

t20_boolealg
(TMX3HMhoUgNFTEetmnJx8d7mCJNhpHYnuZG)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v10_lattices : \iota \Rightarrow o$ be given. Let $v13_lattices : \iota \Rightarrow o$ 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 $r4_boolealg : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_lattices : \iota \Rightarrow o$ be given. Let $l2_lattices : \iota \Rightarrow o$ be given. Let $v6_lattices : \iota \Rightarrow o$ 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. Let $v8_lattices : \iota \Rightarrow o$ be given. Let $v9_lattices : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v13_lattices \\ & X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\ & (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\neg(\neg(r4_boolealg X0 X1 X2) \wedge \\ & (r4_boolealg X0 X1 X3)) \wedge (r4_boolealg X0 X1 (k4_lattices X0 X2 X3)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v10_lattices \\ & X0) \wedge (l3_lattices X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge \\ & m1_subset_1 X2 (u1_struct_0 X0))) \Rightarrow ((r4_boolealg X0 X1 X2) \Rightarrow (r4_boolealg \\ & X0 X2 X1)) \end{aligned} \quad (2)$$

Assume the following.

$$\forall X0. (l3_lattices X0) \Rightarrow ((l1_lattices X0) \wedge (l2_lattices X0)) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v6_lattices \\ & X0) \wedge (l1_lattices X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge \\ & m1_subset_1 X2 (u1_struct_0 X0))) \Rightarrow (m1_subset_1 (k4_lattices \\ & X0 X1 X2) (u1_struct_0 X0)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0. (&l3_lattices\ X0) \Rightarrow (((\neg v2_struct_0\ X0) \wedge (v10_lattices \\ &X0)) \Rightarrow ((\neg v2_struct_0\ X0) \wedge ((v4_lattices\ X0) \wedge ((v5_lattices\ X0) \wedge \\ &((v6_lattices\ X0) \wedge ((v7_lattices\ X0) \wedge ((v8_lattices\ X0) \wedge (v9_lattices \\ &X0)))))))) \end{aligned} \quad (5)$$

Theorem 1

$$\begin{aligned} \forall X0. (&\neg v2_struct_0\ X0) \wedge ((v10_lattices\ X0) \wedge ((v13_lattices \\ &X0) \wedge (l3_lattices\ X0))) \Rightarrow (\forall X1. (m1_subset_1\ X1\ (u1_struct_0 \\ &X0)) \Rightarrow (\forall X2. (m1_subset_1\ X2\ (u1_struct_0\ X0)) \Rightarrow (\forall X3. \\ &(m1_subset_1\ X3\ (u1_struct_0\ X0)) \Rightarrow (\neg(\neg r4_boolealg\ X0\ X1\ X2) \wedge \\ &r4_boolealg\ X0\ (k4_lattices\ X0\ X3\ X1)\ (k4_lattices\ X0\ X3\ X2)))))) \end{aligned}$$