}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0))\Rightarrow(k11\_qc\_lang1\ X0\ X1 = X1)) \tag{9}$$

Theorem 1

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