

t58_cqc_the2

(TMHS3B88vcLtv8smtNNeeiwWHhZGP1rawns)

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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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $k3_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $k13_cqc_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k24_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_cqc_the1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_qc_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k12_cqc_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_qc_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_qc_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k8_cqc_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_cqc_lang : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ & X0)) \Rightarrow (\forall X2.(m2_subset_1 X2 (k2_qc_lang1 X0) (k3_qc_lang1 \\ & X0)) \Rightarrow (\forall X3.(m2_subset_1 X3 (k2_qc_lang1 X0) (k3_qc_lang1 \\ & X0)) \Rightarrow ((X2 \in k24_qc_lang1 X0 (k5_qc_lang2 X0 X3 X1)) \Leftrightarrow ((X2 \in k24_qc_lang1 \\ & X0 X1) \wedge (X2 \neq X3)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m2_subset_1 X1 (k9_qc_lang1 \\ & X0) (k3_cqc_lang X0)) \Rightarrow (\forall X2.(m2_subset_1 X2 (k9_qc_lang1 \\ & X0) (k3_cqc_lang X0)) \Rightarrow (\forall X3.(m2_subset_1 X3 (k9_qc_lang1 \\ & X0) (k3_cqc_lang X0)) \Rightarrow (((v2_cqc_the1 (k8_cqc_lang X0 X1 X2) X0) \wedge \\ & (v2_cqc_the1 (k8_cqc_lang X0 X2 X3) X0)) \Rightarrow (v2_cqc_the1 (k8_cqc_lang \\ & X0 X1 X3) X0)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_qc_lang1\ X0) \Rightarrow (\forall X1.(m2_subset_1\ X1\ (k9_qc_lang1 \\
& \quad X0)\ (k3_cqc_lang\ X0)) \Rightarrow (\forall X2.(m2_subset_1\ X2\ (k9_qc_lang1 \\
& \quad X0)\ (k3_cqc_lang\ X0)) \Rightarrow (\forall X3.(m2_subset_1\ X3\ (k2_qc_lang1 \\
& \quad X0)\ (k3_qc_lang1\ X0)) \Rightarrow ((v2_cqc_the1\ (k11_cqc_lang\ X0\ X3\ (k8_cqc_lang \\
& \quad X0\ X1\ X2))\ X0) \Rightarrow (v2_cqc_the1\ (k8_cqc_lang\ X0\ (k12_cqc_lang\ X0\ X3 \\
& \quad X1)\ (k12_cqc_lang\ X0\ X3\ X2))\ X0))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_qc_lang1\ X0) \Rightarrow (\forall X1.(m2_subset_1\ X1\ (k2_qc_lang1 \\
& \quad X0)\ (k3_qc_lang1\ X0)) \Rightarrow (\forall X2.(m2_subset_1\ X2\ (k2_qc_lang1 \\
& \quad X0)\ (k3_qc_lang1\ X0)) \Rightarrow (\forall X3.(m1_subset_1\ X3\ (k9_qc_lang1 \\
& \quad X0)) \Rightarrow (\neg(X1 \neq X2) \wedge ((\neg X1 \in k24_qc_lang1\ X0\ X3) \wedge (X1 \in k24_qc_lang1 \\
& \quad X0\ (k13_cqc_lang\ X0\ X3\ X2))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_qc_lang1\ X0) \Rightarrow (\forall X1.(m2_subset_1\ X1\ (k9_qc_lang1 \\
& \quad X0)\ (k3_cqc_lang\ X0)) \Rightarrow (\forall X2.(m2_subset_1\ X2\ (k2_qc_lang1 \\
& \quad X0)\ (k3_qc_lang1\ X0)) \Rightarrow ((v2_cqc_the1\ X1\ X0) \Rightarrow (v2_cqc_the1\ (k11_cqc_lang \\
& \quad X0\ X2\ X1)\ X0)))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_qc_lang1\ X0) \Rightarrow (\forall X1.(m2_subset_1\ X1\ (k9_qc_lang1 \\
& \quad X0)\ (k3_cqc_lang\ X0)) \Rightarrow (\forall X2.(m2_subset_1\ X2\ (k9_qc_lang1 \\
& \quad X0)\ (k3_cqc_lang\ X0)) \Rightarrow (\forall X3.(m1_subset_1\ X3\ (k9_qc_lang1 \\
& \quad X0)) \Rightarrow (\forall X4.(m2_subset_1\ X4\ (k2_qc_lang1\ X0)\ (k3_qc_lang1 \\
& \quad X0)) \Rightarrow (\forall X5.(m2_subset_1\ X5\ (k2_qc_lang1\ X0)\ (k3_qc_lang1 \\
& \quad X0)) \Rightarrow (((X1 = k13_cqc_lang\ X0\ X3\ X4) \wedge (X2 = k13_cqc_lang\ X0\ X3\ X5)) \Rightarrow \\
& \quad ((X5 \in k24_qc_lang1\ X0\ X3) \vee (v2_cqc_the1\ (k8_cqc_lang\ X0\ X1\ (k12_cqc_lang \\
& \quad X0\ X5\ X2))\ X0))))))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(m1_qc_lang1\ X0) \Rightarrow (\forall X1.(m2_subset_1\ X1\ (k9_qc_lang1 \\
& \quad X0)\ (k3_cqc_lang\ X0)) \Rightarrow (\forall X2.(m2_subset_1\ X2\ (k9_qc_lang1 \\
& \quad X0)\ (k3_cqc_lang\ X0)) \Rightarrow (\forall X3.(m2_subset_1\ X3\ (k2_qc_lang1 \\
& \quad X0)\ (k3_qc_lang1\ X0)) \Rightarrow ((v2_cqc_the1\ (k8_cqc_lang\ X0\ X1\ X2)\ X0) \Rightarrow \\
& \quad ((X3 \in k24_qc_lang1\ X0\ X2) \vee (v2_cqc_the1\ (k8_cqc_lang\ X0\ (k12_cqc_lang \\
& \quad X0\ X3\ X1)\ X2)\ X0))))))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1\ X0) \Rightarrow (\forall X1.(m2_subset_1\ X1\ (k9_qc_lang1 \\ X0)\ (k3_cqc_lang\ X0)) \Rightarrow (\forall X2.(m2_subset_1\ X2\ (k2_qc_lang1 \\ X0)\ (k3_cqc_lang1\ X0)) \Rightarrow (v2_cqc_the1\ (k8_cqc_lang\ X0\ X1\ (k12_cqc_lang \\ X0\ X2\ X1))\ X0))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1\ X0) \Rightarrow (\forall X1.(m2_subset_1\ X1\ (k2_qc_lang1 \\ X0)\ (k3_qc_lang1\ X0)) \Rightarrow (\forall X2.(m2_subset_1\ X2\ (k9_qc_lang1 \\ X0)\ (k3_cqc_lang\ X0)) \Rightarrow (m2_subset_1\ (k5_qc_lang2\ X0\ X1\ X2)\ (k9_qc_lang1 \\ X0)\ (k3_cqc_lang\ X0)))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1_xboole_0\ X0) \wedge ((\neg v1_xboole_0\ X1) \wedge \\ (m1_subset_1\ X1\ (k1_zfmisc_1\ X0)))) \Rightarrow (\forall X2.(m2_subset_1 \\ X2\ X0\ X1) \Leftrightarrow (m1_subset_1\ X2\ X1)) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((m1_qc_lang1\ X0) \wedge ((m1_subset_1 \\ X1\ (k3_cqc_lang\ X0)) \wedge (m1_subset_1\ X2\ (k3_cqc_lang\ X0)))) \Rightarrow (k8_cqc_lang \\ X0\ X1\ X2 = k2_qc_lang2\ X0\ X1\ X2) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((m1_qc_lang1\ X0) \wedge ((m1_subset_1 \\ X1\ (k3_qc_lang1\ X0)) \wedge (m1_subset_1\ X2\ (k3_cqc_lang\ X0)))) \Rightarrow (k12_cqc_lang \\ X0\ X1\ X2 = k5_qc_lang2\ X0\ X1\ X2) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0.(m1_qc_lang1\ X0) \Rightarrow (\neg v1_xboole_0\ (k3_qc_lang1\ X0)) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1\ X0) \wedge (m1_subset_1\ X1\ (k3_cqc_lang \\ X0))) \Rightarrow (v2_cqc_the1\ (k2_qc_lang2\ X0\ X1\ X1)\ X0) \quad (15)$$

Assume the following.

$$\forall X0.(m1_qc_lang1\ X0) \Rightarrow (\neg v1_xboole_0\ (k3_cqc_lang\ X0)) \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1_xboole_0\ X0) \wedge ((\neg v1_xboole_0\ X1) \wedge \\ (m1_subset_1\ X1\ (k1_zfmisc_1\ X0)))) \Rightarrow (\forall X2.(m2_subset_1 \\ X2\ X0\ X1) \Rightarrow (m1_subset_1\ X2\ X0)) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_qc_lang1 X0)\wedge((m1_subset_1 X1 (k3_cqc_lang X0))\wedge(m1_subset_1 X2 (k3_cqc_lang X0))))\Rightarrow(m2_subset_1 (k8_cqc_lang X0 X1 X2) (k9_qc_lang1 X0) (k3_cqc_lang X0)) \quad (18)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(m1_subset_1 (k3_qc_lang1 X0) (k1_zfmisc_1 (k2_qc_lang1 X0))) \quad (19)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(m1_subset_1 (k3_cqc_lang X0) (k1_zfmisc_1 (k9_qc_lang1 X0))) \quad (20)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1 X0)\wedge(m1_subset_1 X1 (k9_qc_lang1 X0)))\Rightarrow(m1_subset_1 (k24_qc_lang1 X0 X1) (k1_zfmisc_1 (k3_qc_lang1 X0))) \quad (21)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_qc_lang1 X0)\wedge((m1_subset_1 X1 (k3_qc_lang1 X0))\wedge(m1_subset_1 X2 (k3_cqc_lang X0))))\Rightarrow(m2_subset_1 (k12_cqc_lang X0 X1 X2) (k9_qc_lang1 X0) (k3_cqc_lang X0)) \quad (22)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(\forall X1.(m2_subset_1 X1 (k2_qc_lang1 X0) (k3_qc_lang1 X0))\Rightarrow(\forall X2.(m2_subset_1 X2 (k2_qc_lang1 X0) (k3_qc_lang1 X0))\Rightarrow(\forall X3.(m1_subset_1 X3 (k9_qc_lang1 X0))\Rightarrow(k7_qc_lang2 X0 X1 X2 X3 = k5_qc_lang2 X0 X1 (k5_qc_lang2 X0 X2 X3)))))) \quad (23)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0)\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0))\Rightarrow(v1_xboole_0 X1)) \quad (24)$$

Theorem 1

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(\forall X1.(m2_subset_1 X1 (k9_qc_lang1 X0) (k3_cqc_lang X0))\Rightarrow(\forall X2.(m2_subset_1 X2 (k9_qc_lang1 X0) (k3_cqc_lang X0))\Rightarrow(\forall X3.(m1_subset_1 X3 (k9_qc_lang1 X0))\Rightarrow(\forall X4.(m2_subset_1 X4 (k2_qc_lang1 X0) (k3_qc_lang1 X0))\Rightarrow(\forall X5.(m2_subset_1 X5 (k2_qc_lang1 X0) (k3_qc_lang1 X0))\Rightarrow(((X1 = k13_cqc_lang X0 X3 X4)\wedge(X2 = k13_cqc_lang X0 X3 X5))\Rightarrow((X5 \in k24_qc_lang1 X0 X3)\vee(v2_cqc_the1 (k2_qc_lang2 X0 (k12_cqc_lang X0 X4 X1) (k7_qc_lang2 X0 X4 X5 X2)) X0))))))))))$$