

t36_filter_2

(TMX9kAUQRgXCbyfE2KezkRnLgQh1LGW7DCr)

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 $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_lattice2 : \iota \Rightarrow \iota$ be given. Let $k3_filter_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_filter_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_filter_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_filter_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v19_lattices : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v18_lattices : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_lattices : \iota \Rightarrow o$ be given. Let $v21_lattices : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v20_lattices : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tarSKI : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \wedge ((v19_lattices X1 (k1_lattice2 X0)) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 (k1_lattice2 X0)))))) \Rightarrow (v18_lattices (k4_filter_2 X0 X1) X0)) \quad (1)$$

Assume the following.

$$\forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \Rightarrow ((v3_lattices (k1_lattice2 X0)) \wedge (v10_lattices (k1_lattice2 X0))) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \wedge ((v18_lattices X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))))) \Rightarrow (v19_lattices (k3_filter_2 X0 X1) (k1_lattice2 X0)) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \wedge ((v19_lattices X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))))) \Rightarrow (v18_lattices (k3_filter_2 X0 X1) (k1_lattice2 X0)) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\wedge((v21_lattices X1 (k1_lattice2 X0))\wedge(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 (k1_lattice2 X0))))))\Rightarrow(v20_lattices (k4_filter_2 X0 X1) X0)) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\wedge((v20_lattices X1 (k1_lattice2 X0))\wedge(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 (k1_lattice2 X0))))))\Rightarrow(v21_lattices (k4_filter_2 X0 X1) X0)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\wedge((v21_lattices X1 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))))\Rightarrow(v20_lattices (k3_filter_2 X0 X1) (k1_lattice2 X0))) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\wedge((v20_lattices X1 X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))))\Rightarrow(v21_lattices (k3_filter_2 X0 X1) (k1_lattice2 X0))) \quad (8)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l3_lattices X0))\Rightarrow((\neg v2_struct_0 (k1_lattice2 X0))\wedge(v3_lattices (k1_lattice2 X0))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\wedge((v18_lattices X1 (k1_lattice2 X0))\wedge(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 (k1_lattice2 X0))))))\Rightarrow(v19_lattices (k3_filter_2 (k1_lattice2 X0) X1) X0)) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\wedge((\neg v1_xboole_0 X1)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))))\Rightarrow((\neg v1_xboole_0 (k7_filter_2 X0 X1))\wedge((v18_lattices (k7_filter_2 X0 X1) X0)\wedge((v21_lattices (k7_filter_2 X0 X1) X0)\wedge(m1_subset_1 (k7_filter_2 X0 X1) (k1_zfmisc_1 (u1_struct_0 X0))))))) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge \\ & (l3_lattices X0))) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & (k1_lattice2 X0)))))) \Rightarrow (m1_subset_1 (k4_filter_2 X0 X1) (k1_zfmisc_1 \\ & (u1_struct_0 X0))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge \\ & (l3_lattices X0))) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0)))) \Rightarrow (m1_subset_1 (k3_filter_2 X0 X1) (k1_zfmisc_1 (u1_struct_0 \\ & (k1_lattice2 X0)))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge \\ & (l3_lattices X0))) \wedge ((\neg v1_xboole_0 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (u1_struct_0 X0)))))) \Rightarrow ((\neg v1_xboole_0 (k3_filter_0 X0 X1)) \wedge ((\\ & v19_lattices (k3_filter_0 X0 X1) X0) \wedge ((v20_lattices (k3_filter_0 \\ & X0 X1) X0) \wedge (m1_subset_1 (k3_filter_0 X0 X1) (k1_zfmisc_1 (u1_struct_0 \\ & X0)))))) \end{aligned} \quad (14)$$

Assume the following.

$$\forall X0. (l3_lattices X0) \Rightarrow ((v3_lattices (k1_lattice2 X0)) \wedge (l3_lattices (k1_lattice2 X0))) \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ & X0))) \Rightarrow (\forall X1. ((\neg v1_xboole_0 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (u1_struct_0 X0)))) \Rightarrow (\forall X2. ((\neg v1_xboole_0 X2) \wedge ((v18_lattices \\ & X2 X0) \wedge ((v21_lattices X2 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 \\ & X0)))))) \Rightarrow ((X2 = k7_filter_2 X0 X1) \Leftrightarrow ((r1_tarski X1 X2) \wedge (\forall X3. \\ & ((\neg v1_xboole_0 X3) \wedge ((v18_lattices X3 X0) \wedge ((v21_lattices X3 X0) \wedge \\ & (m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X0)))))) \Rightarrow ((r1_tarski \\ & X1 X3) \Rightarrow (r1_tarski X2 X3)))))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ & X0))) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & (k1_lattice2 X0)))) \Rightarrow (k4_filter_2 X0 X1 = X1)) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ & X0))) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0))) \Rightarrow (k3_filter_2 X0 X1 = X1)) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\
& X0))) \Rightarrow (\forall X1.((\neg v1_xboole_0 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\
& (u1_struct_0 X0)))) \Rightarrow (\forall X2.((\neg v1_xboole_0 X2) \wedge ((v19_lattices \\
& X2 X0) \wedge ((v20_lattices X2 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 \\
& X0)))))) \Rightarrow ((X2 = k3_filter_0 X0 X1) \Leftrightarrow ((r1_tarski X1 X2) \wedge (\forall X3. \\
& ((\neg v1_xboole_0 X3) \wedge ((v19_lattices X3 X0) \wedge ((v20_lattices X3 X0) \wedge \\
& (m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X0)))))) \Rightarrow ((r1_tarski \\
& X1 X3) \Rightarrow (r1_tarski X2 X3))))))
\end{aligned} \tag{19}$$

Assume the following.

$$\forall X0. \forall X1. (X0 = X1) \Leftrightarrow ((r1_tarski X0 X1) \wedge (r1_tarski X1 X0)) \tag{20}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\
& X0))) \Rightarrow (\forall X1.((\neg v1_xboole_0 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\
& (u1_struct_0 X0)))) \Rightarrow (\forall X2.((\neg v1_xboole_0 X2) \wedge (m1_subset_1 \\
& X2 (k1_zfmisc_1 (u1_struct_0 (k1_lattice2 X0)))))) \Rightarrow ((k3_filter_0 \\
& (k1_lattice2 X0) (k3_filter_2 X0 X1) = k7_filter_2 X0 X1) \wedge ((k3_filter_0 \\
& X0 X1 = k7_filter_2 (k1_lattice2 X0) (k3_filter_2 X0 X1)) \wedge ((k3_filter_0 \\
& X0 (k4_filter_2 X0 X2) = k7_filter_2 (k1_lattice2 X0) X2) \wedge (k3_filter_0 \\
& (k1_lattice2 X0) X2 = k7_filter_2 X0 (k4_filter_2 X0 X2))))))
\end{aligned}$$