

t22_normsp_2
(TMTRvVR47pVAoNvjeyUxE3L3SsUpxrsTVFD)

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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 $k4_normsp.2 : \iota \Rightarrow \iota$ be given. Let $v3_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $r1_xxreal.0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_numbers : \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_normsp.0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_algstr.0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_normsp.2 : \iota \Rightarrow \iota$ 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 $g1_metric.1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v5_rltopsp1 : \iota \Rightarrow o$ be given. Let $l1_rltopsp1 : \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $k2_pcomps.1 : \iota \Rightarrow \iota$ 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 $u1_pre_topc : \iota \Rightarrow \iota$ be given. Let $k2_normsp.2 : \iota \Rightarrow \iota$ be given. Let $u1_metric.1 : \iota \Rightarrow \iota$ be given. Assume the

following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\
& ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\
& X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\
& (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 (k3_normsp_2 \\
& X0)))) \Rightarrow ((v3_pre_topc X1 (k3_normsp_2 X0)) \Leftrightarrow (\forall X2.(m1_subset_1 \\
& X2 (u1_struct_0 X0)) \Rightarrow (\neg(X2 \in X1) \wedge (\forall X3.(m1_subset_1 X3 k1_numbers) \Rightarrow \\
& (\neg(\neg r1_xreal_0 X3 k6_numbers) \wedge (r1_tarski (ReplSep (toset (\lambda X4 : \\
& \iota.m1_subset_1 X4 (u1_struct_0 X0))) (\lambda X4 : \iota.\neg r1_xreal_0 \\
& X3 (k1_normsp_0 X0 (k5_algstr_0 X0 X2 X4))) (\lambda X4 : \iota.X4) X1))))))))) \\
& \tag{1}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\
& ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\
& X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\
& (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 (k3_normsp_2 \\
& X0)))) \Rightarrow (\forall X2.(m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 \\
& (k4_normsp_2 X0)))) \Rightarrow ((X1 = X2) \Rightarrow ((v3_pre_topc X1 (k3_normsp_2 \\
& X0)) \Leftrightarrow (v3_pre_topc X2 (k4_normsp_2 X0)))))) \\
& \tag{2}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 (k1_zfmisc_1 \\
& X0))) \Rightarrow (\forall X2.\forall X3.(g1_pre_topc X0 X1 = g1_pre_topc \\
& X2 X3) \Rightarrow ((X0 = X2) \wedge (X1 = X3))) \\
& \tag{3}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 \\
& X0 X0) k1_numbers) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k2_zfmisc_1 X0 X0) k1_numbers)))))) \Rightarrow (\forall X2.\forall X3.(\\
& g1_metric_1 X0 X1 = g1_metric_1 X2 X3) \Rightarrow ((X0 = X2) \wedge (X1 = X3))) \\
& \tag{4}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1_metric_1 X0) \Rightarrow ((v1_pre_topc (k3_pcomps_1 X0)) \wedge \\
& (v2_pre_topc (k3_pcomps_1 X0))) \\
& \tag{5}
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\
& ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\
& X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\
& ((\neg v2_struct_0 (k4_normsp_2 X0)) \wedge ((v5_rltopsp1 (k4_normsp_2 \\
& X0)) \wedge (l1_rltopsp1 (k4_normsp_2 X0)))) \\
& \tag{6}
\end{aligned}$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ &X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ &((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\ &X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\ &((\neg v2_struct_0 (k3_normsp_2 X0)) \wedge ((v2_pre_topc (k3_normsp_2 \\ &X0)) \wedge (l1_pre_topc (k3_normsp_2 X0)))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0. (l1_metric_1 X0) \Rightarrow (m1_subset_1 (k2_pcomps_1 X0) (k1_zfmisc_1 (k1_zfmisc_1 (u1_struct_0 X0)))) \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0. (&(\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ &X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ &((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\ &X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\ &((v1_funct_1 (k1_normsp_2 X0)) \wedge ((v1_funct_2 (k1_normsp_2 X0) \\ &(k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) k1_numbers) \wedge \\ &(m1_subset_1 (k1_normsp_2 X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ &(u1_struct_0 X0) (u1_struct_0 X0)) k1_numbers)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) k1_numbers) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) k1_numbers)))))) \Rightarrow ((v1_metric_1 (g1_metric_1 X0 X1)) \wedge (l1_metric_1 (g1_metric_1 X0 X1))) \quad (10)$$

Assume the following.

$$\forall X0. (l1_metric_1 X0) \Rightarrow (k3_pcomps_1 X0 = g1_pre_topc (u1_struct_0 X0) (k2_pcomps_1 X0)) \quad (11)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\
& ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\
& X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v5_rltopsp1 X1) \wedge (l1_rltopsp1 \\
& X1))) \Rightarrow ((X1 = k4_normsp_2 X0) \Leftrightarrow ((u1_struct_0 X1 = u1_struct_0 X0) \wedge \\
& ((k4_struct_0 X1 = k4_struct_0 X0) \wedge ((r1_funct_2 (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 X1)) (u1_struct_0 X1) (k2_zfmisc_1 \\
& (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0) (u1_algstr_0 \\
& X1) (u1_algstr_0 X0)) \wedge ((r1_funct_2 (k2_zfmisc_1 k1_numbers (\\
& u1_struct_0 X1)) (u1_struct_0 X1) (k2_zfmisc_1 k1_numbers (u1_struct_0 \\
& X0)) (u1_struct_0 X0) (u1_rlvect_1 X1) (u1_rlvect_1 X0)) \wedge (u1_pre_topc \\
& X1 = u1_pre_topc (k3_normsp_2 X0)))))))))
\end{aligned} \tag{12}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\
& ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\
& X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\
& (k3_normsp_2 X0 = k3_pcomps_1 (k2_normsp_2 X0))
\end{aligned} \tag{13}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\
& ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\
& X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\
& (k2_normsp_2 X0 = g1_metric_1 (u1_struct_0 X0) (k1_normsp_2 X0))
\end{aligned} \tag{14}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1_pre_topc X0) \Rightarrow ((v1_pre_topc X0) \Rightarrow (X0 = g1_pre_topc \\
& (u1_struct_0 X0) (u1_pre_topc X0)))
\end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1_metric_1 X0) \Rightarrow ((v1_metric_1 X0) \Rightarrow (X0 = g1_metric_1 \\
& (u1_struct_0 X0) (u1_metric_1 X0)))
\end{aligned} \tag{16}$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ & ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\ & X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\ & (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 (k4_normsp_2 \\ & X0)))) \Rightarrow ((v3_pre_topc X1 (k4_normsp_2 X0)) \Leftrightarrow (\forall X2. (m1_subset_1 \\ & X2 (u1_struct_0 X0)) \Rightarrow (\neg (X2 \in X1) \wedge (\forall X3. (m1_subset_1 X3 k1_numbers) \Rightarrow \\ & (\neg (\neg r1_xxreal_0 X3 k6_numbers) \wedge (r1_tarski (ReplSep (toset (\lambda X4 : \\ & \iota. m1_subset_1 X4 (u1_struct_0 X0))) (\lambda X4 : \iota. \neg r1_xxreal_0 \\ & X3 (k1_normsp_0 X0 (k5_algstr_0 X0 X2 X4))) (\lambda X4 : \iota. X4)) X1)))))) \end{aligned}$$