

t19_osalg_4
(TMakLXEik9Ekr7Ptvwy1CoZcBw8zSnHt64h)

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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 $v2_osalg.4 : \iota \Rightarrow o$ 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 $m2_pboole : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $v1_osalg.3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r6_msualg.3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k16_osalg.4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k19_osalg.4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r4_msualg.3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k21_osalg.4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_msualg.1 : \iota \Rightarrow o$ be given. Let $r5_msualg.3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_osalg.1 : \iota \Rightarrow o$ be given. Let $l2_osalg.1 : \iota \Rightarrow o$ 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 $m1_osalg.4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct.0 X0) \wedge ((\neg v11_struct.0 X0) \wedge ((v4_osalg.1 \\ & X0) \wedge ((v5_osalg.1 X0) \wedge ((v2_osalg.4 X0) \wedge (l3_osalg.1 X0)))))) \Rightarrow \\ & (\forall X1.((v4_msualg.1 X1 X0) \wedge ((v12_osalg.1 X1 X0) \wedge (l3_msualg.1 \\ & X1 X0))) \Rightarrow (\forall X2.((v4_msualg.1 X2 X0) \wedge ((v12_osalg.1 X2 X0) \wedge \\ & (l3_msualg.1 X2 X0))) \Rightarrow (\forall X3.(m2_pboole X3 (u1_struct.0 \\ & X0) (u3_msualg.1 X0 X1) (u3_msualg.1 X0 X2)) \Rightarrow (((r2_msualg.3 X0 \\ & X1 X2 X3) \wedge (v1_osalg.3 X3 X0)) \Rightarrow (r4_msualg.3 X0 (k16_osalg.4 X0 X1 \\ & (k19_osalg.4 X0 X1 X2 X3)) X2 (k21_osalg.4 X0 X1 X2 X3)))))) \end{aligned} \quad (1)$$

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.

$$\forall X0. (l3_osalg.1 X0) \Rightarrow ((l1_osalg.1 X0) \wedge (l2_osalg.1 X0)) \quad (3)$$

Assume the following.

$$\forall X0. (l1_osalg.1 X0) \Rightarrow (l1_msualg.1 X0) \quad (4)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\
& X0)\wedge((\neg v11_struct_0 X0)\wedge((v4_osalg_1 X0)\wedge((v5_osalg_1 X0)\wedge \\
& ((v2_osalg_4 X0)\wedge(l3_osalg_1 X0))))))\wedge(((v4_msualg_1 X1 X0)\wedge \\
& ((v12_osalg_1 X1 X0)\wedge(l3_msualg_1 X1 X0)))\wedge(((v4_msualg_1 X2 \\
& X0)\wedge((v12_osalg_1 X2 X0)\wedge(l3_msualg_1 X2 X0)))\wedge(m2_pboole X3 \\
& (u1_struct_0 X0) (u3_msualg_1 X0 X1) (u3_msualg_1 X0 X2))))\Rightarrow(\\
& m2_pboole (k21_osalg_4 X0 X1 X2 X3) (u1_struct_0 X0) (u3_msualg_1 \\
& X0 (k16_osalg_4 X0 X1 (k19_osalg_4 X0 X1 X2 X3))) (u3_msualg_1 X0 \\
& X2))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\
& X0)\wedge((\neg v11_struct_0 X0)\wedge((v4_osalg_1 X0)\wedge((v5_osalg_1 X0)\wedge \\
& ((v2_osalg_4 X0)\wedge(l3_osalg_1 X0))))))\wedge(((v4_msualg_1 X1 X0)\wedge \\
& ((v12_osalg_1 X1 X0)\wedge(l3_msualg_1 X1 X0)))\wedge(((v4_msualg_1 X2 \\
& X0)\wedge((v12_osalg_1 X2 X0)\wedge(l3_msualg_1 X2 X0)))\wedge(m2_pboole X3 \\
& (u1_struct_0 X0) (u3_msualg_1 X0 X1) (u3_msualg_1 X0 X2))))\Rightarrow(\\
& (v2_msualg_4 (k19_osalg_4 X0 X1 X2 X3) X0 X1)\wedge((v3_msualg_4 (k19_osalg_4 \\
& X0 X1 X2 X3) X0 X1)\wedge(m1_osalg_4 (k19_osalg_4 X0 X1 X2 X3) X0 X1)))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 \\
& X0)\wedge((v4_osalg_1 X0)\wedge((v5_osalg_1 X0)\wedge((v2_osalg_4 X0)\wedge(l3_osalg_1 \\
& X0))))))\wedge(((v4_msualg_1 X1 X0)\wedge((v12_osalg_1 X1 X0)\wedge(l3_msualg_1 \\
& X1 X0)))\wedge((v2_msualg_4 X2 X0 X1)\wedge((v3_msualg_4 X2 X0 X1)\wedge(m1_osalg_4 \\
& X2 X0 X1))))\Rightarrow((v12_osalg_1 (k16_osalg_4 X0 X1 X2) X0)\wedge(l3_msualg_1 \\
& (k16_osalg_4 X0 X1 X2) X0))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge(l1_msualg_1 \\
& X0)))\Rightarrow(\forall X1.(l3_msualg_1 X1 X0)\Rightarrow(\forall X2.(l3_msualg_1 \\
& X2 X0)\Rightarrow((r5_msualg_3 X0 X1 X2)\Leftrightarrow(\exists X3.(m2_pboole X3 (u1_struct_0 \\
& X0) (u3_msualg_1 X0 X1) (u3_msualg_1 X0 X2))\wedge(r4_msualg_3 X0 X1 \\
& X2 X3))))))
\end{aligned} \tag{8}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v4_osalg_1 \\ & X0) \wedge ((v5_osalg_1 X0) \wedge ((v2_osalg_4 X0) \wedge (l3_osalg_1 X0)))))) \Rightarrow \\ & (\forall X1.((v4_msualg_1 X1 X0) \wedge ((v12_osalg_1 X1 X0) \wedge (l3_msualg_1 \\ & X1 X0))) \Rightarrow (\forall X2.((v4_msualg_1 X2 X0) \wedge ((v12_osalg_1 X2 X0) \wedge \\ & (l3_msualg_1 X2 X0))) \Rightarrow (\forall X3.(m2_pboole X3 (u1_struct_0 \\ & X0) (u3_msualg_1 X0 X1) (u3_msualg_1 X0 X2)) \Rightarrow (((r2_msualg_3 X0 \\ & X1 X2 X3) \wedge (v1_osalg_3 X3 X0)) \Rightarrow (r6_msualg_3 X0 (k16_osalg_4 X0 X1 \\ & (k19_osalg_4 X0 X1 X2 X3)) X2)))))) \end{aligned}$$