

t8_hausdorf

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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 $v1_xboole_0 : \iota \Rightarrow o$ 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 $k3_pcomps_1 : \iota \Rightarrow \iota$ be given. Let $k2_pre_topc : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_weierstr : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $r1_xreal_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_metric_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v6_metric_1 X0) \wedge ((v7_metric_1 \\
 & X0) \wedge ((v8_metric_1 X0) \wedge ((v9_metric_1 X0) \wedge (l1_metric_1 X0)))))) \Rightarrow \\
 & (\forall X1. ((\neg v1_xboole_0 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\
 & (u1_struct_0 (k3_pcomps_1 X0)))))) \Rightarrow (\forall X2. (m1_subset_1 \\
 & X2 (u1_struct_0 X0)) \Rightarrow ((k1_funct_1 (k6_weierstr X0 X1) X2 = k6_numbers) \Leftrightarrow \\
 & (\forall X3. (v1_xreal_0 X3) \Rightarrow (\neg(\neg r1_xreal_0 X3 k6_numbers) \wedge \\
 & (\forall X4. (m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow (\neg(X4 \in X1) \wedge (\neg r1_xreal_0 \\
 & X3 (k4_metric_1 X0 X2 X4))))))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v2_struct_0 X0) \wedge ((v6_metric_1 X0) \wedge ((v7_metric_1 \\
 & X0) \wedge ((v8_metric_1 X0) \wedge ((v9_metric_1 X0) \wedge (l1_metric_1 X0)))))) \Rightarrow \\
 & (\forall X1. (m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (\forall X2. (m1_subset_1 \\
 & X2 (k1_zfmisc_1 (u1_struct_0 (k3_pcomps_1 X0)))) \Rightarrow ((X1 \in k2_pre_topc \\
 & (k3_pcomps_1 X0) X2) \Leftrightarrow (\forall X3. (v1_xreal_0 X3) \Rightarrow (\neg(\neg r1_xreal_0 \\
 & X3 k6_numbers) \wedge (\forall X4. (m1_subset_1 X4 (u1_struct_0 X0)) \Rightarrow \\
 & (\neg(X4 \in X2) \wedge (\neg r1_xreal_0 X3 (k4_metric_1 X0 X1 X4))))))))))
 \end{aligned} \tag{2}$$

Theorem 1

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0) \wedge ((v6_metric_1 X0) \wedge ((v7_metric_1 \\ & X0) \wedge ((v8_metric_1 X0) \wedge ((v9_metric_1 X0) \wedge (l1_metric_1 X0)))))) \Rightarrow \\ & (\forall X1.((\neg v1_xboole_0 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 \\ & (u1_struct_0 (k3_pcomps_1 X0))))) \Rightarrow (\forall X2.(m1_subset_1 \\ & X2 (u1_struct_0 X0)) \Rightarrow ((X2 \in k2_pre_topc (k3_pcomps_1 X0) X1) \Leftrightarrow (\\ & k1_funct_1 (k6_weierstr X0 X1) X2 = k6_numbers)))) \end{aligned}$$