

t19_substut2

(TMEoi5abUdGsDeaYeyFRwhRCxiwSH1mA6aq)

October 27, 2020

Let $m1_qc_lang1 : \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $k3_cqc_lang : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_substut1 : \iota \Rightarrow \iota$ be given. Let $k2_substut2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_cqc_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_sublemma : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k14_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k16_substut1 : \iota \Rightarrow \iota$ be given. Let $k19_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k18_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k38_substut1 : \iota \Rightarrow \iota$ be given. Let $k21_substut1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 X0)))) \Rightarrow (\forall X2. (m2_subset_1 \\ & X2 X0 X1) \Leftrightarrow (m1_subset_1 X2 X1)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((m1_qc_lang1 X0) \wedge ((m1_subset_1 \\ & X1 (k3_cqc_lang X0)) \wedge (m1_subset_1 X2 (k3_cqc_lang X0)))) \Rightarrow (k7_cqc_lang \\ & X0 X1 X2 = k14_qc_lang1 X0 X1 X2) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((m1_qc_lang1 X0) \wedge ((m1_subset_1 \\ & X1 (k3_cqc_lang X0)) \wedge (m1_subset_1 X2 (k1_substut1 X0)))) \Rightarrow (k2_substut2 \\ & X0 X1 X2 = k4_tarski X1 X2) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1_xboole_0 X0) \wedge \\ & ((\neg v1_xboole_0 X1) \wedge ((m1_subset_1 X2 X0) \wedge (m1_subset_1 X3 X1)))) \Rightarrow \\ & (k1_domain_1 X0 X1 X2 X3 = k4_tarski X2 X3) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1 X0)\wedge(m1_subset_1 X1 (k16_subst1 X0)))\Rightarrow(k19_subst1 X0 X1 = k2_xtuple_0 X1) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1 X0)\wedge(m1_subset_1 X1 (k16_subst1 X0)))\Rightarrow(k18_subst1 X0 X1 = k1_xtuple_0 X1) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.k2_xtuple_0 (k4_tarski X0 X1) = X1 \quad (7)$$

Assume the following.

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

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(\neg v1_xboole_0 (k38_subst1 X0)) \quad (9)$$

Assume the following.

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

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(\neg v1_xboole_0 (k1_subst1 X0)) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 X0))))\Rightarrow(\forall X2.(m2_subset_1 X2 X0 X1)\Rightarrow(m1_subset_1 X2 X0)) \quad (12)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(\neg v1_xboole_0 (k9_qc_lang1 X0)) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_qc_lang1 X0)\wedge((m1_subset_1 X1 (k3_cqc_lang X0))\wedge(m1_subset_1 X2 (k3_cqc_lang X0))))\Rightarrow(m2_subset_1 (k7_cqc_lang X0 X1 X2) (k9_qc_lang1 X0) (k3_cqc_lang X0)) \quad (14)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(m1_subset_1 (k3_cqc_lang X0) (k1_zfmisc_1 (k9_qc_lang1 X0))) \quad (15)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (m1_subset_1 (k38_subst1 X0) (k1_zfmisc_1 (k16_subst1 X0))) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_qc_lang1 X0) \wedge ((m1_subset_1 X1 (k3_cqc_lang X0)) \wedge (m1_subset_1 X2 (k1_subst1 X0)))) \Rightarrow (m2_subset_1 (k2_subst2 X0 X1 X2) (k16_subst1 X0) (k38_subst1 X0)) \quad (17)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (\neg v1_xboole_0 (k16_subst1 X0)) \quad (18)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_qc_lang1 X0) \wedge ((m1_subset_1 X1 (k9_qc_lang1 X0)) \wedge (m1_subset_1 X2 (k9_qc_lang1 X0)))) \Rightarrow (m1_subset_1 (k14_qc_lang1 X0 X1 X2) (k9_qc_lang1 X0)) \quad (19)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m2_subset_1 X1 (k16_subst1 X0) (k38_subst1 X0)) \Rightarrow (\forall X2.(m2_subset_1 X2 (k16_subst1 X0) (k38_subst1 X0)) \Rightarrow ((k19_subst1 X0 X1 = k19_subst1 X0 X2) \Rightarrow (k6_sublemma X0 X1 X2 = k21_subst1 X0 X1 X2)))) \quad (20)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k16_subst1 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k16_subst1 X0)) \Rightarrow ((k19_subst1 X0 X1 = k19_subst1 X0 X2) \Rightarrow (k21_subst1 X0 X1 X2 = k1_domain_1 (k9_qc_lang1 X0) (k1_subst1 X0) (k14_qc_lang1 X0 (k18_subst1 X0 X1) (k18_subst1 X0 X2)) (k19_subst1 X0 X1)))))) \quad (21)$$

Theorem 1

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m2_subset_1 X1 (k9_qc_lang1 X0) (k3_cqc_lang X0)) \Rightarrow (\forall X2.(m2_subset_1 X2 (k9_qc_lang1 X0) (k3_cqc_lang X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (k1_subst1 X0)) \Rightarrow (k2_subst2 X0 (k7_cqc_lang X0 X1 X2) X3 = k6_sublemma X0 (k2_subst2 X0 X1 X3) (k2_subst2 X0 X2 X3))))))$$