

t2_msaterm
(TMaWu8Dk6zxqci5tNti81RAPkFbY2m8gPDG)

October 27, 2020

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 $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_lang1 : \iota \Rightarrow \iota$ be given. Let $k3_card_3 : \iota \Rightarrow \iota$ be given. Let $k3_msafree : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_lang1 : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_trees_1 : \iota \Rightarrow o$ be given. Let $k6_finseq_1 : \iota \Rightarrow \iota$ be given. Let $k5_numbers : \iota$ be given. Let $l1_lang1 : \iota \Rightarrow o$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_trees_3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $v1_dtconstr : \iota \Rightarrow o$ be given. Let $k6_dtconstr : \iota \Rightarrow \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k3_msaterm : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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. Let $v3_trees_2 : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $k2_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_trees_3 : \iota \Rightarrow o$ be given. Let $v4_funct_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\
& X0))) \Rightarrow (\forall X1. ((v1_relat_1 X1) \wedge ((v4_relat_1 X1 (u1_struct_0 \\
& X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 (u1_struct_0 X0)))))) \Rightarrow \\
& ((r1_tarski (k2_lang1 (k5_msafree X0 X1)) (k2_zfmisc_1 (u4_struct_0 \\
& X0) (k1_tarski (u1_struct_0 X0)))) \wedge ((r1_tarski (k3_card_3 (k3_msafree \\
& (u1_struct_0 X0) X1)) (k1_lang1 (k5_msafree X0 X1))) \wedge ((v2_relat_1 \\
& X1) \Rightarrow ((k2_lang1 (k5_msafree X0 X1) = k2_zfmisc_1 (u4_struct_0 X0) \\
& (k1_tarski (u1_struct_0 X0))) \wedge (k1_lang1 (k5_msafree X0 X1) = k3_card_3 \\
& (k3_msafree (u1_struct_0 X0) X1))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X0 X1)\Rightarrow((v1_xboole_0 X1)\vee (X0 \in X1)) \quad (2)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0)\wedge(v1_trees_1 X0))\Rightarrow((k1_xboole_0 \in X0)\wedge(k6_finseq_1 k5_numbers \in X0)) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.(X0 \in X1)\Rightarrow(m1_subset_1 X0 X1) \quad (4)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l1_lang1 X0))\Rightarrow(k2_xboole_0 (k1_lang1 X0) (k2_lang1 X0) = u1_struct_0 X0) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((\neg v1_xboole_0 X1)\wedge(m1_trees_3 X1 X0))\wedge((\neg v1_xboole_0 X2)\wedge(m1_subset_1 X2 (k1_zfmisc_1 X1))))))\Rightarrow(\forall X3.(m1_dtconstr X3 X0 X1 X2)\Leftrightarrow(m1_subset_1 X3 X2)) \quad (6)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge((v1_dtconstr X0)\wedge(l1_lang1 X0)))\Rightarrow(k6_dtconstr X0 = k1_lang1 X0) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge(l1_msualg_1 X0)))\wedge(((v1_relat_1 X1)\wedge((v2_relat_1 X1)\wedge((v4_relat_1 X1 (u1_struct_0 X0))\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 (u1_struct_0 X0))))))\wedge((m1_subset_1 X2 (k1_msaterm X0 X1))\wedge(m1_subset_1 X3 (k9_xtuple_0 X2))))))\Rightarrow(k3_msaterm X0 X1 X2 X3 = k1_funct_1 X2 X3) \quad (8)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge(l1_msualg_1 X0)))\Rightarrow(\forall X1.((v1_relat_1 X1)\wedge((v2_relat_1 X1)\wedge((v4_relat_1 X1 (u1_struct_0 X0))\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 (u1_struct_0 X0))))))\Rightarrow(\forall X2.(\neg(X2 \in k6_dtconstr (k5_msafree X0 X1))\wedge(\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow(\forall X4.(m1_subset_1 X4 (k1_funct_1 X1 X3))\Rightarrow(X2\neq k4_tarski X4 X3))))))\wedge(\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow(\forall X4.(m1_subset_1 X4 (k1_funct_1 X1 X3))\Rightarrow((X2 = k4_tarski X4 X3)\Rightarrow(X2 \in k6_dtconstr (k5_msafree X0 X1)))))) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge \\ & (l1_msualg_1 X0))) \wedge ((v1_relat_1 X1) \wedge (v2_relat_1 X1) \wedge (v4_relat_1 \\ & X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 (u1_struct_0 \\ & X0)))))) \Rightarrow ((v1_dtconstr (k5_msafree X0 X1)) \wedge ((v2_dtconstr (\\ & k5_msafree X0 X1)) \wedge (v3_dtconstr (k5_msafree X0 X1)))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge \\ & (l1_msualg_1 X0))) \wedge ((v1_relat_1 X1) \wedge (v4_relat_1 X1 (u1_struct_0 \\ & X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 (u1_struct_0 X0)))))) \Rightarrow \\ & ((\neg v2_struct_0 (k5_msafree X0 X1)) \wedge (v1_lang1 (k5_msafree X0 X1))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1_relat_1 X0) \wedge ((v1_funct_1 X0) \wedge (v3_trees_2 X0))) \Rightarrow \\ & ((\neg v1_xboole_0 (k9_xtuple_0 X0)) \wedge (v1_trees_1 (k9_xtuple_0 X0))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 \\ & (u1_struct_0 X0)) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (\neg v11_struct_0 X0) \wedge \\ & (l1_msualg_1 X0))) \wedge ((v1_relat_1 X1) \wedge (v2_relat_1 X1) \wedge (v4_relat_1 \\ & X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 (u1_struct_0 \\ & X0)))))) \Rightarrow (\neg v1_xboole_0 (k1_msaterm X0 X1)) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0. (\neg v1_xboole_0 X0) \Rightarrow (\forall X1. (m1_trees_3 X1 X0) \Rightarrow \\ & (\neg v1_xboole_0 X1)) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 \\ & X1) \wedge (m1_trees_3 X1 X0)) \wedge ((\neg v1_xboole_0 X2) \wedge (m1_subset_1 X2 (\\ & k1_zfmisc_1 X1)))) \Rightarrow (\forall X3. (m1_dtconstr X3 X0 X1 X2) \Rightarrow (m1_subset_1 \\ & X3 X1)) \end{aligned} \quad (16)$$

Assume the following.

$$\forall X0. (l1_lang1 X0) \Rightarrow (l1_struct_0 X0) \quad (17)$$

Assume the following.

$$\forall X0. (\neg v1_xboole_0 X0) \Rightarrow (m1_trees_3 (k5_trees_3 X0) X0) \quad (18)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(\neg v11_struct_0 X0)\wedge \\ & (l1_msualg_1 X0)))\wedge((v1_relat_1 X1)\wedge((v4_relat_1 X1 (u1_struct_0 \\ & X0))\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 (u1_struct_0 X0))))))\Rightarrow \\ & (l1_lang1 (k5_msafree X0 X1)) \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\ & X0)\wedge(\neg v11_struct_0 X0)\wedge(l1_msualg_1 X0)))\wedge((v1_relat_1 X1)\wedge \\ & ((v2_relat_1 X1)\wedge((v4_relat_1 X1 (u1_struct_0 X0))\wedge((v1_funct_1 \\ & X1)\wedge(v1_partfun1 X1 (u1_struct_0 X0))))))\wedge((m1_subset_1 X2 (\\ & k1_msaterm X0 X1))\wedge(m1_subset_1 X3 (k9_xtuple_0 X2))))\Rightarrow(m1_subset_1 \\ & (k3_msaterm X0 X1 X2 X3) (u1_struct_0 (k5_msafree X0 X1))) \end{aligned} \quad (20)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(\neg v11_struct_0 X0)\wedge \\ & (l1_msualg_1 X0)))\wedge((v1_relat_1 X1)\wedge((v4_relat_1 X1 (u1_struct_0 \\ & X0))\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 (u1_struct_0 X0))))))\Rightarrow \\ & (m1_subset_1 (k1_msaterm X0 X1) (k1_zfmisc_1 (k5_trees_3 (u1_struct_0 \\ & (k5_msafree X0 X1)))))) \end{aligned} \quad (21)$$

Assume the following.

$$\forall X0.\forall X1.k4_tarski X0 X1 = k2_tarski (k2_tarski X0 X1) (k1_tarski X0) \quad (22)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(X2 = k2_xboole_0 X0 X1)\Leftrightarrow(\forall X3. \\ & (X3 \in X2)\Leftrightarrow((X3 \in X0)\vee(X3 \in X1))) \end{aligned} \quad (23)$$

Assume the following.

$$\forall X0.\forall X1.k2_tarski X0 X1 = k2_tarski X1 X0 \quad (24)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0)\wedge(v3_trees_3 X0))\Rightarrow(\forall X1. \\ & (m1_subset_1 X1 X0)\Rightarrow(v3_trees_2 X1)) \end{aligned} \quad (25)$$

Assume the following.

$$\forall X0.(v3_trees_3 X0)\Rightarrow(v4_funct_1 X0) \quad (26)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v4_funct_1 X0)\Rightarrow(\forall X1.(m1_subset_1 X1 X0)\Rightarrow(\\ & (v1_relat_1 X1)\wedge(v1_funct_1 X1))) \end{aligned} \quad (27)$$

Assume the following.

$$\forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_trees_3 X1 X0) \Rightarrow (v3_trees_3 X1)) \quad (28)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & X0))) \Rightarrow (\forall X1.((v1_relat_1 X1) \wedge ((v2_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 (u1_struct_0 X0)) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 (u1_struct_0 \\ & X0)))))) \Rightarrow (\forall X2.(m1_dtconstr X2 (u1_struct_0 (k5_msafree \\ & X0 X1)) (k5_trees_3 (u1_struct_0 (k5_msafree X0 X1))) (k1_msaterm \\ & X0 X1)) \Rightarrow (\neg (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\forall X4. \\ & (m1_subset_1 X4 (k1_funct_1 X1 X3)) \Rightarrow (k1_funct_1 X2 k1_xboole_0 \neq \\ & k4_tarski X4 X3))) \wedge (\neg k1_funct_1 X2 k1_xboole_0 \in k2_zfmisc_1 (\\ & u4_struct_0 X0) (k1_tarski (u1_struct_0 X0)))))) \end{aligned}$$