

t83_cqc_the2
(TMQ9C2KKgnJRw3RgUhWxw3qW6fX8JkMsF8J)

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

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ & \quad X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k9_qc_lang1 X0)) \Rightarrow (\forall X3. \\ & \quad (m2_subset_1 X3 (k2_qc_lang1 X0) (k3_qc_lang1 X0)) \Rightarrow ((X3 \in k24_qc_lang1 \\ & \quad X0 (k2_qc_lang2 X0 X1 X2)) \Leftrightarrow ((X3 \in k24_qc_lang1 X0 X1) \vee (X3 \in k24_qc_lang1 \\ & \quad X0 X2)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ & \quad X0)) \Rightarrow (\forall X2.(m2_subset_1 X2 (k2_qc_lang1 X0) (k3_qc_lang1 \\ & \quad X0)) \Rightarrow (\forall X3.(m2_subset_1 X3 (k2_qc_lang1 X0) (k3_qc_lang1 \\ & \quad X0)) \Rightarrow ((X2 \in k24_qc_lang1 X0 (k5_qc_lang2 X0 X3 X1)) \Leftrightarrow ((X2 \in k24_qc_lang1 \\ & \quad X0 X1) \wedge (X2 \neq X3)))))) \end{aligned} \tag{2}$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0.(m1_qc_lang1\ X0) \Rightarrow (\forall X1.(m2_subset_1\ X1\ (k9_qc_lang1 \\ & \quad X0)\ (k3_cqc_lang\ X0)) \Rightarrow (\forall X2.(m2_subset_1\ X2\ (k9_qc_lang1 \\ & \quad X0)\ (k3_cqc_lang\ X0)) \Rightarrow (\forall X3.(m2_subset_1\ X3\ (k2_qc_lang1 \\ & \quad X0)\ (k3_qc_lang1\ X0)) \Rightarrow ((v2_cqc_the1\ (k8_cqc_lang\ X0\ X1\ X2)\ X0) \Rightarrow \\ & \quad ((X3 \in k24_qc_lang1\ X0\ X2) \vee (v2_cqc_the1\ (k8_cqc_lang\ X0\ (k12_cqc_lang \\ & \quad \quad X0\ X3\ X1)\ X2)\ X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_qc_lang1\ X0) \Rightarrow (\forall X1.(m2_subset_1\ X1\ (k9_qc_lang1 \\ & \quad X0)\ (k3_cqc_lang\ X0)) \Rightarrow (\forall X2.(m2_subset_1\ X2\ (k2_qc_lang1 \\ & \quad X0)\ (k3_qc_lang1\ X0)) \Rightarrow (v2_cqc_the1\ (k8_cqc_lang\ X0\ X1\ (k12_cqc_lang \\ & \quad \quad X0\ X2\ X1))\ X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0\ X0) \wedge ((\neg v1_xboole_0\ X1) \wedge \\ & \quad (m1_subset_1\ X1\ (k1_zfmisc_1\ X0)))) \Rightarrow (\forall X2.(m2_subset_1 \\ & \quad \quad X2\ X0\ X1) \Leftrightarrow (m1_subset_1\ X2\ X1)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1_qc_lang1\ X0) \wedge ((m1_subset_1 \\ & \quad X1\ (k3_cqc_lang\ X0)) \wedge (m1_subset_1\ X2\ (k3_cqc_lang\ X0)))) \Rightarrow (k8_cqc_lang \\ & \quad \quad X0\ X1\ X2 = k2_qc_lang2\ X0\ X1\ X2) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1_qc_lang1\ X0) \wedge ((m1_subset_1 \\ & \quad X1\ (k3_qc_lang1\ X0)) \wedge (m1_subset_1\ X2\ (k3_cqc_lang\ X0)))) \Rightarrow (k12_cqc_lang \\ & \quad \quad X0\ X1\ X2 = k5_qc_lang2\ X0\ X1\ X2) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0.(m1_qc_lang1\ X0) \Rightarrow (\neg v1_xboole_0\ (k3_qc_lang1\ X0)) \quad (9)$$

Assume the following.

$$\forall X0.(m1_qc_lang1\ X0) \Rightarrow (\neg v1_xboole_0\ (k3_cqc_lang\ X0)) \quad (10)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1_qc_lang1\ X0)\wedge((m1_subset_1 \\ & X1\ (k3_cqc_lang\ X0))\wedge(m1_subset_1\ X2\ (k3_cqc_lang\ X0))))\Rightarrow(m2_subset_1 \\ & (k8_cqc_lang\ X0\ X1\ X2)\ (k9_qc_lang1\ X0)\ (k3_cqc_lang\ X0)) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0.(m1_qc_lang1\ X0)\Rightarrow(m1_subset_1\ (k3_qc_lang1\ X0)\ (k1_zfmisc.1\ (k2_qc_lang1\ X0))) \quad (13)$$

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.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1_qc_lang1\ X0)\wedge((m1_subset_1 \\ & X1\ (k3_qc_lang1\ X0))\wedge(m1_subset_1\ X2\ (k3_cqc_lang\ X0))))\Rightarrow(m2_subset_1 \\ & (k12_cqc_lang\ X0\ X1\ X2)\ (k9_qc_lang1\ X0)\ (k3_cqc_lang\ X0)) \end{aligned} \quad (15)$$

Assume the following.

$$\forall X0.(v1_xboole.0\ X0)\Rightarrow(\forall X1.(m1_subset_1\ X1\ (k1_zfmisc.1\ X0))\Rightarrow(v1_xboole.0\ X1)) \quad (16)$$

Theorem 1

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