

t26_msualg_2 (TM-
MZHxKR7rZMfsyVLfatXJf6XHwPQPgXgNC)

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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 $m1_msualg_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k13_msualg_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l2_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $u3_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $l5_struct_0 : \iota \Rightarrow o$ be given. Let $v3_msualg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m3_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r8_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k12_msualg_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((l1_struct_0 X0) \wedge (l2_msualg_1 X1 X0)) \Rightarrow \\ & ((v1_relat_1 (u3_msualg_1 X0 X1)) \wedge ((v4_relat_1 (u3_msualg_1 \\ & X0 X1) (u1_struct_0 X0)) \wedge ((v1_funct_1 (u3_msualg_1 X0 X1)) \wedge (v1_partfun1 \\ & (u3_msualg_1 X0 X1) (u1_struct_0 X0)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge \\ & (l1_msualg_1 X0))) \wedge (l3_msualg_1 X1 X0)) \Rightarrow (\forall X2. (m1_msualg_2 \\ & X2 X0 X1) \Rightarrow (l3_msualg_1 X2 X0)) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. (l5_struct_0 X0) \Rightarrow (l1_struct_0 X0) \tag{3}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_msualg_1 X0)) \Rightarrow (\forall X1. \\ & (l3_msualg_1 X1 X0) \Rightarrow (l2_msualg_1 X1 X0)) \end{aligned} \tag{4}$$

Assume the following.

$$\forall X0. (l1_msualg_1 X0) \Rightarrow (l5_struct_0 X0) \tag{5}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\ & X0)\wedge((\neg v11_struct_0 X0)\wedge(l1_msualg_1 X0)))\wedge(((v4_msualg_1 \\ & X1 X0)\wedge(l3_msualg_1 X1 X0))\wedge((m1_msualg_2 X2 X0 X1)\wedge(m1_msualg_2 \\ & X3 X0 X1))))\Rightarrow((v3_msualg_1 (k13_msualg_2 X0 X1 X2 X3) X0)\wedge(m1_msualg_2 \\ & (k13_msualg_2 X0 X1 X2 X3) X0 X1)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge(l1_msualg_1 \\ & X0)))\Rightarrow(\forall X1.((v4_msualg_1 X1 X0)\wedge(l3_msualg_1 X1 X0))\Rightarrow \\ & (\forall X2.(m1_msualg_2 X2 X0 X1)\Rightarrow(\forall X3.(m1_msualg_2 X3 \\ & X0 X1)\Rightarrow(\forall X4.((v3_msualg_1 X4 X0)\wedge(m1_msualg_2 X4 X0 X1))\Rightarrow \\ & ((X4 = k13_msualg_2 X0 X1 X2 X3)\Leftrightarrow(\forall X5.(m3_pboole X5 (u1_struct_0 \\ & X0) (u3_msualg_1 X0 X1))\Rightarrow((r8_pboole (u1_struct_0 X0) X5 (k2_pboole \\ & (u1_struct_0 X0) (u3_msualg_1 X0 X2) (u3_msualg_1 X0 X3))\Rightarrow(X4 = \\ & k12_msualg_2 X0 X1 X5)))))))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v1_relat_1 X1)\wedge((v4_relat_1 \\ & X1 X0)\wedge((v1_funct_1 X1)\wedge(v1_partfun1 X1 X0))))\wedge(((v1_relat_1 \\ & X2)\wedge((v4_relat_1 X2 X0)\wedge((v1_funct_1 X2)\wedge(v1_partfun1 X2 X0))))))\Rightarrow \\ & (k2_pboole X0 X1 X2 = k2_pboole X0 X2 X1) \end{aligned} \quad (8)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge(l1_msualg_1 \\ & X0)))\Rightarrow(\forall X1.((v4_msualg_1 X1 X0)\wedge(l3_msualg_1 X1 X0))\Rightarrow \\ & (\forall X2.(m1_msualg_2 X2 X0 X1)\Rightarrow(\forall X3.(m1_msualg_2 X3 \\ & X0 X1)\Rightarrow(k13_msualg_2 X0 X1 X2 X3 = k13_msualg_2 X0 X1 X3 X2)))) \end{aligned}$$