

t6_msualg_4
(TMHr7v7Z26dfSLtjRpgwwCN6UcixVPNmGWg)

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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 $m2_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $u3_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_msualg_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r6_msualg_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k13_msualg_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k17_msualg_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r4_msualg_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k19_msualg_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r5_msualg_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_msualg_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_msualg_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_msualg_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & X0))) \Rightarrow (\forall X1.((v4_msualg_1 X1 X0) \wedge (l3_msualg_1 X1 X0)) \Rightarrow \\ & (\forall X2.((v4_msualg_1 X2 X0) \wedge (l3_msualg_1 X2 X0)) \Rightarrow (\forall X3. \\ & (m2_pboole X3 (u1_struct_0 X0) (u3_msualg_1 X0 X1) (u3_msualg_1 \\ & X0 X2)) \Rightarrow ((r2_msualg_3 X0 X1 X2 X3) \Rightarrow (r4_msualg_3 X0 (k13_msualg_4 \\ & X0 X1 (k17_msualg_4 X0 X1 X2 X3)) X2 (k19_msualg_4 X0 X1 X2 X3)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 \\ & X0) \wedge (l1_msualg_1 X0))) \wedge ((l3_msualg_1 X1 X0) \wedge (l3_msualg_1 X2 \\ & X0))) \Rightarrow ((r6_msualg_3 X0 X1 X2) \Leftrightarrow (r5_msualg_3 X0 X1 X2)) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2_struct_0 \\ & X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 X0))) \wedge (((v4_msualg_1 \\ & X1 X0) \wedge (l3_msualg_1 X1 X0)) \wedge (((v4_msualg_1 X2 X0) \wedge (l3_msualg_1 \\ & X2 X0)) \wedge (m2_pboole X3 (u1_struct_0 X0) (u3_msualg_1 X0 X1) (u3_msualg_1 \\ & X0 X2)))) \Rightarrow (m2_pboole (k19_msualg_4 X0 X1 X2 X3) (u1_struct_0 X0) \\ & (u3_msualg_1 X0 (k13_msualg_4 X0 X1 (k17_msualg_4 X0 X1 X2 X3))) \\ & (u3_msualg_1 X0 X2)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((\neg v2_struct_0 \\ & X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 X0))) \wedge (((v4_msualg_1 \\ & X1 X0) \wedge (l3_msualg_1 X1 X0)) \wedge (((v4_msualg_1 X2 X0) \wedge (l3_msualg_1 \\ & X2 X0)) \wedge (m2_pboole X3 (u1_struct_0 X0) (u3_msualg_1 X0 X1) (u3_msualg_1 \\ & X0 X2)))))) \Rightarrow ((v2_msualg_4 (k17_msualg_4 X0 X1 X2 X3) X0 X1) \wedge ((v3_msualg_4 \\ & (k17_msualg_4 X0 X1 X2 X3) X0 X1) \wedge (m1_msualg_4 (k17_msualg_4 X0 \\ & X1 X2 X3) (u1_struct_0 X0) (u3_msualg_1 X0 X1) (u3_msualg_1 X0 X1)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 \\ & X0) \wedge (l1_msualg_1 X0))) \wedge (((v4_msualg_1 X1 X0) \wedge (l3_msualg_1 X1 \\ & X0)) \wedge ((v2_msualg_4 X2 X0 X1) \wedge ((v3_msualg_4 X2 X0 X1) \wedge (m1_msualg_4 \\ & X2 (u1_struct_0 X0) (u3_msualg_1 X0 X1) (u3_msualg_1 X0 X1)))))) \Rightarrow \\ & (l3_msualg_1 (k13_msualg_4 X0 X1 X2) X0) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & X0))) \Rightarrow (\forall X1. (l3_msualg_1 X1 X0) \Rightarrow (\forall X2. (l3_msualg_1 \\ & X2 X0) \Rightarrow ((r5_msualg_3 X0 X1 X2) \Leftrightarrow (\exists X3. (m2_pboole X3 (u1_struct_0 \\ & X0) (u3_msualg_1 X0 X1) (u3_msualg_1 X0 X2)) \wedge (r4_msualg_3 X0 X1 \\ & X2 X3)))))) \end{aligned} \quad (6)$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge (l1_msualg_1 \\ & X0))) \Rightarrow (\forall X1. ((v4_msualg_1 X1 X0) \wedge (l3_msualg_1 X1 X0)) \Rightarrow \\ & (\forall X2. ((v4_msualg_1 X2 X0) \wedge (l3_msualg_1 X2 X0)) \Rightarrow (\forall X3. \\ & (m2_pboole X3 (u1_struct_0 X0) (u3_msualg_1 X0 X1) (u3_msualg_1 \\ & X0 X2)) \Rightarrow ((r2_msualg_3 X0 X1 X2 X3) \Rightarrow (r6_msualg_3 X0 (k13_msualg_4 \\ & X0 X1 (k17_msualg_4 X0 X1 X2 X3)) X2)))))) \end{aligned}$$