

t19_catalg_1 (TMQcNptBhpQRzuEXd- TYUpDHYcMmVQtWFNdh)

October 27, 2020

Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_catalg_1 : \iota \Rightarrow \iota$ be given. Let $k10_catalg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_finseq_4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k9_catalg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_msualg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_xxreal_0 : \iota \Rightarrow o$ be given. Let $np_2 : \iota$ 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 $k6_catalg_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_ordinal1 : \iota$ 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 $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k1_funct_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_finseq_2 : \iota \Rightarrow \iota$ be given. Let $k13_finseq_1 : \iota \Rightarrow \iota$ be given. Let $k2_catalg_1 : \iota \Rightarrow \iota$ be given. Let $k10_finseq_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k7_catalg_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v7_ordinal1 : \iota \Rightarrow o$ be given. Let $k4_finseq_2 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $v1_msualg_1 : \iota \Rightarrow o$ be given. Let $k1_tarski : \iota \Rightarrow \iota$ be given. Let $l5_struct_0 : \iota \Rightarrow o$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $l1_msualg_1 : \iota \Rightarrow o$ be given. Let $u2_msualg_1 : \iota \Rightarrow \iota$ be given. Let $u1_msualg_1 : \iota \Rightarrow \iota$ be given. Let $k4_tarski : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $np_1 : \iota$ be given. Let $np_3 : \iota$ be given. Let $k9_finseq_1 : \iota \Rightarrow \iota$ be given. Let $k1_xboole_0 : \iota$ be given. Let $k11_finseq_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 X1) \Rightarrow ((v1_xboole_0 X1) \vee (X0 \in X1)) \quad (1)$$

Assume the following.

$$\begin{aligned} & ((v2_xxreal_0 np_2) \wedge (m2_subset_1 np_2 k1_numbers k5_numbers)) \wedge \\ & ((m1_subset_1 np_2 k5_numbers) \wedge (m1_subset_1 np_2 k1_numbers)) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. ((\neg v1_xboole_0 X0) \wedge ((m1_subset_1 \\ & X1 X0) \wedge (m1_subset_1 X2 X0))) \Rightarrow (k9_catalg_1 X0 X1 X2 = k6_catalg_1 \\ & X1 X2) \end{aligned} \quad (3)$$

Assume the following.

$$k5_numbers = k4_ordinal1 \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\ & (((v1_funct_1 X2)\wedge((v1_funct_2 X2 X0 X1)\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X0 X1))))))\wedge(m1_subset_1 X3 X0)))\Rightarrow(k3_funct_2 X0 \\ & X1 X2 X3 = k1_funct_1 X2 X3) \end{aligned} \quad (5)$$

Assume the following.

$$\forall X0.k3_finseq_2 X0 = k13_finseq_1 X0 \quad (6)$$

Assume the following.

$$\forall X0.k3_catalg_1 X0 = k2_catalg_1 X0 \quad (7)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((m1_subset_1 \\ & X1 X0)\wedge(m1_subset_1 X2 X0)))\Rightarrow(k2_finseq_4 X0 X1 X2 = k10_finseq_1 \\ & X1 X2) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge \\ & ((m1_subset_1 X1 X0)\wedge((m1_subset_1 X2 X0)\wedge(m1_subset_1 X3 X0))))\Rightarrow \\ & (k10_catalg_1 X0 X1 X2 X3 = k7_catalg_1 X1 X2 X3) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((v7_ordinal1 X0)\wedge(\neg v1_xboole_0 X1))\Rightarrow \\ & (\neg v1_xboole_0 (k4_finseq_2 X0 X1)) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.(\neg v1_xboole_0 X0)\Rightarrow((\neg v2_struct_0 (k2_catalg_1 X0))\wedge \\ & ((\neg v11_struct_0 (k2_catalg_1 X0))\wedge(v1_msualg_1 (k2_catalg_1 \\ & X0)))) \end{aligned} \quad (11)$$

Assume the following.

$$\forall X0.\neg v1_xboole_0 (k1_tarski X0) \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v11_struct_0 X0)\wedge(l5_struct_0 X0))\Rightarrow(\neg v1_xboole_0 \\ & (u4_struct_0 X0)) \end{aligned} \quad (13)$$

Assume the following.

$$\forall X0.\forall X1.((\neg v1_xboole_0 X0)\wedge(\neg v1_xboole_0 X1))\Rightarrow (\neg v1_xboole_0 (k2_zfmisc_1 X0 X1)) \quad (14)$$

Assume the following.

$$\forall X0.(l1_msualg_1 X0)\Rightarrow((v1_funct_1 (u2_msualg_1 X0))\wedge ((v1_funct_2 (u2_msualg_1 X0) (u4_struct_0 X0) (u1_struct_0 X0))\wedge (m1_subset_1 (u2_msualg_1 X0) (k1_zfmisc_1 (k2_zfmisc_1 (u4_struct_0 X0) (u1_struct_0 X0)))))) \quad (15)$$

Assume the following.

$$\forall X0.(l1_msualg_1 X0)\Rightarrow((v1_funct_1 (u1_msualg_1 X0))\wedge ((v1_funct_2 (u1_msualg_1 X0) (u4_struct_0 X0) (k3_finseq_2 (u1_struct_0 X0)))\wedge(m1_subset_1 (u1_msualg_1 X0) (k1_zfmisc_1 (k2_zfmisc_1 (u4_struct_0 X0) (k3_finseq_2 (u1_struct_0 X0)))))) \quad (16)$$

Assume the following.

$$\forall X0.(l1_msualg_1 X0)\Rightarrow(l5_struct_0 X0) \quad (17)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge((m1_subset_1 X1 X0)\wedge(m1_subset_1 X2 X0)))\Rightarrow(m1_subset_1 (k9_catalg_1 X0 X1 X2) (u1_struct_0 (k3_catalg_1 X0))) \quad (18)$$

Assume the following.

$$\forall X0.(v1_msualg_1 (k2_catalg_1 X0))\wedge(l1_msualg_1 (k2_catalg_1 X0)) \quad (19)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((\neg v1_xboole_0 X0)\wedge ((m1_subset_1 X1 X0)\wedge((m1_subset_1 X2 X0)\wedge(m1_subset_1 X3 X0))))\Rightarrow (m1_subset_1 (k10_catalg_1 X0 X1 X2 X3) (u4_struct_0 (k3_catalg_1 X0))) \quad (20)$$

Assume the following.

$$\forall X0.\forall X1.k6_catalg_1 X0 X1 = k4_tarski k6_numbers (k10_finseq_1 X0 X1) \quad (21)$$

Assume the following.

$$\forall X0.\forall X1.k4_tarski X0 X1 = k2_tarski (k2_tarski X0 X1) (k1_tarski X0) \quad (22)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.((v1_msualg_1 X1)\wedge(l1_msualg_1 X1))\Rightarrow(\\
& (X1 = k2_catalg_1 X0)\Leftrightarrow((u1_struct_0 X1 = k2_zfmisc_1 (k1_tarski \\
& k6_numbers) (k4_finseq_2 np_2 X0))\wedge((u4_struct_0 X1 = k2_xboole_0 \\
& (k2_zfmisc_1 (k1_tarski np_1) (k4_finseq_2 np_1 X0)) (k2_zfmisc_1 \\
& (k1_tarski np_2) (k4_finseq_2 np_3 X0))))\wedge((\forall X2.(X2 \in \\
& X0)\Rightarrow((k1_funct_1 (u1_msualg_1 X1) (k4_tarski np_1) (k9_finseq_1 \\
& X2)) = k1_xboole_0)\wedge(k1_funct_1 (u2_msualg_1 X1) (k4_tarski np_1 \\
& (k9_finseq_1 X2)) = k4_tarski k6_numbers (k10_finseq_1 X2 X2))))\wedge \\
& (\forall X2.\forall X3.\forall X4.((X2 \in X0)\wedge((X3 \in X0)\wedge(X4 \in X0)))\Rightarrow \\
& ((k1_funct_1 (u1_msualg_1 X1) (k4_tarski np_2) (k11_finseq_1 \\
& X2 X3 X4)) = k10_finseq_1 (k4_tarski k6_numbers (k10_finseq_1 X3 \\
& X4)) (k4_tarski k6_numbers (k10_finseq_1 X2 X3)))\wedge(k1_funct_1 \\
& (u2_msualg_1 X1) (k4_tarski np_2) (k11_finseq_1 X2 X3 X4)) = k4_tarski \\
& k6_numbers (k10_finseq_1 X2 X4))))))
\end{aligned} \tag{23}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge(l1_msualg_1 \\
& X0)))\Rightarrow(\forall X1.(m1_subset_1 X1 (u4_struct_0 X0))\Rightarrow(k2_msualg_1 \\
& X0 X1 = k3_funct_2 (u4_struct_0 X0) (u1_struct_0 X0) (u2_msualg_1 \\
& X0) X1))
\end{aligned} \tag{24}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge(l1_msualg_1 \\
& X0)))\Rightarrow(\forall X1.(m1_subset_1 X1 (u4_struct_0 X0))\Rightarrow(k1_msualg_1 \\
& X0 X1 = k3_funct_2 (u4_struct_0 X0) (k3_finseq_2 (u1_struct_0 X0)) \\
& (u1_msualg_1 X0) X1))
\end{aligned} \tag{25}$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.k7_catalg_1 X0 X1 X2 = k4_tarski np_2 (k11_finseq_1 X0 X1 X2) \tag{26}$$

Assume the following.

$$\forall X0.\forall X1.k2_tarski X0 X1 = k2_tarski X1 X0 \tag{27}$$

Assume the following.

$$\forall X0.(m1_subset_1 X0 k4_ordinal1)\Rightarrow(v7_ordinal1 X0) \tag{28}$$

Theorem 1

$$\begin{aligned}
& \forall X0.(\neg v1_xboole_0 X0)\Rightarrow(\forall X1.(m1_subset_1 X1 X0)\Rightarrow \\
& (\forall X2.(m1_subset_1 X2 X0)\Rightarrow(\forall X3.(m1_subset_1 X3 X0)\Rightarrow \\
& ((k1_msualg_1 (k3_catalg_1 X0) (k10_catalg_1 X0 X1 X2 X3) = k2_finseq_4 \\
& (u1_struct_0 (k3_catalg_1 X0)) (k9_catalg_1 X0 X2 X3) (k9_catalg_1 \\
& X0 X1 X2))\wedge(k2_msualg_1 (k3_catalg_1 X0) (k10_catalg_1 X0 X1 X2 \\
& X3) = k9_catalg_1 X0 X1 X3))))))
\end{aligned}$$