

t54_rltopsp1 (TMMG-
WBF9eX1BiMyLBkbAdHA1Skgm89oBjUN)

October 27, 2020

Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v2_pre_topc : \iota \Rightarrow o$ 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 $v6_rltopsp1 : \iota \Rightarrow o$ be given. Let $v7_rltopsp1 : \iota \Rightarrow o$ be given. Let $l1_rltopsp1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $m1_connsp_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $k1_convex1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_rlvect_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k1_tops_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $l1_rlvect_1 : \iota \Rightarrow o$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge ((v13_algstr_0 \\
& X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge \\
& ((v5_rlvect_1 X0) \wedge ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 \\
& X0) \wedge ((v6_rltopsp1 X0) \wedge ((v7_rltopsp1 X0) \wedge (l1_rltopsp1 X0)))))))))) \Rightarrow \\
& (\forall X1. (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow \\
& (\forall X2. ((\neg v1_xboole_0 X2) \wedge (m1_subset_1 X2 k1_numbers)) \Rightarrow \\
& (k1_convex1 X0 (k1_tops_1 X0 X1) X2 = k1_tops_1 X0 (k1_convex1 X0 \\
& X1 X2))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. (((\neg v2_struct_0 X0) \wedge ((v2_pre_topc X0) \wedge \\
& (l1_pre_topc X0))) \wedge (m1_subset_1 X1 (u1_struct_0 X0))) \Rightarrow (\forall X2. \\
& (m1_connsp_2 X2 X0 X1) \Rightarrow (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 \\
& X0))))
\end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. (l1_rltopsp1 X0) \Rightarrow ((l1_rlvect_1 X0) \wedge (l1_pre_topc X0)) \tag{3}$$

Assume the following.

$$\forall X0.\forall X1.((l1_pre_topc\ X0)\wedge(m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0\ X0))))\Rightarrow(m1_subset_1\ (k1_tops_1\ X0\ X1)\ (k1_zfmisc_1\ (u1_struct_0\ X0))) \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0\ X0)\wedge(l1_rlvect_1\ X0))\wedge((m1_subset_1\ X1\ (u1_struct_0\ X0))\wedge(v1_xreal_0\ X2)))\Rightarrow(m1_subset_1\ (k1_rlvect_1\ X0\ X1\ X2)\ (u1_struct_0\ X0)) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(((\neg v2_struct_0\ X0)\wedge(l1_rlvect_1\ X0))\wedge((m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0\ X0)))\wedge(m1_subset_1\ X2\ k1_numbers)))\Rightarrow(m1_subset_1\ (k1_convex1\ X0\ X1\ X2)\ (k1_zfmisc_1\ (u1_struct_0\ X0))) \quad (6)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0\ X0)\wedge(l1_rlvect_1\ X0))\Rightarrow(\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0\ X0)))\Rightarrow(\forall X2.(m1_subset_1\ X2\ k1_numbers)\Rightarrow(k1_convex1\ X0\ X1\ X2 = ReplSep\ (toset\ (\lambda X3 : \iota.m1_subset_1\ X3\ (u1_struct_0\ X0))\ (\lambda X3 : \iota.X3 \in X1)\ (\lambda X3 : \iota.k1_rlvect_1\ X0\ X3\ X2)))))) \quad (7)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0\ X0)\wedge((v2_pre_topc\ X0)\wedge(l1_pre_topc\ X0)))\Rightarrow(\forall X1.(m1_subset_1\ X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1\ (u1_struct_0\ X0)))\Rightarrow((m1_connsp_2\ X2\ X0\ X1)\Leftrightarrow(X1 \in k1_tops_1\ X0\ X2)))) \quad (8)$$

Assume the following.

$$\forall X0.(m1_subset_1\ X0\ k1_numbers)\Rightarrow(v1_xreal_0\ X0) \quad (9)$$

Theorem 1

$$\forall X0.(((\neg v2_struct_0\ X0)\wedge((v2_pre_topc\ X0)\wedge((v13_algstr_0\ X0)\wedge((v2_rlvect_1\ X0)\wedge((v3_rlvect_1\ X0)\wedge((v4_rlvect_1\ X0)\wedge((v5_rlvect_1\ X0)\wedge((v6_rlvect_1\ X0)\wedge((v7_rlvect_1\ X0)\wedge((v8_rlvect_1\ X0)\wedge((v6_rltopsp1\ X0)\wedge((v7_rltopsp1\ X0)\wedge(l1_rltopsp1\ X0))))))))))))))\Rightarrow(\forall X1.(m1_subset_1\ X1\ (u1_struct_0\ X0))\Rightarrow(\forall X2.(m1_connsp_2\ X2\ X0\ X1)\Rightarrow(\forall X3.((\neg v1_xboole_0\ X3)\wedge(m1_subset_1\ X3\ k1_numbers))\Rightarrow(m1_connsp_2\ (k1_convex1\ X0\ X2\ X3)\ X0\ (k1_rlvect_1\ X0\ X1\ X3))))))$$