

t1_msualg_4

(TMdLFE52UtwqhTRcNmHfyjHkfLRymBpHjxv)

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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 $l3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v2_msualg_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_msualg_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u3_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_relat_2 : \iota \Rightarrow o$ be given. Let $k1_msualg_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v8_relat_2 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l2_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l5_struct_0 : \iota \Rightarrow o$ be given. Let $v1_msualg_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. ((\neg v1_xboole_0 \\ & X0) \wedge (((v1_relat_1 X1) \wedge (v4_relat_1 X1 X0) \wedge (v1_funct_1 X1) \wedge \\ & (v1_partfun1 X1 X0)))) \wedge (((v1_relat_1 X2) \wedge (v4_relat_1 X2 X0) \wedge \\ & (v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))) \wedge ((m1_msualg_4 X3 X0 X1 \\ & X2) \wedge (m1_subset_1 X4 X0)))) \Rightarrow (k1_msualg_4 X0 X1 X2 X3 X4 = k1_funct_1 \\ & X3 X4) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 (u1_struct_0 X0)) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((l1_struct_0 X0)\wedge(l2_msualg_1 X1 X0))\Rightarrow \\ & ((v1_relat_1 (u3_msualg_1 X0 X1))\wedge((v4_relat_1 (u3_msualg_1 \\ & X0 X1) (u1_struct_0 X0))\wedge((v1_funct_1 (u3_msualg_1 X0 X1))\wedge(v1_partfun1 \\ & (u3_msualg_1 X0 X1) (u1_struct_0 X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.(l5_struct_0 X0)\Rightarrow(l1_struct_0 X0) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge(l1_msualg_1 X0))\Rightarrow(\forall X1. \\ & (l3_msualg_1 X1 X0)\Rightarrow(l2_msualg_1 X1 X0)) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.(l1_msualg_1 X0)\Rightarrow(l5_struct_0 X0) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.((\neg v1_xboole_0 \\ & X0)\wedge(((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge((v1_funct_1 X1)\wedge \\ & (v1_partfun1 X1 X0))))\wedge(((v1_relat_1 X2)\wedge((v4_relat_1 X2 X0)\wedge \\ & ((v1_funct_1 X2)\wedge(v1_partfun1 X2 X0))))\wedge((m1_msualg_4 X3 X0 X1 \\ & X2)\wedge(m1_subset_1 X4 X0))))\Rightarrow(m1_subset_1 (k1_msualg_4 X0 X1 X2 \\ & X3 X4) (k1_zfmisc_1 (k2_zfmisc_1 (k1_funct_1 X1 X4) (k1_funct_1 \\ & X2 X4)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge(l1_msualg_1 X0))\Rightarrow(\forall X1. \\ & (l3_msualg_1 X1 X0)\Rightarrow(\forall X2.(m1_msualg_4 X2 (u1_struct_0 \\ & X0) (u3_msualg_1 X0 X1) (u3_msualg_1 X0 X1))\Rightarrow((v2_msualg_4 X2 X0 \\ & X1)\Leftrightarrow(v1_msualg_4 X2 (u1_struct_0 X0) (u3_msualg_1 X0 X1)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_relat_1 X1)\wedge((v4_relat_1 X1 X0)\wedge(\\ & (v1_funct_1 X1)\wedge(v1_partfun1 X1 X0))))\Rightarrow(\forall X2.(m1_msualg_4 \\ & X2 X0 X1 X1)\Rightarrow((v1_msualg_4 X2 X0 X1)\Leftrightarrow(\forall X3.\forall X4.(m1_subset_1 \\ & X4 (k1_zfmisc_1 (k2_zfmisc_1 (k1_funct_1 X1 X3) (k1_funct_1 X1 \\ & X3))))\Rightarrow(((X3 \in X0)\wedge(k1_funct_1 X2 X3 = X4))\Rightarrow((v3_relat_2 X4)\wedge(\\ & (v8_relat_2 X4)\wedge((v1_partfun1 X4 (k1_funct_1 X1 X3))\wedge(m1_subset_1 \\ & X4 (k1_zfmisc_1 (k2_zfmisc_1 (k1_funct_1 X1 X3) (k1_funct_1 X1 \\ & X3)))))))))) \end{aligned} \quad (10)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & \quad X0))) \Rightarrow (\forall X1.(l3_msualg_1 X1 X0) \Rightarrow (\forall X2.(m1_subset_1 \\ & X2 (u1_struct_0 X0) \Rightarrow (\forall X3.((v2_msualg_4 X3 X0 X1) \wedge (m1_msualg_4 \\ & X3 (u1_struct_0 X0) (u3_msualg_1 X0 X1) (u3_msualg_1 X0 X1))) \Rightarrow (\\ & \quad (v3_relat_2 (k1_msualg_4 (u1_struct_0 X0) (u3_msualg_1 X0 X1) \\ & (u3_msualg_1 X0 X1) X3 X2)) \wedge ((v8_relat_2 (k1_msualg_4 (u1_struct_0 \\ & X0) (u3_msualg_1 X0 X1) (u3_msualg_1 X0 X1) X3 X2)) \wedge ((v1_partfun1 \\ & (k1_msualg_4 (u1_struct_0 X0) (u3_msualg_1 X0 X1) (u3_msualg_1 \\ & X0 X1) X3 X2) (k1_funct_1 (u3_msualg_1 X0 X1) X2)) \wedge (m1_subset_1 \\ & (k1_msualg_4 (u1_struct_0 X0) (u3_msualg_1 X0 X1) (u3_msualg_1 \\ & X0 X1) X3 X2) (k1_zfmisc_1 (k2_zfmisc_1 (k1_funct_1 (u3_msualg_1 \\ & X0 X1) X2) (k1_funct_1 (u3_msualg_1 X0 X1) X2)))))))))) \end{aligned}$$