

t34_qc_lang4

(TMLVV2JxH1uioCbNuKssddZoxQL9rbAdTxi)

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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 $m1_qc_lang4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_qc_lang4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_xboole_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_trees_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k2_qc_lang4 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_trees_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ X0)) \Rightarrow (\forall X2.(m1_trees_1 X2 (k9_xtuple_0 (k2_qc_lang4 X0 \\ X1))) \Rightarrow (\forall X3.(m1_trees_1 X3 (k9_xtuple_0 (k2_qc_lang4 X0 \\ X1))) \Rightarrow (\neg(X2 \neq X3) \wedge ((k3_trees_2 (k9_qc_lang1 X0) (k2_qc_lang4 \\ X0 X1) X2 = k3_trees_2 (k9_qc_lang1 X0) (k2_qc_lang4 X0 X1) X3) \wedge (\\ r3_xboole_0 X2 X3)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((m1_qc_lang1 X0) \wedge ((m1_subset_1 \\ X1 (k9_qc_lang1 X0)) \wedge (m1_qc_lang4 X2 X0 X1))) \Rightarrow (\forall X3.(m2_qc_lang4 \\ X3 X0 X1 X2) \Rightarrow (m1_trees_1 X3 (k9_xtuple_0 (k2_qc_lang4 X0 X1)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ X0)) \Rightarrow (\forall X2.(m1_qc_lang4 X2 X0 X1) \Rightarrow (\forall X3.(m1_trees_1 \\ X3 (k9_xtuple_0 (k2_qc_lang4 X0 X1))) \Rightarrow ((m2_qc_lang4 X3 X0 X1 X2) \Leftrightarrow \\ (k3_trees_2 (k9_qc_lang1 X0) (k2_qc_lang4 X0 X1) X3 = X2)))))) \end{aligned} \tag{3}$$

Theorem 1

$$\begin{aligned} \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k9_qc_lang1 \\ X0)) \Rightarrow (\forall X2.(m1_qc_lang4 X2 X0 X1) \Rightarrow (\forall X3.(m2_qc_lang4 \\ X3 X0 X1 X2) \Rightarrow (\forall X4.(m2_qc_lang4 X4 X0 X1 X2) \Rightarrow (\neg(X3 \neq X4) \wedge (r3_xboole_0 \\ X3 X4)))))) \end{aligned}$$