

t12_substut1 (TMU-
jCFmy5t394ygWCtTpWkbNqRBfdqvNSd8)

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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 $k16_substut1 : \iota \Rightarrow \iota$ be given. Let $v2_substut1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_substut1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_substut1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v6_substut1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v7_substut1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_numbers : \iota$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $k8_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_card_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_finseq_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $k1_substut1 : \iota \Rightarrow \iota$ be given. Let $k17_substut1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k20_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k19_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k21_substut1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_qc_lang1 : \iota \Rightarrow \iota$ 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 $v3_substut1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k24_substut1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $m1_finseq_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0 : \iota \Rightarrow o. \forall X1. (m1_qc_lang1 X1) \Rightarrow (((\forall X2. \\
 & (m1_subset_1 X2 k5_numbers) \Rightarrow (\forall X3. (m2_subset_1 X3 (k6_qc_lang1 \\
 & X1) (k8_qc_lang1 X1 X2)) \Rightarrow (\forall X4. ((v3_card_1 X4 X2) \wedge (m2_finseq_1 \\
 & X4 (k2_qc_lang1 X1))) \Rightarrow (\forall X5. (m1_subset_1 X5 (k1_substut1 \\
 & X1)) \Rightarrow (X0 (k17_substut1 X1 X3 X4 X5)))))) \wedge ((\forall X2. (m1_subset_1 \\
 & X2 (k16_substut1 X1)) \Rightarrow ((v2_substut1 X2 X1) \Rightarrow (X0 X2))) \wedge ((\forall X2. \\
 & (m1_subset_1 X2 (k16_substut1 X1)) \Rightarrow ((X0 X2) \Rightarrow (X0 (k20_substut1 \\
 & X1 X2)))) \wedge ((\forall X2. (m1_subset_1 X2 (k16_substut1 X1)) \Rightarrow (\forall X3. \\
 & (m1_subset_1 X3 (k16_substut1 X1)) \Rightarrow (((k19_substut1 X1 X2 = k19_substut1 \\
 & X1 X3) \wedge ((X0 X2) \wedge (X0 X3)) \Rightarrow (X0 (k21_substut1 X1 X2 X3)))))) \wedge (\forall X2. \\
 & (m2_subset_1 X2 (k2_qc_lang1 X1) (k3_qc_lang1 X1)) \Rightarrow (\forall X3. \\
 & (m1_subset_1 X3 (k16_substut1 X1)) \Rightarrow (\forall X4. (m1_substut1 \\
 & X4 X1 (k25_substut1 X1 X3 X2)) \Rightarrow (((v3_substut1 (k25_substut1 X1 \\
 & X3 X2) X1) \wedge (X0 X3)) \Rightarrow (X0 (k24_substut1 X1 (k25_substut1 X1 X3 X2) \\
 & X4)))))) \Rightarrow (\forall X2. (m1_subset_1 X2 (k16_substut1 X1)) \Rightarrow \\
 & (X0 X2)))
 \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 X0))))\Rightarrow(\forall X2.(m2_subset_1 X2 X0 X1)\Leftrightarrow(m1_subset_1 X2 X1)) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.(m2_finseq_1 X1 X0)\Leftrightarrow(m1_finseq_1 X1 X0) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.((m1_subset_1 X0 k5_numbers)\wedge(m1_qc_lang1 X1))\Rightarrow(\neg v1_xboole_0 (k8_qc_lang1 X1 X0)) \quad (4)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(\neg v1_xboole_0 (k6_qc_lang1 X0)) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((m1_qc_lang1 X0)\wedge((m1_subset_1 X1 k5_numbers)\wedge((m1_subset_1 X2 (k8_qc_lang1 X0 X1))\wedge(((v3_card_1 X3 X1)\wedge(m1_finseq_1 X3 (k2_qc_lang1 X0))\wedge(m1_subset_1 X4 (k1_subst1 X0))))))\Rightarrow(v4_subst1 (k17_subst1 X0 X2 X3 X4) X0) \quad (6)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(\neg v1_xboole_0 (k3_qc_lang1 X0)) \quad (7)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(\neg v1_xboole_0 (k2_qc_lang1 X0)) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1 X0)\wedge(m1_subset_1 X1 k5_numbers))\Rightarrow(m1_subset_1 (k8_qc_lang1 X0 X1) (k1_zfmisc_1 (k6_qc_lang1 X0))) \quad (9)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(m1_subset_1 (k3_qc_lang1 X0) (k1_zfmisc_1 (k2_qc_lang1 X0))) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_qc_lang1 X0)\wedge((m1_subset_1 X1 (k16_subst1 X0))\wedge(m1_subset_1 X2 (k3_qc_lang1 X0))))\Rightarrow(m1_subset_1 (k25_subst1 X0 X1 X2) (k2_zfmisc_1 (k16_subst1 X0) (k3_qc_lang1 X0))) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((m1_qc_lang1\ X0) \wedge ((m1_subset_1 \\ & X1\ (k2_zfmisc_1\ (k16_subst1\ X0)\ (k3_qc_lang1\ X0))) \wedge (m1_subst1 \\ & X2\ X0\ X1))) \Rightarrow (m1_subset_1\ (k24_subst1\ X0\ X1\ X2)\ (k16_subst1 \\ & X0)) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((m1_qc_lang1\ X0) \wedge ((m1_subset_1 \\ & X1\ (k16_subst1\ X0)) \wedge (m1_subset_1\ X2\ (k16_subst1\ X0)))) \Rightarrow (\\ & m1_subset_1\ (k21_subst1\ X0\ X1\ X2)\ (k16_subst1\ X0)) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((m1_qc_lang1\ X0) \wedge (m1_subset_1\ X1\ (k16_subst1 \\ & X0))) \Rightarrow (m1_subset_1\ (k20_subst1\ X0\ X1)\ (k16_subst1\ X0)) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0. (m1_qc_lang1\ X0) \Rightarrow (\forall X1. (m1_subset_1\ X1\ (k16_subst1 \\ & X0)) \Rightarrow ((v7_subst1\ X1\ X0) \Leftrightarrow (\exists X2. (m1_subset_1\ X2\ (k2_zfmisc_1 \\ & (k16_subst1\ X0)\ (k3_qc_lang1\ X0))) \wedge (\exists X3. (m1_subst1 \\ & X3\ X0\ X2) \wedge ((X1 = k24_subst1\ X0\ X2\ X3) \wedge (v3_subst1\ X2\ X0)))))) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0. (m1_qc_lang1\ X0) \Rightarrow (\forall X1. (m1_subset_1\ X1\ (k16_subst1 \\ & X0)) \Rightarrow ((v6_subst1\ X1\ X0) \Leftrightarrow (\exists X2. (m1_subset_1\ X2\ (k16_subst1 \\ & X0)) \wedge (\exists X3. (m1_subset_1\ X3\ (k16_subst1\ X0)) \wedge ((X1 = k21_subst1 \\ & X0\ X2\ X3) \wedge (k19_subst1\ X0\ X2 = k19_subst1\ X0\ X3)))))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0. (m1_qc_lang1\ X0) \Rightarrow (\forall X1. (m1_subset_1\ X1\ (k16_subst1 \\ & X0)) \Rightarrow ((v5_subst1\ X1\ X0) \Leftrightarrow (\exists X2. (m1_subset_1\ X2\ (k16_subst1 \\ & X0)) \wedge (X1 = k20_subst1\ X0\ X2)))) \end{aligned} \quad (17)$$

Theorem 1

$$\begin{aligned} & \forall X0. (m1_qc_lang1\ X0) \Rightarrow (\forall X1. (m1_subset_1\ X1\ (k16_subst1 \\ & X0)) \Rightarrow (\neg(\neg v2_subst1\ X1\ X0) \wedge (\neg v4_subst1\ X1\ X0) \wedge (\neg v5_subst1 \\ & X1\ X0) \wedge (\neg v6_subst1\ X1\ X0) \wedge (\neg v7_subst1\ X1\ X0)))) \end{aligned}$$