

t8_fintopo2
(TMK3P9Ydes8mBxdnZsC5kqf49EsKicYdDRF)

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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 $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k5_fin_topo : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_fintopo2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_margrel1 : \iota$ be given. Let $k2_fintopo2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_fin_topo : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_xboole_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k7_margrel1 : \iota$ be given. Let $k1_xboolean : \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\ & (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (\\ & u1_struct_0 X0))) \Rightarrow ((k2_fintopo2 X0 X1 X2 X3 = k8_margrel1) \Leftrightarrow ((X2 \in \\ & k1_fin_topo X0 X1) \wedge (X2 \in k3_subset_1 (u1_struct_0 X0) X3)))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\ & (u1_struct_0 X0)) \Rightarrow (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (\\ & u1_struct_0 X0))) \Rightarrow ((k1_fintopo2 X0 X1 X2 X3 = k8_margrel1) \Leftrightarrow ((X2 \in \\ & k1_fin_topo X0 X1) \wedge (X2 \in X3)))))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\ & (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((X1 \in k5_fin_topo X0 X2) \Leftrightarrow ((\neg \\ & r1_xboole_0 (k1_fin_topo X0 X1) X2) \wedge (\neg r1_xboole_0 (k1_fin_topo \\ & X0 X1) (k3_subset_1 (u1_struct_0 X0) X2)))))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(\neg(\neg r1_xboole_0 X0 X1)\wedge(\forall X2.\neg(X2 \in X0)\wedge(X2 \in X1)))\wedge(\neg(\exists X2.(X2 \in X0)\wedge(X2 \in X1))\wedge(r1_xboole_0 X0 X1)) \quad (5)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l1_orders_2 X0))\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow(k5_fin_topo X0 (k3_subset_1 (u1_struct_0 X0) X1) = k5_fin_topo X0 X1)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(r1_xboole_0 X0 X1)\Rightarrow(r1_xboole_0 X1 X0) \quad (7)$$

Assume the following.

$$k7_margrel1 = k1_xboolean \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0))\Rightarrow(k3_subset_1 X0 (k3_subset_1 X0 X1) = X1) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(l1_orders_2 X0))\wedge(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))))\Rightarrow(m1_subset_1 (k5_fin_topo X0 X1) (k1_zfmisc_1 (u1_struct_0 X0))) \quad (10)$$

Assume the following.

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

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l1_orders_2 X0))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow(\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow((((X2 \in k1_fin_topo X0 X1)\wedge(X2 \in k3_subset_1 (u1_struct_0 X0) X3))\Rightarrow(k2_fintopo2 X0 X1 X2 X3 = k8_margrel1))\wedge((\neg(X2 \in k1_fin_topo X0 X1)\wedge(X2 \in k3_subset_1 (u1_struct_0 X0) X3))\Rightarrow(k2_fintopo2 X0 X1 X2 X3 = k7_margrel1))))))) \quad (12)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0)\wedge(l1_orders_2 X0))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 X0))\Rightarrow(\forall X2.(m1_subset_1 X2 (u1_struct_0 X0))\Rightarrow(\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow((((X2 \in k1_fin_topo X0 X1)\wedge(X2 \in X3))\Rightarrow(k1_fintopo2 X0 X1 X2 X3 = k8_margrel1))\wedge((\neg(X2 \in k1_fin_topo X0 X1)\wedge(X2 \in X3))\Rightarrow(k1_fintopo2 X0 X1 X2 X3 = k7_margrel1))))))) \quad (13)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 \\ & (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((X1 \in k5_fin_topo X0 X2) \Leftrightarrow (\exists X3. \\ & (m1_subset_1 X3 (u1_struct_0 X0)) \wedge (\exists X4.(m1_subset_1 X4 \\ & (u1_struct_0 X0)) \wedge ((k1_fintopo2 X0 X1 X3 X2 = k8_margrel1) \wedge (k2_fintopo2 \\ & X0 X1 X4 X2 = k8_margrel1))))))) \end{aligned}$$