

t5_substut2

(TMFNFR151xeX2LB1VEymZn59rt5ejKff9aC)

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 $k16_substut1 : \iota \Rightarrow \iota$ be given. Let $k38_substut1 : \iota \Rightarrow \iota$ be given. Let $k2_sublemma : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k19_substut1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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. Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m2_subset_1 X1 (k16_substut1 \\ X0) (k38_substut1 X0)) \Rightarrow (\forall X2.(m2_subset_1 X2 (k16_substut1 \\ X0) (k38_substut1 X0)) \Rightarrow ((k19_substut1 X0 X1 = k19_substut1 X0 X2) \Rightarrow \\ ((k2_sublemma X0 (k6_sublemma X0 X1 X2) = k7_cqc_lang X0 (k2_sublemma \\ X0 X1) (k2_sublemma X0 X2)) \wedge (k19_substut1 X0 (k6_sublemma X0 X1 \\ X2) = k19_substut1 X0 X1)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge \\ (m1_subset_1 X1 (k1_zfmisc_1 X0)))) \Rightarrow (\forall X2.(m2_subset_1 \\ X2 X0 X1) \Leftrightarrow (m1_subset_1 X2 X1)) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (\neg v1_xboole_0 (k38_substut1 X0)) \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((m1_qc_lang1 X0) \wedge ((m1_subset_1 \\ X1 (k38_substut1 X0)) \wedge (m1_subset_1 X2 (k38_substut1 X0)))) \Rightarrow (\\ m2_subset_1 (k6_sublemma X0 X1 X2) (k16_substut1 X0) (k38_substut1 \\ X0)) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (m1_subset_1 (k38_substut1 X0) (\\ k1_zfmisc_1 (k16_substut1 X0))) \quad (5)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (v1_xboole_0 X1)) \quad (6)$$

Theorem 1

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m2_subset_1 X1 (k9_qc_lang1 X0) (k3_cqc_lang X0)) \Rightarrow (\forall X2.(m2_subset_1 X2 (k9_qc_lang1 X0) (k3_cqc_lang X0)) \Rightarrow ((\forall X3.(m1_subset_1 X3 (k1_subst1 X0)) \Rightarrow (\exists X4.(m2_subset_1 X4 (k16_subst1 X0) (k38_subst1 X0)) \wedge ((k2_sublemma X0 X4 = X1) \wedge (k19_subst1 X0 X4 = X3)))) \wedge (\forall X3.(m1_subset_1 X3 (k1_subst1 X0)) \Rightarrow (\exists X4.(m2_subset_1 X4 (k16_subst1 X0) (k38_subst1 X0)) \wedge ((k2_sublemma X0 X4 = X2) \wedge (k19_subst1 X0 X4 = X3)))))) \Rightarrow (\forall X3.(m1_subset_1 X3 (k1_subst1 X0)) \Rightarrow (\exists X4.(m2_subset_1 X4 (k16_subst1 X0) (k38_subst1 X0)) \wedge ((k2_sublemma X0 X4 = k7_cqc_lang X0 X1 X2) \wedge (k19_subst1 X0 X4 = X3)))))) \end{aligned}$$