

t70_qc_lang2 (TMX- CRA4UmZop58CDPAWppetnWgr5qbSdBd4)

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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 $r2_qc_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k14_qc_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r3_qc_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_qc_lang2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ & \quad X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k9_qc_lang1 X0)) \Rightarrow (\forall X3. \\ & \quad (m1_subset_1 X3 (k9_qc_lang1 X0)) \Rightarrow ((\neg(\neg(r3_qc_lang2 X0 X1 X2) \wedge \\ & \quad (r2_qc_lang2 X0 X2 X3)) \wedge (\neg(r2_qc_lang2 X0 X1 X2) \wedge (r3_qc_lang2 \\ & \quad X0 X2 X3)) \wedge (\neg(r2_qc_lang2 X0 X1 X2) \wedge (r1_qc_lang2 X0 X2 X3)) \wedge ((\\ & \quad \neg(r1_qc_lang2 X0 X1 X2) \wedge (r2_qc_lang2 X0 X2 X3)) \wedge (\neg(r3_qc_lang2 \\ & \quad X0 X1 X2) \wedge (r1_qc_lang2 X0 X2 X3)) \wedge (\neg(r1_qc_lang2 X0 X1 X2) \wedge (r3_qc_lang2 \\ & \quad X0 X2 X3)))))) \Rightarrow (r3_qc_lang2 X0 X1 X3)))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ & \quad X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k9_qc_lang1 X0)) \Rightarrow (\forall X3. \\ & \quad (m1_subset_1 X3 (k9_qc_lang1 X0)) \Rightarrow ((r1_qc_lang2 X0 X1 (k14_qc_lang1 \\ & \quad X0 X2 X3)) \Leftrightarrow ((X1 = X2) \vee (X1 = X3)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1_qc_lang1 X0) \wedge ((m1_subset_1 \\ & \quad X1 (k9_qc_lang1 X0)) \wedge (m1_subset_1 X2 (k9_qc_lang1 X0)))) \Rightarrow (m1_subset_1 \\ & \quad (k14_qc_lang1 X0 X1 X2) (k9_qc_lang1 X0)) \end{aligned} \tag{3}$$

Theorem 1

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ & \quad X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k9_qc_lang1 X0)) \Rightarrow (\forall X3. \\ & \quad (m1_subset_1 X3 (k9_qc_lang1 X0)) \Rightarrow ((r2_qc_lang2 X0 (k14_qc_lang1 \\ & \quad X0 X1 X2) X3) \Rightarrow ((r3_qc_lang2 X0 X1 X3) \wedge (r3_qc_lang2 X0 X2 X3)))))) \end{aligned}$$