

t17_msaterm
(TMRqFEuN6u2JTP3tUffabnqfjUG6KtCo6zA)

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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 $m1_dtconstr : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_msaterm : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $k7_msafree : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_dtconstr : \iota \Rightarrow \iota$ be given. Let $k1_trees_4 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge \\ & (l1_msualg_1 X0)) \wedge (m1_subset_1 X1 (u4_struct_0 X0))) \Rightarrow (m1_subset_1 \\ & (k2_msualg_1 X0 X1) (u1_struct_0 X0)) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. k4_tarski X0 X1 = k2_tarski (k2_tarski X0 X1) (k1_tarski X0) \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & X0)) \Rightarrow (\forall X1. ((v1_relat_1 X1) \wedge ((v2_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 (u1_struct_0 \\ & X0)))))) \Rightarrow (\forall X2. (m1_dtconstr X2 (u1_struct_0 (k5_msafree \\ & X0 X1)) (k5_trees_3 (u1_struct_0 (k5_msafree X0 X1))) (k1_msaterm \\ & X0 X1)) \Rightarrow (\forall X3. (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((X3 = k7_msaterm \\ & X0 X1 X2) \Leftrightarrow (X2 \in k7_msafree X0 X1 X3)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & X0))) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v4_relat_1 X1 (u1_struct_0 \\ & X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 (u1_struct_0 X0)))))) \Rightarrow \\ & (k1_msaterm X0 X1 = k4_dtconstr (k5_msafree X0 X1)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & X0))) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v2_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 (u1_struct_0 \\ & X0)))))) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k7_msafree \\ & X0 X1 X2 = ReplSep (toset (\lambda X3 : \iota. m1_dtconstr X3 (u1_struct_0 \\ & (k5_msafree X0 X1)) (k5_trees_3 (u1_struct_0 (k5_msafree X0 X1))) \\ & (k4_dtconstr (k5_msafree X0 X1)))) (\lambda X3 : \iota. \neg (\forall X4. \\ & \neg (X4 \in k1_funct_1 X1 X2) \wedge (X3 = k1_trees_4 (k4_tarski X4 X2))) \wedge (\forall X4. \\ & (m1_subset_1 X4 (u4_struct_0 X0)) \Rightarrow (\neg (k4_tarski X4 (u1_struct_0 \\ & X0) = k1_funct_1 X3 k1_xboole_0) \wedge (k2_msualg_1 X0 X4 = X2)))) (\lambda X3 : \\ & \iota. X3)))) \end{aligned} \quad (5)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & X0))) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v2_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 (u1_struct_0 \\ & X0)))))) \Rightarrow (\forall X2.(m1_dtconstr X2 (u1_struct_0 (k5_msafree \\ & X0 X1)) (k5_trees_3 (u1_struct_0 (k5_msafree X0 X1))) (k1_msaterm \\ & X0 X1)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u4_struct_0 X0)) \Rightarrow ((k1_funct_1 \\ & X2 k1_xboole_0 = k4_tarski X3 (u1_struct_0 X0)) \Rightarrow (k7_msaterm X0 \\ & X1 X2 = k2_msualg_1 X0 X3)))))) \end{aligned}$$