

t20_sublemma

(TMRsHTEjJdDQUR2F3TKqitZVuL7K11wSe1r)

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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 $k2_sublemma : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k1_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k3_cqc_lang : \iota \Rightarrow \iota$ be given. Let $k14_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k18_subst1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_subst1 : \iota \Rightarrow \iota$ be given. Let $k9_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $k2_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $k21_subst1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. (k1_xtuple_0 (k4_tarski X0 X1) = X0) \wedge (k2_xtuple_0 (k4_tarski X0 X1) = X1) \quad (1)$$

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.

$$\forall X0. \forall X1. \forall X2. ((m1_qc_lang1 X0) \wedge ((m1_subset_1 X1 (k3_cqc_lang X0)) \wedge (m1_subset_1 X2 (k3_cqc_lang X0)))) \Rightarrow (k7_cqc_lang X0 X1 X2 = k14_qc_lang1 X0 X1 X2) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. ((m1_qc_lang1 X0) \wedge (m1_subset_1 X1 (k38_subst1 X0))) \Rightarrow (k2_sublemma X0 X1 = k1_xtuple_0 X1) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \forall X3. ((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge ((m1_subset_1 X2 X0) \wedge (m1_subset_1 X3 X1)))) \Rightarrow (k1_domain_1 X0 X1 X2 X3 = k4_tarski X2 X3) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1 X0)\wedge(m1_subset_1 X1 (k16_subst1 X0)))\Rightarrow(k19_subst1 X0 X1 = k2_xtuple_0 X1) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1 X0)\wedge(m1_subset_1 X1 (k16_subst1 X0)))\Rightarrow(k18_subst1 X0 X1 = k1_xtuple_0 X1) \quad (7)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(\neg v1_xboole_0 (k38_subst1 X0)) \quad (8)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(\neg v1_xboole_0 (k3_cqc_lang X0)) \quad (9)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(\neg v1_xboole_0 (k1_subst1 X0)) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 X0))))\Rightarrow(\forall X2.(m2_subset_1 X2 X0 X1)\Rightarrow(m1_subset_1 X2 X0)) \quad (11)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(\neg v1_xboole_0 (k9_qc_lang1 X0)) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_qc_lang1 X0)\wedge((m1_subset_1 X1 (k38_subst1 X0))\wedge(m1_subset_1 X2 (k38_subst1 X0))))\Rightarrow(m2_subset_1 (k6_sublemma X0 X1 X2) (k16_subst1 X0) (k38_subst1 X0)) \quad (13)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(m1_subset_1 (k3_cqc_lang X0) (k1_zfmisc_1 (k9_qc_lang1 X0))) \quad (14)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(m1_subset_1 (k38_subst1 X0) (k1_zfmisc_1 (k16_subst1 X0))) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1\ X0)\wedge(m1_subset_1\ X1\ (k38_subst1\ X0)))\Rightarrow(m2_subset_1\ (k2_sublemma\ X0\ X1)\ (k9_qc_lang1\ X0)\ (k3_cqc_lang\ X0)) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1\ X0)\wedge(m1_subset_1\ X1\ (k16_subst1\ X0)))\Rightarrow(m1_subset_1\ (k19_subst1\ X0\ X1)\ (k1_subst1\ X0)) \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1\ X0)\wedge(m1_subset_1\ X1\ (k16_subst1\ X0)))\Rightarrow(m1_subset_1\ (k18_subst1\ X0\ X1)\ (k9_qc_lang1\ X0)) \quad (18)$$

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.

$$\forall X0.\forall X1.k4_tarski\ X0\ X1 = k2_tarski\ (k2_tarski\ X0\ X1)\ (k1_tarski\ X0) \quad (20)$$

Assume the following.

$$\forall X0.(m1_qc_lang1\ X0)\Rightarrow(\forall X1.(m2_subset_1\ X1\ (k16_subst1\ X0)\ (k38_subst1\ X0))\Rightarrow(\forall X2.(m2_subset_1\ X2\ (k16_subst1\ X0)\ (k38_subst1\ X0))\Rightarrow((k19_subst1\ X0\ X1 = k19_subst1\ X0\ X2)\Rightarrow(k6_sublemma\ X0\ X1\ X2 = k21_subst1\ X0\ X1\ X2)))) \quad (21)$$

Assume the following.

$$\forall X0.(m1_qc_lang1\ X0)\Rightarrow(\forall X1.(m1_subset_1\ X1\ (k16_subst1\ X0))\Rightarrow(\forall X2.(m1_subset_1\ X2\ (k16_subst1\ X0))\Rightarrow((k19_subst1\ X0\ X1 = k19_subst1\ X0\ X2)\Rightarrow(k21_subst1\ X0\ X1\ X2 = k1_domain_1\ (k9_qc_lang1\ X0)\ (k1_subst1\ X0)\ (k14_qc_lang1\ X0\ (k18_subst1\ X0\ X1)\ (k18_subst1\ X0\ X2))\ (k19_subst1\ X0\ X1)))))) \quad (22)$$

Assume the following.

$$\forall X0.(v1_xboole_0\ X0)\Rightarrow(\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ X0))\Rightarrow(v1_xboole_0\ X1)) \quad (23)$$

Theorem 1

$$\begin{aligned} & \forall X0.(m1_qc_lang1\ X0) \Rightarrow (\forall X1.(m2_subset_1\ X1\ (k16_subst1 \\ & X0)\ (k38_subst1\ X0)) \Rightarrow (\forall X2.(m2_subset_1\ X2\ (k16_subst1 \\ & X0)\ (k38_subst1\ X0)) \Rightarrow ((k19_subst1\ X0\ X1 = k19_subst1\ X0\ X2) \Rightarrow \\ & ((k2_sublemma\ X0\ (k6_sublemma\ X0\ X1\ X2) = k7_cqc_lang\ X0\ (k2_sublemma \\ & X0\ X1)\ (k2_sublemma\ X0\ X2)) \wedge (k19_subst1\ X0\ (k6_sublemma\ X0\ X1 \\ & X2) = k19_subst1\ X0\ X1)))))) \end{aligned}$$