

t38_substut1
(TMMp1B3cVsXciTmgeEk5K8NNk7hch5c68yE)

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Let $m1_qc_lang1 : \iota \Rightarrow o$ 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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k16_substut1 : \iota \Rightarrow \iota$ be given. Let $m1_substut1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k25_substut1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k37_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $k3_cqc_lang : \iota \Rightarrow \iota$ be given. Let $v3_substut1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k24_substut1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v7_substut1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k36_substut1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k31_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k22_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k15_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_substut1 : \iota \Rightarrow \iota$ be given. Let $k35_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k32_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k16_substut1 \\ X0)) \Rightarrow ((v7_substut1 X1 X0) \Rightarrow (k37_substut1 X0 X1 = k36_substut1 X0 \\ X1 (k37_substut1 X0 (k31_substut1 X0 X1)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k2_zfmisc_1 \\ (k16_substut1 X0) (k3_qc_lang1 X0))) \Rightarrow (\forall X2.(m1_substut1 \\ X2 X0 X1) \Rightarrow ((v3_substut1 X1 X0) \Rightarrow (k31_substut1 X0 (k24_substut1 \\ X0 X1 X2) = k22_substut1 X0 X1)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k2_zfmisc_1 \\ (k16_substut1 X0) (k3_qc_lang1 X0))) \Rightarrow (\forall X2.(m1_substut1 \\ X2 X0 X1) \Rightarrow ((v3_substut1 X1 X0) \Rightarrow (v7_substut1 (k24_substut1 X0 X1 \\ X2) X0)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1\ X0) \Rightarrow (\forall X1.(m2_subset_1\ X1\ (k2_qc_lang1\ X0) \\ (k3_qc_lang1\ X0)) \Rightarrow (\forall X2.(m1_subset_1\ X2\ (k9_qc_lang1\ X0) \\ X0) \Rightarrow ((m2_subset_1\ (k15_qc_lang1\ X0\ X1\ X2)\ (k9_qc_lang1\ X0)\ (k3_cqc_lang\ X0)) \\ \Leftrightarrow (m2_subset_1\ X2\ (k9_qc_lang1\ X0)\ (k3_cqc_lang\ X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1_xboole_0\ X0) \wedge ((\neg v1_xboole_0\ X1) \wedge \\ (m1_subset_1\ X1\ (k1_zfmisc_1\ X0)))) \Rightarrow (\forall X2.(m2_subset_1\ X2\ X0\ X1) \\ \Leftrightarrow (m1_subset_1\ X2\ X1)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((m1_qc_lang1\ X0) \wedge ((m1_subset_1\ X1\ (k16_substut1\ X0) \\ (k3_qc_lang1\ X0))) \wedge (m1_subset_1\ X2\ (k3_qc_lang1\ X0)))) \Rightarrow (k25_substut1\ X0\ X1\ X2 = k4_tarski\ X1\ X2) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((m1_qc_lang1\ X0) \wedge (m1_subset_1\ X1\ (k2_zfmisc_1\ X0) \\ (k16_substut1\ X0)\ (k3_qc_lang1\ X0))) \Rightarrow (k22_substut1\ X0\ X1 = k1_xtuple_0\ X1) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.k1_xtuple_0\ (k4_tarski\ X0\ X1) = X0 \quad (8)$$

Assume the following.

$$\forall X0.(m1_qc_lang1\ X0) \Rightarrow (\neg v1_xboole_0\ (k3_qc_lang1\ X0)) \quad (9)$$

Assume the following.

$$\forall X0.(m1_qc_lang1\ X0) \Rightarrow (\neg v1_xboole_0\ (k3_cqc_lang\ X0)) \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1_xboole_0\ X0) \wedge ((\neg v1_xboole_0\ X1) \wedge \\ (m1_subset_1\ X1\ (k1_zfmisc_1\ X0)))) \Rightarrow (\forall X2.(m2_subset_1\ X2\ X0\ X1) \\ \Rightarrow (m1_subset_1\ X2\ X0)) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1\ X0) \Rightarrow (m1_subset_1\ (k3_qc_lang1\ X0)\ (k1_zfmisc_1\ X0) \\ (k2_qc_lang1\ X0)) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0.(m1_qc_lang1\ X0)\Rightarrow(m1_subset_1\ (k3_cqc_lang\ X0)\ (k1_zfmisc_1\ (k9_qc_lang1\ X0))) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1\ X0)\wedge(m1_subset_1\ X1\ (k2_zfmisc_1\ (k9_qc_lang1\ X0)\ (k1_subst1\ X0))))\Rightarrow(m2_subset_1\ (k35_subst1\ X0\ X1)\ (k2_qc_lang1\ X0)\ (k3_qc_lang1\ X0)) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1\ X0)\wedge(m1_subset_1\ X1\ (k16_subst1\ X0)))\Rightarrow(m1_subset_1\ (k32_subst1\ X0\ X1)\ (k2_zfmisc_1\ (k9_qc_lang1\ X0)\ (k1_subst1\ X0))) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_qc_lang1\ X0)\wedge((m1_subset_1\ X1\ (k16_subst1\ X0))\wedge(m1_subset_1\ X2\ (k3_qc_lang1\ X0))))\Rightarrow(m1_subset_1\ (k25_subst1\ X0\ X1\ X2)\ (k2_zfmisc_1\ (k16_subst1\ X0)\ (k3_qc_lang1\ X0))) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_qc_lang1\ X0)\wedge((m1_subset_1\ X1\ (k2_zfmisc_1\ (k16_subst1\ X0)\ (k3_qc_lang1\ X0)))\wedge(m1_subset1\ X2\ X0\ X1)))\Rightarrow(m1_subset_1\ (k24_subst1\ X0\ X1\ X2)\ (k16_subst1\ X0)) \quad (17)$$

Assume the following.

$$\forall X0.(m1_qc_lang1\ X0)\Rightarrow(\forall X1.(m1_subset_1\ X1\ (k16_subst1\ X0))\Rightarrow(\forall X2.(m1_subset_1\ X2\ (k9_qc_lang1\ X0))\Rightarrow(k36_subst1\ X0\ X1\ X2 = k15_qc_lang1\ X0\ (k35_subst1\ X0\ (k32_subst1\ X0\ X1)\ X2)))) \quad (18)$$

Assume the following.

$$\forall X0.(v1_xboole_0\ X0)\Rightarrow(\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ X0))\Rightarrow(v1_xboole_0\ X1)) \quad (19)$$

Theorem 1

$$\forall X0.(m1_qc_lang1\ X0)\Rightarrow(\forall X1.(m2_subset_1\ X1\ (k2_qc_lang1\ X0)\ (k3_qc_lang1\ X0))\Rightarrow(\forall X2.(m1_subset_1\ X2\ (k16_subst1\ X0))\Rightarrow(\forall X3.(m1_subst1\ X3\ X0\ (k25_subst1\ X0\ X2\ X1))\Rightarrow((m2_subset_1\ (k37_subst1\ X0\ X2)\ (k9_qc_lang1\ X0)\ (k3_cqc_lang\ X0))\wedge(v3_subst1\ (k25_subst1\ X0\ X2\ X1)\ X0))\Rightarrow(m2_subset_1\ (k37_subst1\ X0\ (k24_subst1\ X0\ (k25_subst1\ X0\ X2\ X1)\ X3))\ (k9_qc_lang1\ X0)\ (k3_cqc_lang\ X0))))))$$