

t5_msaterm (TMVwg- WEcjUQ2knXgVYrx3Q8H4JJ1p3p9dCX)

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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 $m1_dtconstr : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_trees_4 : \iota \Rightarrow \iota$ be given. Let $v1_dtconstr : \iota \Rightarrow o$ be given. Let $l1_lang1 : \iota \Rightarrow o$ be given. Let $k4_dtconstr : \iota \Rightarrow \iota$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_dtconstr : \iota \Rightarrow \iota$ be given. Let $k8_dtconstr : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v2_dtconstr : \iota \Rightarrow o$ be given. Let $v3_dtconstr : \iota \Rightarrow o$ be given. Let $v1_lang1 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v1_dtconstr X0) \wedge (l1_lang1 X0))) \Rightarrow \\ & (\forall X1.(m1_dtconstr X1 (u1_struct_0 X0) (k5_trees_3 (u1_struct_0 \\ & X0)) (k4_dtconstr X0)) \Rightarrow (\forall X2.(m2_subset_1 X2 (u1_struct_0 \\ & X0) (k6_dtconstr X0)) \Rightarrow ((k1_funct_1 X1 k1_xboole_0 = X2) \Rightarrow (X1 = k8_dtconstr \\ & X0 X2)))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. \neg (X0 \in X1) \wedge ((m1_subset_1 X1 (k1_zfmisc_1 X2)) \wedge (v1_xboole_0 X2)) \tag{2}$$

Assume the following.

$$\forall X0. \forall X1. (X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 X0)))) \Rightarrow (\forall X2. (m2_subset_1 \\ & X2 X0 X1) \Leftrightarrow (m1_subset_1 X2 X1)) \end{aligned} \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v1_dtconstr X0)\wedge(l1_lang1 X0)))\wedge(m1_subset_1 X1 (k6_dtconstr X0)))\Rightarrow(k8_dtconstr X0 X1 = k1_trees_4 X1) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge(l1_msualg_1 X0)))\Rightarrow(\forall X1.((v1_relat_1 X1)\wedge((v2_relat_1 X1)\wedge((v4_relat_1 X1 (u1_struct_0 X0))\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 (u1_struct_0 X0))))))\Rightarrow(\forall X2.(\neg(X2 \in k6_dtconstr (k5_msafree X0 X1))\wedge(\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow(\forall X4.(m1_subset_1 X4 (k1_funct_1 X1 X3))\Rightarrow(X2 \neq k4_tarski X4 X3))))))\wedge(\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow(\forall X4.(m1_subset_1 X4 (k1_funct_1 X1 X3))\Rightarrow((X2 = k4_tarski X4 X3)\Rightarrow(X2 \in k6_dtconstr (k5_msafree X0 X1))))))) \quad (6) \end{aligned}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge(l1_msualg_1 X0)))\wedge((v1_relat_1 X1)\wedge((v2_relat_1 X1)\wedge((v4_relat_1 X1 (u1_struct_0 X0))\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 (u1_struct_0 X0)))))))\Rightarrow((v1_dtconstr (k5_msafree X0 X1))\wedge((v2_dtconstr (k5_msafree X0 X1))\wedge(v3_dtconstr (k5_msafree X0 X1)))) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge(l1_msualg_1 X0)))\wedge((v1_relat_1 X1)\wedge((v4_relat_1 X1 (u1_struct_0 X0))\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 (u1_struct_0 X0)))))))\Rightarrow((\neg v2_struct_0 (k5_msafree X0 X1))\wedge(v1_lang1 (k5_msafree X0 X1))) \quad (8)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge((v1_dtconstr X0)\wedge(l1_lang1 X0)))\Rightarrow((\neg v1_xboole_0 (k6_dtconstr X0))\wedge(m1_subset_1 (k6_dtconstr X0) (k1_zfmisc_1 (u1_struct_0 X0)))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge(l1_msualg_1 X0)))\wedge((v1_relat_1 X1)\wedge((v4_relat_1 X1 (u1_struct_0 X0))\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 (u1_struct_0 X0)))))))\Rightarrow(l1_lang1 (k5_msafree X0 X1)) \quad (10)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge(l1_msualg_1 X0)))\Rightarrow(\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 (u1_struct_0 X0))\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 (u1_struct_0 X0))))))\Rightarrow(k1_msaterm X0 X1 = k4_dtconstr (k5_msafree X0 X1)) \quad (11)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & X0))) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v2_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 (u1_struct_0 \\ & X0)))))) \Rightarrow (\forall X2.(m1_dtconstr X2 (u1_struct_0 (k5_msafree \\ & X0 X1)) (k5_trees_3 (u1_struct_0 (k5_msafree X0 X1))) (k1_msaterm \\ & X0 X1)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\forall X4. \\ & (m1_subset_1 X4 (k1_funct_1 X1 X3)) \Rightarrow ((k1_funct_1 X2 k1_xboole_0 = \\ & k4_tarski X4 X3) \Rightarrow (X2 = k1_trees_4 (k4_tarski X4 X3)))))) \end{aligned}$$