

t67_cat_3 (TM- NAEDN53yt42ULiJuEobGiGS7NSTYQRSdT)

October 27, 2020

Let $v2_struct_0 : \iota \Rightarrow o$ be given. Let $v11_struct_0 : \iota \Rightarrow o$ be given. Let $v2_cat_1 : \iota \Rightarrow o$ be given. Let $v3_cat_1 : \iota \Rightarrow o$ be given. Let $v4_cat_1 : \iota \Rightarrow o$ be given. Let $v5_cat_1 : \iota \Rightarrow o$ be given. Let $v6_cat_1 : \iota \Rightarrow o$ be given. Let $l1_cat_1 : \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $m2_cat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k2_cat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_cat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_cat_3 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k8_funcop_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. ((\neg v2_struct_0 X1) \wedge (\neg v11_struct_0 X1) \wedge \\
& ((v2_cat_1 X1) \wedge (v3_cat_1 X1) \wedge (v4_cat_1 X1) \wedge (v5_cat_1 X1) \wedge \\
& ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))) \Rightarrow (\forall X2. ((v1_funct_1 \\
& X2) \wedge ((v1_funct_2 X2 X0 (u4_struct_0 X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 (u4_struct_0 X1)))))) \Rightarrow (\forall X3. ((v1_funct_1 \\
& X3) \wedge ((v1_funct_2 X3 X0 (u4_struct_0 X1)) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\
& (k2_zfmisc_1 X0 (u4_struct_0 X1)))))) \Rightarrow ((r2_funct_2 X0 (u1_struct_0 \\
& X1) (k2_cat_3 X1 X0 X2) (k3_cat_3 X1 X0 X3)) \Rightarrow ((r2_funct_2 X0 (u1_struct_0 \\
& X1) (k2_cat_3 X1 X0 (k8_cat_3 X1 X0 X2 X3)) (k2_cat_3 X1 X0 X3)) \wedge (r2_funct_2 \\
& X0 (u1_struct_0 X1) (k3_cat_3 X1 X0 (k8_cat_3 X1 X0 X2 X3)) (k3_cat_3 \\
& X1 X0 X2))))))
\end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
& \forall X0. \forall X1. \forall X2. \forall X3. (((v1_funct_1 X2) \wedge \\
& ((v1_funct_2 X2 X0 X1) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& X0 X1)))))) \wedge ((v1_funct_1 X3) \wedge ((v1_funct_2 X3 X0 X1) \wedge (m1_subset_1 \\
& X3 (k1_zfmisc_1 (k2_zfmisc_1 X0 X1)))))) \Rightarrow ((r2_funct_2 X0 X1 X2 \\
& X3) \Leftrightarrow (X2 = X3))
\end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 \\ & X0)\wedge((v2_cat_1 X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 \\ & X0)\wedge((v6_cat_1 X0)\wedge(l1_cat_1 X0))))))))\wedge(m1_subset_1 X1 (u1_struct_0 \\ & X0))\Rightarrow(\forall X3.(m2_cat_3 X3 X0 X1 X2)\Rightarrow((v1_funct_1 X3)\wedge((v1_funct_2 \\ & X3 X2 (u4_struct_0 X0))\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X2 (u4_struct_0 X0))))))) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.(((\neg v2_struct_0 \\ & X0)\wedge((\neg v11_struct_0 X0)\wedge((v2_cat_1 X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 \\ & X0)\wedge((v5_cat_1 X0)\wedge((v6_cat_1 X0)\wedge(l1_cat_1 X0))))))))\wedge(((\\ & v1_funct_1 X2)\wedge((v1_funct_2 X2 X1 (u4_struct_0 X0))\wedge(m1_subset_1 \\ & X2 (k1_zfmisc_1 (k2_zfmisc_1 X1 (u4_struct_0 X0))))))\wedge((v1_funct_1 \\ & X3)\wedge((v1_funct_2 X3 X1 (u4_struct_0 X0))\wedge(m1_subset_1 X3 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X1 (u4_struct_0 X0))))))\Rightarrow((v1_funct_1 (k8_cat_3 \\ & X0 X1 X2 X3)\wedge((v1_funct_2 (k8_cat_3 X0 X1 X2 X3) X1 (u4_struct_0 \\ & X0))\wedge(m1_subset_1 (k8_cat_3 X0 X1 X2 X3) (k1_zfmisc_1 (k2_zfmisc_1 \\ & X1 (u4_struct_0 X0)))))) \end{aligned} \quad (4)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 \\ & X0)\wedge((v2_cat_1 X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 \\ & X0)\wedge((v6_cat_1 X0)\wedge(l1_cat_1 X0))))))))\wedge((v1_funct_1 X2)\wedge(\\ & (v1_funct_2 X2 X1 (u4_struct_0 X0))\wedge(m1_subset_1 X2 (k1_zfmisc_1 \\ & (k2_zfmisc_1 X1 (u4_struct_0 X0))))))\Rightarrow((v1_funct_1 (k3_cat_3 \\ & X0 X1 X2))\wedge((v1_funct_2 (k3_cat_3 X0 X1 X2) X1 (u1_struct_0 X0))\wedge \\ & (m1_subset_1 (k3_cat_3 X0 X1 X2) (k1_zfmisc_1 (k2_zfmisc_1 X1 (\\ & u1_struct_0 X0)))))) \end{aligned} \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge((v2_cat_1 \\ & X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 X0)\wedge((v6_cat_1 \\ & X0)\wedge(l1_cat_1 X0))))))))\Rightarrow(\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ & X0))\Rightarrow(\forall X2.\forall X3.((v1_funct_1 X3)\wedge((v1_funct_2 X3 \\ & X2 (u4_struct_0 X0))\wedge(m1_subset_1 X3 (k1_zfmisc_1 (k2_zfmisc_1 \\ & X2 (u4_struct_0 X0))))))\Rightarrow((m2_cat_3 X3 X0 X1 X2)\Leftrightarrow(r2_funct_2 X2 \\ & (u1_struct_0 X0) (k3_cat_3 X0 X2 X3) (k8_funcop_1 (u1_struct_0 \\ & X0) X2 X1)))) \end{aligned} \quad (6)$$

Theorem 1

$$\begin{aligned} & \forall X0. \forall X1. ((\neg v2_struct_0 X1) \wedge (\neg v11_struct_0 X1) \wedge \\ & ((v2_cat_1 X1) \wedge (v3_cat_1 X1) \wedge (v4_cat_1 X1) \wedge (v5_cat_1 X1) \wedge \\ & ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))) \Rightarrow (\forall X2. (m1_subset_1 \\ & X2 (u1_struct_0 X1)) \Rightarrow (\forall X3. (m2_cat_3 X3 X1 X2 X0) \Rightarrow (\forall X4. \\ & ((v1_funct_1 X4) \wedge (v1_funct_2 X4 X0 (u4_struct_0 X1)) \wedge (m1_subset_1 \\ & X4 (k1_zfmisc_1 (k2_zfmisc_1 X0 (u4_struct_0 X1)))))) \Rightarrow ((r2_funct_2 \\ & X0 (u1_struct_0 X1) (k2_cat_3 X1 X0 X3) (k3_cat_3 X1 X0 X4)) \Rightarrow (m2_cat_3 \\ & (k8_cat_3 X1 X0 X3 X4) X1 X2 X0)))))) \end{aligned}$$