

## t9\_metric\_6

(TMc4TD4EWSuByd641N8padhARNpYPHFmX57)

October 27, 2020

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  $u1\_struct.0 : \iota \Rightarrow \iota$  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  $k5\_numbers : \iota$  be given. Let  $k1\_zfmisc.1 : \iota \Rightarrow \iota$  be given. Let  $k2\_zfmisc.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $r1\_metric.6 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v2\_tbsp.1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole.0 : \iota \Rightarrow o$  be given. Let  $m2\_subset.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k8\_nat.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k2\_tbsp.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k1\_numbers : \iota$  be given. Let  $r1\_xxreal.0 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k6\_numbers : \iota$  be given. Let  $k2\_metric.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1\_xboole.0 X0) \wedge ((\neg v1\_xboole.0 X1) \wedge \\ & (m1\_subset.1 X1 (k1\_zfmisc.1 X0)))) \Rightarrow (\forall X2. (m2\_subset.1 \\ & X2 X0 X1) \Leftrightarrow (m1\_subset.1 X2 X1)) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((v1\_funct.1 X1) \wedge ((v1\_funct.2 \\ & X1 k5\_numbers X0) \wedge (m1\_subset.1 X1 (k1\_zfmisc.1 (k2\_zfmisc.1 k5\_numbers \\ & X0)))) \wedge (v7\_ordinal1 X2)) \Rightarrow (k8\_nat.1 X0 X1 X2 = k1\_funct.1 X1 X2)) \end{aligned} \quad (2)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. (((\neg v2\_struct.0 X0) \wedge (l1\_metric.1 \\ & X0)) \wedge (((v1\_funct.1 X1) \wedge ((v1\_funct.2 X1 k5\_numbers (u1\_struct.0 \\ & X0)) \wedge (m1\_subset.1 X1 (k1\_zfmisc.1 (k2\_zfmisc.1 k5\_numbers (u1\_struct.0 \\ & X0)))))) \wedge (m1\_subset.1 X2 k5\_numbers))) \Rightarrow (k2\_tbsp.1 X0 X1 X2 = k1\_funct.1 \\ & X1 X2) \end{aligned} \quad (4)$$

Assume the following.

$$(\neg v1\_xboole\_0 k4\_ordinal1) \wedge (v3\_ordinal1 k4\_ordinal1) \quad (5)$$

Assume the following.

$$\neg v1\_xboole\_0 k1\_numbers \quad (6)$$

Assume the following.

$$m1\_subset\_1 k5\_numbers (k1\_zfmisc\_1 k1\_numbers) \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_metric\_1 X0)) \Rightarrow (\forall X1. \\ & ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 X0)) \wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\ & X0)))))) \Rightarrow ((v2\_tbsp\_1 X1 X0) \Leftrightarrow (\exists X2. (m1\_subset\_1 X2 (u1\_struct\_0 \\ & X0)) \wedge (\forall X3. (m1\_subset\_1 X3 k1\_numbers) \Rightarrow (\neg(\neg r1\_xxreal\_0 \\ & X3 k6\_numbers) \wedge (\forall X4. (m2\_subset\_1 X4 k1\_numbers k5\_numbers) \Rightarrow \\ & (\exists X5. (m2\_subset\_1 X5 k1\_numbers k5\_numbers) \wedge ((r1\_xxreal\_0 \\ & X4 X5) \wedge (r1\_xxreal\_0 X3 (k2\_metric\_1 X0 (k8\_nat\_1 (u1\_struct\_0 \\ & X0) X1 X5) X2)))))))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge (l1\_metric\_1 X0)) \Rightarrow (\forall X1. \\ & ((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 X1 k5\_numbers (u1\_struct\_0 X0)) \wedge \\ & (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\ & X0)))))) \Rightarrow (\forall X2. (m1\_subset\_1 X2 (u1\_struct\_0 X0)) \Rightarrow ((r1\_metric\_6 \\ & X0 X1 X2) \Leftrightarrow (\forall X3. (m1\_subset\_1 X3 k1\_numbers) \Rightarrow (\neg(\neg r1\_xxreal\_0 \\ & X3 k6\_numbers) \wedge (\forall X4. (m2\_subset\_1 X4 k1\_numbers k5\_numbers) \Rightarrow \\ & (\exists X5. (m2\_subset\_1 X5 k1\_numbers k5\_numbers) \wedge ((r1\_xxreal\_0 \\ & X4 X5) \wedge (r1\_xxreal\_0 X3 (k2\_metric\_1 X0 (k2\_tbsp\_1 X0 X1 X5) X2)))))))))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0. (m1\_subset\_1 X0 k4\_ordinal1) \Rightarrow (v7\_ordinal1 X0) \quad (10)$$

### Theorem 1

$$\begin{aligned} & \forall X0. ((\neg v2\_struct\_0 X0) \wedge ((v6\_metric\_1 X0) \wedge ((v7\_metric\_1 \\ & X0) \wedge ((v8\_metric\_1 X0) \wedge ((v9\_metric\_1 X0) \wedge (l1\_metric\_1 X0)))))) \Rightarrow \\ & (\forall X1. (m1\_subset\_1 X1 (u1\_struct\_0 X0)) \Rightarrow (\forall X2. (( \\ & v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 k5\_numbers (u1\_struct\_0 X0)) \wedge \\ & (m1\_subset\_1 X2 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers (u1\_struct\_0 \\ & X0)))))) \Rightarrow ((r1\_metric\_6 X0 X2 X1) \Rightarrow (v2\_tbsp\_1 X2 X0)))) \end{aligned}$$