

t9_cqc_lang
(TMcGoyvVrxdUPjrsjSfdu2WumbEBYX5hCzr)

October 27, 2020

Let $m1_qc_lang1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k14_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_cqc_lang : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k6_qc_lang3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $k5_qc_lang3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k9_qc_lang1 X0)) \Rightarrow (k6_qc_lang3 \\ X0 (k14_qc_lang1 X0 X1 X2) = k4_subset_1 (k4_qc_lang1 X0) (k6_qc_lang3 \\ X0 X1) (k6_qc_lang3 X0 X2)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k9_qc_lang1 X0)) \Rightarrow (k5_qc_lang3 \\ X0 (k14_qc_lang1 X0 X1 X2) = k4_subset_1 (k5_qc_lang1 X0) (k5_qc_lang3 \\ X0 X1) (k5_qc_lang3 X0 X2)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ X0)) \Rightarrow ((m2_subset_1 X1 (k9_qc_lang1 X0) (k3_cqc_lang X0)) \Leftrightarrow ((k6_qc_lang3 \\ X0 X1 = k1_xboole_0) \wedge (k5_qc_lang3 X0 X1 = k1_xboole_0)))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (5)$$

Assume the following.

$$\forall X0.k2_xboole_0 X0 k1_xboole_0 = X0 \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_subset_1 X1 (k1_zfmisc_1 X0)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 X0))) \Rightarrow (k4_subset_1 X0 X1 X2 = k2_xboole_0 X1 X2) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(\neg v1_xboole_0 X0) \Rightarrow (\neg v1_xboole_0 (k2_xboole_0 X0 X1)) \quad (8)$$

Assume the following.

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

Assume the following.

$$v1_xboole_0 k1_xboole_0 \quad (10)$$

Assume the following.

$$\forall X0.\exists X1.m1_subset_1 X1 X0 \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1 X0) \wedge (m1_subset_1 X1 (k9_qc_lang1 X0))) \Rightarrow (m1_subset_1 (k6_qc_lang3 X0 X1) (k1_zfmisc_1 (k4_qc_lang1 X0))) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1 X0) \wedge (m1_subset_1 X1 (k9_qc_lang1 X0))) \Rightarrow (m1_subset_1 (k5_qc_lang3 X0 X1) (k1_zfmisc_1 (k5_qc_lang1 X0))) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_qc_lang1 X0) \wedge ((m1_subset_1 X1 (k9_qc_lang1 X0)) \wedge (m1_subset_1 X2 (k9_qc_lang1 X0)))) \Rightarrow (m1_subset_1 (k14_qc_lang1 X0 X1 X2) (k9_qc_lang1 X0)) \quad (14)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (k3_cqc_lang X0 = \text{ReplSep} (\text{toset} (\lambda X1 : \iota.m1_subset_1 X1 (k9_qc_lang1 X0))) (\lambda X1 : \iota.(k6_qc_lang3 X0 X1 = k1_xboole_0) \wedge (k5_qc_lang3 X0 X1 = k1_xboole_0)) (\lambda X1 : \iota.X1)) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.k2_xboole_0 X0 X1 = k2_xboole_0 X1 X0 \quad (16)$$

Theorem 1

$$\begin{aligned} & \forall X0.(m1_qc_lang1\ X0) \Rightarrow (\forall X1.(m1_subset_1\ X1\ (k9_qc_lang1 \\ & \quad X0)) \Rightarrow (\forall X2.(m1_subset_1\ X2\ (k9_qc_lang1\ X0)) \Rightarrow ((m2_subset_1 \\ & (k14_qc_lang1\ X0\ X1\ X2)\ (k9_qc_lang1\ X0)\ (k3_cqc_lang\ X0)) \Leftrightarrow ((m2_subset_1 \\ & \quad X1\ (k9_qc_lang1\ X0)\ (k3_cqc_lang\ X0)) \wedge (m2_subset_1\ X2\ (k9_qc_lang1 \\ & \quad \quad X0)\ (k3_cqc_lang\ X0)))))) \end{aligned}$$