

t21_connsp_1
(TMLtnmwQe1oMgej4E6eYiMEp2waFa7MMf3e)

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Let $v2_pre_topc : \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ 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 $k7_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $r1_connsp_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k2_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $r1_xboole_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.\forall X1.\forall X2.k2_xboole_0 (k2_xboole_0 X0 X1) X2 = k2_xboole_0 X0 (k2_xboole_0 X1 X2) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.(r1_tarski X0 X1) \Rightarrow (X1 = k2_xboole_0 X0 (k4_xboole_0 X1 X0)) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarski X0 X1) \quad (3)$$

Assume the following.

$$\forall X0.k3_xboole_0 X0 k1_xboole_0 = k1_xboole_0 \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(r1_tarski X0 X1) \Rightarrow (k3_xboole_0 X0 X1 = X0) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k2_xboole_0 X0 (k3_xboole_0 X1 X2) = k3_xboole_0 (k2_xboole_0 X0 X1) (k2_xboole_0 X0 X2) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k3_xboole_0 X0 (k2_xboole_0 X1 X2) = k2_xboole_0 (k3_xboole_0 X0 X1) (k3_xboole_0 X0 X2) \quad (7)$$

Assume the following.

$$\forall X0.(l1_pre_topc X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (((v4_pre_topc X1 X0) \Rightarrow (k2_pre_topc X0 X1 = X1)) \wedge (((v2_pre_topc X0) \wedge (k2_pre_topc X0 X1 = X1)) \Rightarrow (v4_pre_topc X1 X0)))) \quad (8)$$

Assume the following.

$$\forall X0.((v2_pre_topc X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (k2_pre_topc X0 (k4_subset_1 (u1_struct_0 X0) X1 X2) = k4_subset_1 (u1_struct_0 X0) (k2_pre_topc X0 X1) (k2_pre_topc X0 X2)))) \quad (9)$$

Assume the following.

$$\forall X0.k2_xboole_0 X0 k1_xboole_0 = X0 \quad (10)$$

Assume the following.

$$\forall X0.(l1_pre_topc X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (r1_tarski X1 (k2_pre_topc X0 X1))) \quad (11)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((l1_pre_topc X0) \wedge ((m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0)))))) \Rightarrow ((r1_connsp_1 X0 X1 X2) \Rightarrow (r1_connsp_1 X0 X2 X1))) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.r1_tarski X0 X0 \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (k7_subset_1 X0 X1 X2 = k4_xboole_0 X1 X2) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((m1_subset_1 X1 (k1_zfmisc_1 X0)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 X0))) \Rightarrow (k4_subset_1 X0 X1 X2 = k2_xboole_0 X1 X2)) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.k3_xboole_0 X0 X0 = X0 \quad (16)$$

Assume the following.

$$\forall X0.(l1_pre_topc X0)\Rightarrow(l1_struct_0 X0) \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((m1_subset_1 X1 (k1_zfmisc_1 \\ X0))\wedge(m1_subset_1 X2 (k1_zfmisc_1 X0)))\Rightarrow(m1_subset_1 (k4_subset_1 \\ X0 X1 X2) (k1_zfmisc_1 X0)) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((l1_pre_topc X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ (u1_struct_0 X0))))\Rightarrow(m1_subset_1 (k2_pre_topc X0 X1) (k1_zfmisc_1 \\ (u1_struct_0 X0))) \end{aligned} \quad (19)$$

Assume the following.

$$\forall X0.\forall X1.(r1_xboole_0 X0 X1)\Leftrightarrow(k3_xboole_0 X0 X1 = k1_xboole_0) \quad (20)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0)\Rightarrow(k2_struct_0 X0 = u1_struct_0 X0) \quad (21)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_pre_topc X0)\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 \\ (u1_struct_0 X0)))\Rightarrow(\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ (u1_struct_0 X0)))\Rightarrow((r1_connsp_1 X0 X1 X2)\Leftrightarrow((r1_xboole_0 (k2_pre_topc \\ X0 X1) X2)\wedge(r1_xboole_0 X1 (k2_pre_topc X0 X2)))))) \end{aligned} \quad (22)$$

Assume the following.

$$\forall X0.\forall X1.k3_xboole_0 X0 X1 = k3_xboole_0 X1 X0 \quad (23)$$

Assume the following.

$$\forall X0.\forall X1.k2_xboole_0 X0 X1 = k2_xboole_0 X1 X0 \quad (24)$$

Theorem 1

$$\begin{aligned} \forall X0.((v2_pre_topc X0)\wedge(l1_pre_topc X0))\Rightarrow(\forall X1. \\ (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow(\forall X2. \\ (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow(\forall X3. \\ (m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow(((k7_subset_1 \\ (u1_struct_0 X0) (k2_struct_0 X0) X1 = k4_subset_1 (u1_struct_0 \\ X0) X2 X3)\wedge((r1_connsp_1 X0 X2 X3)\wedge(v4_pre_topc X1 X0)))\Rightarrow((v4_pre_topc \\ (k4_subset_1 (u1_struct_0 X0) X1 X2) X0)\wedge(v4_pre_topc (k4_subset_1 \\ (u1_struct_0 X0) X1 X3) X0)))))) \end{aligned}$$