t39_qc_lang3 (TM-FCs7G8SV6ugbA8zCbnZJXGX5H7T6wXh9U)

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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 $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $k1\_zfmisc\_1 : \iota \Rightarrow \iota$ be given. Let $k2\_qc\_lang1 : \iota \Rightarrow \iota$ be given. Let $k4\_qc\_lang3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k12\_qc\_lang1 : \iota \Rightarrow \iota$ be given. Let $k1\_xboole\_0 : \iota$ be given. Let $v2\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1\_qc\_lang3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k17\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k18\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4\_subset\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v5\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k22\_qc\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.((\neg v1\_xboole\_0\ X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (k2\_qc\_lang1\ X0)))) \Rightarrow ((k4\_qc\_lang3\ X0\ X1\ (k12\_qc\_lang1\ X0) = k1\_xboole\_0) \wedge ((\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)) \Rightarrow ((v2\_qc\_lang1\ X2\ X0) \Rightarrow (k4\_qc\_lang3\ X0\ X1\ X2 = k1\_qc\_lang3\ X0\ (k17\_qc\_lang1\ X0\ X2)\ X1))) \wedge ((\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)) \Rightarrow ((v3\_qc\_lang1\ X2\ X0) \Rightarrow (k4\_qc\_lang3\ X0\ X1\ X2 = k4\_qc\_lang3\ X0\ X1\ (k18\_qc\_lang1\ X0\ X2)))) \wedge ((\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)) \Rightarrow ((v4\_qc\_lang1\ X2\ X0) \Rightarrow (k4\_qc\_lang3\ X0\ X1\ X2 = k4\_subset\_1\ X1\ (k4\_qc\_lang3\ X0\ X1\ (k19\_qc\_lang1\ X0\ X2))\ (k4\_qc\_lang3\ X0\ X1\ (k20\_qc\_lang1\ X0\ X2))))) \wedge (\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)) \Rightarrow ((v5\_qc\_lang1\ X2\ X0) \Rightarrow (k4\_qc\_lang3\ X0\ X1\ X2 = k4\_qc\_lang3\ X0\ X1\ (k22\_qc\_lang1\ X0\ X2))))))))) \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.((m1\_qc\_lang1\ X0) \wedge (m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0))) \Rightarrow (m1\_subset\_1\ (k13\_qc\_lang1\ X0\ X1)\ (k9\_qc\_lang1\ X0)) \tag{2}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0) \Rightarrow (\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0)) \Rightarrow ((v3\_qc\_lang1\ X1\ X0) \Rightarrow (\forall X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0)) \Rightarrow ((X2 = k18\_qc\_lang1\ X0\ X1) \Leftrightarrow (X1 = k13\_qc\_lang1\ X0\ X2))))) \tag{3}$$

Assume the following.

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0))\Rightarrow((v3\_qc\_lang1\ X1\ X0)\Leftrightarrow(\exists X2.(m1\_subset\_1\ X2\ (k9\_qc\_lang1\ X0))\wedge(X1 = k13\_qc\_lang1\ X0\ X2)))) \quad (4)$$

Theorem 1

$$\forall X0.(m1\_qc\_lang1\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k9\_qc\_lang1\ X0))\Rightarrow(\forall X2.((\neg v1\_xboole\_0\ X2)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (k2\_qc\_lang1\ X0))))\Rightarrow(k4\_qc\_lang3\ X0\ X2\ (k13\_qc\_lang1\ X0\ X1) = k4\_qc\_lang3\ X0\ X2\ X1)))$$