

t17_connsp_1
(TMZ5rAEYvWD8pFzboZmnwKR18r5PzFuaXUF)

October 27, 2020

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 $v2_connsp_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_connsp_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_xboole_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_struct_0 : \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. ((r1_tarski X0 X1) \wedge (r1_tarski X2 X1)) \Rightarrow (r1_tarski (k2_xboole_0 X0 X2) X1) \quad (1)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} \forall X0. (l1_pre_topc X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow (\forall X2. (m1_subset_1 X2 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow (\forall X3. (m1_subset_1 X3 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow (\forall X4. (m1_subset_1 X4 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow (((r1_connsp_1 X0 X1 X2) \wedge ((r1_tarski X3 X1) \wedge \\ (r1_tarski X4 X2))) \Rightarrow (r1_connsp_1 X0 X3 X4))))))) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. (r1_tarski X0 X1) \Rightarrow (k3_xboole_0 X0 X1 = X0) \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0. (l1_pre_topc X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow (\forall X2. (m1_subset_1 X2 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow ((r1_connsp_1 X0 X1 X2) \Rightarrow (r1_xboole_0 X1 X2)))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v2_pre_topc\ X0)\wedge(l1_pre_topc\ X0))\Rightarrow(\forall X1. \\ & (m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0\ X0)))\Rightarrow(\forall X2. \\ & (m1_subset_1\ X2\ (k1_zfmisc_1\ (u1_struct_0\ X0)))\Rightarrow(\forall X3. \\ & (m1_subset_1\ X3\ (k1_zfmisc_1\ (u1_struct_0\ X0)))\Rightarrow(\neg(v2_connsp_1 \\ & X1\ X0)\wedge((r1_tarski\ X1\ (k4_subset_1\ (u1_struct_0\ X0)\ X2\ X3))\wedge((\\ & r1_connsp_1\ X0\ X2\ X3)\wedge((\neg r1_tarski\ X1\ X2)\wedge(\neg r1_tarski\ X1\ X3))))))))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.((v2_pre_topc\ X0)\wedge(l1_pre_topc\ X0))\Rightarrow(\forall X1. \\ & (m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0\ X0)))\Rightarrow((v2_connsp_1 \\ & X1\ X0)\Leftrightarrow(\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1\ (u1_struct_0 \\ & X0)))\Rightarrow(\forall X3.(m1_subset_1\ X3\ (k1_zfmisc_1\ (u1_struct_0 \\ & X0)))\Rightarrow(\neg(X1 = k4_subset_1\ (u1_struct_0\ X0)\ X2\ X3)\wedge((r1_connsp_1 \\ & X0\ X2\ X3)\wedge((X2\neq k1_struct_0\ X0)\wedge(X3\neq k1_struct_0\ X0))))))) \end{aligned} \quad (7)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((l1_pre_topc\ X0)\wedge((m1_subset_1 \\ & X1\ (k1_zfmisc_1\ (u1_struct_0\ X0)))\wedge(m1_subset_1\ X2\ (k1_zfmisc_1 \\ & (u1_struct_0\ X0))))\Rightarrow((r1_connsp_1\ X0\ X1\ X2)\Rightarrow(r1_connsp_1\ X0 \\ & X2\ X1)) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1_subset_1\ X1\ (k1_zfmisc_1 \\ & X0))\wedge(m1_subset_1\ X2\ (k1_zfmisc_1\ X0)))\Rightarrow(k4_subset_1\ X0\ X1\ X2 = \\ & k2_xboole_0\ X1\ X2) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.(l1_pre_topc\ X0)\Rightarrow(l1_struct_0\ X0) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((m1_subset_1\ X1\ (k1_zfmisc_1 \\ & X0))\wedge(m1_subset_1\ X2\ (k1_zfmisc_1\ X0)))\Rightarrow(m1_subset_1\ (k4_subset_1 \\ & X0\ X1\ X2)\ (k1_zfmisc_1\ X0)) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.(r1_xboole_0\ X0\ X1)\Leftrightarrow(k3_xboole_0\ X0\ X1 = k1_xboole_0) \quad (13)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0) \Rightarrow (k1_struct_0 X0 = k1_xboole_0) \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((m1_subset_1 X1 (k1_zfmisc_1 \\ X0)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 X0))) \Rightarrow (k4_subset_1 X0 X1 X2 = \\ k4_subset_1 X0 X2 X1) \end{aligned} \quad (15)$$

Assume the following.

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

Theorem 1

$$\begin{aligned} \forall X0.((v2_pre_topc X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\ (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (\forall X2. \\ (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (((v2_connsp_1 \\ X1 X0) \wedge (v2_connsp_1 X2 X0)) \Rightarrow ((r1_connsp_1 X0 X1 X2) \vee (v2_connsp_1 \\ (k4_subset_1 (u1_struct_0 X0) X1 X2) X0)))))) \end{aligned}$$