

t28_lattice3 (TMQXHxBpgwCXCNSf- bRH32gQSmh58pUVUYe1)

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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 $r3_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_lattice3 : \iota \Rightarrow \iota$ be given. Let $k4_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v3_orders_2 : \iota \Rightarrow o$ 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 $v6_lattices : \iota \Rightarrow o$ 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 $k1_zfmisc_1 : \iota \Rightarrow \iota$ 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 $v5_orders_2 : \iota \Rightarrow o$ be given. Let $k5_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_lattice3 : \iota \Rightarrow \iota$ 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 $v7_lattices : \iota \Rightarrow o$ be given. Let $u1_orders_2 : \iota \Rightarrow \iota$ be given. Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v3_orders_2 \\ & X0) \wedge (l1_orders_2 X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (\\ & m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow ((r3_orders_2 X0 X1 X2) \Leftrightarrow (r1_orders_2 \\ & X0 X1 X2)) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2_struct_0 X0) \wedge ((v6_lattices \\ & X0) \wedge ((v8_lattices X0) \wedge ((v9_lattices X0) \wedge (l3_lattices X0)))))) \wedge \\ & ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 \\ & X0))) \Rightarrow ((r3_lattices X0 X1 X2) \Leftrightarrow (r1_lattices X0 X1 X2)) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0)))\Rightarrow(\forall X2.\forall X3.(g1_orders_2 X0 X1 = g1_orders_2 X2 X3)\Rightarrow((X0 = X2)\wedge(X1 = X3))) \quad (4)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\Rightarrow((\neg v2_struct_0 (k3_lattice3 X0))\wedge((v1_orders_2 (k3_lattice3 X0))\wedge((v3_orders_2 (k3_lattice3 X0))\wedge((v4_orders_2 (k3_lattice3 X0))\wedge(v5_orders_2 (k3_lattice3 X0)))))) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\wedge(m1_subset_1 X1 (u1_struct_0 (k3_lattice3 X0))))\Rightarrow(m1_subset_1 (k5_lattice3 X0 X1) (u1_struct_0 X0)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\wedge(m1_subset_1 X1 (u1_struct_0 X0)))\Rightarrow(m1_subset_1 (k4_lattice3 X0 X1) (u1_struct_0 (k3_lattice3 X0))) \quad (7)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\Rightarrow((v1_orders_2 (k3_lattice3 X0))\wedge((v3_orders_2 (k3_lattice3 X0))\wedge((v4_orders_2 (k3_lattice3 X0))\wedge((v5_orders_2 (k3_lattice3 X0))\wedge(l1_orders_2 (k3_lattice3 X0)))))) \quad (8)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\Rightarrow((v1_partfun1 (k2_lattice3 X0) (u1_struct_0 X0))\wedge((v1_relat_2 (k2_lattice3 X0))\wedge((v4_relat_2 (k2_lattice3 X0))\wedge((v8_relat_2 (k2_lattice3 X0))\wedge(m1_subset_1 (k2_lattice3 X0) (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)))))))) \quad (9)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0)\Rightarrow(\forall X1.\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow((r1_lattice3 X0 X1 X2)\Leftrightarrow(\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow((X3 \in X1)\Rightarrow(r1_orders_2 X0 X2 X3)))) \quad (10)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 (k3_lattice3 X0)))\Rightarrow(k5_lattice3 X0 X1 = X1)) \quad (11)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0) \Rightarrow (k4_lattice3 X0 X1 = X1)) \quad (12)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \Rightarrow (k3_lattice3 X0 = g1_orders_2 (u1_struct_0 X0) (k2_lattice3 X0)) \quad (13)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (l3_lattices X0)) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0) \Rightarrow (\forall X2.(r3_lattice3 X0 X1 X2) \Leftrightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0) \Rightarrow ((X3 \in X2) \Rightarrow (r1_lattices X0 X1 X3)))))) \quad (14)$$

Assume the following.

$$\forall X0.(l3_lattices X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge (v10_lattices X0)) \Rightarrow ((\neg v2_struct_0 X0) \wedge ((v4_lattices X0) \wedge ((v5_lattices X0) \wedge ((v6_lattices X0) \wedge ((v7_lattices X0) \wedge ((v8_lattices X0) \wedge (v9_lattices X0)))))))) \quad (15)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0) \Rightarrow ((v1_orders_2 X0) \Rightarrow (X0 = g1_orders_2 (u1_struct_0 X0) (u1_orders_2 X0))) \quad (16)$$

Theorem 1

$$\forall X0.\forall X1.((\neg v2_struct_0 X1) \wedge ((v10_lattices X1) \wedge (l3_lattices X1))) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X1) \Rightarrow ((r3_lattice3 X1 X2 X0) \Leftrightarrow (r1_lattice3 (k3_lattice3 X1) X0 (k4_lattice3 X1 X2))))$$