

t41_oppcat_1

(TMZ9yhMGNHHMK4kH6wksVkmLSseK6q3Rb6D)

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 $m2_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $u1_struct_0 : \iota \Rightarrow \iota$ be given. Let $k3_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_oppcat_1 : \iota \Rightarrow \iota$ be given. Let $k7_cat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k10_oppcat_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k3_oppcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k4_oppcat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))))) \Rightarrow (\forall X2. \\
 & (m2_cat_1 X2 X0 X1) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 (k2_oppcat_1 X0))) \Rightarrow (k3_funct_2 (u1_struct_0 (k2_oppcat_1 X0)) \\
 & (u1_struct_0 X1) (k7_cat_1 (k2_oppcat_1 X0) X1) (k10_oppcat_1 X0 X1 X2)) X3 = k3_funct_2 (u1_struct_0 X0) (u1_struct_0 X1) (k7_cat_1 X0 X1 X2) (k4_oppcat_1 X0 X3))))))
 \end{aligned} \tag{1}$$

Assume the following.

$$\begin{aligned}
 & \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 X0)) \Rightarrow (k4_oppcat_1 X0 (k3_oppcat_1 X0 X1) = X1))
 \end{aligned} \tag{2}$$

Assume the following.

$$\begin{aligned}
 & \forall X0. \forall X1.(((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 X0) \wedge (l1_cat_1 X0)))))))) \wedge (m1_subset_1 X1 (u1_struct_0 X0))) \Rightarrow (m1_subset_1 (k3_oppcat_1 X0 X1) (u1_struct_0 (k2_oppcat_1 X0)))
 \end{aligned} \tag{3}$$

Assume the following.

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\ X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\ X0) \wedge (l1_cat_1 X0)))))))))) \Rightarrow (\forall X1.(m1_subset_1 X1 (u1_struct_0 \\ X0)) \Rightarrow (k3_oppcat_1 X0 X1 = X1)) \end{aligned} \quad (4)$$

Theorem 1

$$\begin{aligned} \forall X0.((\neg v2_struct_0 X0) \wedge ((\neg v11_struct_0 X0) \wedge ((v2_cat_1 \\ X0) \wedge ((v3_cat_1 X0) \wedge ((v4_cat_1 X0) \wedge ((v5_cat_1 X0) \wedge ((v6_cat_1 \\ X0) \wedge (l1_cat_1 X0)))))))))) \Rightarrow (\forall X1.((\neg v2_struct_0 X1) \wedge ((\\ \neg v11_struct_0 X1) \wedge ((v2_cat_1 X1) \wedge ((v3_cat_1 X1) \wedge ((v4_cat_1 \\ X1) \wedge ((v5_cat_1 X1) \wedge ((v6_cat_1 X1) \wedge (l1_cat_1 X1)))))))))) \Rightarrow (\forall X2. \\ (m2_cat_1 X2 X0 X1) \Rightarrow (\forall X3.(m1_subset_1 X3 (u1_struct_0 X0)) \Rightarrow \\ (k3_funct_2 (u1_struct_0 (k2_oppcat_1 X0)) (u1_struct_0 X1) (\\ k7_cat_1 (k2_oppcat_1 X0) X1 (k10_oppcat_1 X0 X1 X2)) (k3_oppcat_1 \\ X0 X3) = k3_funct_2 (u1_struct_0 X0) (u1_struct_0 X1) (k7_cat_1 \\ X0 X1 X2) X3)))) \end{aligned}$$