

t41_yellow_0 (TM-
Sjd8kBEBnEboMECLMY5EmxRNTsot4eVQ3)

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Let $v3_orders_2 : \iota \Rightarrow o$ be given. Let $v4_orders_2 : \iota \Rightarrow o$ be given. Let $v5_orders_2 : \iota \Rightarrow o$ be given. Let $v1_lattice3 : \iota \Rightarrow o$ be given. Let $l1_orders_2 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_yellow_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_domain_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k13_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_yellow_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.(l1_orders_2 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\
 & (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (((r1_lattice3 X0 (k2_tarski \\
 & X2 X3) X1) \Rightarrow ((r1_orders_2 X0 X1 X2) \wedge (r1_orders_2 X0 X1 X3))) \wedge (((\\
 & (r1_orders_2 X0 X1 X2) \wedge (r1_orders_2 X0 X1 X3)) \Rightarrow (r1_lattice3 X0 \\
 & (k2_tarski X2 X3) X1)) \wedge (((r2_lattice3 X0 (k2_tarski X2 X3) X1) \Rightarrow \\
 & ((r1_orders_2 X0 X2 X1) \wedge (r1_orders_2 X0 X3 X1))) \wedge (((r1_orders_2 \\
 & X0 X2 X1) \wedge (r1_orders_2 X0 X3 X1)) \Rightarrow (r2_lattice3 X0 (k2_tarski X2 \\
 & X3) X1)))))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0.((v5_orders_2 X0) \wedge ((v1_lattice3 X0) \wedge (l1_orders_2 \\
 & X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. \\
 & (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 \\
 & (u1_struct_0 X0)) \Rightarrow ((X3 = k13_lattice3 X0 X1 X2) \Leftrightarrow ((r1_orders_2 \\
 & X0 X1 X3) \wedge (r1_orders_2 X0 X2 X3) \wedge (\forall X4.(m1_subset_1 X4 (\\
 & u1_struct_0 X0)) \Rightarrow (((r1_orders_2 X0 X1 X4) \wedge (r1_orders_2 X0 X2 X4)) \Rightarrow \\
 & (r1_orders_2 X0 X3 X4)))))))))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} \forall X0.((v5_orders_2 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ (r1_yellow_0 X0 X1) \Leftrightarrow (\exists X2.(m1_subset_1 X2 (u1_struct_0 \\ X0)) \wedge ((r2_lattice3 X0 X1 X2) \wedge (\forall X3.(m1_subset_1 X3 (u1_struct_0 \\ X0)) \Rightarrow ((r2_lattice3 X0 X1 X3) \Rightarrow (r1_orders_2 X0 X2 X3)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0) \wedge ((m1_subset_1 \\ X1 X0) \wedge (m1_subset_1 X2 X0))) \Rightarrow (k7_domain_1 X0 X1 X2 = k2_tarski X1 \\ X2) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (\neg v1_xboole_0 \\ (u1_struct_0 X0)) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0) \Rightarrow (l1_struct_0 X0) \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.(((v5_orders_2 X0) \wedge ((v1_lattice3 \\ X0) \wedge (l1_orders_2 X0))) \wedge ((m1_subset_1 X1 (u1_struct_0 X0)) \wedge (\\ m1_subset_1 X2 (u1_struct_0 X0)))) \Rightarrow (m1_subset_1 (k13_lattice3 \\ X0 X1 X2) (u1_struct_0 X0)) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_orders_2 X0) \Rightarrow (\forall X1.\forall X2.(m1_subset_1 \\ X2 (u1_struct_0 X0)) \Rightarrow ((r1_yellow_0 X0 X1) \Rightarrow ((X2 = k1_yellow_0 X0 \\ X1) \Leftrightarrow ((r2_lattice3 X0 X1 X2) \wedge (\forall X3.(m1_subset_1 X3 (u1_struct_0 \\ X0)) \Rightarrow ((r2_lattice3 X0 X1 X3) \Rightarrow (r1_orders_2 X0 X2 X3)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0) \Rightarrow ((v1_lattice3 X0) \Rightarrow (\neg v2_struct_0 X0)) \quad (9)$$

Theorem 1

$$\begin{aligned} \forall X0.(((v3_orders_2 X0) \wedge ((v4_orders_2 X0) \wedge ((v5_orders_2 \\ X0) \wedge ((v1_lattice3 X0) \wedge (l1_orders_2 X0)))))) \Rightarrow (\forall X1.(m1_subset_1 \\ X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 \\ X0)) \Rightarrow (k1_yellow_0 X0 (k7_domain_1 (u1_struct_0 X0) X1 X2) = k13_lattice3 \\ X0 X1 X2))) \end{aligned}$$