

t29_cqc_the2 (TM- cmU8SBJmEog4U3ZgpXiE4UkBFqS5mh6Um)

October 27, 2020

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

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

Assume the following.

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m2_subset_1 X1 (k9_qc_lang1 \\ & X0) (k3_cqc_lang X0)) \Rightarrow (\forall X2.(m2_subset_1 X2 (k9_qc_lang1 \\ & X0) (k3_cqc_lang X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (k9_qc_lang1 \\ & X0)) \Rightarrow (\forall X4.(m2_subset_1 X4 (k2_qc_lang1 X0) (k3_qc_lang1 \\ & X0)) \Rightarrow (\forall X5.(m2_subset_1 X5 (k2_qc_lang1 X0) (k3_qc_lang1 \\ & X0)) \Rightarrow (((X1 = k13_cqc_lang X0 X3 X4) \wedge (X2 = k13_cqc_lang X0 X3 X5)) \Rightarrow \\ & ((X5 \in k24_qc_lang1 X0 X3) \vee (v2_cqc_the1 (k8_cqc_lang X0 X1 (k12_cqc_lang \\ & X0 X5 X2)) X0)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m2_subset_1 X1 (k9_qc_lang1 \\ & X0) (k3_cqc_lang X0)) \Rightarrow (\forall X2.(m2_subset_1 X2 (k9_qc_lang1 \\ & X0) (k3_cqc_lang X0)) \Rightarrow (\forall X3.(m2_subset_1 X3 (k2_qc_lang1 \\ & X0) (k3_qc_lang1 X0)) \Rightarrow ((v2_cqc_the1 (k8_cqc_lang X0 X1 X2) X0) \Rightarrow \\ & ((X3 \in k24_qc_lang1 X0 X2) \vee (v2_cqc_the1 (k8_cqc_lang X0 (k12_cqc_lang \\ & X0 X3 X1) X2) X0)))) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 X0))))\Rightarrow(\forall X2.(m2_subset_1 X2 X0 X1)\Leftrightarrow(m1_subset_1 X2 X1)) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_qc_lang1 X0)\wedge((m1_subset_1 X1 (k3_qc_lang1 X0))\wedge(m1_subset_1 X2 (k3_qc_lang X0))))\Rightarrow(k12_qc_lang X0 X1 X2 = k5_qc_lang2 X0 X1 X2) \quad (5)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(\neg v1_xboole_0 (k3_qc_lang1 X0)) \quad (6)$$

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$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(\neg v1_xboole_0 (k3_qc_lang X0)) \quad (7)$$

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$$\forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 X0))))\Rightarrow(\forall X2.(m2_subset_1 X2 X0 X1)\Rightarrow(m1_subset_1 X2 X0)) \quad (8)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(m1_subset_1 (k3_qc_lang1 X0) (k1_zfmisc_1 (k2_qc_lang1 X0))) \quad (9)$$

Assume the following.

$$\forall X0.(m1_qc_lang1 X0)\Rightarrow(m1_subset_1 (k3_qc_lang X0) (k1_zfmisc_1 (k9_qc_lang1 X0))) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_qc_lang1 X0)\wedge((m1_subset_1 X1 (k3_qc_lang1 X0))\wedge(m1_subset_1 X2 (k3_qc_lang X0))))\Rightarrow(m2_subset_1 (k12_qc_lang X0 X1 X2) (k9_qc_lang1 X0) (k3_qc_lang X0)) \quad (11)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0)\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0))\Rightarrow(v1_xboole_0 X1)) \quad (12)$$

Theorem 1

$$\begin{aligned} & \forall X0.(m1_qc_lang1\ X0) \Rightarrow (\forall X1.(m2_subset_1\ X1\ (k9_qc_lang1 \\ & \quad X0)\ (k3_cqc_lang\ X0)) \Rightarrow (\forall X2.(m2_subset_1\ X2\ (k9_qc_lang1 \\ & \quad X0)\ (k3_cqc_lang\ X0)) \Rightarrow (\forall X3.(m1_subset_1\ X3\ (k9_qc_lang1 \\ & \quad X0)) \Rightarrow (\forall X4.(m2_subset_1\ X4\ (k2_qc_lang1\ X0)\ (k3_qc_lang1 \\ & \quad X0)) \Rightarrow (\forall X5.(m2_subset_1\ X5\ (k2_qc_lang1\ X0)\ (k3_qc_lang1 \\ & \quad X0)) \Rightarrow (((X1 = k13_cqc_lang\ X0\ X3\ X4) \wedge (X2 = k13_cqc_lang\ X0\ X3\ X5)) \Rightarrow \\ & \quad ((X4 \in k24_qc_lang1\ X0\ X2) \vee ((X5 \in k24_qc_lang1\ X0\ X3) \vee (v2_cqc.the1 \\ & \quad (k8_cqc_lang\ X0\ (k12_cqc_lang\ X0\ X4\ X1)\ (k12_cqc_lang\ X0\ X5\ X2)) \\ & \quad X0))))))))) \end{aligned}$$