

t20_connsp_2 (TMXTGhd-
cuaXU92mpGsKw8xtSJNUq5YU2VBR)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_pre_topc : \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $v10_pre_topc : \iota \Rightarrow o$ 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 $k1_xboole_0 : \iota$ be given. Let $k2_struct_0 : \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $k7_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_xboole_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0.(l1_struct_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow ((\neg(X1 \neq k2_struct_0 X0) \wedge (k7_subset_1 (u1_struct_0 \\ X0) (k2_struct_0 X0) X1 = k1_xboole_0)) \wedge (\neg(k7_subset_1 (u1_struct_0 \\ X0) (k2_struct_0 X0) X1 \neq k1_xboole_0) \wedge (X1 = k2_struct_0 X0)))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarski X0 X1) \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_struct_0 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow (k7_subset_1 (u1_struct_0 X0) (k2_struct_0 \\ X0) (k7_subset_1 (u1_struct_0 X0) (k2_struct_0 X0) X1) = X1)) \end{aligned} \quad (3)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(r1_tarski X0 X1) \Rightarrow (r1_tarski (k4_xboole_0 X2 X1) (k4_xboole_0 X2 X0)) \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (\forall X2. \\ (m1_subset_1 X2 (k1_zfmisc_1 X0)) \Rightarrow ((r1_xboole_0 X1 X2) \Leftrightarrow (r1_tarski \\ X1 (k3_subset_1 X0 X2)))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.(l1_pre_topc\ X0) \Rightarrow (\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0\ X0))) \Rightarrow (r1_tarski\ X1\ (k2_pre_topc\ X0\ X1))) \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_pre_topc\ X0) \Rightarrow (\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0\ X0))) \Rightarrow (\forall X2.(X2 \in u1_struct_0\ X0) \Rightarrow ((X2 \in k2_pre_topc\ X0\ X1) \Leftrightarrow (\forall X3.(m1_subset_1\ X3\ (k1_zfmisc_1\ (u1_struct_0\ X0))) \Rightarrow (((v4_pre_topc\ X3\ X0) \wedge (r1_tarski\ X1\ X3)) \Rightarrow (X2 \in X3)))))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ X0)) \Rightarrow (\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1\ X0)) \Rightarrow ((r1_tarski\ X1\ X2) \Leftrightarrow (r1_tarski\ (k3_subset_1\ X0\ X2)\ (k3_subset_1\ X0\ X1)))) \quad (8)$$

Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1\ X1\ (k1_zfmisc_1\ X0)) \Rightarrow (k7_subset_1\ X0\ X1\ X2 = k4_xboole_0\ X1\ X2) \quad (10)$$

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.

$$\forall X0.\forall X1.(((v2_pre_topc\ X0) \wedge (l1_pre_topc\ X0)) \wedge ((v3_pre_topc\ X1\ X0) \wedge (m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0\ X0)))) \Rightarrow (v4_pre_topc\ (k3_subset_1\ (u1_struct_0\ X0)\ X1)\ X0)) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.(((v2_pre_topc\ X0) \wedge (l1_pre_topc\ X0)) \wedge ((v4_pre_topc\ X1\ X0) \wedge (m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0\ X0)))) \Rightarrow (v3_pre_topc\ (k3_subset_1\ (u1_struct_0\ X0)\ X1)\ X0)) \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.(((v2_pre_topc\ X0) \wedge (l1_pre_topc\ X0)) \wedge (m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0\ X0)))) \Rightarrow (v4_pre_topc\ (k2_pre_topc\ X0\ X1)\ X0) \quad (14)$$

Assume the following.

$$\forall X0.(l1_pre_topc\ X0)\Rightarrow(l1_struct_0\ X0) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ X0))\Rightarrow(m1_subset_1\ (k3_subset_1\ X0\ X1)\ (k1_zfmisc_1\ X0)) \quad (16)$$

Assume the following.

$$\forall X0.(l1_struct_0\ X0)\Rightarrow(m1_subset_1\ (k2_struct_0\ X0)\ (k1_zfmisc_1\ (u1_struct_0\ X0))) \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.((l1_pre_topc\ X0)\wedge(m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0\ X0))))\Rightarrow(m1_subset_1\ (k2_pre_topc\ X0\ X1)\ (k1_zfmisc_1\ (u1_struct_0\ X0))) \quad (18)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ X0))\Rightarrow(k3_subset_1\ X0\ X1 = k4_xboole_0\ X0\ X1) \quad (19)$$

Assume the following.

$$\forall X0.\forall X1.(r1_tarski\ X0\ X1)\Leftrightarrow(\forall X2.(X2 \in X0)\Rightarrow(X2 \in X1)) \quad (20)$$

Assume the following.

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

Assume the following.

$$\forall X0.(l1_pre_topc\ X0)\Rightarrow(\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0\ X0))))\Rightarrow((v4_pre_topc\ X1\ X0)\Leftrightarrow(v3_pre_topc\ (k7_subset_1\ (u1_struct_0\ X0)\ (k2_struct_0\ X0)\ X1)\ X0))) \quad (22)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0\ X0)\wedge((v2_pre_topc\ X0)\wedge(l1_pre_topc\ X0)))\Rightarrow((v10_pre_topc\ X0)\Leftrightarrow(\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0\ X0))))\Rightarrow(\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1\ (u1_struct_0\ X0))))\Rightarrow(\neg(X1\neq k1_xboole_0)\wedge((X2\neq k1_xboole_0)\wedge \\ & ((v4_pre_topc\ X1\ X0)\wedge((v4_pre_topc\ X2\ X0)\wedge((r1_xboole_0\ X1\ X2)\wedge \\ & (\forall X3.(m1_subset_1\ X3\ (k1_zfmisc_1\ (u1_struct_0\ X0))))\Rightarrow \\ & (\forall X4.(m1_subset_1\ X4\ (k1_zfmisc_1\ (u1_struct_0\ X0))))\Rightarrow \\ & (\neg(v3_pre_topc\ X3\ X0)\wedge((v3_pre_topc\ X4\ X0)\wedge((r1_tarski\ X1\ X3)\wedge \\ & ((r1_tarski\ X2\ X4)\wedge(r1_xboole_0\ X3\ X4)))))))))) \quad (23) \end{aligned}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\ & X0))) \Rightarrow ((v10_pre_topc X0) \Leftrightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 \\ & (u1_struct_0 X0))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ & (u1_struct_0 X0))) \Rightarrow (\neg(X1 \neq k1_xboole_0) \wedge ((X2 \neq k2_struct_0 X0) \wedge \\ & ((r1_tarski X1 X2) \wedge ((v4_pre_topc X1 X0) \wedge ((v3_pre_topc X2 X0) \wedge \\ & (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow \\ & (\neg(v3_pre_topc X3 X0) \wedge ((r1_tarski X1 X3) \wedge (r1_tarski (k2_pre_topc \\ & X0 X3) X2)))))))))))))) \end{aligned}$$