

t28_fintopo6 (TMRUBEKQ- CAbTZ22F3N4cnBN74JYLwBEaK9h)

October 27, 2020

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 $k2_struct_0 : \iota \Rightarrow \iota$ 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 $v2_fin_topo : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_fin_topo : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_xboole_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $k8_fin_topo : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_fin_topo : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge (l1_orders_2 \\ X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ X0))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 \\ X0))) \Rightarrow ((r1_fintopo4 X0 X1 X2) \Rightarrow (r1_xboole_0 X1 X2)))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((v3_fin_topo \\ (k3_subset_1 (u1_struct_0 X0) X1) X0) \Rightarrow (v2_fin_topo X1 X0))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (\forall X2. \\ (m1_subset_1 X2 (k1_zfmisc_1 X0)) \Rightarrow ((r1_xboole_0 X1 (k3_subset_1 \\ X0 X2)) \Leftrightarrow (r1_tarski X1 X2))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (\forall X2. \\ (m1_subset_1 X2 (k1_zfmisc_1 X0)) \Rightarrow ((r1_xboole_0 X1 X2) \Leftrightarrow (r1_tarski \\ X1 (k3_subset_1 X0 X2)))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_struct_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow ((k4_subset_1 (u1_struct_0 X0) X1 X2 = k2_struct_0 \\ X0) \Leftrightarrow (r1_tarski (k3_subset_1 (u1_struct_0 X0) X1) X2)))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\ (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (k3_subset_1 \\ (u1_struct_0 X0) (k8_fin_topo X0 (k3_subset_1 (u1_struct_0 X0) \\ X1)) = k9_fin_topo X0 X1)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v3_orders_2 X0) \wedge (l1_orders_2 \\ X0))) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ X0))) \Rightarrow (r1_tarski X1 (k9_fin_topo X0 X1))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(r1_xboole_0 X0 X1) \Rightarrow (r1_xboole_0 X1 X0) \quad (8)$$

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.

$$\forall X0.(l1_orders_2 X0) \Rightarrow (l1_struct_0 X0) \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \wedge \\ (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))) \Rightarrow (m1_subset_1 \\ (k8_fin_topo X0 X1) (k1_zfmisc_1 (u1_struct_0 X0))) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (m1_subset_1 \\ (k3_subset_1 X0 X1) (k1_zfmisc_1 X0)) \quad (12)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0) \Rightarrow (k2_struct_0 X0 = u1_struct_0 X0) \quad (13)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\
& (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (\forall X2. \\
& (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((r1_fintopo4 \\
& X0 X1 X2) \Leftrightarrow ((r1_xboole_0 (k9_fin_topo X0 X1) X2) \wedge (r1_xboole_0 X1 \\
& (k9_fin_topo X0 X2))))))
\end{aligned} \tag{14}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\
& (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((v3_fin_topo \\
& X1 X0) \Leftrightarrow (X1 = k9_fin_topo X0 X1)))
\end{aligned} \tag{15}$$

Assume the following.

$$\forall X0. \forall X1. (X0 = X1) \Leftrightarrow ((r1_tarski X0 X1) \wedge (r1_tarski X1 X0)) \tag{16}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. ((m1_subset_1 X1 (k1_zfmisc_1 \\
& X0)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 X0))) \Rightarrow (k4_subset_1 X0 X1 X2 = \\
& k4_subset_1 X0 X2 X1)
\end{aligned} \tag{17}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge (l1_orders_2 X0)) \Rightarrow (\forall X1. \\
& (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (\forall X2. \\
& (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (((v3_orders_2 \\
& X0) \wedge ((k2_struct_0 X0 = k4_subset_1 (u1_struct_0 X0) X1 X2) \wedge (r1_fintopo4 \\
& X0 X1 X2))) \Rightarrow ((v2_fin_topo X1 X0) \wedge (v3_fin_topo X1 X0))))))
\end{aligned}$$