

l38_topdim_1 (TMRUT- nEr4ig3PbeomoMAvhqHCJak9Apom2V)

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Let $v2_pre_topc : \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $r1_borsuk_3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_topdim_1 : \iota \Rightarrow o$ be given. Let $k4_topdim_1 : \iota \Rightarrow \iota$ be given. Let $v1_topdim_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k2_topdim_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_real_1 : \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $r1_xxreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $r2_borsuk_3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_t_0topsp : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ 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 $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v1_int_1 : \iota \Rightarrow o$ be given. Let $k2_struct_0 : \iota \Rightarrow \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v3_tops_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_funct_1 : \iota \Rightarrow o$ be given. Let $v5_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_tops_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $v1_finset_1 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} & \forall X0.((v2_pre_topc X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\ & ((v1_topdim_1 X1 X0) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 \\ & X0)))) \Rightarrow ((k2_topdim_1 X0 X1 = k1_real_1 np_1) \Leftrightarrow (v1_xboole_0 X1))) \end{aligned} \quad (1)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1_xxreal_0 X0) \Rightarrow (\forall X1.(v1_xxreal_0 X1) \Rightarrow ((\\ & (r1_xxreal_0 X0 X1) \wedge (r1_xxreal_0 X1 X0)) \Rightarrow (X0 = X1))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \wedge \\ & ((\neg v2_struct_0 X1) \wedge (l1_pre_topc X1))) \Rightarrow ((r2_borsuk_3 X0 X1) \Rightarrow \\ & (r2_borsuk_3 X1 X0)) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \wedge \\ & ((\neg v2_struct_0 X1) \wedge (l1_pre_topc X1))) \Rightarrow ((r2_borsuk_3 X0 X1) \Leftrightarrow \\ & (r1_t_topsp X0 X1)) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((l1_pre_topc X0) \wedge (l1_pre_topc X1)) \Rightarrow (\\ & (r1_borsuk_3 X0 X1) \Leftrightarrow (r1_t_topsp X0 X1)) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge (v5_relat_1 X1 X0)) \Rightarrow (\\ & k2_relset_1 X0 X1 = k10_xtuple_0 X1) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X1) \wedge (v4_relat_1 X1 X0)) \Rightarrow (\\ & k1_relset_1 X0 X1 = k9_xtuple_0 X1) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v2_pre_topc X0) \wedge (l1_pre_topc X0)) \Rightarrow (\exists X1. \\ & (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \wedge (v1_xboole_0 \\ & X1)) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v2_pre_topc X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\ & ((v2_pre_topc X1) \wedge (l1_pre_topc X1)) \Rightarrow (((r1_borsuk_3 X0 X1) \wedge (\\ & v3_topdim_1 X0)) \Rightarrow ((v3_topdim_1 X1) \wedge (r1_xreal_0 (k4_topdim_1 \\ & X1) (k4_topdim_1 X0)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0. (v1_xboole_0 X0) \Rightarrow (v1_xboole_0 (k10_xtuple_0 X0)) \quad (11)$$

Assume the following.

$$\forall X0. ((v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (v1_xboole_0 \\ (u1_struct_0 X0)) \quad (12)$$

Assume the following.

$$\forall X0. (v1_xboole_0 X0) \Rightarrow (v1_xboole_0 (k9_xtuple_0 X0)) \quad (13)$$

Assume the following.

$$\forall X0.(l1_pre_topc\ X0)\Rightarrow(l1_struct_0\ X0) \quad (14)$$

Assume the following.

$$\forall X0.((v2_pre_topc\ X0)\wedge(l1_pre_topc\ X0))\Rightarrow(v1_int_1\ (k4_topdim_1\ X0)) \quad (15)$$

Assume the following.

$$\forall X0.(l1_struct_0\ X0)\Rightarrow(m1_subset_1\ (k2_struct_0\ X0)\ (k1_zfmisc_1\ (u1_struct_0\ X0))) \quad (16)$$

Assume the following.

$$\forall X0.((v2_pre_topc\ X0)\wedge(l1_pre_topc\ X0))\Rightarrow(k4_topdim_1\ X0 = k2_topdim_1\ X0\ (k2_struct_0\ X0)) \quad (17)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_pre_topc\ X0)\Rightarrow(\forall X1.(l1_pre_topc\ X1)\Rightarrow(\forall X2. \\ ((v1_funct_1\ X2)\wedge((v1_funct_2\ X2\ (u1_struct_0\ X0)\ (u1_struct_0 \\ X1))\wedge(m1_subset_1\ X2\ (k1_zfmisc_1\ (k2_zfmisc_1\ (u1_struct_0 \\ X0)\ (u1_struct_0\ X1))))))\Rightarrow((v3_tops_2\ X2\ X0\ X1)\Leftrightarrow((k1_relset_1 \\ (u1_struct_0\ X0)\ X2 = k2_struct_0\ X0)\wedge((k2_relset_1\ (u1_struct_0 \\ X1)\ X2 = k2_struct_0\ X1)\wedge((v2_funct_1\ X2)\wedge((v5_pre_topc\ X2\ X0\ X1)\wedge \\ (v5_pre_topc\ (k2_tops_2\ (u1_struct_0\ X0)\ (u1_struct_0\ X1)\ X2) \\ X1\ X0)))))))))) \end{aligned} \quad (18)$$

Assume the following.

$$\forall X0.((v2_pre_topc\ X0)\wedge(l1_pre_topc\ X0))\Rightarrow((v3_topdim_1\ X0)\Leftrightarrow(v1_topdim_1\ (k2_struct_0\ X0)\ X0)) \quad (19)$$

Assume the following.

$$\forall X0.(l1_struct_0\ X0)\Rightarrow(k2_struct_0\ X0 = u1_struct_0\ X0) \quad (20)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_pre_topc\ X0)\Rightarrow(\forall X1.(l1_pre_topc\ X1)\Rightarrow((\\ r1_t_0topsp\ X0\ X1)\Leftrightarrow(\exists X2.((v1_funct_1\ X2)\wedge((v1_funct_2 \\ X2\ (u1_struct_0\ X0)\ (u1_struct_0\ X1))\wedge(m1_subset_1\ X2\ (k1_zfmisc_1 \\ (k2_zfmisc_1\ (u1_struct_0\ X0)\ (u1_struct_0\ X1))))))\wedge(v3_tops_2 \\ X2\ X0\ X1)))))) \end{aligned} \quad (21)$$

Assume the following.

$$\forall X0.(v1_xreal_0\ X0)\Rightarrow(v1_xxreal_0\ X0) \quad (22)$$

Assume the following.

$$\forall X0.\forall X1.(v1_xboole_0 X0)\Rightarrow(\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0)))\Rightarrow(v1_xboole_0 X2)) \quad (23)$$

Assume the following.

$$\forall X0.\forall X1.(v1_xboole_0 X0)\Rightarrow(\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(v1_xboole_0 X2)) \quad (24)$$

Assume the following.

$$\forall X0.(v1_int_1 X0)\Rightarrow(v1_xreal_0 X0) \quad (25)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow((v4_relat_1 X2 X0)\wedge(v5_relat_1 X2 X1)) \quad (26)$$

Assume the following.

$$\forall X0.((v2_pre_topc X0)\wedge(l1_pre_topc X0))\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))\Rightarrow((v1_finset_1 X1)\Rightarrow(v1_topdim_1 X1 X0))) \quad (27)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(v1_relat_1 X2) \quad (28)$$

Assume the following.

$$\forall X0.(v1_xboole_0 X0)\Rightarrow(v1_finset_1 X0) \quad (29)$$

Theorem 1

$$\forall X0.((v2_pre_topc X0)\wedge(l1_pre_topc X0))\Rightarrow(\forall X1.((v2_pre_topc X1)\wedge(l1_pre_topc X1))\Rightarrow((r1_borsuk_3 X0 X1)\Rightarrow((v3_topdim_1 X0)\Rightarrow(v3_topdim_1 X1))\wedge(((v3_topdim_1 X1)\Rightarrow(v3_topdim_1 X0))\wedge((v3_topdim_1 X0)\Rightarrow(k4_topdim_1 X1 = k4_topdim_1 X0))))))$$