

t34_grcat_1
(TMXLDFfAjEjqudSdBbsnq6eakj5WiRXSBot)

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Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_classes2 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k25_grcat_1 : \iota \Rightarrow \iota$ be given. Let $m3_grcat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k18_grcat_1 : \iota \Rightarrow \iota$ be given. Let $k17_grcat_1 : \iota \Rightarrow \iota$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $m2_grcat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_grcat_1 : \iota \Rightarrow o$ be given. Let $v8_algstr_0 : \iota \Rightarrow o$ be given. Let $v4_grcat_1 : \iota \Rightarrow o$ be given. Let $v3_grcat_1 : \iota \Rightarrow o$ 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 $g1_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $v1_cat_1 : \iota \Rightarrow o$ be given. Let $l1_cat_1 : \iota \Rightarrow o$ be given. Let $k24_grcat_1 : \iota \Rightarrow \iota$ be given. Let $k23_grcat_1 : \iota \Rightarrow \iota$ be given. Let $k22_grcat_1 : \iota \Rightarrow \iota$ be given. Let $m1_grcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $r1_grcat_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k6_xtuple_0 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v13_algstr_0 : \iota \Rightarrow o$ be given. Let $v3_rlvect_1 : \iota \Rightarrow o$ be given. Let $v4_rlvect_1 : \iota \Rightarrow o$ be given. Let $l2_algstr_0 : \iota \Rightarrow o$ be given. Let $u1_algstr_0 : \iota \Rightarrow \iota$ be given. Let $k5_vectsp_1 : \iota \Rightarrow \iota$ be given. Let $k4_struct_0 : \iota \Rightarrow \iota$ 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.

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

Assume the following.

$$\forall X0. ((\neg v1_xboole_0 X0) \wedge (v4_grcat_1 X0)) \Rightarrow (\forall X1. (m3_grcat_1 X1 X0) \Leftrightarrow (m1_subset_1 X1 X0)) \quad (2)$$

Assume the following.

$$\forall X0. ((\neg v1_xboole_0 X0) \wedge (v3_grcat_1 X0)) \Rightarrow (\forall X1. (m2_grcat_1 X1 X0) \Leftrightarrow (m1_subset_1 X1 X0)) \quad (3)$$

Assume the following.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((v1_funct_1 \\
& X2)\wedge((v1_funct_2 X2 X1 X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X1 X0))))\wedge(((v1_funct_1 X3)\wedge((v1_funct_2 X3 X1 X0)\wedge(m1_subset_1 \\
& X3 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0))))\wedge((v1_funct_1 X4)\wedge(m1_subset_1 \\
& X4 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X1 X1) X1))))))\Rightarrow(\forall X5. \\
& \forall X6.\forall X7.\forall X8.\forall X9.(g1_cat_1 X0 X1 X2 \\
& X3 X4 = g1_cat_1 X5 X6 X7 X8 X9)\Rightarrow((X0 = X5)\wedge((X1 = X6)\wedge((X2 = X7)\wedge((X3 = \\
& X8)\wedge(X4 = X9))))))
\end{aligned} \tag{4}$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0)\wedge(v1_classes2 X0))\Rightarrow(v3_grcat_1 (k17_grcat_1 X0)) \tag{5}$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0)\wedge(v1_classes2 X0))\Rightarrow(\neg v1_xboole_0 (k17_grcat_1 X0)) \tag{6}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1_xboole_0 X0)\wedge(v1_classes2 X0))\Rightarrow((\neg v2_struct_0 \\
& (k25_grcat_1 X0))\wedge((\neg v11_struct_0 (k25_grcat_1 X0))\wedge((v1_cat_1 \\
& (k25_grcat_1 X0))\wedge(l1_cat_1 (k25_grcat_1 X0))))))
\end{aligned} \tag{7}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1_xboole_0 X0)\wedge(v3_grcat_1 X0))\Rightarrow((v1_funct_1 \\
& (k24_grcat_1 X0))\wedge(m1_subset_1 (k24_grcat_1 X0) (k1_zfmisc_1 \\
& (k2_zfmisc_1 (k2_zfmisc_1 (k18_grcat_1 X0) (k18_grcat_1 X0)) \\
& (k18_grcat_1 X0))))))
\end{aligned} \tag{8}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1_xboole_0 X0)\wedge(v3_grcat_1 X0))\Rightarrow((v1_funct_1 \\
& (k23_grcat_1 X0))\wedge((v1_funct_2 (k23_grcat_1 X0) (k18_grcat_1 \\
& X0) X0)\wedge(m1_subset_1 (k23_grcat_1 X0) (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k18_grcat_1 X0) X0))))))
\end{aligned} \tag{9}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v1_xboole_0 X0)\wedge(v3_grcat_1 X0))\Rightarrow((v1_funct_1 \\
& (k22_grcat_1 X0))\wedge((v1_funct_2 (k22_grcat_1 X0) (k18_grcat_1 \\
& X0) X0)\wedge(m1_subset_1 (k22_grcat_1 X0) (k1_zfmisc_1 (k2_zfmisc_1 \\
& (k18_grcat_1 X0) X0))))))
\end{aligned} \tag{10}$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v3_grcat_1 X0)) \Rightarrow ((\neg v1_xboole_0 (k18_grcat_1 X0)) \wedge (v4_grcat_1 (k18_grcat_1 X0))) \quad (11)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v1_classes2 X0)) \Rightarrow (k25_grcat_1 X0 = g1_cat_1 (k17_grcat_1 X0) (k18_grcat_1 (k17_grcat_1 X0)) (k22_grcat_1 (k17_grcat_1 X0)) (k23_grcat_1 (k17_grcat_1 X0)) (k24_grcat_1 (k17_grcat_1 X0))) \quad (12)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v3_grcat_1 X0)) \Rightarrow (\forall X1. ((\neg v1_xboole_0 X1) \wedge (v4_grcat_1 X1)) \Rightarrow ((X1 = k18_grcat_1 X0) \Leftrightarrow (\forall X2.(X2 \in X1) \Leftrightarrow (\exists X3.((v8_algstr_0 X3) \wedge (m2_grcat_1 X3 X0)) \wedge (\exists X4.((v8_algstr_0 X4) \wedge (m2_grcat_1 X4 X0)) \wedge ((v1_grcat_1 X2) \wedge (m1_grcat_1 X2 X3 X4)))))))) \quad (13)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v1_classes2 X0)) \Rightarrow (\forall X1. (X1 = k17_grcat_1 X0) \Leftrightarrow (\forall X2.(X2 \in X1) \Leftrightarrow (\exists X3.(X3 \in X0) \wedge (r1_grcat_1 X3 X2)))) \quad (14)$$

Assume the following.

$$\forall X0. \forall X1. (r1_grcat_1 X0 X1) \Leftrightarrow (\exists X2. \exists X3. \exists X4. \exists X5. (X0 = k6_xtuple_0 X2 X3 X4 X5) \wedge (\exists X6. ((\neg v2_struct_0 X6) \wedge (v8_algstr_0 X6) \wedge ((v13_algstr_0 X6) \wedge ((v3_rlvect_1 X6) \wedge ((v4_rlvect_1 X6) \wedge (l2_algstr_0 X6)))))) \wedge ((X1 = X6) \wedge ((X2 = u1_struct_0 X6) \wedge ((X3 = u1_algstr_0 X6) \wedge ((X4 = k5_vectsp_1 X6) \wedge (X5 = k4_struct_0 X6)))))) \quad (15)$$

Assume the following.

$$\forall X0. (l1_cat_1 X0) \Rightarrow ((v1_cat_1 X0) \Rightarrow (X0 = g1_cat_1 (u1_struct_0 X0) (u4_struct_0 X0) (u1_graph_1 X0) (u2_graph_1 X0) (u1_cat_1 X0))) \quad (16)$$

Theorem 1

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v1_classes2 X0)) \Rightarrow (\forall X1. (m1_subset_1 X1 (u4_struct_0 (k25_grcat_1 X0))) \Rightarrow (\forall X2. (m3_grcat_1 X2 (k18_grcat_1 (k17_grcat_1 X0))) \Rightarrow (\forall X3. (m1_subset_1 X3 (u1_struct_0 (k25_grcat_1 X0))) \Rightarrow (\forall X4. (m2_grcat_1 X4 (k17_grcat_1 X0)) \Rightarrow (((v1_grcat_1 X1) \wedge (m3_grcat_1 X1 (k18_grcat_1 (k17_grcat_1 X0)))) \wedge ((m1_subset_1 X2 (u4_struct_0 (k25_grcat_1 X0))) \wedge ((v8_algstr_0 X3) \wedge (m2_grcat_1 X3 (k17_grcat_1 X0))) \wedge (m1_subset_1 X4 (u1_struct_0 (k25_grcat_1 X0)))))))))) \quad (17)$$