

t29_pcomps_1 (TMSyTGGhZaHusP- ToYP78PQePubHXEBq6rRC)

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Let $l1_metric_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $v9_metric_1 : \iota \Rightarrow o$ be given. Let $k9_metric_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_pcomps_1 : \iota \Rightarrow \iota$ 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 $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall X0.(l1_metric_1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & \quad X0)) \Rightarrow (\forall X2.(m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (\forall X3. \\ & (v1_xreal_0 X3) \Rightarrow (\neg(v9_metric_1 X0) \wedge ((X1 \in k9_metric_1 X0 X2 X3) \wedge \\ & (\forall X4.(m1_subset_1 X4 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 X4 k6_numbers) \wedge \\ & (r1_tarski (k9_metric_1 X0 X1 X4) (k9_metric_1 X0 X2 X3)))))))))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((l1_metric_1 X0) \wedge ((m1_subset_1 \\ & X1 (u1_struct_0 X0)) \wedge (v1_xreal_0 X2))) \Rightarrow (m1_subset_1 (k9_metric_1 \\ & \quad X0 X1 X2) (k1_zfmisc_1 (u1_struct_0 X0))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_metric_1 X0) \Rightarrow (m1_subset_1 (k2_pcomps_1 X0) (k1_zfmisc_1 \\ & \quad (k1_zfmisc_1 (u1_struct_0 X0)))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_metric_1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (k1_zfmisc_1 \\ & \quad (k1_zfmisc_1 (u1_struct_0 X0)))) \Rightarrow ((X1 = k2_pcomps_1 X0) \Leftrightarrow (\forall X2. \\ & (m1_subset_1 X2 (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow ((X2 \in X1) \Leftrightarrow (\forall X3. \\ & (m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow (\neg(X3 \in X2) \wedge (\forall X4.(m1_subset_1 \\ & X4 k1_numbers) \Rightarrow (\neg(\neg r1_xxreal_0 X4 k6_numbers) \wedge (r1_tarski (k9_metric_1 \\ & \quad X0 X3 X4) X2)))))))))) \end{aligned} \quad (4)$$

Theorem 1

$$\forall X0.(l1_metric_1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2.(v1_xreal_0 X2) \Rightarrow ((v9_metric_1 X0) \Rightarrow (k9_metric_1 X0 X1 X2 \in k2_pcomps_1 X0))))$$