

t70_filter_2

(TMc1X6VJhUuWFa9XUGZYtKMZZLALfQadh6p)

October 27, 2020

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 $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v20_lattices : \iota \Rightarrow \iota \Rightarrow o$ 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 $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k10_filter_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k11_filter_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_lattice2 : \iota \Rightarrow \iota$ be given. Let $k3_filter_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m2_nat_lat : \iota \Rightarrow \iota \Rightarrow o$ 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 $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_lattices : \iota \Rightarrow o$ be given. Let $l2_lattices : \iota \Rightarrow o$ be given. Let $u2_lattices : \iota \Rightarrow \iota$ be given. Let $l1_lattices : \iota \Rightarrow o$ be given. Let $u1_lattices : \iota \Rightarrow \iota$ be given. Let $k1_realset1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \wedge (m2_nat_lat X1 X0)) \Rightarrow (k11_filter_2 X0 X1 = k1_lattice2 X1) \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. (((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0) X0)))) \wedge ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0) X0)))))) \Rightarrow (\forall X3. \forall X4. \forall X5. (g3_lattices X0 X1 X2 = g3_lattices X3 X4 X5) \Rightarrow ((X0 = X3) \wedge ((X1 = X4) \wedge (X2 = X5)))) \tag{2}$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \Rightarrow ((v3_lattices (k1_lattice2 X0)) \wedge (v10_lattices (k1_lattice2 X0))) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\wedge((v21_lattices X1 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))))))\Rightarrow(v20_lattices (k3_filter_2 X0 X1) (k1_lattice2 X0)) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\wedge((v20_lattices X1 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))))))\Rightarrow(v21_lattices (k3_filter_2 X0 X1) (k1_lattice2 X0)) \quad (5)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l3_lattices X0))\Rightarrow((\neg v2_struct_0 (k1_lattice2 X0))\wedge(v3_lattices (k1_lattice2 X0))) \quad (6)$$

Assume the following.

$$\forall X0.(l2_lattices X0)\Rightarrow((v1_funct_1 (u2_lattices X0))\wedge((v1_funct_2 (u2_lattices X0) (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0))\wedge(m1_subset_1 (u2_lattices X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0)))))) \quad (7)$$

Assume the following.

$$\forall X0.(l1_lattices X0)\Rightarrow((v1_funct_1 (u1_lattices X0))\wedge((v1_funct_2 (u1_lattices X0) (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0))\wedge(m1_subset_1 (u1_lattices X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0)))))) \quad (8)$$

Assume the following.

$$\forall X0.(l3_lattices X0)\Rightarrow((l1_lattices X0)\wedge(l2_lattices X0)) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\wedge(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))))\Rightarrow(m1_subset_1 (k3_filter_2 X0 X1) (k1_zfmisc_1 (u1_struct_0 (k1_lattice2 X0)))) \quad (10)$$

Assume the following.

$$\forall X0.(l3_lattices X0)\Rightarrow((v3_lattices (k1_lattice2 X0))\wedge(l3_lattices (k1_lattice2 X0))) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge \\ & (l3_lattices X0))) \wedge ((\neg v1_xboole_0 X1) \wedge ((v20_lattices X1 X0) \wedge \\ & ((v21_lattices X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0)))))) \Rightarrow (m2_nat_lat (k10_filter_2 X0 X1) X0) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1_funct_1 X1) \wedge ((v1_funct_2 \\ & X1 (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0) X0)))) \wedge ((v1_funct_1 X2) \wedge ((v1_funct_2 X2 \\ & (k2_zfmisc_1 X0 X0) X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X0 X0) X0)))))) \Rightarrow ((v3_lattices (g3_lattices X0 X1 \\ & X2)) \wedge (l3_lattices (g3_lattices X0 X1 X2))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ & X0))) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0))) \Rightarrow (k3_filter_2 X0 X1 = X1)) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l3_lattices X0) \Rightarrow (k1_lattice2 X0 = g3_lattices (u1_struct_0 \\ & X0) (u1_lattices X0) (u2_lattices X0)) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ & X0))) \Rightarrow (\forall X1. ((\neg v1_xboole_0 X1) \wedge ((v20_lattices X1 X0) \wedge \\ & ((v21_lattices X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0)))))) \Rightarrow (\forall X2. (m2_nat_lat X2 X0) \Rightarrow ((X2 = k10_filter_2 X0 \\ & X1) \Leftrightarrow (\exists X3. ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 (k2_zfmisc_1 \\ & X1 X1) X1) \wedge (m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & X1 X1) X1)))) \wedge (\exists X4. ((v1_funct_1 X4) \wedge ((v1_funct_2 X4 (\\ & k2_zfmisc_1 X1 X1) X1) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\ & (k2_zfmisc_1 X1 X1) X1)))) \wedge ((X3 = k1_realset1 (u2_lattices X0) \\ & X1) \wedge ((X4 = k1_realset1 (u1_lattices X0) X1) \wedge (X2 = g3_lattices X1 \\ & X3 X4)))))))))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0. (l3_lattices X0) \Rightarrow ((v3_lattices X0) \Rightarrow (X0 = g3_lattices \\ & (u1_struct_0 X0) (u2_lattices X0) (u1_lattices X0))) \end{aligned} \quad (17)$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ & X0))) \Rightarrow (\forall X1. ((\neg v1_xboole_0 X1) \wedge ((v20_lattices X1 X0) \wedge \\ & ((v21_lattices X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0)))))) \Rightarrow (k10_filter_2 X0 X1 = k11_filter_2 (k1_lattice2 X0) (\\ & k10_filter_2 (k1_lattice2 X0) (k3_filter_2 X0 X1)))) \end{aligned}$$