

t46_osalg_2
(TMNABro4v4nY9FDdjwrjSi6d1EqoKQnCLMv)

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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 $v1_binop_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k15_osalg_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13_osalg_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k14_msualg_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k16_msualg_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ 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 $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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. 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.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 X0) \wedge ((v5_osalg_1 X0) \wedge (l3_osalg_1 X0))))) \Rightarrow (\forall X1. ((v4_msualg_1 X1 X0) \wedge ((v12_osalg_1 X1 X0) \wedge (l3_msualg_1 X1 X0)))) \Rightarrow (\forall X2. \\ & (m2_subset_1 X2 (k14_msualg_2 X0 X1) (k13_osalg_2 X0 X1)) \Rightarrow (\forall X3. \\ & (m2_subset_1 X3 (k14_msualg_2 X0 X1) (k13_osalg_2 X0 X1)) \Rightarrow (k5_binop_1 (k13_osalg_2 X0 X1) (k15_osalg_2 X0 X1) X2 X3 = k5_binop_1 (k14_msualg_2 X0 X1) (k16_msualg_2 X0 X1) X2 X3))) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 X0))) \Rightarrow (\forall X1. ((v4_msualg_1 X1 X0) \wedge (l3_msualg_1 X1 X0)) \Rightarrow (v1_binop_1 (k16_msualg_2 X0 X1) (k14_msualg_2 X0 X1))) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge(\neg v1_xboole_0 X1)\wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 X0)))\Rightarrow(\forall X2.(m2_subset_1 \\ & X2 X0 X1)\Leftrightarrow(m1_subset_1 X2 X1)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X1)\wedge \\ & ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0))))\wedge((m1_subset_1 X2 X0)\wedge \\ & (m1_subset_1 X3 X0)))\Rightarrow(k5_binop_1 X0 X1 X2 X3 = k1_binop_1 X1 X2 X3)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X1)\wedge \\ & ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0))))\wedge((m1_subset_1 X2 X0)\wedge \\ & (m1_subset_1 X3 X0)))\Rightarrow(k3_binop_1 X0 X1 X2 X3 = k1_binop_1 X1 X2 X3)) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(\neg v11_struct_0 X0)\wedge \\ & ((v4_osalg_1 X0)\wedge((v5_osalg_1 X0)\wedge(l3_osalg_1 X0))))\wedge((v12_osalg_1 \\ & X1 X0)\wedge(l3_msualg_1 X1 X0)))\Rightarrow(k13_osalg_2 X0 X1 = k12_osalg_2 X0 \\ & X1) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(\neg v11_struct_0 X0)\wedge \\ & ((v4_osalg_1 X0)\wedge((v5_osalg_1 X0)\wedge(l3_osalg_1 X0))))\wedge((v12_osalg_1 \\ & X1 X0)\wedge(l3_msualg_1 X1 X0)))\Rightarrow(\neg v1_xboole_0 (k12_osalg_2 X0 X1)) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.(l3_osalg_1 X0)\Rightarrow((l1_osalg_1 X0)\wedge(l2_osalg_1 X0)) \quad (10)$$

Assume the following.

$$\forall X0.(l1_osalg_1 X0)\Rightarrow(l1_msualg_1 X0) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(\neg v11_struct_0 X0)\wedge \\ & (l1_msualg_1 X0))\wedge((v4_msualg_1 X1 X0)\wedge(l3_msualg_1 X1 X0)))\Rightarrow \\ & ((v1_funct_1 (k16_msualg_2 X0 X1))\wedge((v1_funct_2 (k16_msualg_2 \\ & X0 X1) (k2_zfmisc_1 (k14_msualg_2 X0 X1) (k14_msualg_2 X0 X1)) (\\ & k14_msualg_2 X0 X1))\wedge(m1_subset_1 (k16_msualg_2 X0 X1) (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 (k14_msualg_2 X0 X1) (k14_msualg_2 \\ & X0 X1)) (k14_msualg_2 X0 X1)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge \\
& ((v4_osalg_1 X0)\wedge((v5_osalg_1 X0)\wedge(l3_osalg_1 X0))))\wedge((v4_msualg_1 \\
& X1 X0)\wedge((v12_osalg_1 X1 X0)\wedge(l3_msualg_1 X1 X0))))\Rightarrow((v1_funct_1 \\
& (k15_osalg_2 X0 X1))\wedge((v1_funct_2 (k15_osalg_2 X0 X1) (k2_zfmisc_1 \\
& (k13_osalg_2 X0 X1) (k13_osalg_2 X0 X1) (k13_osalg_2 X0 X1))\wedge(\\
& m1_subset_1 (k15_osalg_2 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& (k13_osalg_2 X0 X1) (k13_osalg_2 X0 X1) (k13_osalg_2 X0 X1))))))
\end{aligned} \tag{13}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge \\
& ((v4_osalg_1 X0)\wedge((v5_osalg_1 X0)\wedge(l3_osalg_1 X0))))\wedge((v12_osalg_1 \\
& X1 X0)\wedge(l3_msualg_1 X1 X0)))\Rightarrow(m1_subset_1 (k13_osalg_2 X0 X1) \\
& (k1_zfmisc_1 (k14_msualg_2 X0 X1)))
\end{aligned} \tag{14}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((v1_funct_1 X1)\wedge((v1_funct_2 X1 (k2_zfmisc_1 \\
& X0 X0) X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\
& X0 X0) X0))))\Rightarrow((v1_binop_1 X1 X0)\Leftrightarrow(\forall X2.(m1_subset_1 X2 \\
& X0)\Rightarrow(\forall X3.(m1_subset_1 X3 X0)\Rightarrow(k3_binop_1 X0 X1 X2 X3 = k3_binop_1 \\
& X0 X1 X3 X2))))
\end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v1_xboole_0 X0)\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 \\
& X0))\Rightarrow(v1_xboole_0 X1))
\end{aligned} \tag{16}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge((v4_osalg_1 \\
& X0)\wedge((v5_osalg_1 X0)\wedge(l3_osalg_1 X0))))\Rightarrow(\forall X1.((v4_msualg_1 \\
& X1 X0)\wedge((v12_osalg_1 X1 X0)\wedge(l3_msualg_1 X1 X0)))\Rightarrow(v1_binop_1 \\
& (k15_osalg_2 X0 X1) (k13_osalg_2 X0 X1)))
\end{aligned}$$