

t55_boolealg
(TMbFsChGtXZc8iVkJHruJv2tE9mrNKyjCuF)

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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 $r1_boolealg : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_lattices : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r4_boolealg : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_lattices : \iota \Rightarrow \iota$ be given. Let $r2_boolealg : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v6_lattices : \iota \Rightarrow o$ be given. Let $v8_lattices : \iota \Rightarrow o$ be given. Let $v9_lattices : \iota \Rightarrow o$ be given. Let $v4_lattices : \iota \Rightarrow o$ be given. Let $v5_lattices : \iota \Rightarrow o$ be given. Let $v7_lattices : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v17_lattices \\ & X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((r1_boolealg \\ & X0 (k3_lattices X0 (k7_lattices X0 X1) (k7_lattices X0 X2)) (k3_lattices \\ & X0 X1 X2)) \Rightarrow ((r4_boolealg X0 X1 (k7_lattices X0 X1)) \vee ((r4_boolealg \\ & X0 X2 (k7_lattices X0 X2)) \vee ((r1_boolealg X0 X1 (k7_lattices X0 X2)) \wedge \\ & (r1_boolealg X0 X2 (k7_lattices X0 X1)))))))) \end{aligned} \tag{1}$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v10_lattices \\ & X0) \wedge (l3_lattices X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge \\ & m1_subset_1 X2 (u1_struct_0 X0))) \Rightarrow ((r4_boolealg X0 X1 X2) \Leftrightarrow (r2_boolealg \\ & X0 X1 X2)) \end{aligned} \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow((r1_boolealg X0 X1 X2)\Leftrightarrow(X1 = X2)) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge((v17_lattices X0)\wedge(l3_lattices X0))))\wedge(m1_subset_1 X1 (u1_struct_0 X0)))\Rightarrow(k7_lattices X0 (k7_lattices X0 X1) = X1) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v6_lattices X0)\wedge((v8_lattices X0)\wedge((v9_lattices X0)\wedge(l3_lattices X0))))\wedge(m1_subset_1 X1 (u1_struct_0 X0)))\Rightarrow(k4_lattices X0 X1 X1 = X1) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(l3_lattices X0))\wedge(m1_subset_1 X1 (u1_struct_0 X0)))\Rightarrow(m1_subset_1 (k7_lattices X0 X1) (u1_struct_0 X0)) \quad (7)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow((r2_boolealg X0 X1 X2)\Leftrightarrow(k4_lattices X0 X1 X2\neq k5_lattices X0)))) \quad (8)$$

Assume the following.

$$\forall X0.(l3_lattices X0)\Rightarrow(((\neg v2_struct_0 X0)\wedge(v10_lattices X0))\Rightarrow((\neg v2_struct_0 X0)\wedge((v4_lattices X0)\wedge((v5_lattices X0)\wedge((v6_lattices X0)\wedge((v7_lattices X0)\wedge((v8_lattices X0)\wedge(v9_lattices X0)))))))) \quad (9)$$

Theorem 1

$$\forall X0.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge((v17_lattices X0)\wedge(l3_lattices X0))))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow((r1_boolealg X0 (k3_lattices X0 (k7_lattices X0 X1) (k7_lattices X0 X2)) (k3_lattices X0 X1 X2))\Rightarrow((r4_boolealg X0 X2 (k7_lattices X0 X1))\vee((r4_boolealg X0 X1 (k7_lattices X0 X2))\vee((r1_boolealg X0 X1 (k7_lattices X0 X1))\wedge(r1_boolealg X0 X2 (k7_lattices X0 X2))))))))))$$