

t20_ndiff_4

(TMG74QwYc9ZT7uWroTpmrs4cx7ubhytEdXY)

October 27, 2020

Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_numbers : \iota$ be given. Let $k5_numbers : \iota$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_euclid : \iota \Rightarrow \iota$ be given. Let $r2_ndiff_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_nfcont_4 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_partfun1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k4_real_ns1 : \iota \Rightarrow \iota$ be given. Let $v1_xreal_0 : \iota \Rightarrow o$ be given. Let $r1_ndiff_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_ndiff_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_nfcont_3 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v7_struct_0 : \iota \Rightarrow o$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v2_rlvect_1 : \iota \Rightarrow o$ be given. Let $v3_rlvect_1 : \iota \Rightarrow o$ be given. Let $v4_rlvect_1 : \iota \Rightarrow o$ be given. Let $v5_rlvect_1 : \iota \Rightarrow o$ be given. Let $v6_rlvect_1 : \iota \Rightarrow o$ be given. Let $v7_rlvect_1 : \iota \Rightarrow o$ be given. Let $v8_rlvect_1 : \iota \Rightarrow o$ be given. Let $v3_normsp_0 : \iota \Rightarrow o$ be given. Let $v4_normsp_0 : \iota \Rightarrow o$ be given. Let $v2_normsp_1 : \iota \Rightarrow o$ be given. Let $l1_normsp_1 : \iota \Rightarrow o$ be given. Let $r2_ndiff_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_ordinal1 : \iota$ be given. Let $k5_relat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v1_relat_1 : \iota \Rightarrow o$ be given. Let $v3_ordinal1 : \iota \Rightarrow o$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $v1_normsp_1 : \iota \Rightarrow o$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k5_euclid : \iota \Rightarrow \iota$ be given. Let $r1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_algstr_0 : \iota \Rightarrow \iota$ be given. Let $k1_real_ns1 : \iota \Rightarrow \iota$ be given. Let $u1_rlvect_1 : \iota \Rightarrow \iota$ be given. Let $k2_real_ns1 : \iota \Rightarrow \iota$ be given. Let $u1_normsp_0 : \iota \Rightarrow \iota$ be given. Let $k3_real_ns1 : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0. ((\neg v1_xboole_0 X0) \wedge (m2_subset_1 X0 k1_numbers k5_numbers)) \Rightarrow \\
 & (\forall X1. ((v1_funct_1 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 \\
 & \quad k1_numbers (k1_euclid X0)))))) \Rightarrow (\forall X2. ((v1_funct_1 X2) \wedge \\
 & (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers (u1_struct_0 \\
 & \quad (k4_real_ns1 X0)))))) \Rightarrow (\forall X3. (v1_xreal_0 X3) \Rightarrow ((X2 = X1) \Rightarrow \\
 & ((r1_ndiff_4 X0 X1 X3) \Leftrightarrow (r1_ndiff_3 (k4_real_ns1 X0) X2 X3))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0.(m2_subset_1 X0 k1_numbers k5_numbers) \Rightarrow (\forall X1. \\ & ((v1_funct_1 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers \\ & (u1_struct_0 (k4_real_ns1 X0)))))) \Rightarrow (\forall X2. ((v1_funct_1 \\ & X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers (k1_euclid \\ & X0)))))) \Rightarrow ((X1 = X2) \Rightarrow ((v1_nfcont_3 X1 (k4_real_ns1 X0)) \Leftrightarrow (v1_nfcont_4 \\ & X2 X0)))) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((\neg v2_struct_0 X0) \wedge ((\neg v7_struct_0 X0) \wedge ((v13_algstr_0 \\ & X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 X0) \wedge ((v4_rlvect_1 X0) \wedge \\ & ((v5_rlvect_1 X0) \wedge ((v6_rlvect_1 X0) \wedge ((v7_rlvect_1 X0) \wedge ((v8_rlvect_1 \\ & X0) \wedge ((v3_normsp_0 X0) \wedge ((v4_normsp_0 X0) \wedge ((v2_normsp_1 X0) \wedge \\ & (l1_normsp_1 X0)))))))))))))) \Rightarrow (\forall X1. \forall X2. ((v1_funct_1 \\ & X2) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 k1_numbers (u1_struct_0 \\ & X0)))))) \Rightarrow ((r2_ndif3 X0 X2 X1) \Rightarrow (v1_nfcont_3 (k2_partfun1 k1_numbers \\ & (u1_struct_0 X0) X2 X1) X0))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge \\ & (m1_subset_1 X1 (k1_zfmisc_1 X0)))) \Rightarrow (\forall X2. (m2_subset_1 \\ & X2 X0 X1) \Leftrightarrow (m1_subset_1 X2 X1)) \end{aligned} \quad (4)$$

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((v1_funct_1 X2) \wedge \\ & (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))) \Rightarrow (k2_partfun1 \\ & X0 X1 X2 X3 = k5_relat_1 X2 X3) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. ((v1_relat_1 X0) \wedge (v1_funct_1 X0)) \Rightarrow ((v1_relat_1 \\ & (k5_relat_1 X0 X1)) \wedge (v1_funct_1 (k5_relat_1 X0 X1))) \end{aligned} \quad (7)$$

Assume the following.

$$(\neg v1_xboole_0 k4_ordinal1) \wedge (v3_ordinal1 k4_ordinal1) \quad (8)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7_ordinal1\ X0) \Rightarrow & ((\neg v2_struct_0\ (k4_real_ns1\ X0)) \wedge \\ & ((v13_algstr_0\ (k4_real_ns1\ X0)) \wedge ((v2_rlvect_1\ (k4_real_ns1 \\ & X0)) \wedge ((v3_rlvect_1\ (k4_real_ns1\ X0)) \wedge ((v4_rlvect_1\ (k4_real_ns1 \\ & X0)) \wedge ((v5_rlvect_1\ (k4_real_ns1\ X0)) \wedge ((v6_rlvect_1\ (k4_real_ns1 \\ & X0)) \wedge ((v7_rlvect_1\ (k4_real_ns1\ X0)) \wedge ((v8_rlvect_1\ (k4_real_ns1 \\ & X0)) \wedge ((v3_normsp_0\ (k4_real_ns1\ X0)) \wedge ((v4_normsp_0\ (k4_real_ns1 \\ & X0)) \wedge ((v1_normsp_1\ (k4_real_ns1\ X0)) \wedge (v2_normsp_1\ (k4_real_ns1 \\ & X0))))))))))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v1_xboole_0\ X0) \wedge (v7_ordinal1\ X0)) \Rightarrow & ((\neg v2_struct_0 \\ & (k4_real_ns1\ X0)) \wedge ((\neg v7_struct_0\ (k4_real_ns1\ X0)) \wedge (v1_normsp_1 \\ & (k4_real_ns1\ X0)))) \end{aligned} \quad (10)$$

Assume the following.

$$\neg v1_xboole_0\ k1_numbers \quad (11)$$

Assume the following.

$$m1_subset_1\ k5_numbers\ (k1_zfmisc_1\ k1_numbers) \quad (12)$$

Assume the following.

$$\begin{aligned} \forall X0.(v7_ordinal1\ X0) \Rightarrow & ((\neg v2_struct_0\ (k4_real_ns1\ X0)) \wedge \\ & ((v1_normsp_1\ (k4_real_ns1\ X0)) \wedge (l1_normsp_1\ (k4_real_ns1\ X0)))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.((v1_funct_1\ X2) \wedge \\ & (m1_subset_1\ X2\ (k1_zfmisc_1\ (k2_zfmisc_1\ X0\ X1)))) \Rightarrow ((v1_funct_1 \\ & (k2_partfun1\ X0\ X1\ X2\ X3)) \wedge (m1_subset_1\ (k2_partfun1\ X0\ X1\ X2\ X3) \\ & (k1_zfmisc_1\ (k2_zfmisc_1\ X0\ X1)))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0\ X0) \wedge ((\neg v7_struct_0\ X0) \wedge ((v13_algstr_0 \\ & X0) \wedge ((v2_rlvect_1\ X0) \wedge ((v3_rlvect_1\ X0) \wedge ((v4_rlvect_1\ X0) \wedge \\ & ((v5_rlvect_1\ X0) \wedge ((v6_rlvect_1\ X0) \wedge ((v7_rlvect_1\ X0) \wedge ((v8_rlvect_1 \\ & X0) \wedge ((v3_normsp_0\ X0) \wedge ((v4_normsp_0\ X0) \wedge ((v2_normsp_1\ X0) \wedge \\ & (l1_normsp_1\ X0))))))))))))) \Rightarrow (\forall X1.((v1_funct_1\ X1) \wedge \\ & (m1_subset_1\ X1\ (k1_zfmisc_1\ (k2_zfmisc_1\ k1_numbers\ (u1_struct_0 \\ & X0)))))) \Rightarrow (\forall X2.(r2_ndiff_3\ X0\ X1\ X2) \Leftrightarrow ((r1_tarski\ X2\ (k1_relset_1 \\ & k1_numbers\ X1)) \wedge (\forall X3.(m1_subset_1\ X3\ k1_numbers) \Rightarrow ((X3 \in \\ & X2) \Rightarrow (r1_ndiff_3\ X0\ (k2_partfun1\ k1_numbers\ (u1_struct_0\ X0)\ X1 \\ & X2)\ X3)))))) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned}
& \forall X0.(v7_ordinal1\ X0) \Rightarrow (\forall X1.((\neg v2_struct_0\ X1) \wedge \\
& ((v1_normsp_1\ X1) \wedge (l1_normsp_1\ X1))) \Rightarrow ((X1 = k4_real_ns1\ X0) \Leftrightarrow \\
& ((u1_struct_0\ X1 = k1_euclid\ X0) \wedge ((k4_struct_0\ X1 = k5_euclid\ X0) \wedge \\
& ((r1_funct_2\ (k2_zfmisc_1\ (u1_struct_0\ X1)\ (u1_struct_0\ X1)) \\
& (u1_struct_0\ X1)\ (k2_zfmisc_1\ (k1_euclid\ X0)\ (k1_euclid\ X0))\ (\\
& k1_euclid\ X0)\ (u1_algstr_0\ X1)\ (k1_real_ns1\ X0)) \wedge ((r1_funct_2 \\
& (k2_zfmisc_1\ k1_numbers\ (u1_struct_0\ X1))\ (u1_struct_0\ X1)\ (k2_zfmisc_1 \\
& k1_numbers\ (k1_euclid\ X0))\ (k1_euclid\ X0)\ (u1_rlvect_1\ X1)\ (k2_real_ns1 \\
& X0)) \wedge (r1_funct_2\ (u1_struct_0\ X1)\ k1_numbers\ (k1_euclid\ X0)\ k1_numbers \\
& (u1_normsp_0\ X1)\ (k3_real_ns1\ X0))))))
\end{aligned} \tag{16}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1_xboole_0\ X0) \wedge (m2_subset_1\ X0\ k1_numbers\ k5_numbers)) \Rightarrow \\
& (\forall X1.((v1_funct_1\ X1) \wedge (m1_subset_1\ X1\ (k1_zfmisc_1\ (k2_zfmisc_1 \\
& k1_numbers\ (k1_euclid\ X0)))))) \Rightarrow (\forall X2.(r2_ndiff_4\ X0\ X1\ X2) \Leftrightarrow \\
& ((r1_tarski\ X2\ (k1_relset_1\ k1_numbers\ X1)) \wedge (\forall X3.(m1_subset_1 \\
& X3\ k1_numbers) \Rightarrow ((X3 \in X2) \Rightarrow (r1_ndiff_4\ X0\ (k2_partfun1\ k1_numbers \\
& (k1_euclid\ X0)\ X1\ X2)\ X3))))))
\end{aligned} \tag{17}$$

Assume the following.

$$\forall X0.(m1_subset_1\ X0\ k4_ordinal1) \Rightarrow (v7_ordinal1\ X0) \tag{18}$$

Assume the following.

$$\forall X0.(m1_subset_1\ X0\ k1_numbers) \Rightarrow (v1_xreal_0\ X0) \tag{19}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.(m1_subset_1\ X2\ (k1_zfmisc_1 \\
(k2_zfmisc_1\ X0\ X1))) \Rightarrow (v1_relat_1\ X2) \tag{20}$$

Theorem 1

$$\begin{aligned}
& \forall X0.\forall X1.((\neg v1_xboole_0\ X1) \wedge (m2_subset_1\ X1\ k1_numbers \\
& k5_numbers)) \Rightarrow (\forall X2.((v1_funct_1\ X2) \wedge (m1_subset_1\ X2\ (\\
& k1_zfmisc_1\ (k2_zfmisc_1\ k1_numbers\ (k1_euclid\ X1)))))) \Rightarrow ((r2_ndiff_4 \\
& X1\ X2\ X0) \Rightarrow (v1_nfcont_4\ (k2_partfun1\ k1_numbers\ (k1_euclid\ X1) \\
& X2\ X0)\ X1)))
\end{aligned}$$