

t5_lattice5

(TMGCMcC7CwwRZs8P3wSX9GxUx4EeXBKRbWY)

October 27, 2020

Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k2_msualg_5 : \iota \Rightarrow \iota$ be given. Let $r3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v8_lattices : \iota \Rightarrow o$ be given. Let $v9_lattices : \iota \Rightarrow o$ be given. Let $l3_lattices : \iota \Rightarrow o$ be given. Let $r1_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_relat_2 : \iota \Rightarrow o$ be given. Let $v8_relat_2 : \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v6_lattices : \iota \Rightarrow o$ 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 $k5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_eqrel_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v10_lattices : \iota \Rightarrow o$ be given. Let $v18_lattices : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v19_lattices : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_lattices : \iota \Rightarrow o$ be given. Let $u1_lattices : \iota \Rightarrow \iota$ be given. Let $l2_lattices : \iota \Rightarrow o$ be given. Let $v3_lattices : \iota \Rightarrow o$ be given. Let $u2_lattices : \iota \Rightarrow \iota$ be given. Let $k5_eqrel_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_lattices : \iota \Rightarrow o$ be given. Let $v5_lattices : \iota \Rightarrow o$ be given. Let $v7_lattices : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v8_lattices X0) \wedge ((v9_lattices \\ & X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((r1_lattices \\ & X0 X1 X2) \Leftrightarrow (k2_lattices X0 X1 X2 = X1)))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0. \forall X1.(m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1.(r1_tarski X0 X1) \Rightarrow (k3_xboole_0 X0 X1 = X0) \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.(X0 \in u1_struct_0 (k2_msualg_5 X1) \Leftrightarrow ((v1_partfun1 X0 X1) \wedge ((v3_relat_2 X0) \wedge ((v8_relat_2 X0) \wedge (m1_subset_1 X0 (k1_zfmisc_1 (k2_zfmisc_1 X1 X1))))))) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.r1_tarski (k3_xboole_0 X0 X1) X0 \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge ((v6_lattices X0) \wedge ((v8_lattices X0) \wedge ((v9_lattices X0) \wedge (l3_lattices X0)))))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 X0))) \Rightarrow ((r3_lattices X0 X1 X2) \Leftrightarrow (r1_lattices X0 X1 X2)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))))) \wedge ((m1_subset_1 X2 X0) \wedge (m1_subset_1 X3 X0))) \Rightarrow (k5_binop_1 X0 X1 X2 X3 = k1_binop_1 X1 X2 X3) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v3_relat_2 X1) \wedge ((v8_relat_2 X1) \wedge ((v1_partfun1 X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0)))))) \wedge ((v3_relat_2 X2) \wedge ((v8_relat_2 X2) \wedge ((v1_partfun1 X2 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0))))))) \Rightarrow (k4_eqrel_1 X0 X1 X2 = k3_xboole_0 X1 X2) \quad (8)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \Rightarrow (\exists X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \wedge ((\neg v1_xboole_0 X1) \wedge ((v18_lattices X1 X0) \wedge (v19_lattices X1 X0)))) \quad (9)$$

Assume the following.

$$\forall X0.(l1_lattices X0) \Rightarrow ((v1_funct_1 (u1_lattices X0)) \wedge ((v1_funct_2 (u1_lattices X0) (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0)) \wedge (m1_subset_1 (u1_lattices X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0)))))) \quad (10)$$

Assume the following.

$$\forall X0.(l3_lattices X0) \Rightarrow ((l1_lattices X0) \wedge (l2_lattices X0)) \quad (11)$$

Assume the following.

$$\forall X0.(\neg v2_struct_0 (k2_msualg_5 X0)) \wedge ((v3_lattices (k2_msualg_5 X0)) \wedge ((v10_lattices (k2_msualg_5 X0)) \wedge (l3_lattices (k2_msualg_5 X0)))) \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v2_struct_0 X1) \wedge ((v3_lattices X1) \wedge \\ & ((v10_lattices X1) \wedge (l3_lattices X1)))) \Rightarrow ((X1 = k2_msualg_5 X0) \Leftrightarrow \\ & ((u1_struct_0 X1 = ReplSep (toset (\lambda X2 : \iota. m1_subset_1 X2 (\\ & k1_zfmisc_1 (k2_zfmisc_1 X0 X0)))) (\lambda X2 : \iota. (v1_partfun1 \\ & X2 X0) \wedge ((v3_relat_2 X2) \wedge ((v8_relat_2 X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0)))))) (\lambda X2 : \iota. X2)) \wedge (\forall X2. ((v1_partfun1 \\ & X2 X0) \wedge ((v3_relat_2 X2) \wedge ((v8_relat_2 X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0)))))) \Rightarrow (\forall X3. ((v1_partfun1 X3 X0) \wedge ((\\ & v3_relat_2 X3) \wedge ((v8_relat_2 X3) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0)))))) \Rightarrow ((k1_binop_1 (u1_lattices X1) X2 X3 = \\ & k4_eqrel_1 X0 X2 X3) \wedge (k1_binop_1 (u2_lattices X1) X2 X3 = k5_eqrel_1 \\ & X0 X2 X3)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_lattices X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 \\ & (u1_struct_0 X0)) \Rightarrow (k2_lattices X0 X1 X2 = k5_binop_1 (u1_struct_0 \\ & X0) (u1_lattices X0) X1 X2))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0. \forall X1. k3_xboole_0 X0 X1 = k3_xboole_0 X1 X0 \quad (15)$$

Assume the following.

$$\forall X0. (v1_xboole_0 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (v1_xboole_0 X1)) \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l3_lattices X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge (v10_lattices \\ & X0)) \Rightarrow ((\neg v2_struct_0 X0) \wedge ((v4_lattices X0) \wedge ((v5_lattices X0) \wedge \\ & ((v6_lattices X0) \wedge ((v7_lattices X0) \wedge ((v8_lattices X0) \wedge (v9_lattices \\ & X0)))))))) \end{aligned} \quad (17)$$

Theorem 1

$$\begin{aligned} & \forall X0. \forall X1. (m1_subset_1 X1 (u1_struct_0 (k2_msualg_5 \\ & X0))) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 (k2_msualg_5 \\ & X0))) \Rightarrow ((r3_lattices (k2_msualg_5 X0) X1 X2) \Leftrightarrow (r1_tarSKI X1 X2))) \end{aligned}$$