

t37_grcat_1
(TMVeGr5snygHhN31zJapDAGLCB8yj9bpExB)

October 27, 2020

Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_classes2 : \iota \Rightarrow o$ be given. Let $k3_algstr_0 : \iota$ be given. Let $k26_grcat_1 : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $r1_tarSKI : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k17_grcat_1 : \iota \Rightarrow \iota$ be given. Let $np_1 : \iota$ be given. Let $k9_funct_5 : \iota$ be given. Let $k7_funct_5 : \iota$ 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 $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $g1_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v13_struct_0 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v8_algstr_0 : \iota \Rightarrow o$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $g2_algstr_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ 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 $v1_algstr_1 : \iota \Rightarrow o$ be given. Let $v4_algstr_1 : \iota \Rightarrow o$ be given. Let $k25_grcat_1 : \iota \Rightarrow \iota$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $v1_cat_1 : \iota \Rightarrow o$ be given. Let $v3_grcat_1 : \iota \Rightarrow o$ be given. Let $k5_funct_5 : \iota$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $l1_cat_1 : \iota \Rightarrow o$ be given. Let $k24_grcat_1 : \iota \Rightarrow \iota$ be given. Let $k18_grcat_1 : \iota \Rightarrow \iota$ be given. Let $k23_grcat_1 : \iota \Rightarrow \iota$ be given. Let $k22_grcat_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $u1_graph_1 : \iota \Rightarrow \iota$ be given. Let $u2_graph_1 : \iota \Rightarrow \iota$ be given. Let $u1_cat_1 : \iota \Rightarrow \iota$ be given. Assume the following.

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

Assume the following.

$$\forall X0. \forall X1. (m1_subset_1 X0 (k1_zfmisc_1 X1)) \Leftrightarrow (r1_tarSKI X0 X1) \quad (2)$$

Assume the following.

$$\forall X0. ((\neg v1_xboole_0 X0) \wedge (v1_classes2 X0)) \Rightarrow (k3_algstr_0 \in k17_grcat_1 X0) \quad (3)$$

Assume the following.

$$\neg v1_xboole_0 np_1 \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.r1_tarSKI X0 X0 \quad (5)$$

Assume the following.

$$k9_funct_5 = k7_funct_5 \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((v1_funct_1 \\ & X2)\wedge((v1_funct_2 X2 X1 X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X1 X0))))\wedge(((v1_funct_1 X3)\wedge((v1_funct_2 X3 X1 X0)\wedge(m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0))))\wedge((v1_funct_1 X4)\wedge(m1_subset_1 \\ & X4 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X1 X1) X1))))))\Rightarrow(\forall X5. \\ & \forall X6.\forall X7.\forall X8.\forall X9.(g1_cat_1 X0 X1 X2 \\ & X3 X4 = g1_cat_1 X5 X6 X7 X8 X9)\Rightarrow((X0 = X5)\wedge((X1 = X6)\wedge((X2 = X7)\wedge((X3 = \\ & X8)\wedge(X4 = X9)))))) \end{aligned} \quad (7)$$

Assume the following.

$$(v13_struct_0 k3_algstr_0 np_1)\wedge(v8_algstr_0 k3_algstr_0) \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X0)\wedge(((v1_funct_1 \\ & X1)\wedge((v1_funct_2 X1 (k2_zfmisc_1 X0 X0) X0)\wedge(m1_subset_1 X1 (k1_zfmisc_1 \\ & (k2_zfmisc_1 (k2_zfmisc_1 X0 X0) X0))))\wedge(m1_subset_1 X2 X0)))\Rightarrow \\ & ((\neg v2_struct_0 (g2_algstr_0 X0 X1 X2))\wedge(v8_algstr_0 (g2_algstr_0 \\ & X0 X1 X2)))) \end{aligned} \quad (9)$$

Assume the following.

$$v2_rlvect_1 k3_algstr_0 \quad (10)$$

Assume the following.

$$(v3_rlvect_1 k3_algstr_0)\wedge((v4_rlvect_1 k3_algstr_0)\wedge((v1_algstr_1 k3_algstr_0)\wedge(v4_algstr_1 k3_algstr_0))) \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0)\wedge(v1_classes2 X0))\Rightarrow((\neg v2_struct_0 \\ & (k25_grcat_1 X0))\wedge((\neg v11_struct_0 (k25_grcat_1 X0))\wedge(v1_cat_1 \\ & (k25_grcat_1 X0)))) \end{aligned} \quad (12)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0)\wedge(v1_classes2 X0))\Rightarrow(v3_grcat_1 (k17_grcat_1 X0)) \quad (13)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v1_classes2 X0)) \Rightarrow (\neg v1_xboole_0 (k17_grcat_1 X0)) \quad (14)$$

Assume the following.

$$(v1_funct_1 k9_funct_5) \wedge ((v1_funct_2 k9_funct_5 (k2_zfmisc_1 np_1 np_1) np_1) \wedge (m1_subset_1 k9_funct_5 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 np_1 np_1) np_1)))) \quad (15)$$

Assume the following.

$$m1_subset_1 k5_funct_5 np_1 \quad (16)$$

Assume the following.

$$l2_algstr_0 k3_algstr_0 \quad (17)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v1_classes2 X0)) \Rightarrow ((\neg v2_struct_0 (k25_grcat_1 X0)) \wedge ((\neg v11_struct_0 (k25_grcat_1 X0)) \wedge ((v1_cat_1 (k25_grcat_1 X0)) \wedge (l1_cat_1 (k25_grcat_1 X0)))))) \quad (18)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v3_grcat_1 X0)) \Rightarrow ((v1_funct_1 (k24_grcat_1 X0)) \wedge (m1_subset_1 (k24_grcat_1 X0) (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 (k18_grcat_1 X0) (k18_grcat_1 X0)) (k18_grcat_1 X0)))))) \quad (19)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v3_grcat_1 X0)) \Rightarrow ((v1_funct_1 (k23_grcat_1 X0)) \wedge ((v1_funct_2 (k23_grcat_1 X0) (k18_grcat_1 X0) X0) \wedge (m1_subset_1 (k23_grcat_1 X0) (k1_zfmisc_1 (k2_zfmisc_1 (k18_grcat_1 X0) X0)))))) \quad (20)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v3_grcat_1 X0)) \Rightarrow ((v1_funct_1 (k22_grcat_1 X0)) \wedge ((v1_funct_2 (k22_grcat_1 X0) (k18_grcat_1 X0) X0) \wedge (m1_subset_1 (k22_grcat_1 X0) (k1_zfmisc_1 (k2_zfmisc_1 (k18_grcat_1 X0) X0)))))) \quad (21)$$

Assume the following.

$$k3_algstr_0 = g2_algstr_0 np_1 k9_funct_5 k5_funct_5 \quad (22)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0) \wedge (v1_classes2 X0)) \Rightarrow (k26_grcat_1 \\ X0 = \text{ReplSep } & (\text{toset } (\lambda X1 : \iota. m1_subset_1 X1 (u1_struct_0 (k25_grcat_1 \\ & X0)))) (\lambda X1 : \iota. \exists X2. ((\neg v2_struct_0 X2) \wedge ((v13_algstr_0 \\ & X2) \wedge ((v2_rlvect_1 X2) \wedge ((v3_rlvect_1 X2) \wedge ((v4_rlvect_1 X2) \wedge \\ & (l2_algstr_0 X2)))))) \wedge (X1 = X2)) (\lambda X1 : \iota. X1)) \end{aligned} \quad (23)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v1_xboole_0 X0) \wedge (v1_classes2 X0)) \Rightarrow (k25_grcat_1 \\ X0 = g1_cat_1 & (k17_grcat_1 X0) (k18_grcat_1 (k17_grcat_1 X0)) (\\ & k22_grcat_1 (k17_grcat_1 X0)) (k23_grcat_1 (k17_grcat_1 X0)) \\ & (k24_grcat_1 (k17_grcat_1 X0))) \end{aligned} \quad (24)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l2_algstr_0 X0) \Rightarrow ((v13_struct_0 X0 np_1) \Rightarrow ((v13_struct_0 \\ X0 np_1) \wedge & ((v13_algstr_0 X0) \wedge ((v2_rlvect_1 X0) \wedge ((v3_rlvect_1 \\ & X0) \wedge (v4_rlvect_1 X0)))))) \end{aligned} \quad (25)$$

Assume the following.

$$\begin{aligned} & \forall X0.(l1_cat_1 X0) \Rightarrow ((v1_cat_1 X0) \Rightarrow (X0 = g1_cat_1 (u1_struct_0 \\ X0) (u4_struct_0 & X0) (u1_graph_1 X0) (u2_graph_1 X0) (u1_cat_1 \\ & X0))) \end{aligned} \quad (26)$$

Theorem 1

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v1_classes2 X0)) \Rightarrow (k3_algstr_0 \in k26_grcat_1 X0)$$