

l28_lattice4

(TMS41J1qmpdnwbxLk5qv6tuQ2PmPiwAyER3)

October 27, 2020

Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v10_lattices : \iota \Rightarrow o$ be given. Let $v14_lattices : \iota \Rightarrow o$ be given. Let $l3_lattices : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_lattice2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_setwiseo : \iota \Rightarrow \iota$ be given. Let $k6_lattices : \iota \Rightarrow \iota$ be given. Let $k4_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_lattices : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_binop_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_binop_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_setwiseo : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_setwiseo : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v7_lattices : \iota \Rightarrow o$ be given. Let $l1_lattices : \iota \Rightarrow o$ be given. Let $v6_lattices : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l2_lattices : \iota \Rightarrow o$ be given. Let $k5_finsub_1 : \iota \Rightarrow \iota$ be given. Let $v4_lattices : \iota \Rightarrow o$ be given. Let $v5_lattices : \iota \Rightarrow o$ be given. Let $v8_lattices : \iota \Rightarrow o$ be given. Let $v9_lattices : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v14_lattices X0) \wedge (l3_lattices X0)))) \Rightarrow (k6_lattices X0 = k4_binop_1 (u1_struct_0 X0) (u1_lattices X0)) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.(\neg v1_xboole_0 X1) \Rightarrow \\ & (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0) X0)))) \Rightarrow (((v1_binop_1 X2 X0) \wedge ((v2_binop_1 X2 X0) \wedge (v1_setwiseo X2 X0))) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X1 X0) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0) X0)))) \Rightarrow (k7_setwiseo X1 X0 X2 (k1_setwiseo X1) X3 = k4_binop_1 X0 X2)))))) \quad (2) \end{aligned}$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v7_lattices X0) \wedge (l1_lattices X0))) \Rightarrow ((v1_funct_1 (u1_lattices X0)) \wedge ((v1_funct_2 (u1_lattices X0) (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0)) \wedge (v2_binop_1 (u1_lattices X0) (u1_struct_0 X0)))) \quad (3)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v6_lattices X0) \wedge (l1_lattices X0))) \Rightarrow ((v1_funct_1 (u1_lattices X0)) \wedge ((v1_funct_2 (u1_lattices X0) (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0)) \wedge (v1_binop_1 (u1_lattices X0) (u1_struct_0 X0)))) \quad (4)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 (u1_struct_0 X0)) \quad (5)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v14_lattices X0) \wedge (l3_lattices X0)))) \Rightarrow ((v1_funct_1 (u1_lattices X0)) \wedge ((v1_funct_2 (u1_lattices X0) (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0)) \wedge (v1_setwiseo (u1_lattices X0) (u1_struct_0 X0)))) \quad (6)$$

Assume the following.

$$\forall X0.(l1_lattices X0) \Rightarrow ((v1_funct_1 (u1_lattices X0)) \wedge ((v1_funct_2 (u1_lattices X0) (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0)) \wedge (m1_subset_1 (u1_lattices X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0)))))) \quad (7)$$

Assume the following.

$$\forall X0.(l3_lattices X0) \Rightarrow ((l1_lattices X0) \wedge (l2_lattices X0)) \quad (8)$$

Assume the following.

$$\forall X0.(l1_lattices X0) \Rightarrow (l1_struct_0 X0) \quad (9)$$

Assume the following.

$$\forall X0.(v1_xboole_0 (k1_setwiseo X0)) \wedge (m1_subset_1 (k1_setwiseo X0) (k5_finsub_1 X0)) \quad (10)$$

Assume the following.

$$\forall X0.(\neg v1_xboole_0 X0) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v10_lattices X1) \wedge (l3_lattices X1))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k5_finsub_1 X0)) \Rightarrow (\forall X3.((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 (u1_struct_0 X1)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 (u1_struct_0 X1)))))) \Rightarrow (k3_lattice2 X0 X1 X2 X3 = k7_setwiseo X0 (u1_struct_0 X1) (u1_lattices X1) X2 X3)))))) \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0. (&l3_lattices\ X0) \Rightarrow (((\neg v2_struct_0\ X0) \wedge (v10_lattices \\ X0)) \Rightarrow &((\neg v2_struct_0\ X0) \wedge ((v4_lattices\ X0) \wedge ((v5_lattices\ X0) \wedge \\ ((v6_lattices\ X0) \wedge &((v7_lattices\ X0) \wedge ((v8_lattices\ X0) \wedge (v9_lattices \\ X0)))))))) & \end{aligned} \quad (12)$$

Theorem 1

$$\begin{aligned} \forall X0. ((\neg v2_struct_0\ X0) \wedge ((v10_lattices\ X0) \wedge ((v14_lattices \\ X0) \wedge (l3_lattices\ X0)))) \Rightarrow (\forall X1. ((v1_funct_1\ X1) \wedge ((v1_funct_2 \\ X1\ (u1_struct_0\ X0)\ (u1_struct_0\ X0)) \wedge (m1_subset_1\ X1\ (k1_zfmisc_1 \\ (k2_zfmisc_1\ (u1_struct_0\ X0)\ (u1_struct_0\ X0)))))) \Rightarrow (k3_lattice2 \\ (u1_struct_0\ X0)\ X0\ (k1_setwiseo\ (u1_struct_0\ X0))\ X1 = k6_lattices \\ X0)) \end{aligned}$$