

t27_boolealg
(TMWJ5J9mGYoapsBWuCooYXNSSKqBwFstQr3)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v10_lattices : \iota \Rightarrow o$ be given. Let $v17_lattices : \iota \Rightarrow o$ be given. Let $l3_lattices : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $r3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_boolealg : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_boolealg : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_lattices : \iota \Rightarrow \iota$ be given. Let $k4_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_lattices : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ & X0))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. (m1_subset_1 X3 \\ & (u1_struct_0 X0)) \Rightarrow ((r1_boolealg X0 X1 (k4_lattices X0 X2 X3)) \Leftrightarrow \\ & ((r3_lattices X0 X1 X2) \wedge ((r3_lattices X0 X1 X3) \wedge (\forall X4. (m1_subset_1 \\ & X4 (u1_struct_0 X0)) \Rightarrow ((r3_lattices X0 X4 X2) \wedge (r3_lattices X0 \\ & X4 X3)) \Rightarrow (r3_lattices X0 X4 X1)))))))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v17_lattices \\ & X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((r3_lattices \\ & X0 X1 X2) \Leftrightarrow (k4_lattices X0 X1 (k7_lattices X0 X2) = k5_lattices X0)))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ & X0))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. (m1_subset_1 X3 \\ & (u1_struct_0 X0)) \Rightarrow ((r3_lattices X0 X1 X2) \Rightarrow (r3_lattices X0 (k4_lattices \\ & X0 X1 X3) X2)))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\
& X0))) \Rightarrow (((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v17_lattices \\
& X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((r3_lattices \\
& X0 (k4_lattices X0 X1 (k3_lattices X0 (k7_lattices X0 X1) X2)) X2) \wedge \\
& (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((r3_lattices \\
& X0 (k4_lattices X0 X1 X3) X2) \Rightarrow (r3_lattices X0 X3 (k3_lattices X0 \\
& (k7_lattices X0 X1) X2)))))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v17_lattices \\
& X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((r3_lattices \\
& X0 X1 X2) \Rightarrow (r3_lattices X0 (k7_lattices X0 X2) (k7_lattices X0 X1))))))
\end{aligned} \tag{5}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v17_lattices \\
& X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((k4_lattices \\
& X0 X1 X2 = k5_lattices X0) \Leftrightarrow (r3_lattices X0 X1 (k7_lattices X0 X2))))))
\end{aligned} \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v17_lattices \\
& X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
& X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\
& (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((r3_lattices X0 X1 (k3_lattices \\
& X0 X2 X3)) \Rightarrow (r3_lattices X0 (k1_boolealg X0 X1 X2) X3))))))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v17_lattices \\
& X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
& X0)) \Rightarrow (k4_lattices X0 (k7_lattices X0 X1) X1 = k5_lattices X0))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge \\
& ((v17_lattices X0) \wedge (l3_lattices X0)))) \wedge (m1_subset_1 X1 (u1_struct_0 \\
& X0))) \Rightarrow (k7_lattices X0 (k7_lattices X0 X1) = X1)
\end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (l3_lattices X0)) \wedge \\
& (m1_subset_1 X1 (u1_struct_0 X0))) \Rightarrow (m1_subset_1 (k7_lattices \\
& X0 X1) (u1_struct_0 X0))
\end{aligned} \tag{10}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow(m1_subset_1 (k1_boolealg X0 X1 X2) (u1_struct_0 X0)) \quad (11)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow(k1_boolealg X0 X1 X2 = k4_lattices X0 X1 (k7_lattices X0 X2)))) \quad (12)$$

Theorem 1

$$\forall X0.((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge((v17_lattices X0)\wedge(l3_lattices X0))))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow((r3_lattices X0 X1 (k1_boolealg X0 X2 X1))\Rightarrow(r1_boolealg X0 X1 (k5_lattices X0))))))$$