

t14_metric_1
(TMbinrTHq8TBrPexHshHo5u3jWfTo2nXSd7)

October 27, 2020

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 $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k9_metric_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_metric_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ 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 $v3_membered : \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $l1_struct_0 : \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $u1_metric_1 : \iota \Rightarrow \iota$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_metric_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_xxreal_0 : \iota \Rightarrow o$ be given. Let $v2_membered : \iota \Rightarrow o$ be given. Assume the following.

$$\forall X0. \forall X1. \forall X2. \neg(X0 \in X1) \wedge ((m1_subset_1 X1 (k1_zfmisc_1 X2)) \wedge (v1_xboole_0 X2)) \quad (1)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. (m1_subset_1 X1 (k1_zfmisc_1 X0)) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (k1_zfmisc_1 X0)) \Rightarrow ((\forall X3. (m1_subset_1 X3 X0) \Rightarrow ((X3 \in X1) \Rightarrow (X3 \in X2))) \Rightarrow (r1_tarski X1 X2))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. (v1_xreal_0 X0) \Rightarrow (\forall X1. (l1_metric_1 X1) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X1)) \Rightarrow (\forall X3. (m1_subset_1 X3 \\ & (u1_struct_0 X1)) \Rightarrow ((X3 \in k9_metric_1 X1 X2 X0) \Leftrightarrow ((\neg v2_struct_0 X1) \wedge (\neg r1_xxreal_0 X0 (k2_metric_1 X1 X2 X3))))))) \end{aligned} \quad (3)$$

Assume the following.

$$v3_membered k1_numbers \quad (4)$$

Assume the following.

$$\forall X0. ((v2_struct_0 X0) \wedge (l1_struct_0 X0)) \Rightarrow (v1_xboole_0 (u1_struct_0 X0)) \quad (5)$$

Assume the following.

$$\begin{aligned} \forall X0. (&l1_metric_1 X0) \Rightarrow ((v1_funct_1 (u1_metric_1 X0)) \wedge \\ &((v1_funct_2 (u1_metric_1 X0) (k2_zfmisc_1 (u1_struct_0 X0) (\\ &u1_struct_0 X0)) k1_numbers) \wedge (m1_subset_1 (u1_metric_1 X0) (\\ &k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (u1_struct_0 X0) (u1_struct_0 \\ &X0)) k1_numbers)))))) \end{aligned} \quad (6)$$

Assume the following.

$$\forall X0. (l1_metric_1 X0) \Rightarrow (l1_struct_0 X0) \quad (7)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (&(l1_metric_1 X0) \wedge ((m1_subset_1 \\ X1 (u1_struct_0 X0)) \wedge (v1_xreal_0 X2))) \Rightarrow &(m1_subset_1 (k9_metric_1 \\ X0 X1 X2) (k1_zfmisc_1 (u1_struct_0 X0))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. (&((v1_funct_1 \\ X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X0 \\ X1) k1_numbers)))) \wedge ((m1_subset_1 X3 X0) \wedge (m1_subset_1 X4 X1))) \Rightarrow \\ &(m1_subset_1 (k1_metric_1 X0 X1 X2 X3 X4) k1_numbers) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0. \forall X1. \forall X2. (&(l1_metric_1 X0) \wedge ((m1_subset_1 \\ X1 (u1_struct_0 X0)) \wedge (v1_xreal_0 X2))) \Rightarrow &(m1_subset_1 (k10_metric_1 \\ X0 X1 X2) (k1_zfmisc_1 (u1_struct_0 X0))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} \forall X0. (l1_metric_1 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 \\ X0)) \Rightarrow (\forall X2. (m1_subset_1 X2 (u1_struct_0 X0)) \Rightarrow (k2_metric_1 \\ X0 X1 X2 = k1_metric_1 (u1_struct_0 X0) (u1_struct_0 X0) (u1_metric_1 \\ X0) X1 X2))) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} \forall X0. (l1_metric_1 X0) \Rightarrow (\forall X1. (m1_subset_1 X1 (u1_struct_0 \\ X0)) \Rightarrow (\forall X2. (v1_xreal_0 X2) \Rightarrow (\forall X3. (m1_subset_1 X3 \\ (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (((\neg v2_struct_0 X0) \Rightarrow ((X3 = k10_metric_1 \\ X0 X1 X2) \Leftrightarrow (X3 = ReplSep (toset (\lambda X4 : \iota. m1_subset_1 X4 (u1_struct_0 \\ X0))) (\lambda X4 : \iota. r1_xxreal_0 (k2_metric_1 X0 X1 X4) X2) (\lambda X4 : \\ \iota. X4)))) \wedge ((v2_struct_0 X0) \Rightarrow ((X3 = k10_metric_1 X0 X1 X2) \Leftrightarrow (v1_xboole_0 \\ X3)))))))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_metric_1 X0) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & X0)) \Rightarrow (\forall X2.(v1_xreal_0 X2) \Rightarrow (\forall X3.(m1_subset_1 X3 \\ & (k1_zfmisc_1 (u1_struct_0 X0))) \Rightarrow (((\neg v2_struct_0 X0) \Rightarrow ((X3 = k9_metric_1 \\ & X0 X1 X2) \Leftrightarrow (X3 = ReplSep (toset (\lambda X4 : \iota.m1_subset_1 X4 (u1_struct_0 \\ & X0))) (\lambda X4 : \iota.\neg r1_xxreal_0 X2 (k2_metric_1 X0 X1 X4)) (\lambda X4 : \\ & \iota.X4)))) \wedge ((v2_struct_0 X0) \Rightarrow ((X3 = k9_metric_1 X0 X1 X2) \Leftrightarrow (v1_xboole_0 \\ & X3))))))))) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.((v1_xxreal_0 X0) \wedge (v1_xxreal_0 X1)) \Rightarrow (r1_xxreal_0 X0 X1) \vee (r1_xxreal_0 X1 X0) \quad (14)$$

Assume the following.

$$\forall X0.(v1_xreal_0 X0) \Rightarrow (v1_xxreal_0 X0) \quad (15)$$

Assume the following.

$$\forall X0.(v3_membered X0) \Rightarrow (v2_membered X0) \quad (16)$$

Assume the following.

$$\forall X0.(v2_membered X0) \Rightarrow (\forall X1.(m1_subset_1 X1 X0) \Rightarrow (v1_xxreal_0 X1)) \quad (17)$$

Theorem 1

$$\begin{aligned} & \forall X0.(v1_xreal_0 X0) \Rightarrow (\forall X1.(l1_metric_1 X1) \Rightarrow (\forall X2. \\ & (m1_subset_1 X2 (u1_struct_0 X1)) \Rightarrow (r1_tarski (k9_metric_1 X1 \\ & X2 X0) (k10_metric_1 X1 X2 X0)))) \end{aligned}$$