

t57_boolealg
(TMU4WPeX8o6KKWMGGr5rYR57v9DACPHUWUd)

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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 $k3_boolealg : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_lattices : \iota \Rightarrow \iota$ be given. Let $k1_boolealg : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v13_lattices : \iota \Rightarrow o$ be given. Let $k3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_boolealg : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v11_lattices : \iota \Rightarrow o$ be given. Let $v15_lattices : \iota \Rightarrow o$ be given. Let $v16_lattices : \iota \Rightarrow o$ be given. Let $v14_lattices : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v17_lattices \\ & X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((r1_boolealg \\ & X0 (k1_boolealg X0 X1 X2) (k5_lattices X0)) \Leftrightarrow (r3_lattices X0 X1 X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v13_lattices \\ & X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((r1_boolealg \\ & X0 (k3_lattices X0 X1 X2) (k5_lattices X0)) \Leftrightarrow ((r1_boolealg X0 X1 \\ & (k5_lattices X0)) \wedge (r1_boolealg X0 X2 (k5_lattices X0)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v10_lattices \\ & X0) \wedge (l3_lattices X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (\\ & m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow ((r1_boolealg X0 X1 X2) \Leftrightarrow (X1 = \\ & X2)) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge(v10_lattices X0)\wedge(l3_lattices X0))\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow(k3_boolealg X0 X1 X2 = k2_boolealg X0 X1 X2) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge(v10_lattices X0)\wedge(l3_lattices X0))\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow(m1_subset_1 (k1_boolealg X0 X1 X2) (u1_struct_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(v10_lattices X0)\wedge(l3_lattices X0))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow((r1_boolealg X0 X1 X2)\Leftrightarrow((r3_lattices X0 X1 X2)\wedge(r3_lattices X0 X2 X1)))))) \quad (6)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(v10_lattices X0)\wedge(l3_lattices X0))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow(k2_boolealg X0 X1 X2 = k3_lattices X0 (k1_boolealg X0 X1 X2) (k1_boolealg X0 X2 X1)))))) \quad (7)$$

Assume the following.

$$\forall X0.(l3_lattices X0)\Rightarrow(((\neg v2_struct_0 X0)\wedge(v17_lattices X0))\Rightarrow(((\neg v2_struct_0 X0)\wedge(v11_lattices X0)\wedge((v15_lattices X0)\wedge(v16_lattices X0)))))) \quad (8)$$

Assume the following.

$$\forall X0.(l3_lattices X0)\Rightarrow(((\neg v2_struct_0 X0)\wedge(v15_lattices X0))\Rightarrow(((\neg v2_struct_0 X0)\wedge(v13_lattices X0)\wedge(v14_lattices X0)))) \quad (9)$$

Theorem 1

$$\forall X0.((\neg v2_struct_0 X0)\wedge(v10_lattices X0)\wedge((v17_lattices X0)\wedge(l3_lattices X0)))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(r1_boolealg X0 (k3_boolealg X0 X1 X1) (k5_lattices X0)))$$