

t48_oppcat_1
(TMF4SumciUodRqukxGAUwjeCRtfnf7EEEZd)

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 $v1_funct_1 : \iota \Rightarrow o$ be given. Let $v1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u4_struct_0 : \iota \Rightarrow \iota$ be given. Let $k2_oppcat_1 : \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $r2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k10_oppcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k9_oppcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_oppcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))))))) \Rightarrow (\forall X2.((v1_funct_1 X2) \wedge ((v1_funct_2 X2 (u4_struct_0 (k2_oppcat_1 X0)) (u4_struct_0 X1)) \wedge (m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u4_struct_0 (k2_oppcat_1 X0)) (u4_struct_0 X1)))))) \Rightarrow (\forall X3.(m1_subset_1 X3 (u4_struct_0 (k2_oppcat_1 X0)) \Rightarrow (k3_funct_2 (u4_struct_0 X0) (u4_struct_0 X1) (k9_oppcat_1 X0 X1 X2) (k6_oppcat_1 X0 X3) = k3_funct_2 (u4_struct_0 (k2_oppcat_1 X0)) (u4_struct_0 X1) X2 X3))))))
\end{aligned} \tag{1}$$

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.

$$\begin{aligned}
& \forall X0.\forall X1.\forall X2.(((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 \\
& X0)\wedge((v2_cat_1 X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 \\
& X0)\wedge((v6_cat_1 X0)\wedge(l1_cat_1 X0))))))))\wedge(((\neg v2_struct_0 X1)\wedge \\
& ((\neg v11_struct_0 X1)\wedge((v2_cat_1 X1)\wedge((v3_cat_1 X1)\wedge((v4_cat_1 \\
& X1)\wedge((v5_cat_1 X1)\wedge((v6_cat_1 X1)\wedge(l1_cat_1 X1))))))))\wedge((v1_funct_1 \\
& X2)\wedge((v1_funct_2 X2 (u4_struct_0 (k2_oppcat_1 X0)) (u4_struct_0 \\
& X1))\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u4_struct_0 \\
& (k2_oppcat_1 X0)) (u4_struct_0 X1))))))\Rightarrow((v1_funct_1 (k9_oppcat_1 \\
& X0 X1 X2))\wedge((v1_funct_2 (k9_oppcat_1 X0 X1 X2) (u4_struct_0 X0) \\
& (u4_struct_0 X1))\wedge(m1_subset_1 (k9_oppcat_1 X0 X1 X2) (k1_zfmisc_1 \\
& (k2_zfmisc_1 (u4_struct_0 X0) (u4_struct_0 X1))))))
\end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge((v2_cat_1 \\
& X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 X0)\wedge((v6_cat_1 \\
& X0)\wedge(l1_cat_1 X0))))))))\Rightarrow(\forall X1.((\neg v2_struct_0 X1)\wedge((\neg \\
& v11_struct_0 X1)\wedge((v2_cat_1 X1)\wedge((v3_cat_1 X1)\wedge((v4_cat_1 \\
& X1)\wedge((v5_cat_1 X1)\wedge((v6_cat_1 X1)\wedge(l1_cat_1 X1))))))))\Rightarrow(\forall X2. \\
& ((v1_funct_1 X2)\wedge((v1_funct_2 X2 (u4_struct_0 X0) (u4_struct_0 \\
& X1))\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 (u4_struct_0 \\
& X0) (u4_struct_0 X1))))))\Rightarrow(\forall X3.((v1_funct_1 X3)\wedge((v1_funct_2 \\
& X3 (u4_struct_0 (k2_oppcat_1 X0)) (u4_struct_0 X1))\wedge(m1_subset_1 \\
& X3 (k1_zfmisc_1 (k2_zfmisc_1 (u4_struct_0 (k2_oppcat_1 X0)) (\\
& u4_struct_0 X1))))))\Rightarrow((X3 = k10_oppcat_1 X0 X1 X2)\Leftrightarrow(\forall X4. \\
& (m1_subset_1 X4 (u4_struct_0 (k2_oppcat_1 X0))\Rightarrow(k3_funct_2 \\
& (u4_struct_0 (k2_oppcat_1 X0)) (u4_struct_0 X1) X3 X4 = k3_funct_2 \\
& (u4_struct_0 X0) (u4_struct_0 X1) X2 (k6_oppcat_1 X0 X4))))))
\end{aligned} \tag{4}$$

Theorem 1

$$\begin{aligned}
& \forall X0.((\neg v2_struct_0 X0)\wedge((\neg v11_struct_0 X0)\wedge((v2_cat_1 \\
& X0)\wedge((v3_cat_1 X0)\wedge((v4_cat_1 X0)\wedge((v5_cat_1 X0)\wedge((v6_cat_1 \\
& X0)\wedge(l1_cat_1 X0))))))))\Rightarrow(\forall X1.((\neg v2_struct_0 X1)\wedge((\neg \\
& v11_struct_0 X1)\wedge((v2_cat_1 X1)\wedge((v3_cat_1 X1)\wedge((v4_cat_1 \\
& X1)\wedge((v5_cat_1 X1)\wedge((v6_cat_1 X1)\wedge(l1_cat_1 X1))))))))\Rightarrow(\forall X2. \\
& ((v1_funct_1 X2)\wedge((v1_funct_2 X2 (u4_struct_0 (k2_oppcat_1 X0)) \\
& (u4_struct_0 X1))\wedge(m1_subset_1 X2 (k1_zfmisc_1 (k2_zfmisc_1 \\
& (u4_struct_0 (k2_oppcat_1 X0)) (u4_struct_0 X1))))))\Rightarrow(r2_funct_2 \\
& (u4_struct_0 (k2_oppcat_1 X0)) (u4_struct_0 X1) (k10_oppcat_1 \\
& X0 X1 (k9_oppcat_1 X0 X1 X2)) X2))
\end{aligned}$$