

t22_autalg_1 (TMY-
oiy4Kxk57HC6YwuFHbLgPpAzcdNUf2ww)

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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 $v4_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_autalg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $u3_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_autalg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_autalg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l2_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_relat_1 : \iota \Rightarrow o$ be given. Let $l5_struct_0 : \iota \Rightarrow o$ 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.

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

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 X0) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \wedge ((\neg v1_xboole_0 \\ & X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k4_autalg_1 X0 X1 X1)))))) \Rightarrow (\\ & \forall X3. (m1_autalg_1 X3 X0 X1 X2) \Leftrightarrow (m1_subset_1 X3 X2)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((l1_struct_0 X0) \wedge ((v4_msualg_1 X1 X0) \wedge \\ & (l2_msualg_1 X1 X0))) \Rightarrow ((v1_relat_1 (u3_msualg_1 X0 X1)) \wedge ((v2_relat_1 \\ & (u3_msualg_1 X0 X1)) \wedge ((v4_relat_1 (u3_msualg_1 X0 X1) (u1_struct_0 \\ & X0)) \wedge ((v1_funct_1 (u3_msualg_1 X0 X1)) \wedge (v1_partfun1 (u3_msualg_1 \\ & X0 X1) (u1_struct_0 X0)))))) \end{aligned} \quad (4)$$

Assume the following.

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

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. (l3_msualg_1 X1 X0) \Rightarrow (l2_msualg_1 X1 X0)) \quad (6)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge \\ & (l1_msualg_1 X0))) \wedge ((v4_msualg_1 X1 X0) \wedge (l3_msualg_1 X1 X0))) \Rightarrow \\ & ((\neg v1_xboole_0 (k5_autalg_1 X0 X1)) \wedge (m1_subset_1 (k5_autalg_1 \\ & X0 X1) (k1_zfmisc_1 (k4_autalg_1 (u1_struct_0 X0) (u3_msualg_1 \\ & X0 X1) (u3_msualg_1 X0 X1)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_relat_1 X1) \wedge ((v4_relat_1 \\ & X1 X0) \wedge ((v1_funct_1 X1) \wedge (v1_partfun1 X1 X0)))) \wedge ((v1_relat_1 \\ & X2) \wedge ((v4_relat_1 X2 X0) \wedge ((v1_funct_1 X2) \wedge (v1_partfun1 X2 X0)))))) \Rightarrow \\ & (\neg v1_xboole_0 (k4_autalg_1 X0 X1 X2)) \end{aligned} \quad (9)$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & X0))) \Rightarrow (\forall X1. ((v4_msualg_1 X1 X0) \wedge (l3_msualg_1 X1 X0)) \Rightarrow \\ & (\forall X2. (m1_autalg_1 X2 (u1_struct_0 X0) (u3_msualg_1 X0 X1) \\ & (k5_autalg_1 X0 X1)) \Rightarrow (X2 \in k4_autalg_1 (u1_struct_0 X0) (u3_msualg_1 \\ & X0 X1) (u3_msualg_1 X0 X1)))) \end{aligned}$$