

t25_filter_2 (TM-
Peo4GBwrD35DXaU7Ax55BinrJXcVCDzZx)

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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 $v13_lattices : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k6_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k5_lattices : \iota \Rightarrow \iota$ be given. Let $v18_lattices : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v21_lattices : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k6_lattices : \iota \Rightarrow \iota$ be given. Let $k1_lattice2 : \iota \Rightarrow \iota$ be given. Let $v14_lattices : \iota \Rightarrow o$ be given. Let $v19_lattices : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v20_lattices : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ 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 $g3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2_lattices : \iota \Rightarrow \iota$ be given. Let $v1_setwiseo : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_lattices : \iota \Rightarrow o$ be given. Let $u1_lattices : \iota \Rightarrow \iota$ be given. Let $v3_binop_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $l2_lattices : \iota \Rightarrow o$ be given. Let $l1_lattices : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v13_lattices X0) \wedge (l3_lattices X0)))) \Rightarrow (k5_lattices X0 = k6_lattices (k1_lattice2 X0)) \quad (1)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \Rightarrow ((v13_lattices X0) \Leftrightarrow (v14_lattices (k1_lattice2 X0))) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \Rightarrow (\forall X1. ((\neg v1_xboole_0 X1) \wedge ((v18_lattices X1 X0) \wedge \\ & ((v21_lattices X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))))) \Leftrightarrow ((\neg v1_xboole_0 X1) \wedge ((v19_lattices X1 (k1_lattice2 X0)) \wedge (v20_lattices X1 (k1_lattice2 X0)) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 (k1_lattice2 X0)))))))) \quad (3) \end{aligned}$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ X0))) \Rightarrow (((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v14_lattices \\ X0) \wedge (l3_lattices X0)))) \Rightarrow ((\neg v1_xboole_0 (k6_domain_1 (u1_struct_0 \\ X0) (k6_lattices X0))) \wedge ((v19_lattices (k6_domain_1 (u1_struct_0 \\ X0) (k6_lattices X0)) X0) \wedge ((v20_lattices (k6_domain_1 (u1_struct_0 \\ X0) (k6_lattices X0)) X0) \wedge (m1_subset_1 (k6_domain_1 (u1_struct_0 \\ X0) (k6_lattices X0)) (k1_zfmisc_1 (u1_struct_0 X0))))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge (m1_subset_1 X1 X0)) \Rightarrow (k6_domain_1 X0 X1 = k1_tarski X1) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (((v1_funct_1 X1) \wedge ((v1_funct_2 \\ X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ (k2_zfmisc_1 X0 X0) X0)))) \wedge ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 \\ (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ (k2_zfmisc_1 X0 X0) X0)))))) \Rightarrow (\forall X3. \forall X4. \forall X5. \\ (g3_lattices X0 X1 X2 = g3_lattices X3 X4 X5) \Rightarrow ((X0 = X3) \wedge ((X1 = X4) \wedge \\ (X2 = X5)))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v13_lattices \\ X0) \wedge (l3_lattices X0)))) \Rightarrow ((v1_funct_1 (u2_lattices X0)) \wedge ((v1_funct_2 \\ (u2_lattices X0) (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) \\ (u1_struct_0 X0)) \wedge (v1_setwiseo (u2_lattices X0) (u1_struct_0 \\ X0)))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ X0))) \Rightarrow ((v3_lattices (k1_lattice2 X0)) \wedge (v10_lattices (k1_lattice2 \\ X0))) \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ X0))) \Rightarrow ((v1_funct_1 (u1_lattices X0)) \wedge ((v1_funct_2 (u1_lattices \\ X0) (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 \\ X0)) \wedge (v3_binop_1 (u1_lattices X0) (u1_struct_0 X0)))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0. \neg v1_xboole_0 (k1_tarski X0) \quad (10)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l1_struct_0 X0))\Rightarrow(\neg v1_xboole_0 (u1_struct_0 X0)) \quad (11)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l3_lattices X0))\Rightarrow((\neg v2_struct_0 (k1_lattice2 X0))\wedge(v3_lattices (k1_lattice2 X0))) \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.(l2_lattices X0)\Rightarrow&((v1_funct_1 (u2_lattices X0))\wedge \\ &((v1_funct_2 (u2_lattices X0) (k2_zfmisc_1 (u1_struct_0 X0) (\\ &u1_struct_0 X0)) (u1_struct_0 X0))\wedge(m1_subset_1 (u2_lattices \\ &X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (\\ &u1_struct_0 X0)) (u1_struct_0 X0)))))) \quad (13) \end{aligned}$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_lattices X0)\Rightarrow&((v1_funct_1 (u1_lattices X0))\wedge \\ &((v1_funct_2 (u1_lattices X0) (k2_zfmisc_1 (u1_struct_0 X0) (\\ &u1_struct_0 X0)) (u1_struct_0 X0))\wedge(m1_subset_1 (u1_lattices \\ &X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (\\ &u1_struct_0 X0)) (u1_struct_0 X0)))))) \quad (14) \end{aligned}$$

Assume the following.

$$\forall X0.(l3_lattices X0)\Rightarrow((l1_lattices X0)\wedge(l2_lattices X0)) \quad (15)$$

Assume the following.

$$\forall X0.(l2_lattices X0)\Rightarrow(l1_struct_0 X0) \quad (16)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge(m1_subset_1 X1 X0))\Rightarrow(m1_subset_1 (k6_domain_1 X0 X1) (k1_zfmisc_1 X0)) \quad (17)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l1_lattices X0))\Rightarrow(m1_subset_1 (k5_lattices X0) (u1_struct_0 X0)) \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((v1_funct_1 X1)\wedge((v1_funct_2 \\ X1 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ (k2_zfmisc_1 X0 X0) X0))))\wedge((v1_funct_1 X2)\wedge((v1_funct_2 X2 \\ (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ (k2_zfmisc_1 X0 X0) X0))))))\Rightarrow((v3_lattices (g3_lattices X0 X1 \\ X2))\wedge(l3_lattices (g3_lattices X0 X1 X2))) \quad (19) \end{aligned}$$

Assume the following.

$$\forall X0.(l3_lattices\ X0)\Rightarrow(k1_lattice2\ X0 = g3_lattices\ (u1_struct_0\ X0)\ (u1_lattices\ X0)\ (u2_lattices\ X0)) \quad (20)$$

Assume the following.

$$\forall X0.(l3_lattices\ X0)\Rightarrow((v3_lattices\ X0)\Rightarrow(X0 = g3_lattices\ (u1_struct_0\ X0)\ (u2_lattices\ X0)\ (u1_lattices\ X0))) \quad (21)$$

Theorem 1

$$\forall X0.((\neg v2_struct_0\ X0)\wedge((v10_lattices\ X0)\wedge(l3_lattices\ X0)))\Rightarrow((v13_lattices\ X0)\Rightarrow((\neg v1_xboole_0\ (k6_domain_1\ (u1_struct_0\ X0)\ (k5_lattices\ X0)))\wedge((v18_lattices\ (k6_domain_1\ (u1_struct_0\ X0)\ (k5_lattices\ X0))\ X0)\wedge((v21_lattices\ (k6_domain_1\ (u1_struct_0\ X0)\ (k5_lattices\ X0))\ X0)\wedge(m1_subset_1\ (k6_domain_1\ (u1_struct_0\ X0)\ (k5_lattices\ X0))\ (k1_zfmisc_1\ (u1_struct_0\ X0))))))))$$