

t27_topalg_6

(TMUY9MeTD1VWh82PPeJzn5E7Q4My9Zz4ca8)

October 27, 2020

Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $v7_topalg_6 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_numbers : \iota$ be given. Let $k2_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_topalg_6 : \iota \Rightarrow \iota$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k1_rcomp_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xxreal_2 : \iota \Rightarrow \iota$ be given. Let $k1_xxreal_2 : \iota \Rightarrow \iota$ be given. Let $v2_membered : \iota \Rightarrow o$ be given. Let $v1_xxreal_2 : \iota \Rightarrow o$ be given. Let $v2_xxreal_2 : \iota \Rightarrow o$ be given. Let $v6_xxreal_2 : \iota \Rightarrow o$ be given. Let $k1_xxreal_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v4_topalg_6 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k2_topalg_2 : \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v6_topalg_6 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $v5_topalg_6 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v5_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_membered : \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.((v2_membered X0) \wedge ((v1_xxreal_2 X0) \wedge ((v2_xxreal_2 X0) \wedge (v6_xxreal_2 X0)))) \Rightarrow (X0 = k1_xxreal_1 (k2_xxreal_2 X0) (k1_xxreal_2 X0)) \tag{1}$$

Assume the following.

$$\forall X0.(l1_pre_topc X0) \Rightarrow (\forall X1.(m2_subset_1 X1 (k4_partfun1 k1_numbers (k2_struct_0 X0)) (k1_topalg_6 X0)) \Rightarrow ((v1_funct_1 X1) \wedge ((v4_topalg_6 X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 k2_topalg_2) (u1_struct_0 X0))))))) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(X0 \in X1) \Rightarrow (m1_subset_1 X0 X1) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v4_relat_1 X1 X0))\Rightarrow(k1_rerset_1 X0 X1 = k9_xtuple_0 X1) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xreal_0 X0)\wedge(v1_xreal_0 X1))\Rightarrow(k1_rcomp_1 X0 X1 = k1_xxreal_1 X0 X1) \quad (5)$$

Assume the following.

$$\forall X0.(l1_pre_topc X0)\Rightarrow(\neg v1_xboole_0 (k1_topalg_6 X0)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.\neg v1_xboole_0 (k4_partfun1 X0 X1) \quad (7)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(l1_pre_topc X0))\wedge \\ &((v6_topalg_6 X1 X0)\wedge(m1_subset_1 X1 (k1_topalg_6 X0))))\Rightarrow((v1_xreal_0 \\ &(k1_xxreal_2 (k9_xtuple_0 X1)))\wedge(v1_xxreal_0 (k1_xxreal_2 (\\ &k9_xtuple_0 X1)))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge(l1_pre_topc X0))\wedge \\ &((v5_topalg_6 X1 X0)\wedge(m1_subset_1 X1 (k1_topalg_6 X0))))\Rightarrow((v1_xreal_0 \\ &(k2_xxreal_2 (k9_xtuple_0 X1)))\wedge(v1_xxreal_0 (k2_xxreal_2 (\\ &k9_xtuple_0 X1)))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} &\forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge((\neg v1_xboole_0 X1)\wedge \\ &(m1_subset_1 X1 (k1_zfmisc_1 X0))))\Rightarrow(\forall X2.(m2_subset_1 \\ &X2 X0 X1)\Rightarrow(m1_subset_1 X2 X0)) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0.(l1_pre_topc X0)\Rightarrow(m1_subset_1 (k1_topalg_6 X0) (k1_zfmisc_1 (k4_partfun1 k1_numbers (k2_struct_0 X0)))) \quad (11)$$

Assume the following.

$$\begin{aligned} &\forall X0.(l1_pre_topc X0)\Rightarrow(\forall X1.(m2_subset_1 X1 (k4_partfun1 \\ &k1_numbers (k2_struct_0 X0) (k1_topalg_6 X0))\Rightarrow((v6_topalg_6 \\ &X1 X0)\Leftrightarrow(v2_xxreal_2 (k9_xtuple_0 X1)))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_pre_topc\ X0) \Rightarrow (\forall X1.(m2_subset_1\ X1\ (k4_partfun1 \\ k1_numbers\ (k2_struct_0\ X0))\ (k1_topalg_6\ X0)) \Rightarrow ((v5_topalg_6 \\ X1\ X0) \Leftrightarrow (v1_xxreal_2\ (k9_xtuple_0\ X1)))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_pre_topc\ X0) \Rightarrow (k1_topalg_6\ X0 = ReplSep\ (toset\ (\\ \lambda X1 : \iota.m1_subset_1\ X1\ (k4_partfun1\ k1_numbers\ (k2_struct_0 \\ X0)))) (\lambda X1 : \iota.(v1_funct_1\ X1) \wedge ((v4_topalg_6\ X1\ X0) \wedge (m1_subset_1 \\ X1\ (k1_zfmisc_1\ (k2_zfmisc_1\ (u1_struct_0\ k2_topalg_2)\ (u1_struct_0 \\ X0)))))) (\lambda X1 : \iota.X1)) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_pre_topc\ X0) \Rightarrow (\forall X1.((v1_funct_1\ X1) \wedge (m1_subset_1 \\ X1\ (k1_zfmisc_1\ (k2_zfmisc_1\ (u1_struct_0\ k2_topalg_2)\ (u1_struct_0 \\ X0)))))) \Rightarrow ((v4_topalg_6\ X1\ X0) \Leftrightarrow (((v6_xxreal_2\ (k1_relset_1\ (u1_struct_0 \\ k2_topalg_2)\ X1)) \wedge (m1_subset_1\ (k1_relset_1\ (u1_struct_0\ k2_topalg_2) \\ X1)\ (k1_zfmisc_1\ k1_numbers))) \wedge (\exists X2.(m1_pre_topc\ X2\ k2_topalg_2) \wedge \\ (\exists X3.((v1_funct_1\ X3) \wedge ((v1_funct_2\ X3\ (u1_struct_0\ X2) \\ (u1_struct_0\ X0)) \wedge (m1_subset_1\ X3\ (k1_zfmisc_1\ (k2_zfmisc_1 \\ (u1_struct_0\ X2)\ (u1_struct_0\ X0)))))) \wedge ((X1 = X3) \wedge ((X2 = k1_pre_topc \\ k2_topalg_2\ (k1_relset_1\ (u1_struct_0\ k2_topalg_2)\ X1)) \wedge (v5_pre_topc \\ X3\ X2\ X0)))))))))) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_pre_topc\ X0) \Rightarrow (\forall X1.(m1_subset_1\ X1\ (k1_topalg_6 \\ X0)) \Rightarrow ((v7_topalg_6\ X1\ X0) \Rightarrow ((v5_topalg_6\ X1\ X0) \wedge (v6_topalg_6 \\ X1\ X0)))) \end{aligned} \quad (16)$$

Assume the following.

$$\forall X0.(m1_subset_1\ X0\ (k1_zfmisc_1\ k1_numbers)) \Rightarrow (v3_membered\ X0) \quad (17)$$

Assume the following.

$$\forall X0.(v3_membered\ X0) \Rightarrow (v2_membered\ X0) \quad (18)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1 \\ (k2_zfmisc_1\ X0\ X1))) \Rightarrow ((v4_relat_1\ X2\ X0) \wedge (v5_relat_1\ X2\ X1)) \quad (19)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1 \\ (k2_zfmisc_1\ X0\ X1))) \Rightarrow (v1_relat_1\ X2) \quad (20)$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\ & ((v7_topalg_6 X1 X0) \wedge (m2_subset_1 X1 (k4_partfun1 k1_numbers \\ & (k2_struct_0 X0) (k1_topalg_6 X0))) \Rightarrow (k9_xtuple_0 X1 = k1_rcomp_1 \\ & (k2_xxreal_2 (k9_xtuple_0 X1) (k1_xxreal_2 (k9_xtuple_0 X1)))))) \end{aligned}$$