

t63_qc_lang2
(TMauyj82Msm372KLPtsyz51suk9cKG7pg8D)

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

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

Assume the following.

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ & \quad X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k9_qc_lang1 X0)) \Rightarrow ((r1_qc_lang2 \\ & \quad X0 X1 X2) \Rightarrow (r3_qc_lang2 X0 X1 X2)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ & \quad X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k9_qc_lang1 X0)) \Rightarrow ((r3_qc_lang2 \\ & \quad X0 X1 X2) \Leftrightarrow ((r2_qc_lang2 X0 X1 X2) \wedge (X1 \neq X2)))))) \end{aligned} \quad (3)$$

Theorem 1

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