

t15_topalg_5 (TMLUWsgSRNjfpStsSTCSr- ZLQmQtAYn9Pjzv)

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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 $r2_borsuk_3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_connsp_2 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_xboole_0 : \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ 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 $u1_struct_0 : \iota \Rightarrow \iota$ 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 $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_struct_0 : \iota \Rightarrow \iota$ be given. Let $k2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_funct_1 : \iota \Rightarrow o$ be given. Let $v3_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k8_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r3_connsp_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $k8_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r1_t_0topsp : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0.(v1_xboole_0 X0) \Rightarrow (X0 = k1_xboole_0) \quad (1)$$

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.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\ & ((\neg v2_struct_0 X1) \wedge (l1_pre_topc X1)) \Rightarrow (\forall X2.((v1_funct_1 \\ & X2) \wedge ((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 X1)) \wedge (m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1)))))) \Rightarrow \\ & ((v3_tops_2 X2 X0 X1) \Leftrightarrow ((k1_relset_1 (u1_struct_0 X0) X2 = k2_struct_0 \\ & X0) \wedge ((k2_relset_1 (u1_struct_0 X1) X2 = k2_struct_0 X1) \wedge ((v2_funct_1 \\ & X2) \wedge (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X1))) \Rightarrow \\ & ((v3_pre_topc X3 X1) \Leftrightarrow (v3_pre_topc (k8_relset_1 (u1_struct_0 \\ & X0) (u1_struct_0 X1) X2 X3) X0)))))))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\ X0))) \Rightarrow ((v1_connsp_2 X0) \Leftrightarrow (\forall X1.((\neg v1_xboole_0 X1) \wedge (m1_subset_1 \\ X1 (k1_zfmisc_1 (u1_struct_0 X0)))))) \Rightarrow (\forall X2.(m1_subset_1 \\ X2 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (((v3_pre_topc X1 X0) \wedge (r3_connsp_1 \\ X0 X1 X2)) \Rightarrow (v3_pre_topc X2 X0)))) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.(v1_relat_1 X1) \Rightarrow (\neg(X0 \neq k1_xboole_0) \wedge (r1_tarski X0 (k10_xtuple_0 X1)) \wedge (k8_relat_1 X1 X0 = k1_xboole_0)) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge (l1_pre_topc \\ X0))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((v2_pre_topc X1) \wedge (l1_pre_topc \\ X1)))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 \\ X1)))) \Rightarrow (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 \\ X1)))) \Rightarrow (\forall X4.((v1_funct_1 X4) \wedge ((v1_funct_2 X4 (u1_struct_0 \\ X0) (u1_struct_0 X1)) \wedge (m1_subset_1 X4 (k1_zfmisc_1 (k2_zfmisc_1 \\ (u1_struct_0 X0) (u1_struct_0 X1)))))) \Rightarrow (((v3_tops_2 X4 X0 X1) \wedge \\ (r3_connsp_1 X1 X3 X2)) \Rightarrow (r3_connsp_1 X0 (k8_relset_1 (u1_struct_0 \\ X0) (u1_struct_0 X1) X4 X3) (k8_relset_1 (u1_struct_0 X0) (u1_struct_0 \\ X1) X4 X2)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \wedge ((\neg v2_struct_0 X1) \wedge (l1_pre_topc X1))) \Rightarrow ((r2_borsuk_3 X0 X1) \Leftrightarrow (r1_t_0topsp X0 X1)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \Rightarrow (k8_relset_1 X0 X1 X2 X3 = k8_relat_1 X2 X3) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1) \wedge (v5_relat_1 X1 X0)) \Rightarrow (k2_relset_1 X0 X1 = k10_xtuple_0 X1) \quad (9)$$

Assume the following.

$$v1_xboole_0 k1_xboole_0 \quad (10)$$

Assume the following.

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

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(m1_subset_1 (k8_relset_1 X0 X1 X2 X3) (k1_zfmisc_1 X0)) \quad (12)$$

Assume the following.

$$\forall X0.(l1_struct_0 X0)\Rightarrow(k2_struct_0 X0 = u1_struct_0 X0) \quad (13)$$

Assume the following.

$$\forall X0.(l1_pre_topc X0)\Rightarrow(\forall X1.(l1_pre_topc X1)\Rightarrow((r1_t_0topsp X0 X1)\Leftrightarrow(\exists X2.((v1_funct_1 X2)\wedge((v1_funct_2 X2 (u1_struct_0 X0) (u1_struct_0 X1))\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X1))))))\wedge(v3_tops_2 X2 X0 X1)))) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow((v4_relat_1 X2 X0)\wedge(v5_relat_1 X2 X1)) \quad (15)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))\Rightarrow(v1_relat_1 X2) \quad (16)$$

Theorem 1

$$\forall X0.((\neg v2_struct_0 X0)\wedge((v2_pre_topc X0)\wedge(l1_pre_topc X0)))\Rightarrow(\forall X1.((\neg v2_struct_0 X1)\wedge((v2_pre_topc X1)\wedge(l1_pre_topc X1)))\Rightarrow(((r2_borsuk_3 X0 X1)\wedge(v1_connsp_2 X0))\Rightarrow(v1_connsp_2 X1)))$$