

t39_msaterm

(TMP2Zg1mNGDvA1BDJKNDdHcNoXSCdaddunu)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $v4_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m4_msaterm : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $u3_msualg_1 : \iota \Rightarrow \iota$ be given. Let $m1_dtconstr : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_msafree : \iota \Rightarrow \iota$ be given. Let $k2_pboole : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_trees_3 : \iota \Rightarrow \iota$ be given. Let $k1_msaterm : \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $v3_trees_2 : \iota \Rightarrow o$ be given. Let $r1_msaterm : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_msaterm : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k7_msaterm : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\
 & X0))) \Rightarrow (\forall X1.((v4_msualg_1 X1 X0) \wedge (l3_msualg_1 X1 X0)) \Rightarrow \\
 & (\forall X2.(m4_msaterm X2 X0 X1) \Rightarrow (\forall X3.(m1_dtconstr X3 \\
 & (u1_struct_0 (k5_msafree X0) (k2_pboole (u1_struct_0 X0) (u3_msualg_1 \\
 & X0 X1) X2))) (k5_trees_3 (u1_struct_0 (k5_msafree X0) (k2_pboole \\
 & (u1_struct_0 X0) (u3_msualg_1 X0 X1) X2)))) (k1_msaterm X0 (k2_pboole \\
 & (u1_struct_0 X0) (u3_msualg_1 X0 X1) X2))) \Rightarrow (\forall X4.(m2_pboole \\
 & X4 (u1_struct_0 X0) X2 (u3_msualg_1 X0 X1)) \Rightarrow (\forall X5.((v1_relat_1 \\
 & X5) \wedge ((v1_funct_1 X5) \wedge ((v1_finset_1 X5) \wedge (v3_trees_2 X5)))) \Rightarrow \\
 & ((r1_msaterm X0 X1 X2 X3 X4 X5) \Rightarrow (k1_funct_1 X5 k1_xboole_0 \in k1_funct_1 \\
 & (u3_msualg_1 X0 X1) (k7_msaterm X0 (k2_pboole (u1_struct_0 X0) \\
 & (u3_msualg_1 X0 X1) X2) X3)))))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\
& X0))) \Rightarrow (\forall X1.((v4_msualg_1 X1 X0) \wedge (l3_msualg_1 X1 X0)) \Rightarrow \\
& (\forall X2.(m4_msaterm X2 X0 X1) \Rightarrow (\forall X3.(m1_dtconstr X3 \\
& (u1_struct_0 (k5_msafree X0 (k2_pboole (u1_struct_0 X0) (u3_msualg_1 \\
& X0 X1) X2))) (k5_trees_3 (u1_struct_0 (k5_msafree X0 (k2_pboole \\
& (u1_struct_0 X0) (u3_msualg_1 X0 X1) X2)))) (k1_msaterm X0 (k2_pboole \\
& (u1_struct_0 X0) (u3_msualg_1 X0 X1) X2))) \Rightarrow (\forall X4.(m2_pboole \\
& X4 (u1_struct_0 X0) X2 (u3_msualg_1 X0 X1)) \Rightarrow (\forall X5.(m1_subset_1 \\
& X5 (k1_funct_1 (u3_msualg_1 X0 X1) (k7_msaterm X0 (k2_pboole (u1_struct_0 \\
& X0) (u3_msualg_1 X0 X1) X2) X3))) \Rightarrow ((X5 = k9_msaterm X0 X1 X2 X3 X4) \Leftrightarrow \\
& (\exists X6.((v1_relat_1 X6) \wedge ((v1_funct_1 X6) \wedge ((v1_finset_1 \\
& X6) \wedge (v3_trees_2 X6)))) \wedge ((r1_msaterm X0 X1 X2 X3 X4 X6) \wedge (X5 = k1_funct_1 \\
& X6 k1_xboole_0)))))))))
\end{aligned} \tag{3}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\
& X0))) \Rightarrow (\forall X1.((v4_msualg_1 X1 X0) \wedge (l3_msualg_1 X1 X0)) \Rightarrow \\
& (\forall X2.(m4_msaterm X2 X0 X1) \Rightarrow (\forall X3.(m2_pboole X3 (u1_struct_0 \\
& X0) X2 (u3_msualg_1 X0 X1)) \Rightarrow (\forall X4.(m1_dtconstr X4 (u1_struct_0 \\
& (k5_msafree X0 (k2_pboole (u1_struct_0 X0) (u3_msualg_1 X0 X1) \\
& X2))) (k5_trees_3 (u1_struct_0 (k5_msafree X0 (k2_pboole (u1_struct_0 \\
& X0) (u3_msualg_1 X0 X1) X2)))) (k1_msaterm X0 (k2_pboole (u1_struct_0 \\
& X0) (u3_msualg_1 X0 X1) X2))) \Rightarrow (\forall X5.((v1_relat_1 X5) \wedge ((\\
& v1_funct_1 X5) \wedge ((v1_finset_1 X5) \wedge (v3_trees_2 X5)))) \Rightarrow ((r1_msaterm \\
& X0 X1 X2 X4 X3 X5) \Rightarrow (k9_msaterm X0 X1 X2 X4 X3 = k1_funct_1 X5 k1_xboole_0)))))))))
\end{aligned}$$