

t43_osalg_2
(TMS2ecRWZGK38qejUYZy5E9WeuyDngorcFZ)

October 27, 2020

Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $v4_osalg_1 : \iota \Rightarrow o$ be given. Let $v5_osalg_1 : \iota \Rightarrow o$ be given. Let $l3_osalg_1 : \iota \Rightarrow o$ be given. Let $v4_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v12_osalg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k14_msualg_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13_osalg_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k15_osalg_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k16_msualg_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k12_osalg_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_osalg_1 : \iota \Rightarrow o$ be given. Let $l2_osalg_1 : \iota \Rightarrow o$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_msualg_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k11_msualg_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \quad (1)$$

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.

$$\forall X0. \forall X1. (((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X0)))) \Rightarrow (\forall X2. (m2_subset_1 X2 X0 X1) \Leftrightarrow (m1_subset_1 X2 X1))) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 X0) \wedge ((v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))))) \wedge ((v12_osalg_1 X1 X0) \wedge (l3_msualg_1 X1 X0))) \Rightarrow (k13_osalg_2 X0 X1 = k12_osalg_2 X0 X1) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(\neg v11_struct_0 X0)\wedge((v4_osalg_1 X0)\wedge(v5_osalg_1 X0)\wedge(l3_osalg_1 X0))))\wedge((v12_osalg_1 X1 X0)\wedge(l3_msualg_1 X1 X0))\Rightarrow(\neg v1_xboole_0 (k12_osalg_2 X0 X1)) \quad (5)$$

Assume the following.

$$\forall X0.(l3_osalg_1 X0)\Rightarrow((l1_osalg_1 X0)\wedge(l2_osalg_1 X0)) \quad (6)$$

Assume the following.

$$\forall X0.(l1_osalg_1 X0)\Rightarrow(l1_msualg_1 X0) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(\neg v11_struct_0 X0)\wedge(l1_msualg_1 X0))\wedge((v4_msualg_1 X1 X0)\wedge(l3_msualg_1 X1 X0))\Rightarrow((v1_funct_1 (k16_msualg_2 X0 X1))\wedge((v1_funct_2 (k16_msualg_2 X0 X1) (k2_zfmisc_1 (k14_msualg_2 X0 X1) (k14_msualg_2 X0 X1)) (k14_msualg_2 X0 X1))\wedge(m1_subset_1 (k16_msualg_2 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 (k14_msualg_2 X0 X1) (k14_msualg_2 X0 X1)) (k14_msualg_2 X0 X1)))))) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(\neg v11_struct_0 X0)\wedge((v4_osalg_1 X0)\wedge(v5_osalg_1 X0)\wedge(l3_osalg_1 X0))))\wedge((v4_msualg_1 X1 X0)\wedge((v12_osalg_1 X1 X0)\wedge(l3_msualg_1 X1 X0)))\Rightarrow((v1_funct_1 (k15_osalg_2 X0 X1))\wedge((v1_funct_2 (k15_osalg_2 X0 X1) (k2_zfmisc_1 (k13_osalg_2 X0 X1) (k13_osalg_2 X0 X1)) (k13_osalg_2 X0 X1))\wedge(m1_subset_1 (k15_osalg_2 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k13_osalg_2 X0 X1) (k13_osalg_2 X0 X1)) (k13_osalg_2 X0 X1)))))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(\neg v11_struct_0 X0)\wedge((v4_osalg_1 X0)\wedge(v5_osalg_1 X0)\wedge(l3_osalg_1 X0))))\wedge((v12_osalg_1 X1 X0)\wedge(l3_msualg_1 X1 X0))\Rightarrow(m1_subset_1 (k13_osalg_2 X0 X1) (k1_zfmisc_1 (k14_msualg_2 X0 X1))) \quad (10)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\
& X0))) \Rightarrow (\forall X1.((v4_msualg_1 X1 X0) \wedge (l3_msualg_1 X1 X0)) \Rightarrow \\
& (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 (k14_msualg_2 \\
& X0 X1) (k14_msualg_2 X0 X1)) (k14_msualg_2 X0 X1)) \wedge (m1_subset_1 \\
& X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k14_msualg_2 X0 X1) \\
& (k14_msualg_2 X0 X1)) (k14_msualg_2 X0 X1)))))) \Rightarrow ((X2 = k16_msualg_2 \\
& X0 X1) \Leftrightarrow (\forall X3.(m1_subset_1 X3 (k14_msualg_2 X0 X1)) \Rightarrow (\forall X4. \\
& (m1_subset_1 X4 (k14_msualg_2 X0 X1)) \Rightarrow (\forall X5.((v3_msualg_1 \\
& X5 X0) \wedge (m1_msualg_2 X5 X0 X1)) \Rightarrow (\forall X6.((v3_msualg_1 X6 X0) \wedge \\
& (m1_msualg_2 X6 X0 X1)) \Rightarrow (((X3 = X5) \wedge (X4 = X6)) \Rightarrow (k5_binop_1 (k14_msualg_2 \\
& X0 X1) X2 X3 X4 = k11_msualg_2 X0 X1 X5 X6))))))))) \\
& \hspace{15em} (11)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\
& X0) \wedge ((v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))))) \Rightarrow (\forall X1.((v4_msualg_1 \\
& X1 X0) \wedge ((v12_osalg_1 X1 X0) \wedge (l3_msualg_1 X1 X0)) \Rightarrow (\forall X2. \\
& ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 (k13_osalg_2 X0 \\
& X1) (k13_osalg_2 X0 X1)) (k13_osalg_2 X0 X1)) \wedge (m1_subset_1 X2 (\\
& k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k13_osalg_2 X0 X1) (k13_osalg_2 \\
& X0 X1)) (k13_osalg_2 X0 X1)))))) \Rightarrow ((X2 = k15_osalg_2 X0 X1) \Leftrightarrow (\forall X3. \\
& (m2_subset_1 X3 (k14_msualg_2 X0 X1) (k13_osalg_2 X0 X1)) \Rightarrow (\forall X4. \\
& (m2_subset_1 X4 (k14_msualg_2 X0 X1) (k13_osalg_2 X0 X1)) \Rightarrow (\forall X5. \\
& ((v3_msualg_1 X5 X0) \wedge ((v12_osalg_1 X5 X0) \wedge (m1_msualg_2 X5 X0 X1)) \Rightarrow \\
& (\forall X6.((v3_msualg_1 X6 X0) \wedge ((v12_osalg_1 X6 X0) \wedge (m1_msualg_2 \\
& X6 X0 X1)) \Rightarrow (((X3 = X5) \wedge (X4 = X6)) \Rightarrow (k5_binop_1 (k13_osalg_2 X0 X1) \\
& X2 X3 X4 = k11_msualg_2 X0 X1 X5 X6))))))))) \\
& \hspace{15em} (12)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\
& X0) \wedge ((v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))))) \Rightarrow (\forall X1.((v12_osalg_1 \\
& X1 X0) \wedge (l3_msualg_1 X1 X0)) \Rightarrow (\forall X2.(X2 = k12_osalg_2 X0 X1) \Leftrightarrow \\
& (\forall X3.(X3 \in X2) \Leftrightarrow ((v3_msualg_1 X3 X0) \wedge ((v12_osalg_1 X3 X0) \wedge \\
& (m1_msualg_2 X3 X0 X1)))))) \\
& \hspace{15em} (13)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v1_xboole_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 \\
& X0)) \Rightarrow (v1_xboole_0 X1)) \\
& \hspace{15em} (14)
\end{aligned}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\ & X0) \wedge ((v5_osalg_1 X0) \wedge (l3_osalg_1 X0)))))) \Rightarrow (\forall X1.((v4_msualg_1 \\ & X1 X0) \wedge ((v12_osalg_1 X1 X0) \wedge (l3_msualg_1 X1 X0))) \Rightarrow (\forall X2. \\ & (m2_subset_1 X2 (k14_msualg_2 X0 X1) (k13_osalg_2 X0 X1)) \Rightarrow (\forall X3. \\ & (m2_subset_1 X3 (k14_msualg_2 X0 X1) (k13_osalg_2 X0 X1)) \Rightarrow (k5_binop_1 \\ & (k13_osalg_2 X0 X1) (k15_osalg_2 X0 X1) X2 X3 = k5_binop_1 (k14_msualg_2 \\ & X0 X1) (k16_msualg_2 X0 X1) X2 X3)))) \end{aligned}$$