t16_qc_lang4 (TMSWdcSCEiCdQbrDfqtiXqbdkSgPnFwF4ZB)

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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 $m1\_trees\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9\_xtuple\_0 : \iota \Rightarrow \iota$ be given. Let $k2\_qc\_lang4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2\_xboole\_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3\_qc\_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3\_trees\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1\_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2\_qc\_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $v1\_trees\_1 : \iota \Rightarrow o$ be given. Let $v1\_relat\_1 : \iota \Rightarrow o$ be given. Let $v1\_funct\_1 : \iota \Rightarrow o$ be given. Let $v3\_trees\_2 : \iota \Rightarrow o$ be given. Let $v5\_relat\_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1\_finset\_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)) \Rightarrow (\forall X2.(m1\_trees\_1\ X2\ (k9\_xtuple\_0\ (k2\_qc\_lang4\ X0\ X1))) \Rightarrow (\forall X3.(m1\_trees\_1\ X3\ (k9\_xtuple\_0\ (k2\_qc\_lang4\ X0\ X1))) \Rightarrow (\neg(r2\_xboole\_0\ X2\ X3) \wedge (k3\_trees\_2\ (k9\_qc\_lang1\ X0)\ (k2\_qc\_lang4\ X0\ X1)\ X3 = k3\_trees\_2\ (k9\_qc\_lang1\ X0)\ (k2\_qc\_lang4\ X0\ X1)\ X2))))) \tag{1}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)) \Rightarrow (\forall X2.(m1\_trees\_1\ X2\ (k9\_xtuple\_0\ (k2\_qc\_lang4\ X0\ X1))) \Rightarrow (\forall X3.(m1\_trees\_1\ X3\ (k9\_xtuple\_0\ (k2\_qc\_lang4\ X0\ X1))) \Rightarrow ((r1\_tarski\ X2\ X3) \Rightarrow (r2\_qc\_lang2\ X0\ (k3\_trees\_2\ (k9\_qc\_lang1\ X0)\ (k2\_qc\_lang4\ X0\ X1)\ X3)\ (k3\_trees\_2\ (k9\_qc\_lang1\ X0)\ (k2\_qc\_lang4\ X0\ X1)\ X2)))))) \tag{2}$$

Assume the following.

$$\forall X0.((\neg v1\_xboole\_0\ X0) \wedge (v1\_trees\_1\ X0)) \Rightarrow (\forall X1.\ (m1\_trees\_1\ X1\ X0) \Leftrightarrow (m1\_subset\_1\ X1\ X0)) \tag{3}$$

Assume the following.

$$\forall X0.((v1\_relat\_1\ X0) \wedge ((v1\_funct\_1\ X0) \wedge (v3\_trees\_2\ X0))) \Rightarrow ((\neg v1\_xboole\_0\ (k9\_xtuple\_0\ X0)) \wedge (v1\_trees\_1\ (k9\_xtuple\_0\ X0))) \tag{4}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\neg v1\_xboole\_0\ (k9\_qc\_lang1\ X0)) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1\_xboole\_0\ X0)\wedge(((v1\_relat\_1\ X1)\wedge((v5\_relat\_1\ X1\ X0)\wedge((v1\_funct\_1\ X1)\wedge(v3\_trees\_2\ X1))))\wedge(m1\_subset\_1\ X2\ (k9\_xtuple\_0\ X1))))\Rightarrow(m1\_subset\_1\ (k3\_trees\_2\ X0\ X1\ X2)\ X0) \tag{6}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0)\wedge(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)))\Rightarrow((v1\_relat\_1\ (k2\_qc\_lang4\ X0\ X1))\wedge((v5\_relat\_1\ (k2\_qc\_lang4\ X0\ X1)\ (k9\_qc\_lang1\ X0))\wedge((v1\_funct\_1\ (k2\_qc\_lang4\ X0\ X1))\wedge((v1\_finset\_1\ (k2\_qc\_lang4\ X0\ X1))\wedge(v3\_trees\_2\ (k2\_qc\_lang4\ X0\ X1)))))) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.(r2\_xboole\_0\ X0\ X1)\Leftrightarrow((r1\_tarski\ X0\ X1)\wedge(X0\neq X1)) \tag{8}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0))\Rightarrow(\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0))\Rightarrow((r3\_qc\_lang2\ X0\ X1\ X2)\Leftrightarrow((r2\_qc\_lang2\ X0\ X1\ X2)\wedge(X1\neq X2))))) \tag{9}$$

Theorem 1

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0))\Rightarrow(\forall X2.(m1\_trees\_1\ X2\ (k9\_xtuple\_0\ (k2\_qc\_lang4\ X0\ X1)))\Rightarrow(\forall X3.(m1\_trees\_1\ X3\ (k9\_xtuple\_0\ (k2\_qc\_lang4\ X0\ X1)))\Rightarrow((r2\_xboole\_0\ X2\ X3)\Rightarrow(r3\_qc\_lang2\ X0\ (k3\_trees\_2\ (k9\_qc\_lang1\ X0)\ (k2\_qc\_lang4\ X0\ X1)\ X3)\ (k3\_trees\_2\ (k9\_qc\_lang1\ X0)\ (k2\_qc\_lang4\ X0\ X1)\ X2))))))$$