

t18_lattice6

(TMYQfhZnVnLuzy25BeCgB3hEpCbo5hFgvPh)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v10_lattices : \iota \Rightarrow o$ be given. Let $v4_lattice3 : \iota \Rightarrow o$ 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 $v4_lattice6 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_waybel_6 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_lattice3 : \iota \Rightarrow \iota$ be given. Let $r3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_lattice6 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_lattice6 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v4_lattices : \iota \Rightarrow o$ be given. Let $l2_lattices : \iota \Rightarrow o$ be given. Let $r1_lattices : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_orders_2 : \iota \Rightarrow o$ be given. Let $v1_yellow_0 : \iota \Rightarrow o$ be given. Let $l1_orders_2 : \iota \Rightarrow o$ be given. Let $r1_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_yellow_0 : \iota \Rightarrow \iota$ be given. Let $k15_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k16_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_filter_1 : \iota \Rightarrow \iota$ be given. Let $v1_lattice3 : \iota \Rightarrow o$ be given. Let $v13_lattices : \iota \Rightarrow o$ be given. Let $k5_lattices : \iota \Rightarrow \iota$ be given. Let $v3_orders_2 : \iota \Rightarrow o$ be given. Let $v6_lattices : \iota \Rightarrow o$ be given. Let $v8_lattices : \iota \Rightarrow o$ be given. Let $v9_lattices : \iota \Rightarrow o$ be given. Let $k2_lattice3 : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g1_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_orders_2 : \iota \Rightarrow o$ be given. Let $v4_orders_2 : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v2_lattice3 : \iota \Rightarrow o$ be given. Let $l1_lattices : \iota \Rightarrow o$ be given. Let $v1_partfun1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_relat_2 : \iota \Rightarrow o$ be given. Let $v4_relat_2 : \iota \Rightarrow o$ be given. Let $v8_relat_2 : \iota \Rightarrow o$ be given. Let $u1_orders_2 : \iota \Rightarrow \iota$ be given. Let $k1_yellow_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $v15_lattices : \iota \Rightarrow o$ be given. Let $v14_lattices : \iota \Rightarrow o$ be given. Let $v5_lattices : \iota \Rightarrow o$ be given. Let $v7_lattices : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} \forall X0. ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v4_lattice3 \\ X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 \\ X0)) \Rightarrow ((r3_lattices X0 X1 (k3_lattice6 X0 X1)) \wedge (r3_lattices X0 \\ (k4_lattice6 X0 X1) X1))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 (k3_lattice3 \\ X0))) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 (k3_lattice3 \\ X0))) \Rightarrow (k13_lattice3 (k3_lattice3 X0) X1 X2 = k3_lattices X0 (k5_lattice3 \\ X0 X1) (k5_lattice3 X0 X2)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v4_lattices X0) \wedge (l2_lattices \\ X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (((r1_lattices X0 X1 X2) \wedge (r1_lattices \\ X0 X2 X1)) \Rightarrow (X1 = X2)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((r3_lattices X0 X1 X2) \Leftrightarrow (r3_orders_2 \\ (k3_lattice3 X0) (k4_lattice3 X0 X1) (k4_lattice3 X0 X2)))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v5_orders_2 X0) \wedge ((v1_yellow_0 \\ X0) \wedge (l1_orders_2 X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ X0)) \Rightarrow (r1_orders_2 X0 (k3_yellow_0 X0) X1)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v4_lattice3 \\ X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ X0)) \Rightarrow (\forall X2.(X1 \in X2) \Rightarrow ((r3_lattices X0 X1 (k15_lattice3 X0 \\ X2)) \wedge (r3_lattices X0 (k16_lattice3 X0 X2) X1)))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\ X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\ (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow ((k1_domain_1 (u1_struct_0 \\ X0) (u1_struct_0 X0) X1 X2 \in k8_filter_1 X0) \Leftrightarrow (r3_lattices X0 X1 X2)))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.((v5_orders_2 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\ (u1_struct_0 X0)) \Rightarrow (((r1_orders_2 X0 X1 X2) \wedge (r1_orders_2 X0 X2 \\ X1)) \Rightarrow (X1 = X2)))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((v5_orders_2 X0) \wedge ((v1_lattice3 X0) \wedge (l1_orders_2 \\
& X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
& (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\
& (u1_struct_0 X0)) \Rightarrow ((X3 = k13_lattice3 X0 X1 X2) \Leftrightarrow ((r1_orders_2 \\
& X0 X1 X3) \wedge ((r1_orders_2 X0 X2 X3) \wedge (\forall X4.(m1_subset_1 X4 (\\
& u1_struct_0 X0)) \Rightarrow ((r1_orders_2 X0 X1 X4) \wedge (r1_orders_2 X0 X2 X4)) \Rightarrow \\
& (r1_orders_2 X0 X3 X4)))))))))
\end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v13_lattices \\
& X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\
& X0)) \Rightarrow (r3_lattices X0 (k5_lattices X0) X1))
\end{aligned} \tag{10}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge ((v3_orders_2 \\
& X0) \wedge (l1_orders_2 X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (\\
& m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow ((r3_orders_2 X0 X1 X2) \Leftrightarrow (r1_orders_2 \\
& X0 X1 X2))
\end{aligned} \tag{11}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0) \wedge ((v6_lattices \\
& X0) \wedge ((v8_lattices X0) \wedge ((v9_lattices X0) \wedge (l3_lattices X0)))) \wedge \\
& ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (m1_subset_1 X2 (u1_struct_0 \\
& X0)))) \Rightarrow ((r3_lattices X0 X1 X2) \Leftrightarrow (r1_lattices X0 X1 X2))
\end{aligned} \tag{12}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices \\
& X0))) \Rightarrow (k2_lattice3 X0 = k8_filter_1 X0)
\end{aligned} \tag{13}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v1_xboole_0 X0) \wedge \\
& ((\neg v1_xboole_0 X1) \wedge ((m1_subset_1 X2 X0) \wedge (m1_subset_1 X3 X1)))) \Rightarrow \\
& (k1_domain_1 X0 X1 X2 X3 = k4_tarski X2 X3)
\end{aligned} \tag{14}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((v5_orders_2 X0) \wedge ((v1_lattice3 \\
& X0) \wedge (l1_orders_2 X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (\\
& m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow (k13_lattice3 X0 X1 X2 = k10_lattice3 \\
& X0 X1 X2)
\end{aligned} \tag{15}$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 X0 X0)))\Rightarrow(\forall X2.\forall X3.(g1_orders_2 X0 X1 = g1_orders_2 X2 X3)\Rightarrow((X0 = X2)\wedge(X1 = X3))) \quad (16)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\Rightarrow((\neg v2_struct_0 (k3_lattice3 X0))\wedge((v1_orders_2 (k3_lattice3 X0))\wedge((v3_orders_2 (k3_lattice3 X0))\wedge((v4_orders_2 (k3_lattice3 X0))\wedge(v5_orders_2 (k3_lattice3 X0))))))) \quad (17)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge((v13_lattices X0)\wedge(l3_lattices X0))))\Rightarrow((v1_orders_2 (k3_lattice3 X0))\wedge((v3_orders_2 (k3_lattice3 X0))\wedge((v4_orders_2 (k3_lattice3 X0))\wedge(v5_orders_2 (k3_lattice3 X0))\wedge(v1_yellow_0 (k3_lattice3 X0)))))) \quad (18)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l1_struct_0 X0))\Rightarrow(\neg v1_xboole_0 (u1_struct_0 X0)) \quad (19)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\Rightarrow((v1_orders_2 (k3_lattice3 X0))\wedge((v3_orders_2 (k3_lattice3 X0))\wedge((v4_orders_2 (k3_lattice3 X0))\wedge((v5_orders_2 (k3_lattice3 X0))\wedge((v1_lattice3 (k3_lattice3 X0))\wedge(v2_lattice3 (k3_lattice3 X0)))))))) \quad (20)$$

Assume the following.

$$\forall X0.(l3_lattices X0)\Rightarrow((l1_lattices X0)\wedge(l2_lattices X0)) \quad (21)$$

Assume the following.

$$\forall X0.(l1_lattices X0)\Rightarrow(l1_struct_0 X0) \quad (22)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l1_lattices X0))\Rightarrow(m1_subset_1 (k5_lattices X0) (u1_struct_0 X0)) \quad (23)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\wedge(m1_subset_1 X1 (u1_struct_0 (k3_lattice3 X0))))\Rightarrow(m1_subset_1 (k5_lattice3 X0 X1) (u1_struct_0 X0)) \quad (24)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge((v4_lattice3 X0)\wedge(l3_lattices X0))))\wedge(m1_subset_1 X1 (u1_struct_0 X0)))\Rightarrow(m1_subset_1 (k4_lattice6 X0 X1) (u1_struct_0 X0)) \quad (25)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\wedge(m1_subset_1 X1 (u1_struct_0 X0)))\Rightarrow(m1_subset_1 (k4_lattice3 X0 X1) (u1_struct_0 (k3_lattice3 X0))) \quad (26)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0)\Rightarrow(m1_subset_1 (k3_yellow_0 X0) (u1_struct_0 X0)) \quad (27)$$

Assume the following.

$$\forall X0.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\Rightarrow((v1_orders_2 (k3_lattice3 X0))\wedge((v3_orders_2 (k3_lattice3 X0))\wedge((v4_orders_2 (k3_lattice3 X0))\wedge((v5_orders_2 (k3_lattice3 X0))\wedge(l1_orders_2 (k3_lattice3 X0))))))) \quad (28)$$

Assume the following.

$$\forall X0.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge(l3_lattices X0)))\Rightarrow((v1_partfun1 (k2_lattice3 X0) (u1_struct_0 X0))\wedge((v1_relat_2 (k2_lattice3 X0))\wedge((v4_relat_2 (k2_lattice3 X0))\wedge((v8_relat_2 (k2_lattice3 X0))\wedge(m1_subset_1 (k2_lattice3 X0) (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)))))))))) \quad (29)$$

Assume the following.

$$\forall X0.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge((v4_lattice3 X0)\wedge(l3_lattices X0))))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow((v4_lattice6 X1 X0)\Leftrightarrow(k4_lattice6 X0 X1\neq X1))) \quad (30)$$

Assume the following.

$$\forall X0.(((\neg v2_struct_0 X0)\wedge((v10_lattices X0)\wedge((v4_lattice3 X0)\wedge(l3_lattices X0))))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(k4_lattice6 X0 X1 = k15_lattice3 X0 (ReplSep (toset (\lambda X2 : \iota.m1_subset_1 X2 (u1_struct_0 X0))) (\lambda X2 : \iota.(r3_lattices X0 X2 X1)\wedge(X2\neq X1)) (\lambda X2 : \iota.X2)))))) \quad (31)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0)\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow((r1_orders_2 X0 X1 X2)\Leftrightarrow(k4_tarski X1 X2 \in u1_orders_2 X0)))) \quad (32)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 (k3_lattice3 X0))) \Rightarrow (k5_lattice3 X0 X1 = X1)) \quad (33)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow ((v3_waybel_6 X1 X0) \Leftrightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\neg(X1 = k10_lattice3 X0 X2 X3) \wedge ((X2 \neq X1) \wedge (X3 \neq X1))))))) \quad (34)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k4_lattice3 X0 X1 = X1)) \quad (35)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (l3_lattices X0))) \Rightarrow (k3_lattice3 X0 = g1_orders_2 (u1_struct_0 X0) (k2_lattice3 X0)) \quad (36)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0) \Rightarrow (k3_yellow_0 X0 = k1_yellow_0 X0 k1_xboole_0) \quad (37)$$

Assume the following.

$$\forall X0.(l3_lattices X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge (v15_lattices X0)) \Rightarrow ((\neg v2_struct_0 X0) \wedge ((v13_lattices X0) \wedge (v14_lattices X0)))) \quad (38)$$

Assume the following.

$$\forall X0.(l3_lattices X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge (v10_lattices X0)) \Rightarrow ((\neg v2_struct_0 X0) \wedge ((v4_lattices X0) \wedge ((v5_lattices X0) \wedge ((v6_lattices X0) \wedge ((v7_lattices X0) \wedge ((v8_lattices X0) \wedge (v9_lattices X0)))))))) \quad (39)$$

Assume the following.

$$\forall X0.(l3_lattices X0) \Rightarrow (((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (v4_lattice3 X0))) \Rightarrow ((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge (v15_lattices X0)))) \quad (40)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0) \Rightarrow ((v1_orders_2 X0) \Rightarrow (X0 = g1_orders_2 (u1_struct_0 X0) (u1_orders_2 X0))) \quad (41)$$

Theorem 1

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((v10_lattices X0) \wedge ((v4_lattice3 X0) \wedge (l3_lattices X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow ((v4_lattice6 X1 X0) \Rightarrow (v3_waybel_6 (k4_lattice3 X0 X1) (k3_lattice3 X0))))$$