

t18_fintopo6
(TMciH2pkmF3aZZ3hFPZDH4pEktof5nPt6DX)

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Let $v2_struct_0 : \iota \Rightarrow o$ 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 $v3_orders_2 : \iota \Rightarrow o$ be given. Let $v1_fintopo6 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k3_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_fin_topo : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_fin_topo : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_xboole_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_fin_topo : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k2_struct_0 : \iota \Rightarrow \iota$ be given. Let $k4_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_fintopo4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_struct_0 : \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\ & (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((X1 \in k9_fin_topo X0 X2) \Leftrightarrow (\neg r1_xboole_0 \\ & (k1_fin_topo X0 X1 X2)))))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0. \forall X1. \neg (X0 \in X1) \wedge (v1_xboole_0 X1) \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow ((v1_fintopo6 \\ & X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow \\ & (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow \\ & (\neg (k2_struct_0 X0 = k4_subset_1 (u1_struct_0 X0) X1 X2) \wedge ((r1_xboole_0 \\ & X1 X2) \wedge ((r1_fintopo4 X0 X1 X2) \wedge ((X1 \neq k1_struct_0 X0) \wedge (X2 \neq k1_struct_0 \\ & X0)))))))))) \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\ (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((X1 \in k5_fin_topo X0 X2) \Leftrightarrow ((\neg \\ r1_xboole_0 (k1_fin_topo X0 X1) X2) \wedge (\neg r1_xboole_0 (k1_fin_topo \\ X0 X1) (k3_subset_1 (u1_struct_0 X0) X2)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(r1_tarSKI X0 X1) \Rightarrow (X1 = k2_xboole_0 X0 (k4_xboole_0 X1 X0)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(\neg(r1_xboole_0 X0 X1) \wedge (\forall X2.\neg(X2 \in X0) \wedge (X2 \in X1))) \wedge (\neg(\exists X2.(X2 \in X0) \wedge (X2 \in X1)) \wedge (r1_xboole_0 X0 X1)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarSKI X0 X1) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.(r1_xboole_0 X0 X1) \Rightarrow (r1_xboole_0 X1 X0) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((m1_subset_1 X1 (k1_zfmisc_1 X0)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 X0))) \Rightarrow (k4_subset_1 X0 X1 X2 = k2_xboole_0 X1 X2) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (k3_subset_1 X0 (k3_subset_1 X0 X1) = X1) \quad (11)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0) \Rightarrow (v1_xboole_0 (k1_struct_0 X0)) \quad (12)$$

Assume the following.

$$\forall X0.(l1_orders_2 X0) \Rightarrow (l1_struct_0 X0) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0))\Rightarrow(m1_subset_1 (k3_subset_1 X0 X1) (k1_zfmisc_1 X0)) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0))\Rightarrow(k3_subset_1 X0 X1 = k4_xboole_0 X0 X1) \quad (15)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l1_orders_2 X0))\Rightarrow((v3_orders_2 X0)\Leftrightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(X1 \in k1_fin_topo X0 X1))) \quad (16)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0)\Rightarrow(k2_struct_0 X0 = u1_struct_0 X0) \quad (17)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0)\Rightarrow(k1_struct_0 X0 = k1_xboole_0) \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0)\wedge(l1_orders_2 X0))\Rightarrow(\forall X1. \\ (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow(\forall X2. \\ (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow((r1_fintopo4 \\ X0 X1 X2)\Leftrightarrow((r1_xboole_0 (k9_fin_topo X0 X1) X2)\wedge(r1_xboole_0 X1 \\ (k9_fin_topo X0 X2)))))) \end{aligned} \quad (19)$$

Theorem 1

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0)\wedge(l1_orders_2 X0))\Rightarrow(\forall X1. \\ (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow(\neg(v3_orders_2 \\ X0)\wedge((v1_fintopo6 X0)\wedge((X1\neq k1_xboole_0)\wedge((k3_subset_1 (u1_struct_0 \\ X0) X1\neq k1_xboole_0)\wedge(k5_fin_topo X0 X1 = k1_xboole_0)))))) \end{aligned}$$