

t12_compl_sp
(TMUNXbEUx6oa2FZvwwS7CqcnjFeDgZskhTb)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $l1_metric_1 : \iota \Rightarrow o$ 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 $k5_numbers : \iota$ be given. Let $k9_setfam_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ 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 $k3_pcomps_1 : \iota \Rightarrow \iota$ be given. Let $k2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v6_compl_sp : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_tops_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v7_compl_sp : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_tops_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_compl_sp : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v3_compl_sp : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v4_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $k8_nat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v5_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $v4_relat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v6_membered : \iota \Rightarrow o$ be given. Let $k9_xtuple_0 : \iota \Rightarrow \iota$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned} \forall X0.(l1_metric_1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 \\ (u1_struct_0 X0))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 \\ (u1_struct_0 (k3_pcomps_1 X0)))) \Rightarrow ((X2 = X1) \Rightarrow (((v2_compl_sp X1 \\ X0) \Rightarrow (v3_pre_topc X2 (k3_pcomps_1 X0))) \wedge (((v3_pre_topc X2 (k3_pcomps_1 \\ X0)) \Rightarrow (v2_compl_sp X1 X0)) \wedge (((v3_compl_sp X1 X0) \Rightarrow (v4_pre_topc \\ X2 (k3_pcomps_1 X0))) \wedge ((v4_pre_topc X2 (k3_pcomps_1 X0)) \Rightarrow (v3_compl_sp \\ X1 X0)))))))))) \end{aligned} \tag{1}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \tag{2}$$

Assume the following.

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

Assume the following.

$$\forall X0.k9_setfam_1 X0 = k1_zfmisc_1 X0 \tag{4}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((v1_funct_1 X1)\wedge((v1_funct_2 X1 k5_numbers X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers X0))))))\wedge(v7_ordinal1 X2))\Rightarrow(k8_nat_1 X0 X1 X2 = k1_funct_1 X1 X2) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v5_relat_1 X1 X0))\Rightarrow(k2_relset_1 X0 X1 = k10_xtuple_0 X1) \quad (6)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0)\wedge(v4_relat_1 X0 k5_numbers))\Rightarrow(v6_membered (k9_xtuple_0 X0)) \quad (7)$$

Assume the following.

$$\forall X0.(l1_metric_1 X0)\Rightarrow(l1_pre_topc (k3_pcomps_1 X0)) \quad (8)$$

Assume the following.

$$\forall X0.\forall X1.((v1_relat_1 X1)\wedge(v5_relat_1 X1 X0))\Rightarrow(m1_subset_1 (k2_relset_1 X0 X1) (k1_zfmisc_1 X0)) \quad (9)$$

Assume the following.

$$\forall X0.(l1_metric_1 X0)\Rightarrow(\forall X1.((v1_funct_1 X1)\wedge((v1_funct_2 X1 k5_numbers (k9_setfam_1 (u1_struct_0 X0)))\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers (k9_setfam_1 (u1_struct_0 X0))))))\Rightarrow((v7_compl_sp X1 X0)\Leftrightarrow(\forall X2.(v7_ordinal1 X2)\Rightarrow(v3_compl_sp (k8_nat_1 (k9_setfam_1 (u1_struct_0 X0)) X1 X2) X0)))))) \quad (10)$$

Assume the following.

$$\forall X0.(l1_metric_1 X0)\Rightarrow(\forall X1.((v1_funct_1 X1)\wedge((v1_funct_2 X1 k5_numbers (k9_setfam_1 (u1_struct_0 X0)))\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k5_numbers (k9_setfam_1 (u1_struct_0 X0))))))\Rightarrow((v6_compl_sp X1 X0)\Leftrightarrow(\forall X2.(v7_ordinal1 X2)\Rightarrow(v2_compl_sp (k8_nat_1 (k9_setfam_1 (u1_struct_0 X0)) X1 X2) X0)))))) \quad (11)$$

Assume the following.

$$\forall X0.((v1_relat_1 X0)\wedge(v1_funct_1 X0))\Rightarrow(\forall X1.(X1 = k10_xtuple_0 X0)\Leftrightarrow(\forall X2.(X2 \in X1)\Leftrightarrow(\exists X3.(X3 \in k9_xtuple_0 X0)\wedge(X2 = k1_funct_1 X0 X3)))) \quad (12)$$

Assume the following.

$$\forall X0.(l1_pre_topc X0)\Rightarrow(\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (k1_zfmisc_1 (u1_struct_0 X0))))\Rightarrow((v2_tops_2 X1 X0)\Leftrightarrow(\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0))\Rightarrow((X2 \in X1)\Rightarrow(v4_pre_topc X2 X0)))))) \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_pre_topc\ X0) \Rightarrow (\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1 \\ & (k1_zfmisc_1\ (u1_struct_0\ X0)))) \Rightarrow ((v1_tops_2\ X1\ X0) \Leftrightarrow (\forall X2. \\ & (m1_subset_1\ X2\ (k1_zfmisc_1\ (u1_struct_0\ X0))) \Rightarrow ((X2 \in X1) \Rightarrow (v3_pre_topc \\ & X2\ X0)))))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1 \\ & (k2_zfmisc_1\ X0\ X1))) \Rightarrow ((v4_relat_1\ X2\ X0) \wedge (v5_relat_1\ X2\ X1)) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1 \\ & (k2_zfmisc_1\ X0\ X1))) \Rightarrow (v1_relat_1\ X2) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v6_membered\ X0) \Rightarrow (\forall X1.(m1_subset_1\ X1\ X0) \Rightarrow \\ & (v7_ordinal1\ X1)) \end{aligned} \quad (17)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0\ X0) \wedge (l1_metric_1\ X0)) \Rightarrow (\forall X1. \\ & ((v1_funct_1\ X1) \wedge ((v1_funct_2\ X1\ k5_numbers\ (k9_setfam_1\ (u1_struct_0 \\ & X0))) \wedge (m1_subset_1\ X1\ (k1_zfmisc_1\ (k2_zfmisc_1\ k5_numbers\ (\\ & k9_setfam_1\ (u1_struct_0\ X0))))))) \Rightarrow (\forall X2.(m1_subset_1 \\ & X2\ (k1_zfmisc_1\ (k1_zfmisc_1\ (u1_struct_0\ (k3_pcomps_1\ X0)))))) \Rightarrow \\ & ((X2 = k2_relset_1\ (k9_setfam_1\ (u1_struct_0\ X0))\ X1) \Rightarrow (((v6_compl_sp \\ & X1\ X0) \Rightarrow (v1_tops_2\ X2\ (k3_pcomps_1\ X0))) \wedge ((v7_compl_sp\ X1\ X0) \Rightarrow \\ & (v2_tops_2\ X2\ (k3_pcomps_1\ X0)))))) \end{aligned}$$