

t61_sublemma

(TMLnS5KVEmJhDNmMQRrTB3fBgqMi4V8StTJ)

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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 $k9_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $k3_cqc_lang : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m1_valuat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $k2_valuat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k24_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_valuat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_cqc_lang : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k13_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ X0)) \Rightarrow (k24_qc_lang1 X0 (k13_qc_lang1 X0 X1) = k24_qc_lang1 X0 X1)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow (\\ \forall X2.(m2_funct_2 X2 (k3_qc_lang1 X0) X1 (k2_valuat_1 X0 X1)) \Rightarrow \\ (\forall X3.(m2_subset_1 X3 (k9_qc_lang1 X0) (k3_cqc_lang X0)) \Rightarrow \\ (\forall X4.(m1_valuat_1 X4 X0 X1) \Rightarrow ((r1_valuat_1 X0 X1 (k6_cqc_lang \\ X0 X3) X4 X2) \Leftrightarrow (\neg r1_valuat_1 X0 X1 X3 X4 X2)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge \\ (m1_subset_1 X1 (k1_zfmisc_1 X0)))) \Rightarrow (\forall X2.(m2_subset_1 \\ X2 X0 X1) \Leftrightarrow (m1_subset_1 X2 X1)) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1 X0) \wedge (m1_subset_1 X1 (k3_cqc_lang \\ X0))) \Rightarrow (k6_cqc_lang X0 X1 = k13_qc_lang1 X0 X1) \quad (4)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (\neg v1_xboole_0 (k3_cqc_lang X0)) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge (m1_subset_1 X1 (k1_zfmisc_1 X0))))\Rightarrow(\forall X2.(m2_subset_1 X2 X0 X1)\Rightarrow(m1_subset_1 X2 X0)) \quad (6)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(m1_subset_1 (k3_cqc_lang X0) (k1_zfmisc_1 (k9_qc_lang1 X0))) \quad (7)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0)\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0))\Rightarrow(v1_xboole_0 X1)) \quad (8)$$

Theorem 1

$$\begin{aligned} &\forall X0.(m1_qc_lang1 X0)\Rightarrow(\forall X1.(m2_subset_1 X1 (k9_qc_lang1 X0) (k3_cqc_lang X0))\Rightarrow(\forall X2.(\neg v1_xboole_0 X2)\Rightarrow(\forall X3. \\ &(m1_valuat_1 X3 X0 X2)\Rightarrow((\forall X4.(m2_funct_2 X4 (k3_qc_lang1 X0) X2 (k2_valuat_1 X0 X2))\Rightarrow(\forall X5.(m2_funct_2 X5 (k3_qc_lang1 X0) X2 (k2_valuat_1 X0 X2))\Rightarrow((r2_relset_1 (k3_qc_lang1 X0) X2 (k5_relset_1 (k3_qc_lang1 X0) X2 X4 (k24_qc_lang1 X0 X1)) (k5_relset_1 (k3_qc_lang1 X0) X2 X5 (k24_qc_lang1 X0 X1))))\Rightarrow((r1_valuat_1 X0 X2 X1 X3 X4)\Leftrightarrow(r1_valuat_1 X0 X2 X1 X3 X5))))))\Rightarrow(\forall X4.(m2_funct_2 X4 (k3_qc_lang1 X0) X2 (k2_valuat_1 X0 X2))\Rightarrow(\forall X5.(m2_funct_2 X5 (k3_qc_lang1 X0) X2 (k2_valuat_1 X0 X2))\Rightarrow((r2_relset_1 (k3_qc_lang1 X0) X2 (k5_relset_1 (k3_qc_lang1 X0) X2 X4 (k24_qc_lang1 X0 (k6_cqc_lang X0 X1)) (k5_relset_1 (k3_qc_lang1 X0) X2 X5 (k24_qc_lang1 X0 (k6_cqc_lang X0 X1))))\Rightarrow((r1_valuat_1 X0 X2 (k6_cqc_lang X0 X1) X3 X4)\Leftrightarrow(r1_valuat_1 X0 X2 (k6_cqc_lang X0 X1) X3 X5)))))))))) \end{aligned}$$