

t57_waybel_0 (TMHJR-
mgxw7u52mNXv4Wna4cE7xrs8R1BZep)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v3_orders_2 : \iota \Rightarrow o$ be given. Let $v4_orders_2 : \iota \Rightarrow o$ be given. Let $l1_orders_2 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $r2_yellow_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_yellow_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r2_lattice3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $r1_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r3_orders_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(l1_orders_2 X0) \Rightarrow (\forall X1.\forall X2.(r1_tarski \\ & X1 X2) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow ((r1_lattice3 \\ & X0 X2 X3) \Rightarrow (r1_lattice3 X0 X1 X3)) \wedge ((r2_lattice3 X0 X2 X3) \Rightarrow (r2_lattice3 \\ & X0 X1 X3)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_orders_2 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (((r1_lattice3 \\ & X0 (k1_tarski X2) X1) \Rightarrow (r1_orders_2 X0 X1 X2)) \wedge (((r1_orders_2 X0 \\ & X1 X2) \Rightarrow (r1_lattice3 X0 (k1_tarski X2) X1)) \wedge (((r2_lattice3 X0 (\\ & k1_tarski X2) X1) \Rightarrow (r1_orders_2 X0 X2 X1)) \wedge ((r1_orders_2 X0 X2 X1) \Rightarrow \\ & (r2_lattice3 X0 (k1_tarski X2) X1))))))))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarski X0 X1) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.(r1_tarski (k1_tarski X0) X1) \Leftrightarrow (X0 \in X1) \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((v3_orders_2 X0)\wedge(l1_orders_2 X0)))\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow(r3_orders_2 X0 X1 X1) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((v3_orders_2 X0)\wedge(l1_orders_2 X0)))\wedge((m1_subset_1 X1 (u1_struct_0 X0))\wedge(m1_subset_1 X2 (u1_struct_0 X0))))\Rightarrow((r3_orders_2 X0 X1 X2)\Leftrightarrow(r1_orders_2 X0 X1 X2)) \quad (6)$$

Assume the following.

$$\forall X0.\neg v1_xboole_0 (k1_tarski X0) \quad (7)$$

Assume the following.

$$v1_xboole_0 k1_xboole_0 \quad (8)$$

Assume the following.

$$\forall X0.v1_finset_1 (k1_tarski X0) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.(l1_orders_2 X0)\Rightarrow(m1_subset_1 (k2_yellow_0 X0 X1) (u1_struct_0 X0)) \quad (10)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0)\Rightarrow(\forall X1.\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow((r1_lattice3 X0 X1 X2)\Leftrightarrow(\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow((X3 \in X1)\Rightarrow(r1_orders_2 X0 X2 X3)))))) \quad (11)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0)\Rightarrow(\forall X1.\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow((r2_yellow_0 X0 X1)\Rightarrow((X2 = k2_yellow_0 X0 X1)\Leftrightarrow((r1_lattice3 X0 X1 X2)\wedge(\forall X3.(m1_subset_1 X3 (u1_struct_0 X0))\Rightarrow((r1_lattice3 X0 X1 X3)\Rightarrow(r1_orders_2 X0 X3 X2))))))) \quad (12)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge ((v4_orders_2 \\ & X0) \wedge (l1_orders_2 X0)))) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 \\ & (u1_struct_0 X0))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ & (u1_struct_0 X0))) \Rightarrow ((\forall X3.((v1_finset_1 X3) \wedge (m1_subset_1 \\ & X3 (k1_zfmisc_1 X1))) \Rightarrow ((X3 \neq k1_xboole_0) \Rightarrow (r2_yellow_0 X0 X3))) \wedge \\ & ((\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\neg(X3 \in X2) \wedge (\forall X4. \\ & ((v1_finset_1 X4) \wedge (m1_subset_1 X4 (k1_zfmisc_1 X1))) \Rightarrow (\neg(r2_yellow_0 \\ & X0 X4) \wedge (X3 = k2_yellow_0 X0 X4)))))) \wedge (\forall X3.((v1_finset_1 \\ & X3) \wedge (m1_subset_1 X3 (k1_zfmisc_1 X1))) \Rightarrow ((X3 \neq k1_xboole_0) \Rightarrow (\\ & k2_yellow_0 X0 X3 \in X2)))))) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 \\ & X0)) \Rightarrow ((r1_lattice3 X0 X1 X3) \Leftrightarrow (r1_lattice3 X0 X2 X3)))))) \end{aligned}$$