

## t21\_metric\_2

(TMZRWkccKan7jgudVSkw5vVnhRrQsXdAfH2)

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Let  $v2\_struct\_0 : \iota \Rightarrow o$  be given. Let  $v6\_metric\_1 : \iota \Rightarrow o$  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  $k2\_metric\_2 : \iota \Rightarrow \iota$  be given. Let  $k1\_numbers : \iota$  be given. Let  $r4\_metric\_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $u1\_struct\_0 : \iota \Rightarrow \iota$  be given. Let  $k4\_metric\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v1\_xboole\_0 : \iota \Rightarrow o$  be given. Let  $k1\_zfmisc\_1 : \iota \Rightarrow \iota$  be given. Let  $k1\_metric\_2 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_metric\_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

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

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 X2))) \Rightarrow (m1\_subset\_1 X0 X2) \quad (2)$$

Assume the following.

$$\forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v6\_metric\_1 X0) \wedge ((v8\_metric\_1 X0) \wedge ((v9\_metric\_1 X0) \wedge (l1\_metric\_1 X0))))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (X1 \in k1\_metric\_2 X0 X1)) \quad (3)$$

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.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v6\_metric\_1 X0) \wedge ((v8\_metric\_1 X0) \wedge ((v9\_metric\_1 X0) \wedge (l1\_metric\_1 X0))))) \Rightarrow (\forall X1. (m1\_subset\_1 X1 (k2\_metric\_2 X0)) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (k2\_metric\_2 X0)) \Rightarrow (\forall X3. (m1\_subset\_1 X3 (u1\_struct\_0 X0)) \Rightarrow (\forall X4. (m1\_subset\_1 X4 (u1\_struct\_0 X0)) \Rightarrow (\forall X5. (m1\_subset\_1 X5 (u1\_struct\_0 X0)) \Rightarrow (\forall X6. (m1\_subset\_1 X6 (u1\_struct\_0 X0)) \Rightarrow (((X3 \in X1) \wedge ((X5 \in X2) \wedge ((X4 \in X1) \wedge (X6 \in X2)))) \Rightarrow (k4\_metric\_1 X0 X3 X5 = k4\_metric\_1 X0 X4 X6)))))))))) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(X0 \in X1) \Rightarrow (m1\_subset\_1 X0 X1) \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v2\_struct\_0 X1) \wedge (l1\_metric\_1 X1)) \Rightarrow \\ & ((X0 \in k2\_metric\_2 X1) \Leftrightarrow (\exists X2.(m1\_subset\_1 X2 (u1\_struct\_0 \\ & X1)) \wedge (X0 = k1\_metric\_2 X1 X2))) \end{aligned} \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v8\_metric\_1 X0) \wedge (l1\_metric\_1 \\ & X0)) \wedge ((m1\_subset\_1 X1 (u1\_struct\_0 X0)) \wedge (m1\_subset\_1 X2 (u1\_struct\_0 \\ & X0)))) \Rightarrow (k4\_metric\_1 X0 X1 X2 = k2\_metric\_1 X0 X1 X2) \end{aligned} \quad (8)$$

Assume the following.

$$\forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_metric\_1 X0)) \Rightarrow (\neg v1\_xboole\_0 (k2\_metric\_2 X0)) \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2\_struct\_0 X0) \wedge (l1\_metric\_1 X0)) \wedge \\ & (m1\_subset\_1 X1 (u1\_struct\_0 X0))) \Rightarrow (m1\_subset\_1 (k1\_metric\_2 \\ & X0 X1) (k1\_zfmisc\_1 (u1\_struct\_0 X0))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge (l1\_metric\_1 X0)) \Rightarrow (\forall X1. \\ & (m1\_subset\_1 X1 (k2\_metric\_2 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 \\ & (k2\_metric\_2 X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 k1\_numbers) \Rightarrow ( \\ & (r4\_metric\_2 X0 X1 X2 X3) \Leftrightarrow (\forall X4.(m1\_subset\_1 X4 (u1\_struct\_0 \\ & X0)) \Rightarrow (\forall X5.(m1\_subset\_1 X5 (u1\_struct\_0 X0)) \Rightarrow (((X4 \in X1) \wedge \\ & (X5 \in X2)) \Rightarrow (k2\_metric\_1 X0 X4 X5 = X3)))))))))) \end{aligned} \quad (11)$$

**Theorem 1**

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v6\_metric\_1 X0) \wedge ((v8\_metric\_1 \\ & X0) \wedge ((v9\_metric\_1 X0) \wedge (l1\_metric\_1 X0)))))) \Rightarrow (\forall X1.(m1\_subset\_1 \\ & X1 (k2\_metric\_2 X0)) \Rightarrow (\forall X2.(m1\_subset\_1 X2 (k2\_metric\_2 \\ & X0)) \Rightarrow (\forall X3.(m1\_subset\_1 X3 k1\_numbers) \Rightarrow ((r4\_metric\_2 \\ & X0 X1 X2 X3) \Leftrightarrow (\exists X4.(m1\_subset\_1 X4 (u1\_struct\_0 X0)) \wedge (\exists X5. \\ & (m1\_subset\_1 X5 (u1\_struct\_0 X0)) \wedge ((X4 \in X1) \wedge ((X5 \in X2) \wedge (k4\_metric\_1 \\ & X0 X4 X5 = X3)))))))))) \end{aligned}$$