

t12\_metric\_1  
(TMZNC2HCeaSz9cCQxuj1L6LBGnCkYgz9hJ3)

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Let  $v1\_xreal\_0 : \iota \Rightarrow o$  be given. Let  $l1\_metric\_1 : \iota \Rightarrow o$  be given. Let  $m1\_subset\_1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k10\_metric\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $r1\_xxreal\_0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_metric\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. \neg (X0 \in X1) \wedge (v1\_xboole\_0 X1) \quad (1)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((l1\_metric\_1 X0) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge (v1\_xreal\_0 X2))) \Rightarrow (m1\_subset\_1 (k10\_metric\_1 X0 X1 X2) (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \quad (2)$$

Assume the following.

$$\forall X0. (l1\_metric\_1 X0) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. (v1\_xreal\_0 X2) \Rightarrow (\forall X3. (m1\_subset\_1 X3 (k1\_zfmisc\_1 (u1\_struct\_0 X0)))) \Rightarrow (((\neg v2\_struct\_0 X0) \Rightarrow ((X3 = k10\_metric\_1 X0 X1 X2) \Leftrightarrow (X3 = ReplSep (toset (\lambda X4 : \iota. m1\_subset\_1 X4 (u1\_struct\_0 X0))) (\lambda X4 : \iota. r1\_xxreal\_0 (k2\_metric\_1 X0 X1 X4) X2) (\lambda X4 : \iota. X4)))) \wedge ((v2\_struct\_0 X0) \Rightarrow ((X3 = k10\_metric\_1 X0 X1 X2) \Leftrightarrow (v1\_xboole\_0 X3)))))))) \quad (3)$$

**Theorem 1**

$$\forall X0. (v1\_xreal\_0 X0) \Rightarrow (\forall X1. (l1\_metric\_1 X1) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X1)) \Rightarrow (\forall X3. (m1\_subset\_1 X3 (u1\_struct\_0 X1)) \Rightarrow ((X3 \in k10\_metric\_1 X1 X2 X0) \Leftrightarrow ((\neg v2\_struct\_0 X1) \wedge (r1\_xxreal\_0 (k2\_metric\_1 X1 X2 X3) X0))))))$$