

t23_sublemma (TMPKTMCKRtvT- tkqD4v3D4VqcATj25Z3Dcwh)

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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 $k16_subst1 : \iota \Rightarrow \iota$ be given. Let $k38_subst1 : \iota \Rightarrow \iota$ be given. Let $k19_subst1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k39_subst1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_sublemma : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_cqc_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k37_subst1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k21_subst1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k14_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k3_cqc_lang : \iota \Rightarrow \iota$ be given. Let $k9_qc_lang1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k16_subst1 \\ & X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k16_subst1 X0)) \Rightarrow ((k19_subst1 \\ & X0 X1 = k19_subst1 X0 X2) \Rightarrow (k37_subst1 X0 (k21_subst1 X0 X1 \\ & X2) = k14_qc_lang1 X0 (k37_subst1 X0 X1) (k37_subst1 X0 X2)))))) \end{aligned} \quad (1)$$

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.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1_qc_lang1 X0) \wedge ((m1_subset_1 \\ & X1 (k3_cqc_lang X0)) \wedge (m1_subset_1 X2 (k3_cqc_lang X0)))) \Rightarrow (k7_cqc_lang \\ & X0 X1 X2 = k14_qc_lang1 X0 X1 X2) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((m1_qc_lang1 X0) \wedge (m1_subset_1 X1 (k38_subst1 \\ & X0))) \Rightarrow (k39_subst1 X0 X1 = k37_subst1 X0 X1) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (\neg v1_xboole_0 (k38_subst1 X0)) \quad (5)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (\neg v1_xboole_0 (k3_cqc_lang X0)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X0)))) \Rightarrow (\forall X2.(m2_subset_1 X2 X0 X1) \Rightarrow (m1_subset_1 X2 X0)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_qc_lang1 X0) \wedge ((m1_subset_1 X1 (k38_subst1 X0)) \wedge (m1_subset_1 X2 (k38_subst1 X0)))) \Rightarrow (m2_subset_1 (k6_sublemma X0 X1 X2) (k16_subst1 X0) (k38_subst1 X0)) \quad (8)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (m1_subset_1 (k3_cqc_lang X0) (k1_zfmisc_1 (k9_qc_lang1 X0))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1 X0) \wedge (m1_subset_1 X1 (k38_subst1 X0))) \Rightarrow (m2_subset_1 (k39_subst1 X0 X1) (k9_qc_lang1 X0) (k3_cqc_lang X0)) \quad (10)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (m1_subset_1 (k38_subst1 X0) (k1_zfmisc_1 (k16_subst1 X0))) \quad (11)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m2_subset_1 X1 (k16_subst1 X0) (k38_subst1 X0)) \Rightarrow (\forall X2.(m2_subset_1 X2 (k16_subst1 X0) (k38_subst1 X0)) \Rightarrow ((k19_subst1 X0 X1 = k19_subst1 X0 X2) \Rightarrow (k6_sublemma X0 X1 X2 = k21_subst1 X0 X1 X2)))) \quad (12)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (v1_xboole_0 X1)) \quad (13)$$

Theorem 1

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m2_subset_1 X1 (k16_subst1 X0) (k38_subst1 X0)) \Rightarrow (\forall X2.(m2_subset_1 X2 (k16_subst1 X0) (k38_subst1 X0)) \Rightarrow ((k19_subst1 X0 X1 = k19_subst1 X0 X2) \Rightarrow (k39_subst1 X0 (k6_sublemma X0 X1 X2) = k7_cqc_lang X0 (k39_subst1 X0 X1) (k39_subst1 X0 X2))))))$$