

t4_boolealg

(TMRu7HqDvpriiFMxpRhR6yGtaab865rygJTz)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v10_lattices : \iota \Rightarrow o$ 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 $k2_boolealg : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_lattices : \iota \Rightarrow o$ be given. Let $v5_lattices : \iota \Rightarrow o$ 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 $k3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v7_lattices : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v4_lattices X0) \wedge ((v5_lattices \\ & X0) \wedge ((v6_lattices X0) \wedge ((v8_lattices X0) \wedge ((v9_lattices X0) \wedge \\ & (l3_lattices X0)))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\ & (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (((r3_lattices X0 X1 X3) \wedge (r3_lattices \\ & X0 X2 X3)) \Rightarrow (r3_lattices X0 (k3_lattices X0 X1 X2) X3)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge (v10_lattices \\ & X0) \wedge (l3_lattices X0)) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge \\ & (m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow (m1_subset_1 (k1_boolealg \\ & X0 X1 X2) (u1_struct_0 X0)) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k2_boolealg X0 X1 X2 = k3_lattices \\ & X0 (k1_boolealg X0 X1 X2) (k1_boolealg X0 X2 X1)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l3_lattices X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge (v10_lattices \\ & X0)) \Rightarrow ((\neg v2_struct_0 X0) \wedge ((v4_lattices X0) \wedge ((v5_lattices X0) \wedge \\ & ((v6_lattices X0) \wedge ((v7_lattices X0) \wedge ((v8_lattices X0) \wedge (v9_lattices \\ & X0)))))))) \end{aligned} \quad (4)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ & (u1_struct_0 X0)) \Rightarrow (((r3_lattices X0 (k1_boolealg X0 X1 X2) X3) \wedge \\ & (r3_lattices X0 (k1_boolealg X0 X2 X1) X3)) \Rightarrow (r3_lattices X0 (k2_boolealg \\ & X0 X1 X2) X3)))))) \end{aligned}$$