

t30_filter_0

(TMZ6oQ8XYuWneZrWP4zHd7nui4qKEoRnZyk)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v10_lattices : \iota \Rightarrow o$ be given. Let $v3_filter_0 : \iota \Rightarrow o$ 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 $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v19_lattices : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v20_lattices : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k4_filter_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v6_lattices : \iota \Rightarrow o$ be given. Let $v8_lattices : \iota \Rightarrow o$ be given. Let $r1_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v9_lattices : \iota \Rightarrow o$ be given. Let $l1_lattices : \iota \Rightarrow o$ be given. Let $l2_lattices : \iota \Rightarrow o$ 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. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\
 & X0))) \Rightarrow (\forall X1. ((\neg v1_xboole_0 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\
 & (u1_struct_0 X0)))) \Rightarrow (((\neg v1_xboole_0 X1) \wedge ((v19_lattices X1 X0) \wedge \\
 & ((v20_lattices X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\
 & X0)))))) \Leftrightarrow ((\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\
 & (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (((X2 \in X1) \wedge (X3 \in X1)) \Rightarrow (k4_lattices \\
 & X0 X2 X3 \in X1)))) \wedge (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow \\
 & (\forall X3. (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (((X2 \in X1) \wedge (r3_lattices \\
 & X0 X2 X3)) \Rightarrow (X3 \in X1))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v6_lattices X0) \wedge ((v8_lattices \\
 & X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 \\
 & X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (r1_lattices \\
 & X0 (k4_lattices X0 X1 X2) X1)))
 \end{aligned} \tag{2}$$

Assume the following.

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

Assume the following.

$$\forall X0.(l3_lattices\ X0)\Rightarrow((l1_lattices\ X0)\wedge(l2_lattices\ X0)) \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0\ X0)\wedge((v6_lattices \\ X0)\wedge(l1_lattices\ X0)))\wedge((m1_subset_1\ X1\ (u1_struct_0\ X0))\wedge \\ m1_subset_1\ X2\ (u1_struct_0\ X0))))\Rightarrow(m1_subset_1\ (k4_lattices \\ X0\ X1\ X2)\ (u1_struct_0\ X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0\ X0)\wedge((v10_lattices \\ X0)\wedge(l3_lattices\ X0)))\wedge((m1_subset_1\ X1\ (u1_struct_0\ X0))\wedge \\ m1_subset_1\ X2\ (u1_struct_0\ X0))))\Rightarrow(m1_subset_1\ (k4_filter_0 \\ X0\ X1\ X2)\ (u1_struct_0\ X0)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.(((\neg v2_struct_0\ X0)\wedge((v10_lattices\ X0)\wedge(l3_lattices \\ X0)))\Rightarrow(\forall X1.(m1_subset_1\ X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2. \\ (m1_subset_1\ X2\ (u1_struct_0\ X0))\Rightarrow(((\neg v2_struct_0\ X0)\wedge((v10_lattices \\ X0)\wedge((v3_filter_0\ X0)\wedge(l3_lattices\ X0))))\Rightarrow(\forall X3.(m1_subset_1 \\ X3\ (u1_struct_0\ X0))\Rightarrow((X3 = k4_filter_0\ X0\ X1\ X2)\Leftrightarrow((r3_lattices \\ X0\ (k4_lattices\ X0\ X1\ X3)\ X2)\wedge(\forall X4.(m1_subset_1\ X4\ (u1_struct_0 \\ X0))\Rightarrow((r3_lattices\ X0\ (k4_lattices\ X0\ X1\ X4)\ X2)\Rightarrow(r3_lattices \\ X0\ X4\ X3)))))))))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0\ X0)\wedge((v6_lattices \\ X0)\wedge(l1_lattices\ X0)))\wedge((m1_subset_1\ X1\ (u1_struct_0\ X0))\wedge \\ m1_subset_1\ X2\ (u1_struct_0\ X0))))\Rightarrow(k4_lattices\ X0\ X1\ X2 = k4_lattices \\ X0\ X2\ X1) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.(l3_lattices\ X0)\Rightarrow(((\neg v2_struct_0\ X0)\wedge(v10_lattices \\ X0))\Rightarrow((\neg v2_struct_0\ X0)\wedge((v4_lattices\ X0)\wedge((v5_lattices\ X0)\wedge \\ ((v6_lattices\ X0)\wedge((v7_lattices\ X0)\wedge((v8_lattices\ X0)\wedge(v9_lattices \\ X0)))))))) \end{aligned} \quad (9)$$

Theorem 1

$$\begin{aligned} \forall X0.(((\neg v2_struct_0\ X0)\wedge((v10_lattices\ X0)\wedge((v3_filter_0 \\ X0)\wedge(l3_lattices\ X0))))\Rightarrow(\forall X1.(m1_subset_1\ X1\ (u1_struct_0 \\ X0))\Rightarrow(\forall X2.(m1_subset_1\ X2\ (u1_struct_0\ X0))\Rightarrow(\forall X3. \\ ((\neg v1_xboole_0\ X3)\wedge((v19_lattices\ X3\ X0)\wedge((v20_lattices\ X3\ X0)\wedge \\ (m1_subset_1\ X3\ (k1_zfmisc_1\ (u1_struct_0\ X0))))))\Rightarrow((X1 \in X3)\Rightarrow \\ (k4_filter_0\ X0\ X2\ X1 \in X3)))))) \end{aligned}$$