

t21_normsp_2
(TMLiqbJFrUqq2SB5z7EkwwbtDiMEKz6vsQF)

October 27, 2020

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 $v4_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $v3_pre_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $k1_numbers : \iota$ 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 $l1_rltopsp1 : \iota \Rightarrow o$ 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 $r1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ 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 $u1_metric_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0.(l1_pre_topc\ X0) \Rightarrow (\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1 \\ (u1_struct_0\ X0))) \Rightarrow ((v4_pre_topc\ X1\ X0) \Leftrightarrow (v3_pre_topc\ (k3_subset_1 \\ (u1_struct_0\ X0)\ X1)\ X0))) \end{aligned} \tag{1}$$

Assume the following.

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

Assume the following.

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

Assume the following.

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

Assume the following.

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

Assume the following.

$$\forall X0.(l1_rltopsp1 X0) \Rightarrow ((l1_rlvect_1 X0) \wedge (l1_pre_topc X0)) \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\
& ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\
& X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\
& ((\neg v2_struct_0 (k4_normsp_2 X0)) \wedge ((v5_rltopsp1 (k4_normsp_2 \\
& X0)) \wedge (l1_rltopsp1 (k4_normsp_2 X0))))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1.(m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (m1_subset_1 \\
& (k3_subset_1 X0 X1) (k1_zfmisc_1 X0))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned} \forall X0. (& \neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ & ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\ & X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\ & ((\neg v2_struct_0 (k3_normsp_2 X0)) \wedge ((v2_pre_topc (k3_normsp_2 \\ & X0)) \wedge (l1_pre_topc (k3_normsp_2 X0)))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0. (l1_metric_1 X0) \Rightarrow (m1_subset_1 (k2_pcomps_1 X0) (k1_zfmisc_1 (k1_zfmisc_1 (u1_struct_0 X0)))) \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0. (& \neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ & ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\ & X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\ & ((\neg v2_struct_0 (k2_normsp_2 X0)) \wedge ((v6_metric_1 (k2_normsp_2 \\ & X0)) \wedge ((v7_metric_1 (k2_normsp_2 X0)) \wedge ((v8_metric_1 (k2_normsp_2 \\ & X0)) \wedge ((v9_metric_1 (k2_normsp_2 X0)) \wedge (l1_metric_1 (k2_normsp_2 \\ & X0)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0. (& \neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\ & X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\ & ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\ & X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\ & ((v1_funct_1 (k1_normsp_2 X0)) \wedge ((v1_funct_2 (k1_normsp_2 X0) \\ & (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 X0)) k1_numbers) \wedge \\ & (m1_subset_1 (k1_normsp_2 X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 \\ & (u1_struct_0 X0) (u1_struct_0 X0)) k1_numbers)))) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0. \forall X1. ((v1_funct_1 X1) \wedge ((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) k1_numbers) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) k1_numbers)))))) \Rightarrow ((v1_metric_1 (g1_metric_1 X0 X1)) \wedge (l1_metric_1 (g1_metric_1 X0 X1))) \quad (13)$$

Assume the following.

$$\forall X0. (l1_metric_1 X0) \Rightarrow (k3_pcomps_1 X0 = g1_pre_topc (u1_struct_0 X0) (k2_pcomps_1 X0)) \quad (14)$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\
& ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\
& X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\
& (\forall X1.((\neg v2_struct_0 X1) \wedge ((v5_rltopsp1 X1) \wedge (l1_rltopsp1 \\
& X1))) \Rightarrow ((X1 = k4_normsp_2 X0) \Leftrightarrow ((u1_struct_0 X1 = u1_struct_0 X0) \wedge \\
& ((k4_struct_0 X1 = k4_struct_0 X0) \wedge ((r1_funct_2 (k2_zfmisc_1 \\
& (u1_struct_0 X1) (u1_struct_0 X1)) (u1_struct_0 X1) (k2_zfmisc_1 \\
& (u1_struct_0 X0) (u1_struct_0 X0)) (u1_struct_0 X0) (u1_algstr_0 \\
& X1) (u1_algstr_0 X0)) \wedge ((r1_funct_2 (k2_zfmisc_1 k1_numbers (\\
& u1_struct_0 X1)) (u1_struct_0 X1) (k2_zfmisc_1 k1_numbers (u1_struct_0 \\
& X0)) (u1_struct_0 X0) (u1_rlvect_1 X1) (u1_rlvect_1 X0)) \wedge (u1_pre_topc \\
& X1 = u1_pre_topc (k3_normsp_2 X0)))))))))
\end{aligned} \tag{15}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\
& ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\
& X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\
& (k3_normsp_2 X0 = k3_pcomps_1 (k2_normsp_2 X0))
\end{aligned} \tag{16}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 \\
& X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge ((v5_rlvect_1 X0) \wedge \\
& ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 X0) \wedge ((v3_normsp_0 \\
& X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))))))) \Rightarrow \\
& (k2_normsp_2 X0 = g1_metric_1 (u1_struct_0 X0) (k1_normsp_2 X0))
\end{aligned} \tag{17}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1_pre_topc X0) \Rightarrow ((v1_pre_topc X0) \Rightarrow (X0 = g1_pre_topc \\
& (u1_struct_0 X0) (u1_pre_topc X0)))
\end{aligned} \tag{18}$$

Assume the following.

$$\begin{aligned}
& \forall X0.(l1_metric_1 X0) \Rightarrow ((v1_metric_1 X0) \Rightarrow (X0 = g1_metric_1 \\
& (u1_struct_0 X0) (u1_metric_1 X0)))
\end{aligned} \tag{19}$$

Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge (v13_algstr_0 X0) \wedge (v2_rlvect_1 \\ & X0) \wedge (v3_rlvect_1 X0) \wedge (v4_rlvect_1 X0) \wedge (v5_rlvect_1 X0) \wedge \\ & ((v6_rlvect_1 X0) \wedge (v7_rlvect_1 X0) \wedge (v8_rlvect_1 X0) \wedge (v3_normsp_0 \\ & X0) \wedge (v4_normsp_0 X0) \wedge (v2_normsp_1 X0) \wedge (l1_normsp_1 X0)))))) \Rightarrow \\ & (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 (k3_normsp_2 \\ & X0)))) \Rightarrow (\forall X2. (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 \\ & (k4_normsp_2 X0)))) \Rightarrow ((X1 = X2) \Rightarrow ((v4_pre_topc X1 (k3_normsp_2 \\ & X0)) \Leftrightarrow (v4_pre_topc X2 (k4_normsp_2 X0))))) \end{aligned}$$