

t16_qc_lang3
(TMJ7HrrCAM11UirbhbPxQ5jfevdxCEn9Ed5)

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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 $k24_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_qc_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $k12_qc_lang2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_qc_lang2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k18_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k14_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_qc_lang2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ & X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k9_qc_lang1 X0)) \Rightarrow ((k12_qc_lang2 \\ & X0 (k2_qc_lang2 X0 X1 X2) = X1) \wedge ((k11_qc_lang2 X0 (k2_qc_lang2 X0 \\ & X1 X2) = X2) \wedge (k18_qc_lang1 X0 (k2_qc_lang2 X0 X1 X2) = k14_qc_lang1 \\ & X0 X1 (k13_qc_lang1 X0 X2)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ & X0)) \Rightarrow ((v2_qc_lang2 X1 X0) \Rightarrow (k24_qc_lang1 X0 X1 = k4_subset_1 (k3_qc_lang1 \\ & X0) (k24_qc_lang1 X0 (k12_qc_lang2 X0 X1)) (k24_qc_lang1 X0 (k11_qc_lang2 \\ & X0 X1)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1_qc_lang1 X0) \wedge ((m1_subset_1 \\ & X1 (k9_qc_lang1 X0)) \wedge (m1_subset_1 X2 (k9_qc_lang1 X0)))) \Rightarrow (m1_subset_1 \\ & (k2_qc_lang2 X0 X1 X2) (k9_qc_lang1 X0)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ & X0)) \Rightarrow ((v2_qc_lang2 X1 X0) \Leftrightarrow (\exists X2.(m1_subset_1 X2 (k9_qc_lang1 \\ & X0)) \wedge (\exists X3.(m1_subset_1 X3 (k9_qc_lang1 X0)) \wedge (X1 = k2_qc_lang2 \\ & X0 X2 X3)))))) \end{aligned} \quad (4)$$

Theorem 1

$$\begin{aligned} & \forall X0.(m1_qc_lang1\ X0) \Rightarrow (\forall X1.(m1_subset_1\ X1\ (k9_qc_lang1 \\ & X0)) \Rightarrow (\forall X2.(m1_subset_1\ X2\ (k9_qc_lang1\ X0)) \Rightarrow (k24_qc_lang1 \\ & X0\ (k2_qc_lang2\ X0\ X1\ X2) = k4_subset_1\ (k3_qc_lang1\ X0)\ (k24_qc_lang1 \\ & X0\ X1)\ (k24_qc_lang1\ X0\ X2)))) \end{aligned}$$