

t7_lattice5 (TMbnGXuuunHwrAkW- PPo6rhuWD4XowGaH41Z)

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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 $k3_lattice3 : \iota \Rightarrow \iota$ be given. Let $k12_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v6_lattices : \iota \Rightarrow o$ 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. Let $r1_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_orders_2 : \iota \Rightarrow o$ be given. Let $v2_lattice3 : \iota \Rightarrow o$ be given. Let $l1_orders_2 : \iota \Rightarrow o$ be given. Let $r1_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_orders_2 : \iota \Rightarrow o$ be given. Let $k2_lattice3 : \iota \Rightarrow \iota$ be given. Let $k8_filter_1 : \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g1_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_orders_2 : \iota \Rightarrow o$ be given. Let $v4_orders_2 : \iota \Rightarrow o$ be given. Let $v1_lattice3 : \iota \Rightarrow o$ be given. Let $l1_lattices : \iota \Rightarrow o$ be given. Let $l2_lattices : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_relat_2 : \iota \Rightarrow o$ be given. Let $v4_relat_2 : \iota \Rightarrow o$ be given. Let $v8_relat_2 : \iota \Rightarrow o$ be given. Let $v4_lattices : \iota \Rightarrow o$ be given. Let $v5_lattices : \iota \Rightarrow o$ be given. Let $u1_orders_2 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ & X0))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((r3_lattices X0 X1 X2) \Leftrightarrow (r3_orders_2 \\ & (k3_lattice3 X0) (k4_lattices3 X0 X1) (k4_lattice3 X0 X2)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v6_lattices X0) \wedge ((v7_lattices \\ & X0) \wedge ((v8_lattices X0) \wedge ((v9_lattices X0) \wedge (l3_lattices X0)))))) \Rightarrow \\ & (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 \\ & X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. (m1_subset_1 X3 (u1_struct_0 \\ & X0)) \Rightarrow (((r3_lattices X0 X1 X2) \wedge (r3_lattices X0 X1 X3)) \Rightarrow (r3_lattices \\ & X0 X1 (k4_lattices X0 X2 X3)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v6_lattices X0) \wedge ((v8_lattices \\ X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (r1_lattices \\ X0 (k4_lattices X0 X1 X2) X1))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.((v5_orders_2 X0) \wedge ((v2_lattice3 X0) \wedge (l1_orders_2 \\ X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ (u1_struct_0 X0)) \Rightarrow ((X3 = k12_lattice3 X0 X1 X2) \Leftrightarrow ((r1_orders_2 \\ X0 X3 X1) \wedge ((r1_orders_2 X0 X3 X2) \wedge (\forall X4.(m1_subset_1 X4 (\\ u1_struct_0 X0)) \Rightarrow (((r1_orders_2 X0 X4 X1) \wedge (r1_orders_2 X0 X4 X2)) \Rightarrow \\ (r1_orders_2 X0 X4 X3)))))))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge ((v3_orders_2 \\ X0) \wedge (l1_orders_2 X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (\\ m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow ((r3_orders_2 X0 X1 X2) \Leftrightarrow (r1_orders_2 \\ X0 X1 X2)) \end{aligned} \quad (5)$$

Assume the following.

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

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ X0))) \Rightarrow (k2_lattice3 X0 = k8_filter_1 X0) \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ X0 X0))) \Rightarrow (\forall X2.\forall X3.(g1_orders_2 X0 X1 = g1_orders_2 \\ X2 X3) \Rightarrow ((X0 = X2) \wedge (X1 = X3))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ X0))) \Rightarrow (((\neg v2_struct_0 (k3_lattice3 X0)) \wedge ((v1_orders_2 (k3_lattice3 \\ X0) \wedge ((v3_orders_2 (k3_lattice3 X0)) \wedge ((v4_orders_2 (k3_lattice3 \\ X0) \wedge (v5_orders_2 (k3_lattice3 X0)))))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ X0))) \Rightarrow ((v1_orders_2 (k3_lattice3 X0)) \wedge ((v3_orders_2 (k3_lattice3 \\ X0)) \wedge ((v4_orders_2 (k3_lattice3 X0)) \wedge ((v5_orders_2 (k3_lattice3 \\ X0)) \wedge ((v1_lattice3 (k3_lattice3 X0)) \wedge (v2_lattice3 (k3_lattice3 \\ X0)))))))) \end{aligned} \quad (10)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge \\ (l3_lattices X0))) \wedge (m1_subset_1 X1 (u1_struct_0 (k3_lattice3 \\ X0)))) \Rightarrow (m1_subset_1 (k5_lattice3 X0 X1) (u1_struct_0 X0)) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge ((v6_lattices \\ X0) \wedge (l1_lattices X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge \\ (m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow (m1_subset_1 (k4_lattices \\ X0 X1 X2) (u1_struct_0 X0)) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge \\ (l3_lattices X0))) \wedge (m1_subset_1 X1 (u1_struct_0 X0))) \Rightarrow (m1_subset_1 \\ (k4_lattice3 X0 X1) (u1_struct_0 (k3_lattice3 X0))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ X0))) \Rightarrow ((v1_orders_2 (k3_lattice3 X0)) \wedge ((v3_orders_2 (k3_lattice3 \\ X0)) \wedge ((v4_orders_2 (k3_lattice3 X0)) \wedge ((v5_orders_2 (k3_lattice3 \\ X0)) \wedge (l1_orders_2 (k3_lattice3 X0)))))) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ X0))) \Rightarrow ((v1_partfun1 (k2_lattice3 X0) (u1_struct_0 X0)) \wedge ((v1_relat_2 \\ (k2_lattice3 X0)) \wedge ((v4_relat_2 (k2_lattice3 X0)) \wedge ((v8_relat_2 \\ (k2_lattice3 X0)) \wedge (m1_subset_1 (k2_lattice3 X0) (k1_zfmisc_1 \\ (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)))))))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 (k3_lattice3 \\ X0))) \Rightarrow (k5_lattice3 X0 X1 = X1)) \end{aligned} \quad (17)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k4_lattice3 X0 X1 = X1)) \quad (18)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \Rightarrow (k3_lattice3 X0 = g1_orders_2 (u1_struct_0 X0) (k2_lattice3 X0)) \quad (19)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge ((v6_lattices X0) \wedge (l1_lattices X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow (k4_lattices X0 X1 X2 = k4_lattices X0 X2 X1) \quad (20)$$

Assume the following.

$$\forall X0.(l3_lattices X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge (v10_lattices X0)) \Rightarrow ((\neg v2_struct_0 X0) \wedge ((v4_lattices X0) \wedge ((v5_lattices X0) \wedge ((v6_lattices X0) \wedge ((v7_lattices X0) \wedge ((v8_lattices X0) \wedge (v9_lattices X0)))))))) \quad (21)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0) \Rightarrow ((v1_orders_2 X0) \Rightarrow (X0 = g1_orders_2 (u1_struct_0 X0) (u1_orders_2 X0))) \quad (22)$$

Theorem 1

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 (k3_lattice3 X0))) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 (k3_lattice3 X0)))) \Rightarrow (k12_lattice3 (k3_lattice3 X0) X1 X2 = k4_lattices X0 (k5_lattice3 X0 X1) (k5_lattice3 X0 X2))))$$