

t19_msaterm
(TMTyYEnS6zjnGyiNt2Y6tj2L18i6j7JWpiD)

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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 $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v2_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_msaterm : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u3_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_msaterm : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_dtconstr : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_msafree : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_trees_3 : \iota \Rightarrow \iota$ be given. Let $k1_msaterm : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_trees_4 : \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\
& X0))) \Rightarrow (\forall X1. ((v1_relat_1 X1) \wedge ((v2_relat_1 X1) \wedge ((v4_relat_1 \\
& X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 (u1_struct_0 \\
& X0)))))) \Rightarrow (\forall X2. (l3_msualg_1 X2 X0) \Rightarrow (\forall X3. (m1_dtconstr \\
& X3 (u1_struct_0 (k5_msafree X0 (k2_pboole (u1_struct_0 X0) (u3_msualg_1 \\
& X0 X2) X1))) (k5_trees_3 (u1_struct_0 (k5_msafree X0 (k2_pboole \\
& (u1_struct_0 X0) (u3_msualg_1 X0 X2) X1)))) (k1_msaterm X0 (k2_pboole \\
& (u1_struct_0 X0) (u3_msualg_1 X0 X2) X1))) \Rightarrow (\forall X4. (m1_subset_1 \\
& X4 (u1_struct_0 X0)) \Rightarrow (\forall X5. (m1_subset_1 X5 (k1_funct_1 \\
& X1 X4)) \Rightarrow ((X3 = k1_trees_4 (k4_tarski X5 X4)) \Rightarrow (k7_msaterm X0 (k2_pboole \\
& (u1_struct_0 X0) (u3_msualg_1 X0 X2) X1) X3 = X4))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. (((\neg v2_struct_0 \\
& X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 X0))) \wedge ((l3_msualg_1 X1 \\
& X0) \wedge (((v1_relat_1 X2) \wedge ((v2_relat_1 X2) \wedge ((v4_relat_1 X2 (u1_struct_0 \\
& X0)) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 (u1_struct_0 X0)))))) \wedge \\
& ((m1_subset_1 X3 (u1_struct_0 X0)) \wedge (m1_subset_1 X4 (k1_funct_1 \\
& X2 X3)))))) \Rightarrow (m1_dtconstr (k5_msaterm X0 X1 X2 X3 X4) (u1_struct_0 \\
& (k5_msafree X0 (k2_pboole (u1_struct_0 X0) (u3_msualg_1 X0 X1) \\
& X2))) (k5_trees_3 (u1_struct_0 (k5_msafree X0 (k2_pboole (u1_struct_0 \\
& X0) (u3_msualg_1 X0 X1) X2)))) (k1_msaterm X0 (k2_pboole (u1_struct_0 \\
& X0) (u3_msualg_1 X0 X1) X2)))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\
& X0))) \Rightarrow (\forall X1. (l3_msualg_1 X1 X0) \Rightarrow (\forall X2. ((v1_relat_1 \\
& X2) \wedge ((v2_relat_1 X2) \wedge ((v4_relat_1 X2 (u1_struct_0 X0)) \wedge ((v1_funct_1 \\
& X2) \wedge (v1_partfun1 X2 (u1_struct_0 X0)))))) \Rightarrow (\forall X3. (m1_subset_1 \\
& X3 (u1_struct_0 X0)) \Rightarrow (\forall X4. (m1_subset_1 X4 (k1_funct_1 \\
& X2 X3)) \Rightarrow (k5_msaterm X0 X1 X2 X3 X4 = k1_trees_4 (k4_tarski X4 X3))))))
\end{aligned} \tag{3}$$

Theorem 1

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\
& X0))) \Rightarrow (\forall X1. ((v1_relat_1 X1) \wedge ((v2_relat_1 X1) \wedge ((v4_relat_1 \\
& X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 (u1_struct_0 \\
& X0)))))) \Rightarrow (\forall X2. (l3_msualg_1 X2 X0) \Rightarrow (\forall X3. (m1_subset_1 \\
& X3 (u1_struct_0 X0)) \Rightarrow (\forall X4. (m1_subset_1 X4 (k1_funct_1 \\
& X1 X3)) \Rightarrow (k7_msaterm X0 (k2_pboole (u1_struct_0 X0) (u3_msualg_1 \\
& X0 X2) X1) (k5_msaterm X0 X2 X1 X3 X4) = X3))))))
\end{aligned}$$