

t39_grcat_1

(TMPHL1RLrhK7z3Y7y49FvjTZhyrZijmGxWN)

October 27, 2020

Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $v1_classes2 : \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k29_grcat_1 : \iota \Rightarrow \iota$ be given. Let $k28_grcat_1 : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k8_mcart_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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 $g1_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $v2_struct_0 : \iota \Rightarrow o$ 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 $v3_cat_1 : \iota \Rightarrow o$ be given. Let $v4_cat_1 : \iota \Rightarrow o$ be given. Let $v6_cat_1 : \iota \Rightarrow o$ be given. Let $v2_cat_1 : \iota \Rightarrow o$ be given. Let $v5_cat_1 : \iota \Rightarrow o$ be given. Let $l1_cat_1 : \iota \Rightarrow o$ be given. Let $m3_cat_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k4_grcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_grcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_grcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_grcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k27_grcat_1 : \iota \Rightarrow \iota$ be given. Let $k5_grcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ 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.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. ((m1_subset_1 X2 \\ & (k1_zfmisc_1 X0)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 X1))) \Rightarrow (k8_mcart_1 \\ & X0 X1 X2 X3 = k2_zfmisc_1 X2 X3) \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned} & \forall X0. \forall X1. \forall X2. \forall X3. \forall X4. (((v1_funct_1 \\ & X2) \wedge ((v1_funct_2 X2 X1 X0) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X1 X0)))))) \wedge (((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X1 X0) \wedge (m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0)))))) \wedge ((v1_funct_1 X4) \wedge (m1_subset_1 \\ & X4 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X1 X1) X1)))))) \Rightarrow (\forall X5. \\ & \forall X6. \forall X7. \forall X8. \forall X9. (g1_cat_1 X0 X1 X2 \\ & X3 X4 = g1_cat_1 X5 X6 X7 X8 X9) \Rightarrow ((X0 = X5) \wedge ((X1 = X6) \wedge ((X2 = X7) \wedge ((X3 = \\ & X8) \wedge (X4 = X9)))))) \end{aligned} \tag{2}$$

Assume the following.

$$\forall X0. ((\neg v1_xboole_0 X0) \wedge (v1_classes2 X0)) \Rightarrow (\neg v1_xboole_0 (k28_grcat_1 X0)) \tag{3}$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v1_classes2 X0)) \Rightarrow ((\neg v2_struct_0 (k25_grcat_1 X0)) \wedge ((\neg v11_struct_0 (k25_grcat_1 X0)) \wedge ((v1_cat_1 (k25_grcat_1 X0)) \wedge ((v3_cat_1 (k25_grcat_1 X0)) \wedge ((v4_cat_1 (k25_grcat_1 X0)) \wedge (v6_cat_1 (k25_grcat_1 X0)))))))) \quad (4)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v1_classes2 X0)) \Rightarrow ((\neg v2_struct_0 (k25_grcat_1 X0)) \wedge ((\neg v11_struct_0 (k25_grcat_1 X0)) \wedge ((v1_cat_1 (k25_grcat_1 X0)) \wedge ((v2_cat_1 (k25_grcat_1 X0)) \wedge (v5_cat_1 (k25_grcat_1 X0))))))) \quad (5)$$

Assume the following.

$$\forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge (v6_cat_1 X0) \wedge (l1_cat_1 X0)))))))) \Rightarrow (\forall X1.(m3_cat_2 X1 X0) \Rightarrow ((\neg v2_struct_0 X1) \wedge ((\neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 X1) \wedge ((v5_cat_1 X1) \wedge (v6_cat_1 X1) \wedge (l1_cat_1 X1)))))))))) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge (v6_cat_1 X0) \wedge (l1_cat_1 X0)))))))) \wedge ((\neg v1_xboole_0 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))))) \Rightarrow ((v1_funct_1 (k4_grcat_1 X0 X1)) \wedge (m1_subset_1 (k4_grcat_1 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 (k8_mcart_1 (u4_struct_0 X0) (u4_struct_0 X0) (k1_grcat_1 X0 X1) (k1_grcat_1 X0 X1)))))) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.(((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge (v6_cat_1 X0) \wedge (l1_cat_1 X0)))))))) \wedge ((\neg v1_xboole_0 X1) \wedge (m1_subset_1 X1 (k1_zfmisc_1 (u1_struct_0 X0)))))) \Rightarrow ((v1_funct_1 (k3_grcat_1 X0 X1)) \wedge ((v1_funct_2 (k3_grcat_1 X0 X1) (k1_grcat_1 X0 X1) X1) \wedge (m1_subset_1 (k3_grcat_1 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 (k1_grcat_1 X0 X1) X1)))))) \quad (8)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge \\ & ((v2_cat_1 X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 X0)\wedge \\ & ((v6_cat_1 X0)\wedge(l1_cat_1 X0))))))))\wedge((\neg v1_xboole_0 X1)\wedge(m1_subset_1 \\ & X1 (k1_zfmisc_1 (u1_struct_0 X0))))))\Rightarrow((v1_funct_1 (k2_grcat_1 \\ & X0 X1))\wedge((v1_funct_2 (k2_grcat_1 X0 X1) (k1_grcat_1 X0 X1) X1)\wedge \\ & (m1_subset_1 (k2_grcat_1 X0 X1) (k1_zfmisc_1 (k2_zfmisc_1 (k1_grcat_1 \\ & X0 X1) X1)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0)\wedge(v1_classes2 X0))\Rightarrow(m1_subset_1 (k28_grcat_1 X0) (k1_zfmisc_1 (u1_struct_0 (k27_grcat_1 X0)))) \quad (10)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0)\wedge(v1_classes2 X0))\Rightarrow(m3_cat_2 (k27_grcat_1 X0) (k25_grcat_1 X0)) \quad (11)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0)\wedge(v1_classes2 X0))\Rightarrow((\neg v2_struct_0 (k25_grcat_1 X0))\wedge((\neg v11_struct_0 (k25_grcat_1 X0))\wedge((v1_cat_1 (k25_grcat_1 X0))\wedge(l1_cat_1 (k25_grcat_1 X0)))))) \quad (12)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge \\ & ((v2_cat_1 X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 X0)\wedge \\ & ((v6_cat_1 X0)\wedge(l1_cat_1 X0))))))))\wedge((\neg v1_xboole_0 X1)\wedge(m1_subset_1 \\ & X1 (k1_zfmisc_1 (u1_struct_0 X0))))))\Rightarrow(m1_subset_1 (k1_grcat_1 \\ & X0 X1) (k1_zfmisc_1 (u4_struct_0 X0))) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.\forall X4.(((v1_funct_1 \\ & X2)\wedge((v1_funct_2 X2 X1 X0)\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X1 X0))))\wedge(((v1_funct_1 X3)\wedge((v1_funct_2 X3 X1 X0)\wedge(m1_subset_1 \\ & X3 (k1_zfmisc_1 (k2_zfmisc_1 X1 X0))))\wedge((v1_funct_1 X4)\wedge(m1_subset_1 \\ & X4 (k1_zfmisc_1 (k2_zfmisc_1 (k2_zfmisc_1 X1 X1) X1))))))\Rightarrow((v1_cat_1 \\ & (g1_cat_1 X0 X1 X2 X3 X4))\wedge(l1_cat_1 (g1_cat_1 X0 X1 X2 X3 X4))) \end{aligned} \quad (14)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge((v2_cat_1 \\ & X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 X0)\wedge((v6_cat_1 \\ & X0)\wedge(l1_cat_1 X0))))))))\Rightarrow(\forall X1.((\neg v1_xboole_0 X1)\wedge(m1_subset_1 \\ & X1 (k1_zfmisc_1 (u1_struct_0 X0))))\Rightarrow(k5_grcat_1 X0 X1 = g1_cat_1 \\ & X1 (k1_grcat_1 X0 X1) (k2_grcat_1 X0 X1) (k3_grcat_1 X0 X1) (k4_grcat_1 \\ & X0 X1))) \end{aligned} \quad (15)$$

Assume the following.

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v1_classes2 X0)) \Rightarrow (k29_grcat_1 X0 = k5_grcat_1 (k27_grcat_1 X0) (k28_grcat_1 X0)) \quad (16)$$

Assume the following.

$$\forall X0.(l1_cat_1 X0) \Rightarrow ((v1_cat_1 X0) \Rightarrow (X0 = g1_cat_1 (u1_struct_0 X0) (u4_struct_0 X0) (u1_graph_1 X0) (u2_graph_1 X0) (u1_cat_1 X0))) \quad (17)$$

Theorem 1

$$\forall X0.((\neg v1_xboole_0 X0) \wedge (v1_classes2 X0)) \Rightarrow (u1_struct_0 (k29_grcat_1 X0) = k28_grcat_1 X0)$$