

t25_normsp_2 (TMN-
MQjiq3kic6aNHTHxqRb9XpN26AMGC3tm)

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Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v2_rlvect_1 : \iota \Rightarrow o$ be given. Let $v3_rlvect_1 : \iota \Rightarrow o$ be given. Let $v4_rlvect_1 : \iota \Rightarrow o$ be given. Let $v5_rlvect_1 : \iota \Rightarrow o$ be given. Let $v6_rlvect_1 : \iota \Rightarrow o$ be given. Let $v7_rlvect_1 : \iota \Rightarrow o$ be given. Let $v8_rlvect_1 : \iota \Rightarrow o$ be given. Let $v3_normsp_0 : \iota \Rightarrow o$ be given. Let $v4_normsp_0 : \iota \Rightarrow o$ be given. Let $v2_normsp_1 : \iota \Rightarrow o$ be given. Let $l1_normsp_1 : \iota \Rightarrow o$ 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 $k3_normsp_2 : \iota \Rightarrow \iota$ be given. Let $k4_normsp_2 : \iota \Rightarrow \iota$ be given. Let $v1_yellow_8 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_tops_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_pre_topc : \iota \Rightarrow \iota$ be given. Let $v3_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $g1_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k1_numbers : \iota$ be given. Let $g1_metric_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_metric_1 : \iota \Rightarrow o$ be given. Let $v1_pre_topc : \iota \Rightarrow o$ be given. Let $k3_pcomps_1 : \iota \Rightarrow \iota$ be given. Let $v2_pre_topc : \iota \Rightarrow o$ be given. Let $v4_frechet : \iota \Rightarrow o$ be given. Let $l1_rltopsp1 : \iota \Rightarrow o$ be given. Let $l1_rlvect_1 : \iota \Rightarrow o$ be given. Let $v5_rltopsp1 : \iota \Rightarrow o$ be given. Let $k2_pcomps_1 : \iota \Rightarrow \iota$ be given. Let $k2_normsp_2 : \iota \Rightarrow \iota$ be given. Let $v6_metric_1 : \iota \Rightarrow o$ be given. Let $v7_metric_1 : \iota \Rightarrow o$ be given. Let $v8_metric_1 : \iota \Rightarrow o$ be given. Let $v9_metric_1 : \iota \Rightarrow o$ be given. Let $k1_normsp_2 : \iota \Rightarrow \iota$ be given. Let $v1_metric_1 : \iota \Rightarrow o$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $r1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_algstr_0 : \iota \Rightarrow \iota$ be given. Let $u1_rlvect_1 : \iota \Rightarrow \iota$ be given. Let $k8_setfam_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_metric_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.(l1_pre_topc X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (k1_zfmisc_1 (u1_struct_0 X0)))) \Rightarrow ((v1_tops_2 X1 X0) \Leftrightarrow (r1_tarski X1 (u1_pre_topc X0)))) \quad (1)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \quad (2)$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X0 (k1_zfmisc_1 X1))\Leftrightarrow(r1_tarski X0 X1) \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge((v13_algstr_0 X0)\wedge((v2_rlvect_1 X0)\wedge((v3_rlvect_1 X0)\wedge((v4_rlvect_1 X0)\wedge((v5_rlvect_1 X0)\wedge \\ & ((v6_rlvect_1 X0)\wedge((v7_rlvect_1 X0)\wedge((v8_rlvect_1 X0)\wedge((v3_normsp_0 X0)\wedge((v4_normsp_0 X0)\wedge((v2_normsp_1 X0)\wedge(l1_normsp_1 X0))))))))))\Rightarrow \\ & (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 (k3_normsp_2 X0))))\Rightarrow(\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 (k4_normsp_2 X0))))\Rightarrow((X1 = X2)\Rightarrow((v3_pre_topc X1 (k3_normsp_2 X0))\Leftrightarrow(v3_pre_topc X2 (k4_normsp_2 X0)))))) \quad (4) \end{aligned}$$

Assume the following.

$$\forall X0.\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (k1_zfmisc_1 X0)))\Rightarrow(\forall X2.\forall X3.(g1_pre_topc X0 X1 = g1_pre_topc X2 X3)\Rightarrow((X0 = X2)\wedge(X1 = X3))) \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_funct_1 X1)\wedge((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) k1_numbers)\wedge(m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) k1_numbers))))\Rightarrow(\forall X2.\forall X3.(\\ & g1_metric_1 X0 X1 = g1_metric_1 X2 X3)\Rightarrow((X0 = X2)\wedge(X1 = X3))) \quad (6) \end{aligned}$$

Assume the following.

$$\forall X0.(l1_metric_1 X0)\Rightarrow((v1_pre_topc (k3_pcomps_1 X0))\wedge(v2_pre_topc (k3_pcomps_1 X0))) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge((v13_algstr_0 X0)\wedge((v2_rlvect_1 X0)\wedge((v3_rlvect_1 X0)\wedge((v4_rlvect_1 X0)\wedge((v5_rlvect_1 X0)\wedge \\ & ((v6_rlvect_1 X0)\wedge((v7_rlvect_1 X0)\wedge((v8_rlvect_1 X0)\wedge((v3_normsp_0 X0)\wedge((v4_normsp_0 X0)\wedge((v2_normsp_1 X0)\wedge(l1_normsp_1 X0))))))))))\Rightarrow \\ & ((\neg v2_struct_0 (k3_normsp_2 X0))\wedge((v2_pre_topc (k3_normsp_2 X0))\wedge(v4_frechet (k3_normsp_2 X0)))) \quad (8) \end{aligned}$$

Assume the following.

$$\forall X0.(l1_rltopsp1 X0)\Rightarrow((l1_rlvect_1 X0)\wedge(l1_pre_topc X0)) \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ &X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ &((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\ &X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\ &((\neg v2_struct_0 (k4_normsp_2 X0)) \wedge ((v5_rltopsp1 (k4_normsp_2 \\ &X0)) \wedge (l1_rltopsp1 (k4_normsp_2 X0)))) \end{aligned} \quad (10)$$

Assume the following.

$$\forall X0. (l1_metric_1 X0) \Rightarrow (l1_pre_topc (k3_pcomps_1 X0)) \quad (11)$$

Assume the following.

$$\forall X0. (l1_metric_1 X0) \Rightarrow (m1_subset_1 (k2_pcomps_1 X0) (k1_zfmisc_1 \\ (k1_zfmisc_1 (u1_struct_0 X0)))) \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ &X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ &((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\ &X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\ &((\neg v2_struct_0 (k2_normsp_2 X0)) \wedge ((v6_metric_1 (k2_normsp_2 \\ &X0)) \wedge ((v7_metric_1 (k2_normsp_2 X0)) \wedge ((v8_metric_1 (k2_normsp_2 \\ &X0)) \wedge ((v9_metric_1 (k2_normsp_2 X0)) \wedge (l1_metric_1 (k2_normsp_2 \\ &X0)))))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ &X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ &((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\ &X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\ &((v1_funct_1 (k1_normsp_2 X0)) \wedge ((v1_funct_2 (k1_normsp_2 X0) \\ &(k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) k1_numbers) \wedge \\ &(m1_subset_1 (k1_normsp_2 X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ &(u1_struct_0 X0) (u1_struct_0 X0)) k1_numbers)))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. (&(v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 \\ &X0 X0) k1_numbers) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\ &(k2_zfmisc_1 X0 X0) k1_numbers)))) \Rightarrow ((v1_metric_1 (g1_metric_1 \\ &X0 X1)) \wedge (l1_metric_1 (g1_metric_1 X0 X1))) \end{aligned} \quad (15)$$

Assume the following.

$$\forall X0.(l1_metric_1 X0) \Rightarrow (k3_pcomps_1 X0 = g1_pre_topc (u1_struct_0 X0) (k2_pcomps_1 X0)) \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ & ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\ & (\forall X1.((\neg v2_struct_0 X1) \wedge ((v5_rltopsp1 X1) \wedge (l1_rltopsp1 X1))) \Rightarrow ((X1 = k4_normsp_2 X0) \Leftrightarrow ((u1_struct_0 X1 = u1_struct_0 X0) \wedge \\ & ((k4_struct_0 X1 = k4_struct_0 X0) \wedge ((r1_funct_2 (k2_zfmisc_1 (u1_struct_0 X1) (u1_struct_0 X1)) (u1_struct_0 X1) (k2_zfmisc_1 \\ & (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0) (u1_algstr_0 X1) (u1_algstr_0 X0)) \wedge ((r1_funct_2 (k2_zfmisc_1 k1_numbers (u1_struct_0 X1) \\ & (u1_struct_0 X1) (k2_zfmisc_1 k1_numbers (u1_struct_0 X0) (u1_struct_0 X0) (u1_rlvect_1 X1) (u1_rlvect_1 X0)) \wedge (u1_pre_topc X1 = u1_pre_topc (k3_normsp_2 X0)))))))))) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ & ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\ & (k3_normsp_2 X0 = k3_pcomps_1 (k2_normsp_2 X0)) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ & ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\ & (k2_normsp_2 X0 = g1_metric_1 (u1_struct_0 X0) (k1_normsp_2 X0)) \end{aligned} \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge (l1_pre_topc X0)) \Rightarrow (\forall X1. \\ & (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (k1_zfmisc_1 (u1_struct_0 X0)))) \Rightarrow ((v1_yellow_8 X2 X0 X1) \Leftrightarrow ((X1 \in k8_setfam_1 (u1_struct_0 X0) X2) \wedge (\forall X3.(m1_subset_1 X3 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (\neg (v3_pre_topc X3 X0) \wedge ((X1 \in X3) \wedge (\forall X4.(m1_subset_1 X4 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (\neg (X4 \in X2) \wedge (r1_tarski X4 X3)))))))))) \end{aligned} \quad (20)$$

Assume the following.

$$\forall X0.(l1_pre_topc\ X0)\Rightarrow((v1_pre_topc\ X0)\Rightarrow(X0 = g1_pre_topc\ (u1_struct_0\ X0)\ (u1_pre_topc\ X0))) \quad (21)$$

Assume the following.

$$\forall X0.(l1_metric_1\ X0)\Rightarrow((v1_metric_1\ X0)\Rightarrow(X0 = g1_metric_1\ (u1_struct_0\ X0)\ (u1_metric_1\ X0))) \quad (22)$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0\ X0)\wedge((v13_algstr_0\ X0)\wedge((v2_rlvect_1\ X0)\wedge((v3_rlvect_1\ X0)\wedge((v4_rlvect_1\ X0)\wedge((v5_rlvect_1\ X0)\wedge \\ & ((v6_rlvect_1\ X0)\wedge((v7_rlvect_1\ X0)\wedge((v8_rlvect_1\ X0)\wedge((v3_normsp_0\ X0)\wedge((v4_normsp_0\ X0)\wedge((v2_normsp_1\ X0)\wedge(l1_normsp_1\ X0))))))))))\Rightarrow \\ & (\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ (k1_zfmisc_1\ (u1_struct_0\ (k3_normsp_2\ X0))))))\Rightarrow(\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1\ (k1_zfmisc_1\ (u1_struct_0\ (k4_normsp_2\ X0))))))\Rightarrow(\forall X3. \\ & (m1_subset_1\ X3\ (u1_struct_0\ (k3_normsp_2\ X0)))\Rightarrow(\forall X4. \\ & (m1_subset_1\ X4\ (u1_struct_0\ (k4_normsp_2\ X0)))\Rightarrow(((X1 = X2)\wedge(X3 = X4))\Rightarrow(((v1_yellow_8\ X2\ (k4_normsp_2\ X0)\ X4)\wedge((v1_tops_2\ X2\ (k4_normsp_2\ X0))\wedge(m1_subset_1\ X2\ (k1_zfmisc_1\ (k1_zfmisc_1\ (u1_struct_0\ (k4_normsp_2\ X0)))))))\Leftrightarrow((v1_yellow_8\ X1\ (k3_normsp_2\ X0)\ X3)\wedge((v1_tops_2\ X1\ (k3_normsp_2\ X0))\wedge(m1_subset_1\ X1\ (k1_zfmisc_1\ (k1_zfmisc_1\ (u1_struct_0\ (k3_normsp_2\ X0))))))))))))) \end{aligned}$$