

t5_nat_lat

(TMWR77Dn1YmXbKpG5hK4qPTX1cU68aCXCgy)

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Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k3_nat_lat : \iota$ be given. Let $k1_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_nat_lat : \iota$ 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 $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k5_binop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_nat_d : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v6_membered : \iota \Rightarrow o$ be given. Let $l2_lattices : \iota \Rightarrow o$ be given. Let $u2_lattices : \iota \Rightarrow \iota$ be given. Let $l3_lattices : \iota \Rightarrow o$ be given. Let $l1_lattices : \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v3_lattices : \iota \Rightarrow o$ be given. Let $k5_numbers : \iota$ be given. Let $k1_nat_lat : \iota$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $u1_lattices : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X1) \wedge \\ & ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0)))))) \wedge ((m1_subset_1 X2 X0) \wedge \\ & (m1_subset_1 X3 X0))) \Rightarrow (k5_binop_1 X0 X1 X2 X3 = k1_binop_1 X1 X2 X3) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((m1_subset_1 X0 (u1_struct_0 k3_nat_lat)) \wedge \\ & (m1_subset_1 X1 (u1_struct_0 k3_nat_lat))) \Rightarrow (k1_lattices k3_nat_lat \\ & X0 X1 = k5_nat_d X0 X1) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_funct_1 X1) \wedge ((v1_funct_2 \\ & X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0) X0)))))) \wedge ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 \\ & (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0) X0)))))) \Rightarrow (\forall X3. \forall X4. \forall X5. \\ & (g3_lattices X0 X1 X2 = g3_lattices X3 X4 X5) \Rightarrow ((X0 = X3) \wedge ((X1 = X4) \wedge \\ & (X2 = X5)))) \end{aligned} \quad (3)$$

Assume the following.

$$v6_membered (u1_struct_0 k3_nat_lat) \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.(l2_lattices X0) \Rightarrow & ((v1_funct_1 (u2_lattices X0)) \wedge \\ & ((v1_funct_2 (u2_lattices X0) (k2_zfmisc_1 (u1_struct_0 X0) (\\ & u1_struct_0 X0)) (u1_struct_0 X0)) \wedge (m1_subset_1 (u2_lattices \\ & X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (\\ & u1_struct_0 X0)) (u1_struct_0 X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.(l3_lattices X0) \Rightarrow ((l1_lattices X0) \wedge (l2_lattices X0)) \quad (6)$$

Assume the following.

$$(\neg v2_struct_0 k3_nat_lat) \wedge ((v3_lattices k3_nat_lat) \wedge (l3_lattices k3_nat_lat)) \quad (7)$$

Assume the following.

$$\begin{aligned} (v1_funct_1 k2_nat_lat) \wedge & ((v1_funct_2 k2_nat_lat (k2_zfmisc_1 \\ & k5_numbers k5_numbers) k5_numbers) \wedge (m1_subset_1 k2_nat_lat \\ & (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 k5_numbers k5_numbers) \\ & k5_numbers)))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} (v1_funct_1 k1_nat_lat) \wedge & ((v1_funct_2 k1_nat_lat (k2_zfmisc_1 \\ & k5_numbers k5_numbers) k5_numbers) \wedge (m1_subset_1 k1_nat_lat \\ & (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 k5_numbers k5_numbers) \\ & k5_numbers)))) \end{aligned} \quad (9)$$

Assume the following.

$$k3_nat_lat = g3_lattices k5_numbers k2_nat_lat k1_nat_lat \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l2_lattices X0)) \Rightarrow & (\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\ & (u1_struct_0 X0)) \Rightarrow (k1_lattices X0 X1 X2 = k5_binop_1 (u1_struct_0 \\ & X0) (u2_lattices X0) X1 X2))) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.((v7_ordinal1 X0) \wedge (v7_ordinal1 X1)) \Rightarrow (k5_nat_d X0 X1 = k5_nat_d X1 X0) \quad (12)$$

Assume the following.

$$\forall X0.(v6_membered\ X0)\Rightarrow(\forall X1.(m1_subset_1\ X1\ X0)\Rightarrow(v7_ordinal1\ X1)) \quad (13)$$

Assume the following.

$$\forall X0.(l3_lattices\ X0)\Rightarrow((v3_lattices\ X0)\Rightarrow(X0 = g3_lattices\ (u1_struct_0\ X0)\ (u2_lattices\ X0)\ (u1_lattices\ X0))) \quad (14)$$

Theorem 1

$$\forall X0.(m1_subset_1\ X0\ (u1_struct_0\ k3_nat_lat))\Rightarrow(\forall X1.(m1_subset_1\ X1\ (u1_struct_0\ k3_nat_lat))\Rightarrow(k1_binop_1\ k2_nat_lat\ X0\ X1 = k1_binop_1\ k2_nat_lat\ X1\ X0))$$