

t10_catalg_1 (TM-
cZZV4L4jyYruTTyw6xVkuic1MGRgwEWEn)

October 27, 2020

Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m1_catalg_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k5_catalg_1 : \iota \Rightarrow \iota$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k6_catalg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k7_catalg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $r1_tarski : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_finseq_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_3 : \iota$ be given. Let $k11_finseq_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_2 : \iota$ be given. Let $k10_finseq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $k9_finseq_1 : \iota \Rightarrow \iota$ be given. Let $v1_instalg1 : \iota \Rightarrow o$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $m1_instalg1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $v1_msualg_1 : \iota \Rightarrow o$ be given. Let $k2_catalg_1 : \iota \Rightarrow \iota$ be given. Let $k6_numbers : \iota$ be given. Let $k2_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_xboole_0 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_msualg_1 : \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $u2_msualg_1 : \iota \Rightarrow \iota$ be given. Assume the following.

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

Assume the following.

$$\forall X0. \forall X1. \forall X2. \neg (X0 \in X1) \wedge ((m1_subset_1 X1 (k1_zfmisc_1 X2)) \wedge (v1_xboole_0 X2)) \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. \forall X2. ((X0 \in X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 X2))) \Rightarrow (m1_subset_1 X0 X2) \quad (3)$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarski X0 X1) \quad (4)$$

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (5)$$

Assume the following.

$$\forall X0.\forall X1.(X1 \in k4_finseq_2\ np_3\ X0) \Leftrightarrow (\exists X2. \exists X3.\exists X4.(X2 \in X0) \wedge ((X3 \in X0) \wedge ((X4 \in X0) \wedge (X1 = k11_finseq_1\ X2\ X3\ X4)))) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(X1 \in k4_finseq_2\ np_2\ X0) \Leftrightarrow (\exists X2. \exists X3.(X2 \in X0) \wedge ((X3 \in X0) \wedge (X1 = k10_finseq_1\ X2\ X3))) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(X1 \in k4_finseq_2\ np_1\ X0) \Leftrightarrow (\exists X2. (X2 \in X0) \wedge (X1 = k9_finseq_1\ X2)) \quad (8)$$

Assume the following.

$$\forall X0.((v1_instalg1\ X0) \wedge (l1_msualg_1\ X0)) \Rightarrow (\forall X1. (m1_instalg1\ X1\ X0) \Rightarrow ((r1_tarski\ (u1_struct_0\ X1)\ (u1_struct_0\ X0)) \wedge (r1_tarski\ (u4_struct_0\ X1)\ (u4_struct_0\ X0)))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.(k4_tarski\ X0\ X1 \in k2_zfmisc_1\ (k1_tarski\ X2)\ X3) \Leftrightarrow ((X0 = X2) \wedge (X1 \in X3)) \quad (10)$$

Assume the following.

$$\forall X0.\forall X1.(m1_catalg_1\ X1\ X0) \Rightarrow ((v1_instalg1\ X1) \wedge (l1_msualg_1\ X1)) \quad (11)$$

Assume the following.

$$\forall X0.(v1_msualg_1\ (k2_catalg_1\ X0)) \wedge (l1_msualg_1\ (k2_catalg_1\ X0)) \quad (12)$$

Assume the following.

$$\forall X0.\forall X1.k6_catalg_1\ X0\ X1 = k4_tarski\ k6_numbers\ (k10_finseq_1\ X0\ X1) \quad (13)$$

Assume the following.

$$\forall X0.k5_catalg_1\ X0 = k4_tarski\ np_1\ (k9_finseq_1\ X0) \quad (14)$$

Assume the following.

$$\forall X0.\forall X1.k4_tarski\ X0\ X1 = k2_tarski\ (k2_tarski\ X0\ X1)\ (k1_tarski\ X0) \quad (15)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_instal\!g_1 X1)\wedge(l1_msual\!g_1 X1))\Rightarrow(\\ & (m1_catal\!g_1 X1 X0)\Leftrightarrow((m1_instal\!g_1 (k2_catal\!g_1 X0) X1)\wedge(u1_struct_0 \\ & X1 = k2_zfmisc_1 (k1_tarski k6_numbers) (k4_finseq_2 np_2 X0)))) \end{aligned} \quad (16)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(X2 = k2_xboole_0 X0 X1)\Leftrightarrow(\forall X3. \\ & (X3 \in X2)\Leftrightarrow((X3 \in X0)\vee(X3 \in X1))) \end{aligned} \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v1_msual\!g_1 X1)\wedge(l1_msual\!g_1 X1))\Rightarrow(\\ & (X1 = k2_catal\!g_1 X0)\Leftrightarrow((u1_struct_0 X1 = k2_zfmisc_1 (k1_tarski \\ & k6_numbers) (k4_finseq_2 np_2 X0))\wedge((u4_struct_0 X1 = k2_xboole_0 \\ & (k2_zfmisc_1 (k1_tarski np_1) (k4_finseq_2 np_1 X0)) (k2_zfmisc_1 \\ & (k1_tarski np_2) (k4_finseq_2 np_3 X0)))\wedge(\forall X2.(X2 \in \\ & X0)\Rightarrow((k1_funct_1 (u1_msual\!g_1 X1) (k4_tarski np_1 (k9_finseq_1 \\ & X2)) = k1_xboole_0)\wedge(k1_funct_1 (u2_msual\!g_1 X1) (k4_tarski np_1 \\ & (k9_finseq_1 X2)) = k4_tarski k6_numbers (k10_finseq_1 X2 X2))))\wedge \\ & (\forall X2.\forall X3.\forall X4.((X2 \in X0)\wedge((X3 \in X0)\wedge(X4 \in X0)))\Rightarrow \\ & ((k1_funct_1 (u1_msual\!g_1 X1) (k4_tarski np_2 (k11_finseq_1 \\ & X2 X3 X4)) = k10_finseq_1 (k4_tarski k6_numbers (k10_finseq_1 X3 \\ & X4)) (k4_tarski k6_numbers (k10_finseq_1 X2 X3)))\wedge(k1_funct_1 \\ & (u2_msual\!g_1 X1) (k4_tarski np_2 (k11_finseq_1 X2 X3 X4)) = k4_tarski \\ & k6_numbers (k10_finseq_1 X2 X4)))))) \end{aligned} \quad (18)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.k7_catal\!g_1 X0 X1 X2 = k4_tarski \\ & np_2 (k11_finseq_1 X0 X1 X2) \end{aligned} \quad (19)$$

Assume the following.

$$\forall X0.\forall X1.k2_tarski X0 X1 = k2_tarski X1 X0 \quad (20)$$

Theorem 1

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.(m1_catal\!g_1 X1 X0)\Rightarrow \\ & (\forall X2.(m1_subset_1 X2 X0)\Rightarrow((k5_catal\!g_1 X2 \in u4_struct_0 \\ & X1)\wedge(\forall X3.(m1_subset_1 X3 X0)\Rightarrow((k6_catal\!g_1 X2 X3 \in u1_struct_0 \\ & X1)\wedge(\forall X4.(m1_subset_1 X4 X0)\Rightarrow(k7_catal\!g_1 X2 X3 X4 \in u4_struct_0 \\ & X1)))))) \end{aligned}$$