

t21_cqc_sim1
(TMbLv5YNSQ6Gtfef7gSVKzVHtttdthGeWkN7)

October 27, 2020

Let $m1_qc_lang1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_qc_lang1 : \iota \Rightarrow \iota$ 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 $k2_qc_lang3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k24_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k13_cqc_sim1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k12_cqc_sim1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k25_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_qc_lang1 \\ X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_qc_lang1 X0)) \Rightarrow ((r2_qc_lang1 \\ X0 X1 X2) \Leftrightarrow (\neg r1_qc_lang1 X0 X2 X1)))) \end{aligned} \quad (1)$$

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.

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (\neg v1_xboole_0 (k3_cqc_lang X0)) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1 X0) \wedge (m1_subset_1 X1 (k3_cqc_lang \\ X0))) \Rightarrow (\neg v1_xboole_0 (k12_cqc_sim1 X0 X1)) \quad (4)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0) \Rightarrow (m1_subset_1 (k3_cqc_lang X0) (k1_zfmisc_1 \\ (k9_qc_lang1 X0))) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((m1_qc_lang1 X0) \wedge ((\neg v1_xboole_0 X1) \wedge \\ (m1_subset_1 X1 (k1_zfmisc_1 (k1_qc_lang1 X0)))) \Rightarrow (m1_subset_1 \\ (k25_qc_lang1 X0 X1) (k1_qc_lang1 X0)) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1\ X0)\wedge(m1_subset_1\ X1\ (k3_cqc_lang\ X0)))\Rightarrow(m1_subset_1\ (k12_cqc_sim1\ X0\ X1)\ (k1_zfmisc_1\ (k1_qc_lang1\ X0))) \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1\ X0)\Rightarrow(\forall X1.(m2_subset_1\ X1\ (k9_qc_lang1\ X0)\ (k3_cqc_lang\ X0))\Rightarrow(k12_cqc_sim1\ X0\ X1 = ReplSep\ (toset\ (\lambda X2 : \iota.m1_subset_1\ X2\ (k1_qc_lang1\ X0)))\ (\lambda X2 : \iota.\forall X3. \\ (m1_subset_1\ X3\ (k1_qc_lang1\ X0))\Rightarrow(\neg(r1_qc_lang1\ X0\ X2\ X3)\wedge(k2_qc_lang3\ X0\ X3 \in k24_qc_lang1\ X0\ X1))))\ (\lambda X2 : \iota.X2))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1\ X0)\Rightarrow(\forall X1.((\neg v1_xboole_0\ X1)\wedge \\ (m1_subset_1\ X1\ (k1_zfmisc_1\ (k1_qc_lang1\ X0))))\Rightarrow(\forall X2. \\ (m1_subset_1\ X2\ (k1_qc_lang1\ X0))\Rightarrow((X2 = k25_qc_lang1\ X0\ X1)\Leftrightarrow(\\ (X2 \in X1)\wedge(\forall X3.(m1_subset_1\ X3\ (k1_qc_lang1\ X0))\Rightarrow((X3 \in \\ X1)\Rightarrow(r1_qc_lang1\ X0\ X2\ X3))))))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.(m1_qc_lang1\ X0)\Rightarrow(\forall X1.(m2_subset_1\ X1\ (k9_qc_lang1\ X0)\ (k3_cqc_lang\ X0))\Rightarrow(k13_cqc_sim1\ X0\ X1 = k25_qc_lang1\ X0\ (k12_cqc_sim1\ X0\ X1))) \quad (10)$$

Assume the following.

$$\forall X0.(v1_xboole_0\ X0)\Rightarrow(\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ X0))\Rightarrow(v1_xboole_0\ X1)) \quad (11)$$

Theorem 1

$$\begin{aligned} \forall X0.(m1_qc_lang1\ X0)\Rightarrow(\forall X1.(m1_subset_1\ X1\ (k1_qc_lang1\ X0))\Rightarrow(\forall X2.(m2_subset_1\ X2\ (k9_qc_lang1\ X0)\ (k3_cqc_lang\ X0))\Rightarrow(((k2_qc_lang3\ X0\ X1 \in k24_qc_lang1\ X0\ X2)\Rightarrow(r2_qc_lang1\ X0\ X1\ (k13_cqc_sim1\ X0\ X2)))))) \end{aligned}$$