

t13_cqc_the2

(TMYEFG3jo2SPqsd4fAwQoB9YRbnkMXrHkaZ)

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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 $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $k3_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $k13_cqc_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_qc_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m2_subset_1 X1 (k2_qc_lang1 \\ & \quad X0) (k3_qc_lang1 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k9_qc_lang1 \\ & \quad X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (k9_qc_lang1 X0)) \Rightarrow (k13_cqc_lang \\ & \quad X0 (k14_qc_lang1 X0 X2 X3) X1 = k14_qc_lang1 X0 (k13_cqc_lang X0 X2 \\ & \quad \quad X1) (k13_cqc_lang X0 X3 X1)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m2_subset_1 X1 (k2_qc_lang1 \\ & \quad X0) (k3_qc_lang1 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k9_qc_lang1 \\ & \quad X0)) \Rightarrow (k13_cqc_lang X0 (k13_qc_lang1 X0 X2) X1 = k13_qc_lang1 X0 \\ & \quad \quad (k13_cqc_lang X0 X2 X1)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge \\ & \quad (m1_subset_1 X1 (k1_zfmisc_1 X0)))) \Rightarrow (\forall X2.(m2_subset_1 \\ & \quad \quad X2 X0 X1) \Leftrightarrow (m1_subset_1 X2 X1)) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (\neg v1_xboole_0 (k3_qc_lang1 X0)) \tag{4}$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (m1_subset_1 (k3_qc_lang1 X0) (k1_zfmisc_1 (k2_qc_lang1 X0))) \tag{5}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_qc_lang1\ X0)\wedge((m1_subset_1\ X1\ (k9_qc_lang1\ X0))\wedge(m1_subset_1\ X2\ (k9_qc_lang1\ X0))))\Rightarrow(m1_subset_1\ (k14_qc_lang1\ X0\ X1\ X2)\ (k9_qc_lang1\ X0)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1\ X0)\wedge(m1_subset_1\ X1\ (k9_qc_lang1\ X0)))\Rightarrow(m1_subset_1\ (k13_qc_lang1\ X0\ X1)\ (k9_qc_lang1\ X0)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_qc_lang1\ X0)\wedge((m1_subset_1\ X1\ (k9_qc_lang1\ X0))\wedge(m1_subset_1\ X2\ (k3_qc_lang1\ X0))))\Rightarrow(m1_subset_1\ (k13_cqc_lang\ X0\ X1\ X2)\ (k9_qc_lang1\ X0)) \quad (8)$$

Assume the following.

$$\forall X0.(m1_qc_lang1\ X0)\Rightarrow(\forall X1.(m1_subset_1\ X1\ (k9_qc_lang1\ X0))\Rightarrow(\forall X2.(m1_subset_1\ X2\ (k9_qc_lang1\ X0))\Rightarrow(k3_qc_lang2\ X0\ X1\ X2 = k13_qc_lang1\ X0\ (k14_qc_lang1\ X0\ (k13_qc_lang1\ X0\ X1)\ (k13_qc_lang1\ X0\ X2)))))) \quad (9)$$

Assume the following.

$$\forall X0.(v1_xboole_0\ X0)\Rightarrow(\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ X0))\Rightarrow(v1_xboole_0\ X1)) \quad (10)$$

Theorem 1

$$\forall X0.(m1_qc_lang1\ X0)\Rightarrow(\forall X1.(m1_subset_1\ X1\ (k9_qc_lang1\ X0))\Rightarrow(\forall X2.(m1_subset_1\ X2\ (k9_qc_lang1\ X0))\Rightarrow(\forall X3.(m2_subset_1\ X3\ (k2_qc_lang1\ X0)\ (k3_qc_lang1\ X0))\Rightarrow(k13_cqc_lang\ X0\ (k3_qc_lang2\ X0\ X1\ X2)\ X3 = k3_qc_lang2\ X0\ (k13_cqc_lang\ X0\ X1\ X3)\ (k13_cqc_lang\ X0\ X2\ X3))))))$$