

t3\_hausdorf  
(TMR1yMbZxuNKQPFVdLsFnhvehkyA1URbtDH)

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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  $k6\_numbers : \iota$  be given. Let  $k7\_relset.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k3\_topmetr : \iota$  be given. Let  $k4\_weierstr : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole.0 : \iota \Rightarrow o$  be given. Let  $k1\_xboole.0 : \iota$  be given. Let  $k1\_funct.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k7\_relat.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_relat.1 : \iota \Rightarrow o$  be given. Let  $v4\_relat.1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_relset.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k9\_xtuple.0 : \iota \Rightarrow \iota$  be given. Let  $v1\_pre.topc : \iota \Rightarrow o$  be given. Let  $v2\_pre.topc : \iota \Rightarrow o$  be given. Let  $l1\_struct.0 : \iota \Rightarrow o$  be given. Let  $l1\_pre.topc : \iota \Rightarrow o$  be given. Let  $v1\_funct.1 : \iota \Rightarrow o$  be given. Let  $v1\_funct.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v5\_relat.1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Assume the following.

$$\forall X0. \forall X1. \neg (X0 \in X1) \wedge (v1\_xboole.0 X1) \quad (1)$$

Assume the following.

$$\forall X0. (v1\_xboole.0 X0) \Rightarrow (X0 = k1\_xboole.0) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1\_subset.1 X1 (k1\_zfmisc.1 X2))) \Rightarrow (m1\_subset.1 X0 X2) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. (m1\_subset.1 X0 X1) \Rightarrow ((v1\_xboole.0 X1) \vee (X0 \in X1)) \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct.0 X0) \wedge ((v6\_metric.1 X0) \wedge ((v7\_metric.1 X0) \wedge ((v8\_metric.1 X0) \wedge ((v9\_metric.1 X0) \wedge (l1\_metric.1 X0)))))) \Rightarrow \\ & (\forall X1. (m1\_subset.1 X1 (u1\_struct.0 X0)) \Rightarrow (k1\_funct.1 (k4\_weierstr X0 X1) X1 = k6\_numbers)) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 X0 X1)))\Rightarrow(k7\_relset\_1 X0 X1 X2 X3 = k7\_relat\_1 X2 X3) \quad (6)$$

Assume the following.

$$k6\_numbers = k1\_xboole\_0 \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.((v1\_relat\_1 X1)\wedge(v4\_relat\_1 X1 X0))\Rightarrow(k1\_relset\_1 X0 X1 = k9\_xtuple\_0 X1) \quad (8)$$

Assume the following.

$$\forall X0.\exists X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0))\wedge(v1\_xboole\_0 X1) \quad (9)$$

Assume the following.

$$(\neg v2\_struct\_0 k3\_topmetr)\wedge((v1\_pre\_topc k3\_topmetr)\wedge(v2\_pre\_topc k3\_topmetr)) \quad (10)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0)\wedge(l1\_struct\_0 X0))\Rightarrow(\neg v1\_xboole\_0 (u1\_struct\_0 X0)) \quad (11)$$

Assume the following.

$$\forall X0.(l1\_pre\_topc X0)\Rightarrow(l1\_struct\_0 X0) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2\_struct\_0 X0)\wedge((v6\_metric\_1 X0)\wedge((v7\_metric\_1 X0)\wedge(v8\_metric\_1 X0)\wedge(v9\_metric\_1 X0)\wedge(l1\_metric\_1 X0))))\wedge(m1\_subset\_1 X1 (u1\_struct\_0 X0)))\Rightarrow((v1\_funct\_1 (k4\_weierstr X0 X1))\wedge((v1\_funct\_2 (k4\_weierstr X0 X1) (u1\_struct\_0 (k3\_pcomps\_1 X0)) (u1\_struct\_0 k3\_topmetr))\wedge(m1\_subset\_1 (k4\_weierstr X0 X1) (k1\_zfmisc\_1 (k2\_zfmisc\_1 (u1\_struct\_0 (k3\_pcomps\_1 X0)) (u1\_struct\_0 k3\_topmetr)))))) \quad (13)$$

Assume the following.

$$(v2\_pre\_topc k3\_topmetr)\wedge(l1\_pre\_topc k3\_topmetr) \quad (14)$$

Assume the following.

$$\forall X0.((v1\_relat\_1 X0)\wedge(v1\_funct\_1 X0))\Rightarrow(\forall X1.\forall X2.(X2 = k7\_relat\_1 X0 X1)\Leftrightarrow(\forall X3.(X3 \in X2)\Leftrightarrow(\exists X4.(X4 \in k9\_xtuple\_0 X0)\wedge((X4 \in X1)\wedge(X3 = k1\_funct\_1 X0 X4)))) \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1))) \Rightarrow (((X1 \neq k1\_xboole\_0) \Rightarrow ((v1\_funct\_2 X2 X0 \\ & X1) \Leftrightarrow (X0 = k1\_relset\_1 X0 X2))) \wedge ((X1 = k1\_xboole\_0) \Rightarrow ((v1\_funct\_2 \\ & X2 X0 X1) \Leftrightarrow (X2 = k1\_xboole\_0)))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1))) \Rightarrow ((v4\_relat\_1 X2 X0) \wedge (v5\_relat\_1 X2 X1)) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.(v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 \\ & X0)) \Rightarrow (v1\_xboole\_0 X1)) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1))) \Rightarrow (v1\_relat\_1 X2) \end{aligned} \quad (19)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v6\_metric\_1 X0) \wedge ((v7\_metric\_1 \\ & X0) \wedge ((v8\_metric\_1 X0) \wedge ((v9\_metric\_1 X0) \wedge (l1\_metric\_1 X0)))))) \Rightarrow \\ & (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 (u1\_struct\_0 (k3\_pcomps\_1 \\ & X0)))) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((X2 \in X1) \Rightarrow \\ & (k6\_numbers \in k7\_relset\_1 (u1\_struct\_0 (k3\_pcomps\_1 X0)) (u1\_struct\_0 \\ & k3\_topmetr) (k4\_weierstr X0 X2) X1)))) \end{aligned}$$