

t48_qc_lang3
(TMRu4vniRnd3xqJbiUwpUTFxKXcges6n5u3)

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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 $k2_qc_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_qc_lang2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k12_qc_lang2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_qc_lang2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k18_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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. Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ X0)) \Rightarrow (\forall X2.((\neg v1_xboole_0 X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ (k2_qc_lang1 X0)))) \Rightarrow ((v2_qc_lang2 X1 X0) \Rightarrow (k4_qc_lang3 X0 X2 X1 = \\ k4_subset_1 X2 (k4_qc_lang3 X0 X2 (k12_qc_lang2 X0 X1)) (k4_qc_lang3 \\ X0 X2 (k11_qc_lang2 X0 X1)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k9_qc_lang1 X0)) \Rightarrow ((k12_qc_lang2 \\ X0 (k2_qc_lang2 X0 X1 X2) = X1) \wedge ((k11_qc_lang2 X0 (k2_qc_lang2 X0 \\ X1 X2) = X2) \wedge (k18_qc_lang1 X0 (k2_qc_lang2 X0 X1 X2) = k14_qc_lang1 \\ X0 X1 (k13_qc_lang1 X0 X2)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((m1_qc_lang1 X0) \wedge ((m1_subset_1 \\ X1 (k9_qc_lang1 X0)) \wedge (m1_subset_1 X2 (k9_qc_lang1 X0)))) \Rightarrow (m1_subset_1 \\ (k2_qc_lang2 X0 X1 X2) (k9_qc_lang1 X0)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ X0)) \Rightarrow ((v2_qc_lang2 X1 X0) \Leftrightarrow (\exists X2.(m1_subset_1 X2 (k9_qc_lang1 \\ X0)) \wedge (\exists X3.(m1_subset_1 X3 (k9_qc_lang1 X0)) \wedge (X1 = k2_qc_lang2 \\ X0 X2 X3)))))) \end{aligned} \quad (4)$$

Theorem 1

$$\begin{aligned} & \forall X0.(m1_qc_lang1\ X0) \Rightarrow (\forall X1.(m1_subset_1\ X1\ (k9_qc_lang1 \\ & \quad X0)) \Rightarrow (\forall X2.(m1_subset_1\ X2\ (k9_qc_lang1\ X0)) \Rightarrow (\forall X3. \\ & \quad ((\neg v1_xboole_0\ X3) \wedge (m1_subset_1\ X3\ (k1_zfmisc_1\ (k2_qc_lang1 \\ & \quad X0)))) \Rightarrow (k4_qc_lang3\ X0\ X3\ (k2_qc_lang2\ X0\ X1\ X2) = k4_subset_1\ X3 \\ & \quad (k4_qc_lang3\ X0\ X3\ X1)\ (k4_qc_lang3\ X0\ X3\ X2)))))) \end{aligned}$$