t16_hausdorf (TMbu6qw5j1mQaUub2J6uuKRJeTsVyeQK6Gg)

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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 $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$ 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 $v1\_xboole\_0 : \iota \Rightarrow o$ be given. Let $k1\_pre\_topc : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1\_topmetr : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1\_topmetr : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1\_pre\_topc : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1\_pre\_topc : \iota \Rightarrow \iota$ be given. Let $k2\_pcomps\_1 : \iota \Rightarrow \iota$ be given. Let $v1\_metric\_1 : \iota \Rightarrow o$ be given. Let $v1\_pre\_topc : \iota \Rightarrow o$ be given. Let $v2\_pre\_topc : \iota \Rightarrow o$ be given. Let $l1\_pre\_topc : \iota \Rightarrow o$ be given. Let $l1\_struct\_0 : \iota \Rightarrow o$ be given. Let $k2\_struct\_0 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0) \wedge ((v6\_metric\_1\ X0) \wedge ((v7\_metric\_1\ X0) \wedge ((v8\_metric\_1\ X0) \wedge ((v9\_metric\_1\ X0) \wedge (l1\_metric\_1\ X0)))))) \Rightarrow (\forall X1.((\neg v2\_struct\_0\ X1) \wedge (m1\_topmetr\ X1\ X0)) \Rightarrow (m1\_pre\_topc\ (k3\_pcomps\_1\ X1)\ (k3\_pcomps\_1\ X0))) \tag{1}$$

Assume the following.

$$\forall X0.(l1\_metric\_1\ X0) \Rightarrow ((u1\_struct\_0\ X0 = u1\_struct\_0\ (k3\_pcomps\_1\ X0)) \wedge (u1\_pre\_topc\ (k3\_pcomps\_1\ X0) = k2\_pcomps\_1\ X0)) \tag{2}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0) \wedge ((v6\_metric\_1\ X0) \wedge ((v7\_metric\_1\ X0) \wedge ((v8\_metric\_1\ X0) \wedge ((v9\_metric\_1\ X0) \wedge (l1\_metric\_1\ X0)))))) \wedge ((\neg v1\_xboole\_0\ X1) \wedge (m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))))) \Rightarrow ((\neg v2\_struct\_0\ (k1\_topmetr\ X0\ X1)) \wedge (v1\_metric\_1\ (k1\_topmetr\ X0\ X1))) \tag{3}$$

Assume the following.

$$\forall X0.(l1\_metric\_1\ X0) \Rightarrow ((v1\_pre\_topc\ (k3\_pcomps\_1\ X0)) \wedge (v2\_pre\_topc\ (k3\_pcomps\_1\ X0))) \tag{4}$$

Assume the following.

$$\forall X0.((v6\_metric\_1\ X0)\wedge((v7\_metric\_1\ X0)\wedge((v8\_metric\_1\ X0)\wedge((v9\_metric\_1\ X0)\wedge(l1\_metric\_1\ X0)))))\Rightarrow(\forall X1.(m1\_topmetr\ X1\ X0)\Rightarrow((v6\_metric\_1\ X1)\wedge((v7\_metric\_1\ X1)\wedge((v8\_metric\_1\ X1)\wedge((v9\_metric\_1\ X1)\wedge(l1\_metric\_1\ X1))))))) \tag{5}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(l1\_struct\_0\ X0) \tag{6}$$

Assume the following.

$$\forall X0.(l1\_metric\_1\ X0)\Rightarrow(l1\_pre\_topc\ (k3\_pcomps\_1\ X0)) \tag{7}$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0\ X0)\wedge((v6\_metric\_1\ X0)\wedge((v7\_metric\_1\ X0)\wedge((v8\_metric\_1\ X0)\wedge((v9\_metric\_1\ X0)\wedge(l1\_metric\_1\ X0))))))\wedge((\neg v1\_xboole\_0\ X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))))\Rightarrow((v1\_metric\_1\ (k1\_topmetr\ X0\ X1))\wedge(m1\_topmetr\ (k1\_topmetr\ X0\ X1)\ X0)) \tag{8}$$

Assume the following.

$$\forall X0.(l1\_pre\_topc\ X0)\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0)))\Rightarrow(\forall X2.((v1\_pre\_topc\ X2)\wedge(m1\_pre\_topc\ X2\ X0))\Rightarrow((X2 = k1\_pre\_topc\ X0\ X1)\Leftrightarrow(k2\_struct\_0\ X2 = X1)))) \tag{9}$$

Assume the following.

$$\forall X0.(l1\_struct\_0\ X0)\Rightarrow(k2\_struct\_0\ X0 = u1\_struct\_0\ X0) \tag{10}$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v6\_metric\_1\ X0)\wedge((v7\_metric\_1\ X0)\wedge((v8\_metric\_1\ X0)\wedge((v9\_metric\_1\ X0)\wedge(l1\_metric\_1\ X0))))))\Rightarrow(\forall X1.((\neg v1\_xboole\_0\ X1)\wedge(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))))\Rightarrow(\forall X2.((v1\_metric\_1\ X2)\wedge(m1\_topmetr\ X2\ X0))\Rightarrow((X2 = k1\_topmetr\ X0\ X1)\Leftrightarrow(u1\_struct\_0\ X2 = X1)))) \tag{11}$$

Theorem 1

$$\forall X0.((\neg v2\_struct\_0\ X0)\wedge((v6\_metric\_1\ X0)\wedge((v7\_metric\_1\ X0)\wedge((v8\_metric\_1\ X0)\wedge((v9\_metric\_1\ X0)\wedge(l1\_metric\_1\ X0))))))\Rightarrow(\forall X1.(m1\_subset\_1\ X1\ (k1\_zfmisc\_1\ (u1\_struct\_0\ (k3\_pcomps\_1\ X0))))\Rightarrow(\forall X2.((\neg v1\_xboole\_0\ X2)\wedge(m1\_subset\_1\ X2\ (k1\_zfmisc\_1\ (u1\_struct\_0\ X0))))\Rightarrow((X1 = X2)\Rightarrow(k1\_pre\_topc\ (k3\_pcomps\_1\ X0)\ X1 = k3\_pcomps\_1\ (k1\_topmetr\ X0\ X2))))))$$