

t5_goboard6
(TMEgfyqudzYZ4rMUymeKNZUUS7GUSiD61b)

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Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k14_euclid : \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k15_euclid : \iota \Rightarrow \iota$ be given. Let $k1_tops_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ 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 $k9_metric_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ 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 $l1_metric_1 : \iota \Rightarrow o$ be given. Let $k3_pcomps_1 : \iota \Rightarrow \iota$ be given. Let $v2_pre_topc : \iota \Rightarrow o$ be given. Let $l1_pre_topc : \iota \Rightarrow o$ be given. Let $g1_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_pre_topc : \iota \Rightarrow \iota$ 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 $v5_rltopsp1 : \iota \Rightarrow o$ be given. Let $v1_metric_1 : \iota \Rightarrow o$ be given. Let $v1_pre_topc : \iota \Rightarrow o$ be given. Let $l1_rltopsp1 : \iota \Rightarrow o$ be given. Let $l1_rlvect_1 : \iota \Rightarrow o$ be given. Let $g1_rlvect_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u2_struct_0 : \iota \Rightarrow \iota$ be given. Let $u1_algstr_0 : \iota \Rightarrow \iota$ be given. Let $u1_rlvect_1 : \iota \Rightarrow \iota$ be given. Let $k10_funcsdom : \iota \Rightarrow \iota$ be given. Let $k2_finseq_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. ((\neg v2_struct_0 X0) \wedge ((v6_metric_1 X0) \wedge ((v7_metric_1 \\
& X0) \wedge ((v8_metric_1 X0) \wedge ((v9_metric_1 X0) \wedge (l1_metric_1 X0)))))) \Rightarrow \\
& (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 \\
& X2 (k1_zfmisc_1 (u1_struct_0 (k3_pcomps_1 X0)))) \Rightarrow ((X1 \in k1_tops_1 \\
& (k3_pcomps_1 X0) X2) \Leftrightarrow (\exists X3. (v1_xreal_0 X3) \wedge ((\neg r1_xxreal_0 \\
& X3 k6_numbers) \wedge (r1_tarski (k9_metric_1 X0 X1 X3) X2))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} \forall X0.((v2_pre_topc\ X0)\wedge(l1_pre_topc\ X0))\Rightarrow(\forall X1. \\ (m1_subset_1\ X1\ (k1_zfmisc_1\ (u1_struct_0\ X0)))\Rightarrow(\forall X2. \\ (m1_subset_1\ X2\ (k1_zfmisc_1\ (u1_struct_0\ (g1_pre_topc\ (u1_struct_0 \\ X0)\ (u1_pre_topc\ X0))))\Rightarrow((X1 = X2)\Rightarrow(k1_tops_1\ X0\ X1 = k1_tops_1 \\ (g1_pre_topc\ (u1_struct_0\ X0)\ (u1_pre_topc\ X0))\ X2)))) \end{aligned} \quad (2)$$

Assume the following.

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

Assume the following.

$$\begin{aligned} \forall X0.(v7_ordinal1\ X0)\Rightarrow((v2_pre_topc\ (k15_euclid\ X0))\wedge \\ ((v13_algstr_0\ (k15_euclid\ X0))\wedge((v2_rlvect_1\ (k15_euclid\ X0))\wedge \\ ((v3_rlvect_1\ (k15_euclid\ X0))\wedge((v4_rlvect_1\ (k15_euclid\ X0))\wedge \\ ((v5_rlvect_1\ (k15_euclid\ X0))\wedge((v6_rlvect_1\ (k15_euclid\ X0))\wedge \\ ((v7_rlvect_1\ (k15_euclid\ X0))\wedge((v8_rlvect_1\ (k15_euclid\ X0))\wedge \\ (v5_rltopsp1\ (k15_euclid\ X0)))))))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7_ordinal1\ X0)\Rightarrow((\neg v2_struct_0\ (k14_euclid\ X0))\wedge \\ ((v1_metric_1\ (k14_euclid\ X0))\wedge((v6_metric_1\ (k14_euclid\ X0))\wedge \\ ((v7_metric_1\ (k14_euclid\ X0))\wedge((v8_metric_1\ (k14_euclid\ X0))\wedge \\ (v9_metric_1\ (k14_euclid\ X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_metric_1\ X0)\Rightarrow((v1_pre_topc\ (k3_pcomps_1\ X0))\wedge \\ (v2_pre_topc\ (k3_pcomps_1\ X0))) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} \forall X0.(l1_pre_topc\ X0)\Rightarrow(m1_subset_1\ (u1_pre_topc\ X0)\ (k1_zfmisc_1 \\ (k1_zfmisc_1\ (u1_struct_0\ X0)))) \end{aligned} \quad (7)$$

Assume the following.

$$\forall X0.(l1_rltopsp1\ X0)\Rightarrow((l1_rlvect_1\ X0)\wedge(l1_pre_topc\ X0)) \quad (8)$$

Assume the following.

$$\forall X0.(l1_metric_1\ X0)\Rightarrow(l1_pre_topc\ (k3_pcomps_1\ X0)) \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7_ordinal1\ X0)\Rightarrow((v5_rltopsp1\ (k15_euclid\ X0))\wedge \\ (l1_rltopsp1\ (k15_euclid\ X0))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7_ordinal1\ X0) \Rightarrow & ((v1_metric_1\ (k14_euclid\ X0)) \wedge \\ & ((v6_metric_1\ (k14_euclid\ X0)) \wedge ((v7_metric_1\ (k14_euclid\ X0)) \wedge \\ & ((v8_metric_1\ (k14_euclid\ X0)) \wedge ((v9_metric_1\ (k14_euclid\ X0)) \wedge \\ & (l1_metric_1\ (k14_euclid\ X0)))))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7_ordinal1\ X0) \Rightarrow & (\forall X1.((v5_rltopsp1\ X1) \wedge (\\ l1_rltopsp1\ X1)) \Rightarrow & ((X1 = k15_euclid\ X0) \Leftrightarrow ((g1_pre_topc\ (u1_struct_0 \\ X1)\ (u1_pre_topc\ X1) = k3_pcomps_1\ (k14_euclid\ X0)) \wedge (g1_rlvect_1 \\ (u1_struct_0\ X1)\ (u2_struct_0\ X1)\ (u1_algstr_0\ X1)\ (u1_rlvect_1 \\ X1) = k10_funcsdom\ (k2_finseq_1\ X0)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0.(l1_pre_topc\ X0) \Rightarrow ((v1_pre_topc\ X0) \Rightarrow (X0 = g1_pre_topc\ (u1_struct_0\ X0)\ (u1_pre_topc\ X0))) \quad (13)$$

Theorem 1

$$\begin{aligned} \forall X0.(v7_ordinal1\ X0) \Rightarrow & (\forall X1.(m1_subset_1\ X1\ (u1_struct_0 \\ & (k14_euclid\ X0))) \Rightarrow (\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1\ (\\ u1_struct_0\ (k15_euclid\ X0)))) \Rightarrow & ((X1 \in k1_tops_1\ (k15_euclid\ X0) \\ X2) \Leftrightarrow & (\exists X3.(v1_xreal_0\ X3) \wedge ((\neg r1_xxreal_0\ X3\ k6_numbers) \wedge \\ & (r1_tarSKI\ (k9_metric_1\ (k14_euclid\ X0)\ X1\ X3)\ X2)))))) \end{aligned}$$